TURKEY

GEOTHERMAL DEVELOPMENT PROJECT (P151739)

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

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1. INTRODUCTION

Maximizing exploitation of domestic primary energy resources and securing sufficient, reliable and affordable energy to a growing economy in an environmentally sustainable manner has been, and remains, the Turkish government's core energy policy priority. In this context, the government of Turkey has set a target of developing 1,000 MW of geothermal electricity generation capacity by 2023 (National Renewable Energy Action Plan, 2023) and has put in place a supportive legal framework to facilitate geothermal development.

Besides an enhanced supporting regulatory framework, the exploration activities conducted by the General Directorate of Mineral Research and Exploration of Turkey (MTA) have been a critical driver behind geothermal development in the country. However, despite the critical role played by MTA in development of the sector, it no longer has the resource and mandate to undertake extensive geothermal exploration drilling and thus assume the significant resource risk associated to early stage geothermal exploration, including exploration drilling. This has resulted in a significant slowdown in new geothermal exploration activities since most private investors who have acquired exploration licenses have limited technical/geological expertise and financial capacity for taking on such risks and confirm the presence of a source of geothermal energy and validate its commerciality (i.e. a level of productivity measured as MW of energy per well sufficient to ensure a positive return on investment). The lack of commercial debt and equity financing not only for the exploration, but also for the resource development phase, makes many license holders unable to develop their geothermal prospects.

In this context, the Government of Turkey is committed to support the private sector to further scale up geothermal development and aims to do so by creating a mechanism to share the resource risk associated to the validation of geothermal resources and to facilitate financing for the resource development and construction phases of geothermal project development. The Geothermal Development Project (GDP) has been conceived to support the GoT create and implement those mechanism.

Objectives and Components of the Geothermal Development Project

The primary objective of the GDP is to scale up private sector investment in geothermal energy development in Turkey. This will be achieved (i) by reducing the risks taken on by the private sector in the exploratory phases, and (ii) by providing access to long-term financing for the resource development phases. The project consists of two components:

The first component, a Risk Sharing Mechanism for Resource Validation (RSM) (USD 40 million, financed by the Clean Technology Fund) aims to promote private sector development of geothermal energy projects in the early stage exploratory and confirmation drilling stages by sharing the risk of failing to validate a geothermal resource among two parties: the administrator of a Risk Sharing Mechanism (RSM), capitalized by a CTF grant, and the geothermal developer (i.e. the Beneficiary). In case a well fails to yield outputs at a pre-agreed level between the RSM and the Beneficiary, the RSM will cover a pre-defined percentage of the drilling expenditures incurred by the license holder. Development Bank of Turkey (TKB) will be the implementing

agency for the RSM. This component will also finance technical assistance activities in order to address relevant capacity building needs.

The second component, a Loan Facility for Resource Development (USD 316 million total; USD 250 million IBRD loan, USD 66 million TSKB/TKB co-financing), aims to address the financing gap that license holders face today in the resource development stages of geothermal project development by providing debt financing to encourage and support both license holders and financiers investing in (i) the capacity/production drilling stage and (ii) the steam gathering and power plant construction stage. This component will capitalize a credit line to the Industrial Development Bank of Turkey (TSKB)/Development Bank of Turkey (TKB), who on-lend at market rates, but offer longer tenors than currently available in the market, to geothermal developers at the capacity drilling, and to a secondary extent, at the construction stage. Once the capacity drilling stage is completed, TSKB/TKB will be required to publicly disclose basic information about the potential project including sponsor, location, expected capacity and basic investment outline in order to expand the financing opportunities of the project sponsor and to avoid market distortion through limits on access to information.

The Loan Facility will be open to any geothermal development that has reached the capacity drilling stage, regardless of whether it benefited or not from the Risk Sharing Mechanism under Component 1.

BOX 1 LICENSING OF GEOTHERMAL DEVELOPMENT PROJECTS

Exploration License

Geothermal exploration (including drilling works) is subjected to Turkish Environmental Impact Assessment (EIA) Regulation and treated as Annex II project. Therefore, before exploration license application, a Project Information File (PIF) which provides information about exploration site, environmental impacts and mitigation measures, together with official opinions about relevant agencies (State Hydraulic Works, Ministry of Culture and Tourism, etc.) should be prepared and submitted to Provincial Directorates of Environment and Urbanization (PDoEU). After having "EIA not Required" decision of PDoEU, the project owner applies to the Provincial Special Administration (or Governorate at Metropolitan Municipality Areas) for the license with information about exploration project, stating the plate name and its coordinates drawn to a scale of 1/25000. Size of the licensing area does not exceed 5,000 acres.

The duration of an exploration license is three (3) years, commencing as of the date of the registration of the license and may be extended up to one (1) year with the consent of the Provincial Special Administration (or Governorate), on the condition that the revised project is found to be satisfactory. After acceptance of the license extension, General Directorate of Mining Affairs (MIGEM) is informed.

Operating License

Exploration license holder (project owner) applies to the Administration for an operating license before the expiration date of the exploration license. The project owner must specify a deadline to initiate the operation. The failure to start the operation before the specified term will give rise to the cancellation of the licenses and the guarantee deposited will be recorded as revenue by the State. The project owner cannot make any amendment with regard to the project without the consent of the Provincial Special Administration (or Governorate). The duration of the license is thirty (30) years, commencing as of the date of the registration of the license and may be extended up to further ten (10) years. After receiving the operating license, the project owner should obtain other required permits, including "EIA not Required" or "EIA Positive" decision. In that respect EIA studies should be started within three (3) months, otherwise the license may be cancelled. The EIA report is also required by EMRA in order to obtain energy generation license.

Operation must be conducted under the supervision of an engineer from a related field as a technical responsible person. In the absence of such engineer during the operation, the amount deposited as a guarantee will be deemed to be recorded as revenue by the State and the operation will be suspended. Moreover, the technical responsible person must prepare operating and prospecting report to be submitted annually to the Provincial Special Administration (or Governorate) until the end of March and every other consecutive year.

BOX 2 PHASES OF GEOTHERMAL PROJECT DEVELOPMENT (FOR POWER GENERATION)

The development of a geothermal power project is commonly broken down in the four phases summarized below:

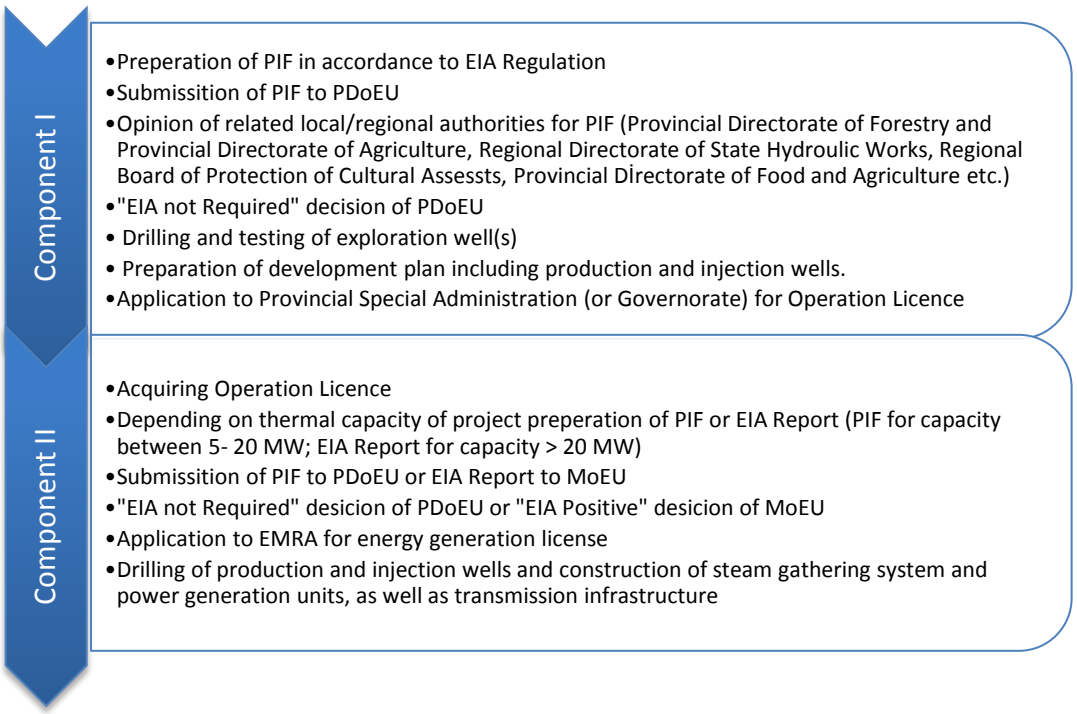
I. Exploration Phase – This phase will establish the location, size and quality of the geothermal reservoir; activities conducted include surface exploration, followed by exploration and confirmation drilling.

II. Resource/Field Development Phase – This phase includes the drilling of the wells, which will be used to extract the geothermal resource from the reservoir and confirm its commercial viability for energy generation production; activities conducted are capacity drilling (also called production drilling) and development of steam gathering system.

III. Power Plant Development Phase – This phase consists of the final design and construction of the power plant that utilizes the geothermal energy.

IV. Facility Operations Phase – This phase includes the operation and maintenance of the steam gathering systems and the power plant.

FIGURE 1: RELATED ACTIVITIES OF COMPONENT I & COMPONENT II



2. ENVIRONMENTAL FRAMEWORK

An Environmental and Social Management Framework (ESMF) sets a technical guidance in organizing and handling environmental and social assessment and management for projects whose specific location and characteristics (e.g. dimensions, design) are yet to be defined. The ESMF presents the necessary compliance requirements for prospective investments to achieve approval of national laws as well as the provisions of the World Bank Environmental Operational Policies (4.01 and 4.04, a separate Resettlement Policy Framework is prepared for OP 4.12 needs).

Geothermal energy is a renewable source of energy, which reduces pressure on declining fossil fuel sources while contributing to protection of ambient air quality by helping reducing emissions of pollutants. Geothermal energy, like other renewable energy sources, also has potential adverse environmental and social impacts.

2.1. DESCRIPTION OF POTENTIAL IMPACTS

Exploration phase

Drilling is the most effective method in geothermal exploration. Slim and shallower holes as compared to production wells are often drilled, in many cases not deeper than 1,000 m. However, medium-size or full-size exploration wells are also often drilled as exploration and confirmation wells, which can later be used as production or reinjection wells. Temperature gradients and other geothermal characteristics are measured to provide information for determining and estimating the geothermal potential. Prior to drilling, surface exploration activities such as resistivity and seismic measures are carried out in order to produce a first conceptual model of the geothermal reservoir and locate the most appropriate targets for exploratory drilling.

Impacts from surface exploration activities are expected to be minimal or non-existent. Potential impacts from exploratory drilling activities will be similar to those of production/capacity drilling and are discussed below.

Resource Development and Power Plant Development Phases

The main components of a geothermal power project are production wells, reinjection (or recharge) wells, brine and condensate pipelines, pumping station(s), and the power plant. There will be also new access roads and land clearing as necessary to facilitate development. Opening production and reinjection wells requires deep drilling. Well depth can vary greatly depending on the characteristics of the reservoir and the location of the resource from about 1,000 m to over 2,500 m.

Most potential environmental and social impacts of geothermal development are associated to the resource and power plant development phases. A summary of such impacts is presented below:

a) Fluids involved in geothermal drilling and production

Effluents of geothermal development projects can be classified as i) drilling fluids; ii) spent geothermal fluids; iii) reject water from injection wells; iv) well cleaning water (for clogging); and v) domestic wastewater.

i. *Drilling Fluids:* Freshwater is commonly used as a drilling fluid (circulation water) during drilling in the production zone of the reservoir. The purpose of the drilling fluid is to cool and lubricate the drilling equipment and carry rock cuttings out of the well. In some cases synthetic drilling polymers are injected to form high-viscosity polymer slugs to facilitate clean-out. Commonly used drilling polymers include xanthan gum and starch and cellulose derivatives. Geothermal water extracted during well testing period is also considered as a drilling fluid. In some cases, geothermal water may be saline and contain elevated concentrations of components such as Arsenic and Boron.
ii. *Spent Geothermal Fluids:* These effluents consist of water from steam separators and condensate derived from spent steam condensation following power generation.
iii. *Reject Water from Injection Well:* These effluents are produced during reinjection of geothermal water. This is a small amount, which is rejected by the geothermal source due to pressure.
iv. *Cleaning Water:* During the operation of wells, periodical cleaning is sometimes done using chemicals including strong acids, most commonly hydrochloric acid. The acids dissolve and remove mineral deposits from the wells and the surroundings. Before wells are subjected to acid treatment, it needs to be ensured that the well casings are leak proof to prevent any leakage of the acids to shallow groundwater aquifers. The acids are partially neutralized by dissolving the deposited minerals and then diluted through post-injection of fresh water or geothermal brine and finally by mixing with geothermal fluids in the reservoir before discharge.
v. *Domestic Wastewater:* These effluents are produced as a result of daily activities of workers during surface exploration, drilling and operation of a geothermal project.

b) Drilling Mud

Water based drilling mud is sometimes used as a drilling fluid in geothermal drilling, particularly when drilling through the cap rock of the reservoir. Drilling mud typically consists of water mixed with bentonite (a natural clay). Additives are used to control the viscosity and density of the mud. These additives include xanthan gum and starch and cellulose derivatives for viscosity control and solid barium sulfate for density control. The drilling mud is recycled during drilling and the rock cuttings are separated from the mud in on shaker boards. Drilling muds are processed with activated carbon, and reused.

If the rock cuttings consist of environmentally benign rock types they can be disposed of in landfills. This is a practical and economical way to dispose of solid waste materials that can be used in most cases. However, cuttings may be classified as hazardous depending on the concentration and potential for leaching of silica compounds, chlorides, arsenic, mercury, vanadium, nickel, and other heavy metals. In such cases, cuttings need to be disposed of appropriately.

Oil based drilling mud is very rarely used in geothermal drilling. Cuttings from oil-based drilling mud are of much greater environmental concern due to the content of oil-related contaminants. In the unlikely case oil based drilling mud would be used for geothermal drilling it may be necessary to apply special on-site or off-site treatment before disposal.

c) Groundwater

Potential impacts on groundwater during the different phases of a geothermal project can range from low to high. Survey activities would typically have little or no impact on groundwater. If geothermal drilling is carried out according to best practices regarding use of drilling fluids and

well casing, it is very unlikely that geothermal water can contaminate ground water aquifers. However, casing failures in either production or reinjection wells may create pathways for geothermal fluids to mix with groundwater at shallow levels. The depth of the casing leak will determine whether the geothermal fluids will flow out of the well or groundwater will flow into it. Casing leakages will, in both cases, reduce the productivity of the geothermal wells and may degrade the quality of shallow groundwater aquifers. If important freshwater aquifers overlie geothermal reservoirs that are under production it is important to install monitoring wells to monitor ground water composition and temperature. It is particularly important to ensure that well casings are leak proof in wells that undergo acid treatment for mineral deposit removal.

Extracting geothermal fluids could also cause drawdowns in connected aquifers, potentially affecting flow from geothermal springs. The potential for these types of adverse effects is moderate to high depending on the hydrological conditions. This impact can be reduced through extensive aquifer testing and proper geothermal development planning. Monitoring wells should also be opened to monitor water levels. In terms of the quantity of resource, cumulative impacts that are caused by multiple producers (i.e. sponsors) using the same reservoir are important, and should be taken into consideration when there are two or more geothermal projects in same geothermal reservoir.

d) Surface water sources

Impacts on water resources during the different stages of project development would range from low to high. Surface exploration activities would have little or no impact on surface water.

Temporary impacts on surface water may also occur as a result of the release of geothermal fluids during well testing, if they are not contained. Geothermal fluids are hot and often highly mineralized and, if released to surface water, could cause thermal changes and changes in water quality. Accidental spills of geothermal fluids could occur due to well blowouts during drilling, leaks in piping or wellheads, or overflow from sump pits.

Additionally, surface or groundwater use can be necessary during exploration, well drilling and facility operation. Furthermore, depending on the operation of facility, water can be used in cooling system.

Surface and groundwater quality may also be adversely affected due to direct discharge of wastewater. Treatment or connection to municipal network should thus be made where necessary.

e) Solid Waste

Geothermal exploratory drilling projects do not generate substantial amounts of solid waste. Apart from drilling mud, other wastes produced by drilling include used oil and filters, spilled fuel, spent and unused solvents, scrap metal, pipe dope, etc.

Similar waste will be produced during construction (including capacity drilling) and operation of a geothermal project. Sulfur, silica, and carbonate precipitates are other typical wastes collected from cooling towers, air scrubber systems, turbines, and steam separators.

Domestic solid waste, packaging waste, non-hazardous wastes (e.g. paper, plastic and glass) can be generated as well. These types of waste can also result in deterioration of soil and groundwater quality unless they are stored separately, and disposed of properly.

f) Noise

Primary sources of noise associated with exploration and drilling wells include drill rig operations, seismic surveys, blasting, earth-moving equipment (related to road, well pad, and sump pit construction), and vehicle traffic.

g) Air emissions

Presence and concentration of potential air pollutants varies depending on the characteristics of the geothermal resource. Some of the toxic air pollutants such as hydrogen sulfide and mercury can be contained in geothermal fluids. Besides these chemicals, geothermal fluids can also contain environmentally sensitive gases such as carbon dioxide and methane. Mainly release of these gases can lead to occupational health and safety problems, especially in confined spaces within power plants and wellhead cellars and during initial discharge. However, depending on the chemical characteristics of geothermal resource, release of these gases can lead major air emissions and corresponding impacts. Greenhouse gas (GHG) emission from geothermal projects is commonly smaller as compared to fossil fuel combustion sources. Some geothermal fields can, however, have high GHG emissions as a result of specific geological conditions.

During preparation of the Project, it became clear that geothermal power plants located in the Menderes and Gediz grabens in Turkey have relatively high CO2 emission factors. Assessments based on nine active geothermal plants in the Aegean region show emissions ranging from 400 to 1,300 g/kWh, with a weighted average of 1050 g/kWh1. These values are about an order of magnitude higher than the global average emission factor for geothermal power plants, 122 g/kWh2 (see box 2). This is a result of the unique and unusual geological setting of the Turkey's Aegean region geothermal systems, where high temperatures are present in carbonate rock dominated geology. In all likelihood, based on available data, this problem will not arise to a similar extent outside of those two grabens. Since geothermal is largely considered a non-CO2 emitting renewable energy source, there are currently no regulations in Turkey that constrain CO2 emissions from geothermal power plants and developers are not required to monitor or report their gas emissions either. However, facilities to capture geothermal CO2 are already installed at three power plants in the Menderes graben, with the gas being sold to the food and beverage industries.

Air emissions can occur during well drilling and flow testing activities. The open contact condenser / cooling tower systems is another source of air emissions during operation of the power plant. Well-field and plant-site vent mufflers can also be potential sources of hydrogen sulfide emissions, primarily during upset operating conditions when venting is required.

h) Well blowouts and pipeline ruptures

Although not common, well blowouts can occur during the drilling and operation stages of a geothermal project. These accidents can cause release of toxic fluids containing chemicals and heavy metals, and gases (i.e. hydrogen sulfide). Pipeline ruptures can also occur during drilling and operation. Such failures may also result in precipitation of minerals (silica and calcium

[1] Aksoy N., "Power generation from geothermal resources in Turkey", *Renewable Energy*, vol. 68, 2014.
[2] Bertani R., Thain I. "Geothermal power generating plants, CO2 emissions survey", *IGA News*, 49, 2002.

carbonate) and release of geothermal liquid and steam containing heavy metals, acids, and other pollutants into the surface environment.

i) Natural resources and natural habitats

In general, impacts on ecological resources can be low to moderate and localized during exploration, drilling and plant operations. Activities such as site clearing and grading, road construction, well drilling, ancillary facility construction, and vehicle traffic have the potential to affect ecological resources by disturbing habitat, increasing erosion and runoff, and creating noise at the project site.

Depending on the project location, natural habitats may be important concern in terms of project impacts and a major constraint for site selection.

j) Land use

In general, impacts on land use due to geothermal activities are temporary and localized. These activities could create a temporary disturbance in the immediate vicinity of surveying or drilling sites. The magnitude and extent of impacts from constructing access roads would depend on the current land use in the area. All other uses of land under well pads would be precluded as long as they are in operation. Surface exploration activities are unlikely to affect mining, energy development activities or livestock grazing on surrounding lands.

Land clearance and stripping may result in loss of vegetation and topsoil. Hence, good management practices should be implemented in order to minimize such impacts, and reinstatement should be made where necessary. Loss of vegetation and significant alteration of topography during excavation for site leveling may cause soil erosion and transport of soil into surface water bodies. The latter may result in increased turbidity and hence poor aquatic habitat quality.

k) Well abandonment

At the end of operation of a well or if a well fails to provide thermal groundwater, well should be closed with concrete. This will protect other aquifers and living things from adverse impacts of hazardous gases and other hazardous substances that may originate from well.

l) Cultural resources

Geothermal development activities may cause impact on physical cultural resources known to be of local, regional or national significance based on proposed national or provincial lists identified during public consultation with local affected groups.

m) Expropriation

From social point of view, development of geothermal resources may involve occupation of large areas depending on the scale of project (i.e. number of wells, length of pipelines, and size of power plant and separator stations). Hence, a land acquisition process is implemented. Where the project area is not government property, expropriation is required, which may be among the major impacts associated with geothermal development, similar to the case in other energy generation investments.

n) Other social impacts

The construction period may create impacts on the current infrastructure such as roads and irrigation. Also, access to public services may be limited in case road infrastructure is damaged especially during construction of pipelines. There may be also population influx to project area and creation of new job opportunities and increase in local economic livelihoods. Positive aspects of geothermal development projects may be enhanced by providing such services to nearby communities. These include providing heating to the nearest settlements and/or industries or farms. This may be advantageous in terms of project costs if it results in removal of condenser from project formulation.

o) Occupational Health and Safety

Major health and safety issues in geothermal projects comprise the potential for exposure to i) geothermal gases; ii) confined spaces; iii) heat; and iv) noise. In addition, the use of acids for well cleaning should be conducted by taking all precautionary measures and by using protective equipment. Storage of these substances at the site should be done according to hazardous waste control regulation.

p) Community Health and Safety

Major community health and safety issues in geothermal projects include i) exposure to geothermal gases; ii) facility safety; and iii) impacts on water resources

2.2. DESCRIPTION OF MITIGATION OPTIONS

TABLE 1. ENVIRONMENTAL ISSUES AND RELATED MITIGATION MEASURES FOR DRILLING ACTIVITIES

Environmental Issue	Possible Impacts	Mitigation Measures
Effluent discharge	• Discharge of drilling fluids including extracted water from exploration and operational wells during testing. • Discharge of extracted water during well testing. • Cleaning Water • Discharge of domestic wastewater from camp site	• Storage of drilling fluids in a storage tank or sumps. If an earth based pond/sump is used for the storage, pond/sump should be lined with an impervious membrane • Reuse of drilling fluids where possible • Depending on chemical characteristics of drilling fluids, discharge to a receiving body. Discharge should comply with pertinent regulations • Removal of sumps or tanks in order to eliminate future release and contamination • Storage and disposal of domestic wastewater in line with related regulations
Drilling Mud	• Storage and disposal of drilling mud including cuttings	• Disposal of drilling mud depending on chemical characteristics. • Transfer, treatment and disposal of mud in accordance to Regulation on Control of Hazardous Wastes, if the mud classified as hazardous.
Groundwater	• Contamination of fresh groundwater resources in case of percolation of thermal	• Preliminary impact analysis and related mitigation measures (i.e. double casing) depending on literature survey about aquifer structure and groundwater use at exploration area as a part of PIF prepared in accordance to EIA Regulation.

Environmental Issue	Possible Impacts	Mitigation Measures
	groundwater during drilling and testing.	• Existing Groundwater users in the vicinity of the exploration well(s) (e.g. 1 km) can be identified. In addition, some of technical information about existing groundwater wells (e.g. depth, flow, etc.) can be collected. • Proper well casing and well casing material selection for groundwater aquifer section(s).
Solid Waste	• Storage and disposal of solid waste.	• Hazardous waste, waste oil, used accumulators and batteries, electrical and electronic wastes, recyclable wastes, domestic waste, medical wastes and etc. should be classified, separately stored and disposed in accordance to pertinent regulations.
Noise	• Seismic studies, drilling rig, generators, traffic, etc.	• Time work to minimize disturbance • Use appropriate construction methods & equipment • Restrict through-traffic in residential areas • Careful siting and/or design of plant, provide noise barriers e.g. embankments of waste soil
Air Emissions	• Possible toxic gas emissions during drilling and well testing (hydrogen sulfide, mercury etc.) • Dust emission due to site activities, arrangement of drilling rig area, construction of access roads, traffic etc.	• Depending on the characteristics of the source, on site toxic gas measurements, (i.e. hydrogen sulfide) • Appropriate design, training in O&M, safety • Safety planning and measures for uncontrolled gas releases • Control of dust with water suppression • Timing of works, vehicle speeds

Environmental Issue	Possible Impacts	Mitigation Measures
		• Minimization of major works inside communities
Natural Resources	• Disturbance of natural habitats from construction, e.g. dust, noise, un-seasonal working, poor siting of new works, disposal of untreated wastes, etc.	• Careful siting, alignment, design of rig sites, and/or timing of works (seasonal) • Selection of proper disposal areas and methods in line with related regulations • Protect sensitive areas within/close to site
Land Use and Soils	• Loss of topsoil during preparation of rig sites, construction of access roads or disposal of excavated materials • Damage to soil structure due to material storage, traffic, etc. • Erosion due to uncontrolled surface run-off where vegetation is cleared • Landslips on embankments or hillsides	• Stripping topsoil where necessary, store separately and replace post construction • Protection of non-construction areas • Avoiding work in sensitive areas in case highly adverse conditions • Providing temporary haul roads as appropriate • Restoration of damaged areas • Design of drainage and other disposal facilities to ensure soil stability and appropriate treatment • Design of slopes & retaining structures to minimize risk, provide appropriate drainage, soil stabilization/vegetation cover • Take/dispose of materials from/at approved sites
Well Blowouts	• Well blowout during drilling	• Design of emergency response for well blowout including measures for containment of geothermal fluid spills.

Environmental Issue	Possible Impacts	Mitigation Measures
Water Resources	• Possible over flow from mud pit. • Discharge of test water. • Contamination/pollution of resource, drilling chemicals, fuel & oil, hazardous wastes, wastewater, etc.	• Determination of sustainable use/yield (test as required) in order to assess impact on neighboring projects. • Resource planning and management, in conjunction with authorities & communities • Careful design – maintaining of natural drainage where possible, provide suitable wastewater drainage, safe/sanitary disposal of hazardous wastes • For the projects which apply to FIs for power plant construction and operation, the FI will make sure that company fully complied with this ESMF and national regulations (drill mud disposal, test water discharge, etc.) during exploration drilling and capacity drill (test) phase.
Social Components	• Concerns and complaints of affected communities	• Consultation on risks and adverse impacts of the project and creation of opportunities to receive affected communities' views on project • Establishment of grievance mechanism to collect and facilitate resolution of affected communities' concerns and grievances regarding the sponsor's environmental and social performance. • Transparent public disclosure to inform each phase of the project through web site, notice boards, telecommunication tools and public meetings. • Establishing well designed and structured public questionnaire to receive feedback from affected communities
Aesthetics and Landscape	• Local visual impact of completed works and some intrusions into general manmade and natural	• Careful siting and design of works, screening of intrusive items • Replantation and afforestation.

Environmental Issue	Possible Impacts	Mitigation Measures
	landscape, loss of trees, vegetation, etc. • Noise, dust, wastes, etc., during drilling operations	• Careful de-commissioning of drilling rig areas and disposal of wastes
Occupational Health and Safety	• Toxic gas emissions during drilling • Non-routine exposures include potential blowout accidents during drilling	• Installation of hydrogen sulfide monitoring and warning systems. • Development of a contingency plan for hydrogen sulfide release events, including all necessary aspects from evacuation to resumption of normal operations • Provision of an emergency response teams, and workers at drilling rig, with personal hydrogen sulfide monitors, self-contained breathing apparatus and emergency oxygen supplies, and training in their safe and effective use • Provision of adequate ventilation of occupied buildings to avoid accumulation of hydrogen sulfide gas • Providing workers with a fact sheet or other readily available information about the chemical composition of liquid and gaseous phases with an explanation of potential implications for human health and safety • Shielding surfaces where workers come in close contact with hot equipment, including generating equipment, pipes etc.; • Use of personal protective equipment (PPE) as appropriate, including insulated gloves and shoes • Implementing appropriate safety procedures during the exploratory drilling process

Environmental Issue	Possible Impacts	Mitigation Measures
Human Health	• Toxic gas emissions during drilling • Unauthorized site access to drilling rig. • Hazardous chemicals may accumulate in ponds where reject thermal water to be re-injected to reservoir is collected	• Installation of hydrogen sulfide monitoring and warning systems • Siting of potential significant emissions sources with consideration of hydrogen sulfide gas exposure to nearby communities (considering key environmental factors such as proximity, morphology and prevailing wind directions) • Continuous operation of the hydrogen sulfide gas monitoring systems to facilitate early detection and warning • Fencing around well sites, open ponds and mud pits • Emergency planning involving community input to allow for effective response to monitoring system warnings
Historical / Cultural Sites	• Disturbance/damage/degradation to registered and undiscovered sites	• Careful siting/alignment of works; special measures to project known resources/areas • Immediately halt work in vicinity of discoveries, pending instructions from relevant museum directorates

TABLE 2. ENVIRONMENTAL ISSUES AND RELATED MITIGATION MEASURES FOR POWER PLANT DEVELOPMENT AND OPERATION OF THE GEOTHERMAL PROJECT

Environmental Issue	Possible Impacts	Mitigation Measures
Effluents	• Discharge of spent geothermal fluids • Discharge of reject water from reinjection wells • Cleaning Water • Discharge of domestic wastewater from operational building	• Evaluation of potential environmental impacts of geothermal fluid discharges depending on the selected cooling system and identification of related mitigation (i.e. gas capture and treatment, changing the cooling system type etc.) • Effluent discharge quality should be consistent with related regulations, if all geothermal fluids are not re-injected geological formation • In case of regulatory requirement, treatment of geothermal fluids before discharge • Groundwater contamination potential should be minimized by installation of leak-proof well casings in the re-injection wells to a depth to the geological formation. • Reuse of opportunities of reject geothermal fluids • Storage and disposal of domestic wastewater in line with related regulations
Groundwater	• Contamination of fresh groundwater resources during reinjection process • In case the use of groundwater for cooling and other operational purposes, over-exploitation can cause irreversible impacts on groundwater source.	• Detailed analysis of aquifer structure and existing groundwater use at development area • Determination of existing groundwater users in the vicinity of the operational wells (e.g. 1 km) should be identified. In addition, some of technical information about existing groundwater wells (e.g. depth, flow, etc.) should be collected • Source vulnerability analysis for groundwater wells (in case the use of ground water for cooling purpose)

Environmental Issue	Possible Impacts	Mitigation Measures
		• Drilling of monitoring wells and groundwater analysis • Periodical monitoring of groundwater in terms of possible contamination • Careful design and site selection of reinjection wells • Proper well casing and well casing material selection for groundwater aquifer section(s).
Solid Wastes	• Storage and disposal of solid wastes • Storage and disposal of sulfur, silica, and carbonate precipitates collected from cooling towers, air scrubber systems, turbines, and steam separators	• Hazardous wastes, waste oil, used accumulators and batteries, electrical and electronic wastes, recyclable wastes, domestic waste, medical wastes and etc. should be classified, separately stored and disposed in accordance to pertinent regulations
Noise	• Noise disturbance from construction works, separator station, pump houses and power plant	• Time work to minimize disturbance • Use appropriate construction methods & equipment • Restrict through-traffic in residential areas • Careful siting and/or design of plant, provide noise barriers
Air Emissions	• Possible toxic gas emissions in case not re-injected to geological	• Depending on the characteristics of the source, on site toxic gas measurements, (i.e. hydrogen sulfide, mercury)

Environmental Issue	Possible Impacts	Mitigation Measures
	formation by using closed system. - open contact condenser / cooling tower systems - extraction well sites and plant-site - vent mufflers • Dust emission due to site activities, arrangement of drilling rig areas, construction of power generation unit, access roads, traffic etc.	• Consideration of total or partial re-injection of gases with geothermal fluids • Using closed non-contact cooling alternatives • Depending on the characteristics of source, venting of toxic chemicals (i.e. hydrogen sulfide and non-condensable volatile mercury) in line with current regulations • Depending on the characteristics of source, removal of possible toxic chemicals from non-condensable gases • Appropriate design, training in O&M, safety • Safety planning and measures for uncontrolled gas releases • Installation of shutoff valves • Control of dust with water suppression • Timing of works, vehicle speeds • Minimization of major works inside communities
Natural Resources	• Disturbance of natural during construction of power plant unit, (e.g. dust, noise, unseasonal working, poor siting, disposal of untreated wastes, etc.)	• Careful siting, alignment, design of rig sites, pipelines and power plant area, and/or timing of works (seasonal) • Selection of appropriate disposal areas and methods • Protect sensitive areas within/close to site

Environmental Issue	Possible Impacts	Mitigation Measures
Land Use and Soils	• Loss of topsoil during preparation of power plant site, construction of access roads or disposal of excavated materials • Damage to soil structure due to material storage, traffic, etc. • Erosion due to uncontrolled surface run-off where vegetation is cleared • Landslips on embankments or hillsides	• Strip topsoil where necessary, store separately and reinstate • Protect non-construction areas, avoid work in sensitive areas during highly adverse conditions, provide temporary haul roads as appropriate, restore damaged areas • Design of drainage and other disposal facilities to ensure soil stability and appropriate treatment • Design of slopes & retaining structures to minimize risk, provide appropriate drainage, soil stabilization/vegetation cover • Take/dispose of materials from/at approved sites
Well Blowouts	• Well blowout during operation	• Design of emergency response for well blowout and pipeline raptures including measures for containment of geothermal fluid spills • Regular maintenance of wellheads and geothermal fluid pipelines, - corrosion control and inspection - pressure monitoring - use of blowout prevention equipment (e.g. shutoff valves)
Water Resources	• Possible over flow from mud pit. • Discharge of test water	• Resource planning and management, in conjunction with authorities & communities • Careful design - maintain natural drainage where possible, provide suitable wastewater drainage, safe disposal of hazardous wastes

Environmental Issue	Possible Impacts	Mitigation Measures
	• Discharge of spent geothermal fluids • Contamination/pollution of resource, drilling chemicals, fuel & oil, hazardous wastes, wastewater, etc.	• Periodical monitoring of discharge and ambient environment in accordance to chemical characteristic of geothermal water
Social Components	• Concerns and complaints of affected communities	• Consultation on risks and adverse impacts of the project and create opportunities to receive affected communities view on project • Establishment of grievance mechanism to collect and facilitate resolution of affected communities' concerns and grievances regarding the sponsor's environmental and social performance. • Transparent public disclosure to inform each phase of the project through web site, notice boards, telecommunication tools and public meetings. • Establishing well designed and structured public questionnaire to receive feedback from affected communities
Aesthetics and Landscape	• Local visual impact of completed works and some intrusions into general manmade and natural landscape, loss of trees, vegetation, etc.	• Careful siting and design of works, screening of intrusive items • Replantation and afforestation. • Careful de-commissioning of drilling rig areas and disposal of wastes

Environmental Issue	Possible Impacts	Mitigation Measures
	• Noise, dust, wastes, etc., during and construction and operation	
Occupational Health and Safety	• Toxic gas emissions during operation of power plant • Non-routine exposures include potential blowout accidents during operation	• Installation of hydrogen sulfide monitoring and warning systems. • Development of a contingency plan for hydrogen sulfide release events, including all necessary aspects from evacuation to resumption of normal operations • Provision of an emergency response teams, with personal hydrogen sulfide monitors, self-contained breathing apparatus and emergency oxygen supplies, and training in their safe and effective use • Provision of adequate ventilation of occupied buildings to avoid accumulation of hydrogen sulfide gas • Providing workers with a fact sheet or other readily available information about the chemical composition of liquid and gaseous phases with an explanation of potential implications for human health and safety • Shielding surfaces where workers come in close contact with hot equipment, including generating equipment, pipes etc.; • Use of personal protective equipment (PPE) as appropriate, including insulated gloves and shoes • Implementing appropriate safety procedures during operation

Environmental Issue	Possible Impacts	Mitigation Measures
Human Health	• Toxic gas emissions during operation • Unauthorized site access power plant site • Hazardous chemicals may accumulate in ponds where reject thermal water to be re-injected to reservoir is collected	• Installation of hydrogen sulfide monitoring and warning systems • Siting of potential significant emissions sources with consideration of hydrogen sulfide gas exposure to nearby communities (considering key environmental factors such as proximity, morphology and prevailing wind directions) • Continuous operation of the hydrogen sulfide gas monitoring systems to facilitate early detection and warning • Fencing around well sites, open ponds and mud pits • Emergency planning involving community input to allow for effective response to monitoring system warnings
Historical / Cultural Sites	• Disturbance/damage/degradation to registered and undiscovered sites • Unique geological formations such as Pamukkale in Denizli, Turkey may be adversely affected in case thermal water feed is interrupted during operation of groundwater wells	• Careful siting/alignment of works; special measures to project known resources/areas • Immediately halt work in vicinity of discoveries, pending instructions from relevant museum directorates

3. TURKISH AND WB REQUIRMENTS AND KEY DIFFERENCES

The Turkish Regulation on EIA

The Regulation on Environmental Impact Assessment (henceforth "EIA Regulation") (Official Gazette No. 29186, November 25, 2014) governs environmental impact assessment of investment projects in Turkey and is largely in line with the EU Directive on EIA. Below, the key relevant steps of Turkish EIA procedure namely screening, public consultation, scoping, disclosure and supervision are reviewed briefly in the order in which they are prescribed to occur:

a) Screening:

The EIA Regulation classifies projects into two categories

- *Annex I projects*. These are projects that have significant potential impacts and *require* an EIA. Annex I of the EIA Regulation lists these projects types, so project proponents are expected to start the EIA procedure without any other screening process; and
- *Annex II projects*. These are projects that may or may not have significant effects on the environment. Annex II of the EIA Regulation lists these projects types. Proponents of Annex II projects are required to submit a Project Information File (PIF) to PDoEU. The PIF is prepared following the General Format for PIF provided in Annex IV of the EIA Regulation and contains information on (i) project characteristics; (ii) Project site and environmental characteristics of the project; and (iii) significant impacts of the project and measures to be taken. A non-technical summary of the above items is also to be added to the PIF. On the basis of the PIF and the Selection and Elimination Criteria specified in Annex IV of the EIA Regulation, PDoEU determines whether an EIA is necessary.

  Table 3 lists the Project components that will be considered for funding under the GDP and their category according to the EIA Regulation.

TABLE 3. PROJECT TYPES AND THEIR CATEGORIZATION ACCORDING TO TURKISH EIA REGULATION

Investment Area	Annex I	Annex II
Exploration (surface and drilling) of Geothermal Resources	-	• Mine, petroleum and geothermal resource exploration projects (except seismic, electricity, magnetic, electromagnetic, geophysics, etc. methodologies)
Early Geothermal Development Financing Mechanism	• Discovering or producing geothermal resources for electrical energy production (thermal capacity of 20 MW and above).	• Producing geothermal resources for electrical energy production (thermal capacity of 5 MW and above).

Source: Republic of Turkey, Regulation on EIA (Official Gazette No. 29186, November 25, 2014)

b) Public consultation meeting:

For projects that require the preparation of an EIA, the Governorate is required to inform the public that a project application has been submitted in a specified locality, that the EIA process has begun and that the public may submit its comments and suggestions to the Governorate or MoEU. The announcement is made using a variety of methods, including the internet, bulletin boards and loudspeaker announcements. MoEU informs the public of the same through the internet.

A formal public consultation meeting occurs for projects that are subject to an EIA after the screening process and prior to scoping. The project proponent organizes a "public-participation meeting" chaired by a MoEU's provincial director in a location that affected local groups can access easily. The invitation to the meeting is published in a national and a local newspaper at least ten days prior to the meeting. There is no requirement that information on the project should be provided to the public, except for the subject matter of the meeting, in advance. However, the EIA Regulation specifies that during the meeting, which is chaired by the Director or a member of MoEU's provincial directorate, it should be ensured that the public is informed about the project, and its comments and suggestions regarding the project are obtained. The meeting chairperson may request comments in writing too. Minutes of the meeting are kept and submitted to MoEU and the Governorate. The Governorate is required to inform the public about the timeframe for submission of public comments and suggestions. Such comments and suggestions are submitted to the EIA commission.

For Annex II projects, which are subject to preliminary environmental impact assessment, there is no public participation process.

c) Scoping:

The project proponent presents a project dossier (PIF for Annex II projects or using the PIF outline for Annex I projects) to a commission, which comprises representatives of MoEU and relevant organizations as identified by MoEU. Based on the information submitted, the commission determines the scope of the EIA and the 'project specific format" which follows the outline of the "general format" used for the PIF, furthermore, the commission may exclude or include some items depending on the specific characteristics of the proposed project. The commission also determines the level of detail under each heading depending on the special project's environmental impacts. In this process, the commission takes into consideration of the opinions expressed during the public participation meeting.

d) Review and approval of the EIA report:

As mentioned previously, the commission revises the draft version of the EIA report. . In its review, the commission assesses (i) the adequacy of the EIA report and its annexes; (ii) whether the analyses, evaluations or calculations were adequately substantiated by relevant data and documentation; (iii) whether the potential environmental impacts of the project were evaluated in adequate scope and depth; (iv) whether measures necessary to prevent or mitigate negative environmental impacts have been identified; (v) whether the public participation meeting was carried out in accordance with prescribed procedures and the issues brought up during the meeting were adequately addressed in the report. While the EIA identifies a project's environmental impacts and mitigation measures, it does not specify costs and institutional responsibilities associated with these mitigation measures. Neither does the EIA include a monitoring plan. The final EIA report, which incorporates the commission's assessments, is then submitted to the MoEU for final review. MoEU determines whether the "EIA is positive" in which case the project proponent may implement the project or "EIA is negative" in which case the project may not go any forward.

e) Disclosure:

The draft EIA report is made available to the public for comments at Central MoEU or provincial directorate. After MoEU's final evaluation of the EIA report, the Governorate announces to the public MoEU's decision together with its justifications. Disclosure of the final EIA document is not foreseen in the EIA Regulation.

f) Monitoring and inspection:

According to the EIA Regulation, MoEU monitors and inspects projects that were assessed either "not to need an EIA" or "to have a positive EIA" based on provisions specified in the PIF or the EIA, respectively. Furthermore, the project proponent is obliged to submit monitoring reports to MoEU, which transmits them to the Governorate for disclosure to the public. (The form or medium of this disclosure is not specified in the EIA Regulation.) In case MoEU determines non-compliance, the Governorate issues a warning. If after the granted time compliance is still not achieved the Governorate may suspend the operation of the plant in question.

The WB Environmental Assessment Policy

a) Project categories and screening

Under the WB's Operational Policy for Environmental Assessment (O.P. 4.01) projects are classified under Categories A, B and C according to the level of their likely impact on the environment:

- *Category A.* A proposed project is classified as Category A if it is likely to have significant adverse environmental impacts (based on type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts). These impacts are generally large-scale, irreversible, sensitive, diverse, cumulative or precedent setting and may affect an area broader than the sites or facilities financed by the project. For example, Category A projects have one or more of the following attributes: large-scale conversion or degradation of natural habitats; extraction, consumption, or conversion of substantial amounts of forest, mineral and other natural resources; direct discharge of pollutants resulting in degradation of air, water or soil; production, storage, use or disposal of hazardous materials and wastes; measurable changes in hydrologic cycle; risks associated with the proposed use of pesticides.
- *Category B.* A proposed project is classified as Category B if the potential impacts on the environment are typically site-specific, reversible in nature; less adverse than those of Category A projects and for which mitigation measures can be designed more readily. Projects in Category B sometimes differ only in scale from Category A projects of the same type. For example, large irrigation and drainage projects are usually categorized as A; however, small-scale projects of the same type may be categorized as B. The same can be true for small-scale, relatively clean (gas or light diesel oil fired) thermal power plants, micro hydro power plants, and small sanitary landfills. Similarly, projects that finance rehabilitating or maintaining an existing infrastructure may have adverse impacts, but are likely to be less significant compared to a Category A project, and would be categorized as B. Furthermore, Category B projects can be divided to two within its structure as B and B+ projects (this is a practical usage, this is not defined in OP 4.01 of WB Policy). Category B+ projects have relatively more impacts and mitigation measures comparing to Category B projects, yet the impacts and mitigation measures are not significant enough to be recognized as Category A projects.
- *Category C.* A proposed project is classified as Category C if it is likely to have minimal or no adverse environmental impacts. For example, technical assistance projects in institutional development, computerization and training fall in Category C.

When a WB-funded project involves a series of subprojects, which are selected and funded by a financial intermediary (FI) using WB loan proceeds, the project is classified as Category FI. In such projects, the FI screens and classifies the proposed subprojects as Category A, B, or C following the above definitions and ensures that the sponsor carries out the corresponding environmental assessment. Since the present project is an FI project, the following discussion will refer to subprojects only.

There are no clear cut border values distinguishing the categories or, unlike the Turkish EIA Regulation, any ready lists of project types for categorizing projects as A, B and C; rather projects are screened on a case by case basis. The GDP has been assigned as Category FI (Financial Intermediary) in accordance with World Bank safeguard policy OP/ BP/ GP 4.0 since TSKB and TKB have been assigned as FI for using WB loan proceeds. The sub-projects under Component 1 and Component 2 will be screened by FIs according to WB environmental safeguards and a consensus about final category will be reached with the Bank.

b) Scope of environmental assessment.

The scope and type of the environmental assessment (EA)[3] varies between Category A and B projects.

For Category A projects the borrower is required to prepare an ESIA which examines the project's potential negative and positive environmental impacts, compares them with those of feasible alternatives (including the "without project" situation), and recommends any measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance (see Table 1 and Table 2). ESIA also includes an environmental management plan (ESMP) which details the measures to be taken during the implementation and operation of a project to eliminate, reduce or offset adverse environmental impacts, the actions needed to implement these measures as well as monitoring indicators and actions and responsibilities (see Annex 1 for an ESMP format, and Annex 4 for EIA format).

The scope of environmental assessment document for a Category B subproject may vary from subproject to subproject, but is narrower than the ESIA required for Category A. Like Category A ESIA, it examines the subproject's potential negative and positive environmental impacts and recommends any measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance. If the project is recognized as B category, this information may be contained in an environmental and social management plan (ESMP) only unless there are site-specific issues which necessitating a site-specific assessment in addition to the ESMP. An example is modest scale building construction on a site in an urban area which would normally require only an ESMP if it is known that there are no environmental issues relating to the site. If it is construction on a greenfield site, a partial ESIA[4] would be needed to clarify whether there are any special environmental or social issues. The project could turn into Category A if EIA work shows likelihood of significant damage to natural habitat. On the other hand, if the project is recognized as B+, then partial ESIA is required to satisfy the expected requirements. (Attachments provided in Annex 1 provide sample ESMP formats for each of components to be financed under GDP).

[3] "Environmental assessment" is used as a general term here.

[4] For projects which may need a partial ESIA, the format will be similar to an elaborated ESMP. The project description section, impacts and mitigation sections should be more detailed in order to provide clear explanation about the significant of the impacts and the residual impacts after mitigation. The necessity of preparing a partial ESIA instead of an ESMP and the format of a partial ESIA will be decided by consulting the WB.

c) Public consultation

For all Category A and B projects proposed for WB financing, during the EA process, the borrower consults project-affected groups and NGOs about the project's environmental aspects and takes their views into account.

For category B projects, at least one consultation is held with affected groups and local NGOs: once the draft EA report (including ESMP) is prepared. The borrower provides a summary of the EA's conclusions. (Please also refer to "g) Disclosure").

In addition, the borrower consults with such groups throughout project implementation as necessary to address EA-related issues that affect them.

For meaningful consultations between the borrower and project-affected groups and local NGOs on all Category A and B projects proposed for WB financing, the borrower provides relevant material (in local language) in a timely manner prior to consultation and in a form and language that are understandable and accessible to the groups being consulted.

d) Expert selection

For Category A subprojects, WB reviews and clears the 'TABLE OF CONTENTS' of the ESIA. If needed, WB can help to prepare the TOR for the ESIA consultant. Furthermore, such experts must be independent from the project proponent and not affiliated with the project. For Category B Projects, the sponsors may either select consultants designing the Project or staff of the Project proponent to carry out the ESMP. The FI of the Project will be responsible for monitoring and guiding the process.

e) Review and approval of the ESMP

In FI projects, the responsibility to ensure that OP 4.01 requirements are shared between sub-borrower (applicant), FI, and the WB. FI is the responsible agency to review and assess the sub-borrower to meet the conditions as set out in this FW document and WB provides overall supervision and also no-objection as defined in Chapter 5. The EA process should normally be completed prior to the FI's approval of a project for financing with a WB loan.

f) Conditionality

In FI projects, the sub-loan agreement between FI and the sub-borrower must include the conditionality for the sub-borrower to implement the relevant EA document (EIA, ESMP, partial EA, etc.) for Category A and B subprojects. The borrower must monitor and ensure that the contractor is in compliance with the provisions of the EA document. In order to fulfill its environmental obligation, the borrower may incorporate provisions of the EA document into the procurement documents and contracts for works. Non-compliance may lead to the suspension of WB funding for the subproject.

g) Disclosure

In addition to the disclosure requirements specified under "c) Public consultation" above, for Category A subprojects the FI must make the draft EIA report in local language available at a public place accessible to subproject-affected groups and local NGOs.

When the EIA of a Category A subproject is finalized, the FI transmits to WB an English language copy of the final report including an English language executive summary. The Bank distributes the executive summary to its executive directors and makes the report available through its InfoShop.

In case of Category B subprojects, the ESMP or partial ESIA document is disclosed in country in local language and after finalization FI transmits to WB the final English language of the report. Then, WB makes it available through its InfoShop by indicating the in-country disclosure date.

h) Implementation

During project implementation, the FI reports to WB on (a) compliance with measures agreed with the Bank on the basis of the findings and results of the EA, including implementation of the ESMP; and (b) the findings of monitoring programs. The Bank bases supervision of the project's environmental aspects on the findings and recommendations of the EA, including measures set out in the legal agreements, any ESMP, and other project documents.

Key Differences between the Turkish EIA Regulation and WB OP 4.01 Policy

The Turkish EIA procedures are, with some exceptions, in line with the World Bank's EA policies. The primary exceptions are in project categorization, content of EA and public consultation:

a) Project categorization.

WB assumes the exploration stage of the Project (Component 1) as Category B, and capacity drilling phase (Component 2) as either Category B / B+ depending on the special circumstances of the Project. Again under Component 2, the sub-borrower can apply for a loan for establishing the power plant for energy generation or using the geothermal energy for heating facilities, SPAs, etc. It is assumed that the heating, SPA like facilities will again fall into Category B. However, some of the energy production facilities (power plants) under Component 2 may be categorized as 'A' according to environmental and social risks. Turkish regulation classifies geothermal energy generation facilities as Annex I if the installed capacity is larger than 20 MW. World Bank will categorize projects on case by case basis, therefore the FI will consult with WB for the categorization of such an application and follow relevant procedures for environmental and social assessment based on the agreed category.

b) EIA expert selection.

There are no clauses in the Turkish EIA Regulation limiting expert eligibility to prevent conflict of interest.

c) EA content.

Category A subprojects. A broad comparison of the outline required by WB for a Category A subproject EIA with the general format of a Turkish PIF indicates a number of differences. These include notably the absence of an executive summary and information on the policy, legal and administrative framework, as well as possible discrepancies with regard to the level at which the subproject's environmental impacts, its alternatives, and mitigation measures for the impacts are discussed. A key gap is the absence of an ESMP with clear specification of actions and delineation of responsibilities. Nevertheless, the project specific format for EIA may require more details under some of these headings than indicated in the general format for PIF. Consequently, a case by case review of the Turkish EIAs is necessary to identify gaps with WB requirements.

Category B projects. The content of the EA required by WB depends on the special circumstances of the project. In all cases, an ESMP is required which is only partially covered in a Turkish EIA. The WB also requires partial EA or partial ESIA for Category B+ projects, on the other hand, there is no corresponding category in Turkish EIA Regulation for Category B+ classification.

4. APPLICATION OF THE TURKISH EIA REGULATION AND WB EA POLICY

In the light of the similarities, the procedures to be carried out for meeting with the WB OP 4.01 requirements will be designed to avoid repeating the same steps of Turkish EIA process. These procedures will be a supplementary to the Turkish EIA process that have already been carried out. The following section lays out the procedures in a step-by-step manner.

Step-By-Step Process of Meeting WB Requirements

Step 1: Screening

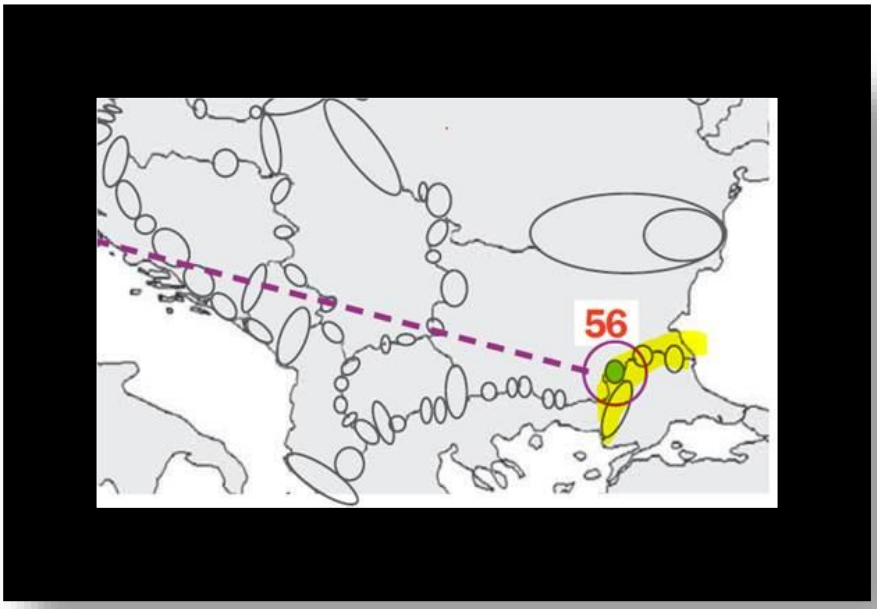
The Environmental and Social Management Framework (ESMF prepared by the client will be disclosed in country and then WB will share it via Infoshop before project appraisal. The locations and the scope of the objectives will be identified during the Project implementation and relevant environmental and social assessment documents will be prepared according to WB OP 4.01 requirements.

The FI, in consultation with WB, will carry out the screening of subprojects in terms of Category A, B or C. For the projects which will be screened by RSM consultant (with the supervision of TKB) (for the first component) it is assumed that all of them will fall into Category B since they will only include drills for exploration (generally 1-3 drills). It is assumed that on exceptional basis, the sub-projects that will be screened by TSKB/TKB (the FI of the second component) may fall into Category A if assessed to carry "high risk". Still most of the sub-projects under Component 2 (capacity drills and heating, SPA, energy generation facilities) will be classified as Category B.

As it is described above, Category B covers any project which is not sufficiently complex and risky to require a full, comprehensive ESIA (addressing a wide range of potential issues and including up-to-date environmental baseline data and a detailed analysis of alternatives), but does require some analysis of potential environmental impacts in order to be able to identify appropriate mitigation measures and monitoring indicators. According to the significance of the limited impacts of Category B projects different types of EA documentation could be required. The FI will assess whether the impacts are significant than a low risk (B-) project and then a partial ESIA will be asked instead of an ESMP.

The natural habitats policy is triggered for the project to inform the EA process about detailed assessment of natural ecology if the project site (both for exploration, capacity drilling or energy generation facilities) is on or in the vicinity of a natural habitat. However, any project located in a critical natural habitat will be ineligible for financing both for component 1 and 2. See Box 3 for further information.

With regard to OP 7.50, FI 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 are namely: Susurluk, North Aegean, Gediz, Kuçuk 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. In addition to the river basins, there are three transboundary aquifers in Turkey. The first, known as "Svilegrad/Orestiada" is in the northern border area between Bulgaria-Greece-Turkey. The second, known as "Evros/Meric" is along the Greece-Turkey border while the third, known as the "Topolovgrad karst waterbearing massif" is on the Bulgaria-Turkey border. The three lie along the northern borders of Turkey along the areas highlighted in yellow in the extracted map below. Drilling activities should also avoid these aquifers and the main responsible party for ensuring this is the relevant FI of the project application.



TRANSBOUNDARY AQUIFERS IN TURKEY

BOX 3 COMPLIANCE WITH OTHER WB OPERATIONAL POLICIES

Natural Habitats (OP 4.04). *The exploration and capacity drilling activities may take place in rural areas that are potential natural habitats. According to OP 4.04 the projects which do not create any significant adverse impacts on natural habitats and that are not placed in critical natural habitats will be eligible for financing. Issues related to natural habitats will be detailed in the EA documents which will be prepared for both components of the Project. It should be noted that nationally protected areas are defined as critical habitats.*

Physical Cultural Resources (OP 4.11). *In any circumstances, whether or not the Project is located in historic areas, the EMPs / partial EAs will include procedures and responsibilities for managing accidently discovered or chance find cultural artifacts.*

Turkish laws, notably 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) and practices meet the World Bank requirements. 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.FI is responsible to avoid or mitigate impacts on physical or cultural resources of the financed projects. Therefore, FI will not proceed with project funding until all requirements of the Turkish legislation are met. 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.

Involuntary Resettlement (OP 4.12). *- According to Turkish regulation, all involuntary land acquisition is generally completed prior to World Bank financing of above components. The counterparts were informed however that even if the land acquisition is completed prior to World Bank financing, OP 4.12 applies if land was acquired in anticipation of or in preparation for a project shortly before initial discussions with the Bank and the land is directly linked to the World Bank project. In such cases, the FI of the Project will need to conduct social audits to ensure that the land acquisition was completed in accordance with the objectives of OP 4.12, and in cases when necessary, the FI will develop a corrective action plan to bridge significant gaps.*

In cases where additional involuntary land acquisition will be necessary, the borrower under the supervision of FI will be responsible in preparing Resettlement Action Plans prior to such land acquisition. Temporary social impacts during drilling activities, such as disturbances to the local population, may also occur during the project. The need to avoid or mitigate such impacts was also discussed with FI of the Project.

As specific sub-projects are not identified at this point, all of the potential social impacts and the procedures to manage these social impacts will be covered in a Resettlement Policy Framework (RPF). The RPF will be prepared by the client and disclosed in country and in Infoshop before appraisal.

Other World Bank Safeguards. *No other safeguard policies are expected to be triggered but FI will alert the WB if questions arise.*

Step 2: Environmental Assessment

Category A Subprojects

For Category A projects, if a Turkish EIA was not prepared (either because the subproject was listed in Annex II and not deemed to need an EIA or it was not listed in either Annex I or Annex II) a full ESIA following WB guidelines will have to be prepared. If a Turkish EIA was prepared then FI will carry out a gap analysis of the information and analysis provided to determine the content of the supplementary documents. If the nature of the missing information is minor, i.e. the information gap concerns only policy, legal and administrative framework; baseline information; or minor discrepancies in project description, but all other requirements listed in Annex 2, including ESMP, are met, then supplementary documents will contain only this information. If the information gap concerns the depth and scope of discussion on environmental impacts, mitigation and monitoring measures and arrangements; project alternatives, it is considered major, and will require in depth documentation of these issues, including an ESMP. In both cases, the "WB ESIA" will consist of supplementary documents and the Turkish EIA. It should be noted that evaluating cumulative impacts is a part of Category A ESIA process.

Category B Subprojects

If the project is recognized as B+, then partial ESIA (including an ESMP) is required to satisfy the expected requirements. For B- an ESMP will suffice. For subprojects that are listed in Annex II of Turkish EIA Regulation there is a PIF and the PIF likely has information on the mitigatory measures but no details on their costs and the institutions designated to carry them out or a detailed monitoring plan. The PIF can be used as a background document while preparing partial ESIA or ESMP.

Completing a satisfactory ESMP/partial ESIA is responsibility of the sponsor. FI will perform an overall quality assurance function that the documents prepared meet WB requirements. In reviewing an ESMP, FI will also confirm that it is clear, feasible and appropriate.

Step 3: Public Consultation

Category A Subprojects

The number and content of public consultations in Category A projects will depend on whether a Turkish EIA was carried out and the compatibility of the Turkish EIA report with WB requirements. If a Turkish EIA was not carried out, at least two public consultation meetings will be carried out, namely one to discuss the TOR and a second one to discuss the draft ESIA report.

In cases where the Turkish EIA has major information gaps relative to WB requirements (see discussion under "Step 2: Environmental Assessment"), also at least two public consultation meetings will be held. The first meeting will be on the ESIA TORs for the proposed supplementary documents. The second meeting will be held when the supplementary environmental assessment documents are in draft form; at this meeting both the draft supplementary documents and the Turkish EIA will be discussed. In contrast, in cases, where the information gap between the Turkish EIA and the WB requirements is minor (also see discussion under "Step 2: Environmental Assessment), a public consultation meeting will be carried out when the draft supplementary documents are available and discuss the entire WB EIA package.

Category B Subprojects

A public consultation meeting will be held for Category B subprojects at the draft EA stage whether or not PIF is available. This is because the Turkish EIA Regulation does not require public consultation for projects that are not included in Annex 1 of Turkish EIA regulation whereas WB policy (OP 4.01) requires at least one consultation meeting for Category Bs.

Public consultations will be widely announced at least two weeks using local newspapers and other local means of information dissemination that are known to be effective. For both Category A and B projects, the sponsor will ensure that draft ESIAs and ESMPs and other assessment or supplementary documents are available in public places and meeting announcement will point out the location. The minutes of public meetings will be recorded and included in the ESIA/partial ESIA/ESMPs of sub-projects. Annex 4 provides a table of contents for the public consultation documentation.

It is also important to inform local people about the methodology of land acquisition (expropriation, urgent expropriation, willing buyer willing seller procedures, etc.) during public consultations. However, local people should be informed that the public participation meeting is not the venue for individual discussions on compensation amounts, etc. Therefore, the overall methodology of the land acquisition methods, the timeframe assumed for this phase and the contact point from sub-borrower site should be presented.

Step 4: ESIA Expert Selection and TOR

For Category A subprojects, WB reviews and clears the 'TABLE OF CONTENTS' of the ESIA. If needed, WB can help to prepare the TOR for the ESIA consultant. Furthermore, such experts must be independent from the project proponent and not affiliated with the project. For Category B Projects, the sponsors may either select consultants designing the Project or staff of the Project proponent to carry out the ESMP. The FI of the Project will be responsible for monitoring and guiding the process.

Step 5: World Bank Clearance

The World Bank will review and provide no objection to all projects assigned as "Category A" in accordance with WB procedures before a final decision to fund the subproject can be taken by FI (mainly TSKB/TKB since some Category A's may be expected under Component 2 only).

In case of Category B subprojects, first 2 sub-project will be submitted to World Bank for review and clearance. Assuming the ESMF is being implemented by the FI satisfactorily; the next Cat B sub-projects will be reviewed and cleared by the FI. World Bank will conduct post-review for the Cat B sub-projects.

It should be noted that for all sub-projects, FIs will consult WB for proper environmental risk categorization according to OP 4.01.

Step 6: Incorporation in Works Contracts

Sub-loan agreement must include requirement to implement the ESMP. The ESMP and other supplementary documents will also be attached to the procurement documents and be part of the contract with the contractor selected to carry out the project works. These sections include potential impacts that may occur during the set of works in question and measures that the contractor needs to take to mitigate them.

Step 7: Information Disclosure

For both Category A and B projects, the sub-borrower will ensure that hard copies of the final Turkish language WB EIAs and ESMPs are available in public place5. FI will post the final documents on its website. In case of Category A subprojects and the first two Category B subprojects disclosure in Turkey must be complete before WB can provide the 'no objection' to its financing. In addition, the final ESIA report for Category A projects should be disclosed to public during the second public participation meeting.

Prior to subproject approval, FI will also submit English versions of the final WB ESIA and ESMP documents to the World Bank for posting on Info-Shop. In case of Category A subprojects, 30 days prior to subproject approval, FI will submit an English language executive summary of the WB ESIA report to WB for submission to the WB Board of Executive Directors.

Step 8: Monitoring

The FI of the project will carry out regular supervision of projects during construction and operation to ensure that the ESMP is being duly carried out. When FI notices any problems in ESMP implementation it will inform the relevant sponsor and agree with them on steps to rectify these problems. FI will report its findings to the WB in its biannual project progress report or more frequently, as needed to bring issues to the attention of the World Bank. The WB project team will on occasion, and as required, also visit project sites as part of project supervision.

5. INSTITUTIONAL ARRANGEMENTS

Key actors in the implementation of this framework are the PIUs of Component 1 and 2 and the project sponsors. For component1, exploration, the PIU will be established in TKB. Since the first component also will include a risk sharing mechanism (RSM), it was decided that the mechanism would be managed by a consultant. This consultant from now on will be named as RSM consultant. It is planned that the RSM consultant will be also responsible for reviewing the exploration applications from the project sponsors in line with national and WB requirements as defined in this ESMF, TKB will be the final responsible party for the WB since they will be supervising the RSM consultant.

For Component 2, TSKB/TKB will be the financial intermediary for the implementation of the loan. The PIU in the TSKB/TKB will be responsible for implementation of this ESMF for the capacity drilling and power plant establishment and operation activities. In the following the overall roles and capacities of these actors are discussed.

PIU (TKB – for Component 1 and TSKB/TKB for Component 2)

PIU will continue to include an environmental specialist to coordinate the implementation of the Environmental Framework. The Environmental Specialist's responsibilities will be as follows:

- Provide sponsor EA consultants guidance on preparation of EA documents in accordance with WB requirements – via RSM consultant for Component 1/Component 2.
- Provide sponsor EA consultants with guidance on World Bank EA procedures, notably consultation and disclosure requirements– via RSM consultant for Component 1/ Component 2.

[5] "WB EIAs and ESMPs" means original Turkish EIA *and* gap-filling supplementary documents.

- Provide sponsor EA consultants with guidance on WB safeguard requirements (documentation and procedures) for cultural properties and natural habitats – via RSM consultant for Component 1/ Component 2.
- Review EA documentation, provide written comments to sponsor EA consultants, ultimately provide formal approval of EA documentation and procedures in accordance with WB safeguard requirements – via RSM consultant for Component 1/ Component 2.
- Ensure that sub-loan documentation includes agreements to implement the ESMP and any other environment or social safeguard requirements – via RSM consultant for Component 1/ Component 2.
- Perform supervision of ESMP implementation by the sponsor and document performance, recommendations and any further actions required as part of overall project supervision reporting to the WB – via RSM consultant for Component 1/ Component 2.
- 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 – via RSM consultant for Component 1/ Component 2.
- Coordinate and liaise with WB supervision missions regarding environmental safeguard aspects of project implementation

Sponsors

The EA work to be prepared by the sponsors will be mainly conducted by consulting companies of which there is an adequate number in Turkey. Sponsors have been carrying out infrastructure investments and are familiar with Turkish environmental legislation and construction procedures.

Sponsors generally have the capacity to properly implement EA documents during the construction and operational phases. Where such capacity is lacking, the sponsors will retain environmental specialist consultants to assist them in supervising the works carried out by the contractor and ensuring that the EA document (ESIA, ESMP or Partial EA) is followed adequately.

In addition to the above mentioned roles, it is expected that the PIU of component 1 (TKB) and PIU of the second component (TSKB/TKB) will report to WB about the compliance status of the project activities with regards to respective EA documents. In its biannual project status reports, the PIUs will include a section titled "Environmental Safeguards" which will summarize the status of EA document's implementation based on its monitoring activities. The report will highlight any issues arising from non-compliance and how it has been/is being addressed during the implementation of the project. Some of the key roles of sponsors, PIU and WB are summarized in Table 4 given below.

TABLE 4. ROLES AND RESPONSIBILITIES

Roles	**Sponsor**	**PIU with RSM Consultant**	**World Bank**
Financial Roles	Requestor	Financial intermediary	Main finance source
Application Process	Submit Applications	Review / Analyze the applications in order to provide information to World Bank	Concur the final selection of projects.
Preparation Process	Welcome and apply the relevant laws and regulations that are	Coordinate the selected sponsor to ensure all the	Assist PIU in Developing Performance and

Roles	Sponsor	PIU with RSM Consultant	World Bank
	introduced by World Bank through PIU	relevant standards and regulations will be adopted throughout the project. Organize internal working structure for the investment options	Monitoring Database system during the preparation phase Provide technical guide for PIU
Project Roles	Preparation of ESIA, ESMP and Grievance Mechanism	The main responsible for monitoring ESIA, ESMP and Grievance process	Overall review of the project development stages
	Tendering all the project works and consulting services	Supervise and monitor the whole process to ensure the proper application of the World Bank's environmental and social safeguard policies are applied.	Review of incoming reports to see the Bank standards are in progress

6. ENVIRONMENTAL AND SOCIAL MONITORING AND GRIEVANCE MECHANISM

Environmental and Social Monitoring

The environmental and social issues included within the mitigation measures are monitored and supervised by the appointed specialists through the FI of the project. 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 process starts from the construction phase of the project thorough the operation phase in order to prevent negative impacts of the project and observe the effectiveness of mitigation measures. This system enables the WB and the borrower to evaluate the success of mitigation as part of project supervision, and allows to take an action when needed.

The monitoring system provides,

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

The sub-borrower will prepare semi-annual ESMP Monitoring Reports (both for Category A and B projects) which will include the items listed below:

- General Environment
- Air Emissions (CO2, NOx, H2S, all other relevant emissions)
- Soil
- Surface water and groundwater monitoring
- Biodiversity
- Noise and dust emissions
- Worker Health and Safety
- Public Safety
- Social Monitoring

The ESMP Monitoring report should include the data monitored, comparison of the data measured against ESMP and national laws and regulations, any incompliances observed, the suggested corrective actions and a due date for these actions. These frequent ESMP Monitoring reports will be sent by the sub-borrower to the FI, and FI is responsible for sharing them with the World Bank. World Bank will disclose these monitoring documents.

Grievance Mechanism

The Grievance Mechanism is a process that enables any stakeholder to make a complaint or a suggestion about the way a project is being planned, constructed or implemented. The sponsor will establish a transparent and comprehensive Grievance Mechanism before the implementation of the project in order to receive and resolve the affected communities concerns, queries, complaints and grievances about the environmental and social aspects of the project. Public announcements for the establishment of Grievance Mechanism includes,

- Distribution of leaflets to the public places
- Notice Boards
- Website
- Telecommunication Tools
- Public Meetings

The Grievance Mechanism (sometimes also called Grievance Procedure) will be prepared according to WB policies, procedures, laws and regulations.

Detailed procedures for the Grievance Mechanism is provided in the Resettlement Policy Framework document prepared for the project, which will also be disclosed publicly.

Annex 1. SUGGESTED FORMATS

Annex 1A. Environmental and Social Management Plan

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 prepared in English. The ESMP may be developed as a stand-alone plan (i.e. for low Category Bs) or, depending on the nature and the scale of the risks and impacts of the project, be included as part of the ESIAs/partial ESIAs.

(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 neighbouring 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. Attachment 1 and Attachment 2 to this Annex provides the format for a mitigation plan for each component.

(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. Attachment 3 and Attachment 4 to this Annex provides the format for a monitoring plan for each component.

(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 (Comments, Questions and Response by Presenters)
- Agreed actions.

Attachment 1 to Annex 1B

A. MITIGATION PLAN FOR EXPLORATION (COMPONENT I)

			Cost to:		Institutional Responsibility to:		Comments (e.g. secondary or cumulative impacts)
Phase	Impact	Mitigating Measure	Install	Operate	Install	Operate	
Exploration phase	• • •						
Decommissioning phase	• • •						

Attachment 2 to Annex 1B

A. MITIGATION PLAN FOR DEVELOPMENT (COMPONENT II)

			Cost to:		Institutional Responsibility to:		Comments (e.g. secondary or cumulative impacts)
Phase	Impact	Mitigating Measure	Install	Operate	Install	Operate	
Development and Operational Phase	• • •						
Decommissioning phase	• • •						

Attachment 3 to Annex 1B

B. MONITORING PLAN FOR EXPLORATION

						Cost to:		**Responsibility to:**	
Phase	**What** *parameter is to be monitored?*	**Where** *is to be monitored?*	**How** *is it to be monitored/ type of monitoring equipment?*	**When** *is it to be monitored -frequency or continuous?*	**Why** *is the parameter to be monitored (optional)*?	**Install**	**Operate**	**Install**	**Operate**
Exploration phase									
Decommissioning phase									

Attachment 4 to Annex 1B

B. MONITORING PLAN FOR DEVELOPMENT

						Cost to:		**Responsibility to:**	
Phase	**What** *parameter is to be monitored?*	**Where** *is to be monitored?*	**How** *is it to be monitored/ type of monitoring equipment?*	**When** *is it to be monitored -frequency or continuous?*	**Why** *is the parameter to be monitored (optional*)?	**Install**	**Operate**	**Install**	**Operate**
Development and Operational Phase									
Decommissioning phase									

APPENDIX-2 SAMPLE OF GRIEVANCE FORM

Reference No	
Full Name	
Please mark how you wish to be contacted (mail, telephone, e-mail).	Please mark how you wish to be contacted
Province/Town/Settlement	
Date	

Category of the Grievance	
1. On abandonment (public housing)	
2. On assets/properties impacted by the project	
3. On infrastructure	
4. On decrease or complete loss of sources of income	
5. On environmental issues (ex. pollution)	
6. On employment	
7. On traffic, transportation and other risks	
9-Other (Please specify):	
Description of the Grievance What did happen? When did it happen? Where did it happen? What is the result of the problem?	
What would you like to see happen to resolve the problem?	

Signature: **Date:**

APPENDIX-2. A : SAMPLE OF GRIEVANCE CLOSEOUT FORM

Grievance closeout number:	
Define immediate action required:	
Define long term action required (if necessary):	
Compensation Required?	[ ] YES [ ] NO

CONTROL OF THE REMEDIATE ACTION AND THE DECISION	
Stages of the Remediate Action	Deadline and Responsible Institutions
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

COMPENSATION AND FINAL STAGES

This part will be filled and signed by the complainant after s/he receives the compensation fees and his/her complaint has been remediated.

Notes:

Name-Surname and Signature

Date…./…../…..

Of the Complainant:

Representative of the Responsible Institution/Company

Title-Name-Surname and Signature

Annex 3.

Table of Contents for the Public Consultation Documentation

- Manner in which notification of the consultation was announced: media(s) used, date(s), description or copy of the announcement
- Date(s) consultation(s) was (were) held
- Location(s) consultation(s) was (were) held
- Who was invited
- Name, Organization or Occupation, Telephone/Fax/e-mail number/address (home and/or office)
- Who attended
- Name, Organization or Occupation, Telephone/Fax/e-mail number/address (home and/or office)
- Meeting Program/Schedule
- What is to be presented and by whom
- Summary Meeting Minutes (Comments, Questions and Response by Presenters)
- List of decisions reached, and any actions agreed upon with schedules, deadlines and responsibilities.

Annex 4. TOC for ESIA

Table of Content of a Category A ESIA Document (can be used for B+ project partial ESIAs)

An Environmental and Social Impact Assessment (ESIA) report for a Category A project focuses on the significant environmental issues of a project. The report's scope and level of detail should be commensurate with the project's potential impacts. The report and the executive summary submitted to the Bank are prepared in English.

The report should include the following items (not necessarily in the order shown):

(a) *Executive summary*. Concisely discusses significant findings and recommended actions.

(b) *Policy, legal, and administrative framework*. Discusses the policy, legal, and administrative framework within which the EA is carried out. Explains the environmental requirements of any co-financiers. Identifies relevant international environmental agreements to which the country is a party.

(c) *Project description*. Concisely describes the proposed project and its geographic, ecological, social, and temporal context, including any supporting infrastructure that may be required (e.g., dedicated pipelines, access roads, power plants, water supply, housing, and raw material and product storage facilities). Indicates the need for any resettlement plan or indigenous peoples development plan (see also subpara. (h)(v) below). Normally includes a map showing the project site and the project's area of influence.

(d) *Baseline data*. Assesses the dimensions of the study area and describes relevant physical, biological, and, socioeconomic conditions, including any changes anticipated before the project commences. Also takes into account current and proposed development activities within the project area but not directly connected to the project. Data should be relevant to decisions about project location, design, operation, or mitigatory measures. The section indicates the accuracy, reliability, and sources of the data.

(e) *Environmental impacts*. Predicts and assesses the project's likely positive and negative impacts, in quantitative terms to the extent possible. Identifies mitigation measures and any residual negative impacts that cannot be mitigated. Explores opportunities for environmental enhancement. Identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions, and specifies topics that do not require further attention.

(f) *Analysis of alternatives*. Systematically compares feasible alternatives to the proposed project site, technology, design, and operation--including the "without project" situation--in terms of their potential environmental impacts; the feasibility of mitigating these impacts; their capital and recurrent costs; their suitability under local conditions; and their institutional, training, and monitoring requirements. For each of the alternatives, quantifies the environmental impacts to the extent possible, and attaches economic values where feasible. States the basis for selecting the particular project design proposed and justifies recommended emission levels and approaches to pollution prevention and abatement.

(g) *Environmental and Social Management Plan (ESMP)*. Covers mitigation measures, monitoring, and institutional strengthening; see outline in OP 4.01, Annex C.

(h) Public Consultation Records (copy of meeting announcements, presentation, list of participants, summary of questions and responses, etc.)

(i) *Appendices*

(i) List of EA report preparers--individuals and organizations.

(ii) References--written materials both published and unpublished, used in study preparation.

(iii) Record of interagency and consultation meetings, including consultations for obtaining the informed views of the affected people and local nongovernmental organizations (NGOs). The record specifies any means other than consultations (e.g., surveys) that were used to obtain the views of affected groups and local NGOs.

(iv) Tables presenting the relevant data referred to or summarized in the main text.