

VI. SAFEGUARD REVIEW PROCEDURES

1. This section summarizes the procedures that TSKB shall apply to sub-loans to be financed under the World Bank Special Purpose Debt Facility (SPDF) with regard to issues regarding:

- VI.1 Environmental Impact Assessment
- VI.2 Resettlement
- VI.3 Projects on International Waterways
- VI.4 Dam Safety

VI.1 Environmental Impact Assessment

2. All sub-loans to be financed under the World Bank Special Purpose Debt Facility (SPDF) will be subject to an environmental and resettlement review process by TSKB incorporating the procedures described in this section. These procedures and requirements incorporate the Republic of Turkey's regulatory requirements for Environmental Review (Regulation on Environmental Impact Assessment (EIA) published in Official Gazette No: 24777 and dated June 6th, 2002, as supplemented by Article 10 of Environmental Act No: 2872 dated August 9th, 1983) and World Bank policies. In addition Expropriation Law (no: 2942), Resettlement Law (no: 2510), Foundation of General Directorate of Rural Services (no: 3203) and Involuntary Resettlement (World Bank OP/BP 4.12) are taken into consideration.

3. The Environmental Impact Assessment is to be carried out to determine the possible affirmative or negative impacts of projects planned to be realized and to evaluate the precautions to be taken in order to prevent or minimize the negative impacts which may damage the environment by specifying the chosen site and technological alternatives and the supervision and inspection of the implementation of projects.

4. The current Turkish EIA Regulation classifies projects into two categories: (a) projects which have significant potential impacts and require an EIA (see Appendix VI.A), and (b) projects which may have significant potential impacts and require further analysis. For the latter projects, a pre EIA report (see Appendix VI.B) is prepared by the private sponsor and submitted to local authorities (governor) for a determination as to whether or not a full EIA report is required (discussed in detail below). Under current Turkish Regulations projects, which do not fall into these two categories, are not required to take any further action with regards to the environment.

Screening

5. Private sponsor prepares a *Project File* (See Appendix VI.C for format), which includes a recommendation for the environmental screening category for the subproject, and submits it to TSKB. The classifications for the four screening groups are given in Annex 4. Group 1 requires EIA, Group 2 requires pre EIA report; Group 3 projects

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require no action according to current regulations but will be treated as Group 2 projects for the purposes of financing from the SPDF. Projects which fall under Group 4 are not eligible for financing from the SPDF.

6. The Project File is then sent by the sponsor to the Ministry of Environment which reviews the file and verifies the proposed screening group.

7. If the project is assigned to Group 1 an EIA is required. If the project is assigned to Group 2 a pre EIA report is prepared by the project sponsor and submitted to local authority (governor) for a decision on either “to prepare an EIA” or “no further environmental documentation is required”. For projects assigned to Group 3, Turkish regulations do not require any further environmental documentation. However, for purposes of the SPDF the Ministry of Environment has agreed to subject Group 3 projects to the same procedures as Group 2 projects.

8. Environmental assessment procedures for each of the Groups are presented below.

GROUP 1 PROJECTS (MANDATORY EIA)

9. Ministry of Environment (MoE) forms a committee consisting of, inter alia, university scholars, institutions, expertise institutions, professional labor unions, NGOs, stakeholders, etc. The first duty of the committee is to decide on the date for the initial public consultation. At this consultation committee members, project affected groups, and local environmental authorities have discussions taking into consideration views and concerns of the local people in establishing the scope of the EIA (scoping).

10. Committee sends the list of issues identified in the scoping meeting to the private sponsor for inclusion in the EIA report.

11. About the same time, the MoE informs the private sponsor of the required composition of the Task Team responsible for the preparation of the EIA report.

12. Private sponsor prepares the draft EIA report and submits to the MoE which in turn sends a copy to the committee for their technical assessment. MoE also makes the draft EIA report available to the public and to solicit their views (consultation).

13. The committee upon completion of their review of the EIA and taking into consideration any further issues identified during the public consultation makes a decision on whether all impacts are properly assessed and adequate mitigation measures are included. If the decision is positive, the project is approved to proceed. If the impacts are determined to be significant and cannot be properly mitigated, a decision to stop further processing is made.

14. MoE then formally adopts the committee decision and then notifies the private sponsor and the public (disclosure).

15. TSKB will then review the Environmental Management Plan (EMP) section of the EIA to determine if it accurately reflects all the important issues identified in the EIA. If TSKB is satisfied with the EMP it notifies the private sponsor. Additionally, if the EMP includes items (e.g. monitoring) which are identified as the responsibility of local environmental authorities, TSKB will request the private sponsor to send the EMP to these local environmental authorities to receive their approval. EMP will be prepared by the private sponsor and submitted to TSKB and its format is given in Annex VI.A.

16. Upon approval of the EMP by the local authorities, TSKB will insure that the subproject loan agreements include a commitment of the private sponsor to implement the EMP.

GROUP 2 PROJECTS (MANDATORY Pre-EIA)

17. The private sponsor submits his Pre-EIA report (see Appendix VI.B for Format) to the *local environmental authorities* which evaluate the material for accuracy and completeness.

18. If the local authority is satisfied, a public consultation is conducted by the local governor and private sponsor.

19. After the consultation, the local authority submits the minutes of the meeting and the Pre-EIA report to the MoE, which in turn forms a committee (smaller in composition than the Group 1 committee) for an assessment to determine whether or not an EIA report is required.

20. If the MoE decision requires the private sponsor to prepare an EIA, the procedures subsequently followed are the same as indicated above for the Group 1 subprojects. If the MoE gives a decision that no EIA is required, no further procedures with respect to environmental aspects are required. *However even with the "No EIA" required decision, the MoE may still require certain measures be taken to mitigate certain impacts. A simple EMP will be prepared by private sponsor if it is deemed necessary by TSKB.*

GROUP 3 PROJECTS (NO GOVERNMENT ACTION LEGALLY REQUIRED)

21. Turkish environmental regulations do not require any formal intervention for subprojects in this Group. However, for purposes of the World Bank Renewable Energy Project, the MoE has provisionally agreed to subject Group 3 subprojects to the same procedures as Group 2 subprojects (see above discussion). At the written request of the PFIs and the Ministry of Energy the MoE has informally agreed to this arrangement. Formal agreement by the MoE regarding this process is required.

VI.2. Resettlement

22. Necessary steps would be undertaken by TSKB to ensure that no negative impacts arise from land acquisition or involuntary resettlement. Specifically, EMRA shall not provide a "Public Benefit Document" for renewable energy generation facilities that would lead to the exercise of eminent domain and acquisition of land for any sub-project. There are two possible conditions under which private sponsors may obtain land title/rights to develop sub-projects:

I. Site where the generation facilities are to be constructed belongs to private persons

23. In this case, the following requirements will be reflected in the Legal Agreements between the Bank and TSKB. These requirements shall also be included in the legal agreements that TSKB enters into with project sponsors:

- (a) An agreement by the owner to transfer the title and rights to this land and/or any intangibles related to the land to the private sponsor, will have to be made through an agreement reached freely and certified by a notary public.
- (b) All land must be purchased in the open market.
- (c) Sub-project sponsors will provide notarized documents attesting to the willing-buyer/willing-seller status of land transactions. Sub-project sponsors will procure all land necessary for the sub-project prior to the sub-loan application, and will submit notarized documentation that attests to the "willing buyer - willing seller" status of land transactions.
- (d) The TSKB will interview landowners to assure that the land transfer is voluntary.

24. The World Bank will review the first two projects prepared to ensure that the land was procured through market mechanisms and that no involuntary resettlement is involved. Subsequently, the Bank would also review yearly with TSKB the documentation for land acquisition provided by private sponsors and on a random basis would carry out post review.

II. Site where the generation facilities are to be constructed belongs to Government (represented by a Ministry or Public Authority)

25. In this case the following requirements will be reflected in the Legal Agreements between the Bank and TSKB. These requirements shall also be included in the legal agreements that TSKB enters into with project sponsors:

- (a) Since the EMRA shall not provide a "Public Benefit Document" for renewable energy generation facilities, the exercise of eminent domain and acquisition of land for any sub-project is ruled out. However, transfer of currently held public lands with title/rights to this land and/or any intangibles

related to the land, from the government to the sub-project sponsor, may occur under applicable law relating to transfer of public land for projects.

- (b) Each FI will conduct an assessment to verify and re-affirm that there are no secondary claims on the Government land that have been transferred to the sub-project sponsors.

26. The World Bank will review the first two projects to ensure that there are no secondary claims on Government land acquired for the project. Subsequently, the Bank would also review yearly with TSKB the documentation for land acquisition provided by private sponsors and on a random basis would carry out post review.

VI. 3 Projects on International Waterways

International Waterways

27. All sub-loans to be financed under the project will be subject to the provisions of the World Bank Operational Policy 7.50, Projects on International Waterways (Appendix VI.F). Under Operational Policy 7.50, other riparian countries have to be notified and given time to express their concerns (if any), for projects which impact the flow or quality of water in international water ways.

28. TSKB may not finance and projects on the following three international waterways or their tributaries.

- Aras
- Dicle (Tigris)
- Fırat (Euphrates)

29. TSKB may not finance and projects on the following two international waterways or their tributaries unless: (i) it is deemed by the World Bank to qualify for an exception to notification requirements per provisions of OP 7.50; or (ii) the notification requirements per OP 7.50 are followed.

- Asi
- Coruh

VI.4 Dam Safety

30. All sub-loans to be financed under the project will be subject to the provisions of the World Bank Operational Policy 4.37 Safety of Dams (Appendix VI. G). TSKB will screen all sub-projects to be financed under the loan, to determine whether any contain small dams or large dams in accordance with the definitions of OP 4.37: (a) dams greater than 15 m in height; (b) dams greater than 10 m but less than 15 m in height and having a crest length greater than 500m, or a spillway design discharge of more than 2000 m³/s, or having a reservoir volume of greater than 1.0 million m³; or (c) if they present special design complexities for example, location in a zone of high seismicity, foundations that are complex and difficult to prepare, or retention of toxic materials

31. For sub-projects involving large dams TSKB will require the sub-borrower to:
- a) appoint an independent panel of experts (the Panel) to review the investigation, design, and construction of the dam and the start of operations;
 - b) prepare and implement detailed plans: a plan for construction supervision and quality assurance, an instrumentation plan, an operation and maintenance plan, and an emergency preparedness plan;
 - c) prequalify bidders for civil works involving dams and associated structures;
 - d) carry out periodic safety inspections of the dam after completion.

32. For sub-projects that will rely on the performance of an existing dam or a dam under construction (DUC) as defined in OP 4.37, TSKB will require the sub-borrower to appoint an independent expert or experts to carry out the due diligence work on the existing dam as defined in Paras 8 and 9 of OP 4.37. A Model Terms of Reference (TOR) for a Dam Safety Review Panel for eligible project involving large dams has been prepared (attached as Appendix VI.F)

33. The Panel shall consist of three or more experts, appointed by the sub-borrower and acceptable to TSKB and the World Bank, with expertise in the various technical fields relevant to the safety aspects of the particular dam.. A model Terms of Reference is included in the Operational Manual. For convenience of project sponsors, TSKB will compile a list of specialists who are acceptable to TSKB and the World Bank. However, individual sub-borrowers will be responsible for constitution of their own panel and are not confined to the list of specialists compiled by the TSKB. All such panel members will, however, be required to receive the no objection of TSKB and the World Bank.

Appendix VI.A

EIA REPORT FORMAT FOR GROUP I

1. TITLE PAGE

- name, address, phone and fax number of project developer
- name of the project
- name and location of project site
- name, address, phone and fax number of report developer
- preparation date of report

2. CONTENT OF REPORT

PART I: DESCRIPTION AND PURPOSE OF THE PROJECT

- description, period, goal, importance and necessity of investment
- description of the physical characteristics of the whole project and the land-use requirements during the construction and operational phases,
- general explanation of important environmental impacts of proposed project (water, air, soil pollution, noise, vibration, light, heat, radiation etc.)
- outline of the main alternatives studied by the developer and an indication of the main reasons for this choice of selected location,

PART II: LOCATION OF PROJECT SITE

- information about the location, coordinate and alternatives of selected project location

PART III: EXISTING ENVIRONMENTAL CHARACTERISTICS OF PROJECT LOCATION AND INFLUENCE AREA

Description of the aspect of the environment likely to be significantly affected by the proposed project, including, in particular, population, fauna, flora, geologic and hydro geologic characteristics, natural disaster conditions, soil, water, air, climatic factors, ownership status, architectural and archeological heritage, landscape characteristics, land use, sensitivity degree (taking into account of sensitive area which are defined in EIA regulation), and the inter-relationship between the above factors.

PART IV: IMPORTANT ENVIRONMENTAL IMPACTS OF PROJECT AND MITIGATION MEASURES

Description of the likely significant effects of the proposed project on the environment resulting from (definition should cover short, medium and long term, permanent and temporary, positive and negative impacts):

- area used for project
- the use of natural resources
- the amount of pollutant (interaction of atmospheric conditions and pollutant),
- description of problems which create pollution on the environment and how to minimize of wastes
- description of the forecasting methods to assess the effects on the environment
- description of the measures envisaged to reduce any significant adverse effects on the environmental (additional research should be completed about if any

migration fish exist or not and construct a “fish pass platform” considering compensation water if long tunnel exist for hydro project)

PART V: PUBLIC PARTICIPATION

- determination of public (citizen) likely be impacted by the project and suggested methods to take care of public opinion in EIA studies
- other related sides to be applied for opinion
- any other information and document

PART VI: A NON-TECHNICAL SUMMARY OF THE INFORMATION PROVIDED UNDER THE ABOVE HEADINGS

Part VII: Environmental Management Plan (EMP), see attached EMP format

Notes: An indication of difficulties encountered by the developer in compiling of required information.

**Appendix VI.A
ENVIRONMENTAL MANAGEMENT PLAN FORMAT**

A. MITIGATION PLAN

Phase	Issue	Mitigating Measure	Cost		Institutional Responsibility		Comments (e.g. secondary impacts)
			Install	Operate	Install	Operate	
Construction	• • • • •						
Operation	• • • • •						
Decommissioning	• • • • • •						

B. MONITORING PLAN

Phase	What parameter is to be monitored ?	Where is the parameter to be monitored ?	How is the parameter to be monitored/ type of monitoring equipment?	When is the parameter to be monitored- frequency of measurement or continuous?	Why Is the parameter to be monitored (optional)?	COST		Responsibility	
						Install	Operate	Install	Operate
Baseline									
Construct									
Operate									
Decommission									

C. INSTITUTIONAL STRENGTHENING

1. Equipment Purchases (Tabular Presentation Preferred)

List:

- Type of equipment
- Number of Units
- Unit cost
- Total Cost
- Local or International Purchase

2. Training/Study Tours

List:

- Type of Training (Mitigation, Monitoring, Environmental Management, Other)
- Number of Students
Current and Future Organizational Unit in Which They Work or Current and Future Title/Job Description
- Duration of Training
- Start Date/End Date (for each student)
- Venue of Training (Domestic or Abroad)
- Institute or Organization to Provide Training
- Cost (Local and Foreign)

3. Consultant Services

- Type of Service
- Terms of Reference
- Justification
- Cost

4. Special Studies

- Justification
- Terms of Reference
- Cost

D. SCHEDULE

Present (preferably in Chart Form) Start Dates and Finish Dates for:

- Mitigation Activities
- Monitoring Activities
- Training Activities

This information should be on the same chart defining the overall project schedule (Project Implementation Plan)

E. INSTITUTIONAL ARRANGEMENTS

A narrative discussion supported by organizational charts detailing:

- Responsibilities for mitigation and monitoring
- Environmental information flow (reporting—from who and to who and how often)
- Decision making chain of command for environmental management (to take action, to authorize expenditures, to shut down, etc.)

IN SHORT, HOW IS ALL THE MONITORING DATA GOING TO BE USED TO MAINTAIN SOUND ENVIRONMENTAL PERFORMANCE—WHO COLLECTS THE DATA, WHO ANALYZES IT, WHO PREPARES REPORTS, WHO ARE THE REPORTS SENT TO AND HOW OFTEN, AND WHO DOES THAT PERSON SEND IT TO, OR WHAT DOES HE/SHE DO WITH THE INFORMATION—WHO HAS THE AUTHORITY TO SPEND, SHUTDOWN, CHANGE OPERATIONS ETC.

F. CONSULTATION WITH LOCAL NGOs AND PROJECT- AFFECTED GROUPS

PROVIDE DOCUMENTATION OF THE FOLLOWING:

- 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)

Appendix VI.B

PRE-EIA REPORT FORMAT (GROUP II and III)

TITLE PAGE

- Name, address, phone and fax number of project developer
- Name of the project
- Name and location of project site
- Purpose and definition of project
- Name, address, phone and fax number of report developer
- Preparation date of report

1. NON-TECHNICAL SUMMARY OF REPORT

2. Characteristics of project

The characteristics of project must be considered having regard, in particular, to:

- The size of the project and required area etc,
- The interaction with other facilities,
- The use of natural resources,
- The production of waste,
- Pollution,
- The risk of accident, having regard in particular to substances or technologies used.

3. Location of projects

The environmental sensitivity of geographical areas likely to be affected by project must be considered, having regard, in particular:

- The existing land use,
- The characteristics of geologic and hydro geologic and natural disaster condition
- The relative abundance, quality and regenerative capacity of natural resources in the area
- The evaluation of the natural environment, paying particular attention to the sensitive area list given in the annex-V in EIA Regulation (wetlands, coastal zones, mountain and forest area, agricultural lands, national parks, special protection areas, densely populated area, landscape of historical, cultural or archaeological significance, etc,)

4. Characteristics of potential impacts

The potential significant effects of projects must be considered in relation to criteria set under 2 and 3 above, and having regard in particular:

- The extent of impact (geographical area and size of the affected population),
- The characteristics, magnitude, duration, frequency and renewably of the impacts
- (additional research should be completed on if any migration of fish exists or not and construction of a “fish pass platform”, considering compensation water if long tunnel exist for hydro project)

5. Alternatives of projects and location

6. Conclusions

General evaluation will cover the important environmental impacts and comparison of alternatives of the project and brief summary of the information provided under the above heading.

Appendix VI.C

PROJECT FILE (to be completed by private sponsor)

Eligible project title:

Energy sector/Generation type

- Brief description of eligible project (nature of project, eligible project cost, physical site[site area, location, capacity, etc],)
- The potential impacts (water, soil, air, noise, geographical area and the human and natural environment)

Appendix VI.D

CLASSIFICATION OF CATEGORIES

Group I

1. River based power plants at a single location, total capacity 50 MW or above
2. Small hydro with dam or reservoir which have the lake volume more than 100 million m³ or lake surface area more than 15 km².

Group II

1. River based power plants at a single location, total capacity between 10-50 MW
2. ALL WIND ENERGY BASED ELECTRICITY GENERATION STATIONS
3. SMALL HYDRO PROJECTS WITH DAM OR RESERVOIR WHICH HAVE THE LAKE VOLUME MORE THAN 10 MILLION M³ OR LAKE SURFACE AREA MORE THAN 1 KM².

Group III

1. River based power plants single location, total capacity less than 10 MW
2. Small hydro projects with dam or reservoir which are not included Group I and II.

Group IV

1. For hydropower stations involving water flows into neighboring countries with which Turkey does not have water flow agreements.
2. Any other restrictions not foreseen in this report.

Appendix VI.E
(Written agreement from MoE- to be obtained)



Operational Policies

These policies were prepared for use by World Bank staff and are not necessarily a complete treatment of the subject.

Projects on International Waterways

Applicability of Policy

1. This policy applies to the following types of international waterways:
 - (a) any river, canal, lake, or similar body of water that forms a boundary between, or any river or body of surface water that flows through, two or more states, whether Bank₁ members or not;
 - (b) any tributary or other body of surface water that is a component of any waterway described in (a) above; and
 - (c) any bay, gulf, strait, or channel bounded by two or more states or, if within one state, recognized as a necessary channel of communication between the open sea and other states—and any river flowing into such waters.
2. This policy applies to the following types of projects:
 - (a) hydroelectric, irrigation, flood control, navigation, drainage, water and sewerage, industrial, and similar projects that involve the use or potential pollution of international waterways as described in para. 1 above; and
 - (b) detailed design and engineering studies of projects under para. 2(a) above, including those to be carried out by the Bank as executing agency or in any other capacity.

Agreements/Arrangements

3. Projects on international waterways may affect relations between the Bank and its borrowers and between states (whether members of the Bank or not). The Bank recognizes that the cooperation and goodwill of riparians is essential for the efficient use and protection of the waterway. Therefore, it attaches great importance to riparians' making appropriate agreements or arrangements for these purposes for the entire waterway or any part thereof. The Bank stands ready to assist riparians in achieving this end. In cases where differences remain unresolved between the state proposing the project (beneficiary state) and the other riparians, prior to financing the project the Bank normally urges the beneficiary state to offer to negotiate in good faith with the other riparians to reach appropriate agreements or arrangements.

Notification

4. The Bank ensures that the international aspects of a project on an international waterway are dealt with at the earliest possible opportunity. If such a project is proposed, the Bank requires the beneficiary state, if it has not already done so, formally to notify the other riparians of the proposed project and its Project Details (see BP 7.50, para. 3). If the prospective borrower indicates to the Bank that it does not wish to give notification, normally the Bank itself does so. If the borrower also objects to the Bank's doing so, the Bank discontinues processing of the project. The executive directors concerned are informed of these developments and any further steps taken.

5. The Bank ascertains whether the riparians have entered into agreements or arrangements or have established any institutional framework for the international waterway concerned. In the latter case, the Bank ascertains the scope of the institution's activities and functions and the status of its involvement in the proposed project, bearing in mind the possible need for notifying the institution.

6. Following notification, if the other riparians raise objections to the proposed project, the Bank in appropriate cases may appoint one or more independent experts to examine the issues in accordance with BP 7.50, paras. 8-12. Should the Bank decide to proceed with the project despite the objections of the other riparians, the Bank informs them of its decision.

Exceptions to Notification Requirement

7. The following exceptions are allowed to the Bank's requirement that the other riparian states be notified of the proposed project:

- (a) For any ongoing schemes, projects involving additions or alterations that require rehabilitation, construction, or other changes that in the judgment of the Bank
 - (i) will not adversely change the quality or quantity of water flows to the other riparians; and
 - (ii) will not be adversely affected by the other riparians' possible water use.

This exception applies only to minor additions or alterations to the ongoing scheme; it does not cover works and activities that would exceed the original scheme, change its nature, or so alter or expand its scope and extent as to make it appear a new or different scheme. In case of doubt regarding the extent to which a project meets the criteria of this exception, the executive directors representing the riparians concerned are informed and given at least two months to reply. Even if projects meet the criteria of this exception, the Bank tries to secure compliance with the requirements of any agreement or arrangement between the riparians.

- (b) Water resource surveys and feasibility studies on or involving international waterways. However, the state proposing such activities includes in the terms of reference for the activities an examination of any potential riparian issues.
- (c) Any project that relates to a tributary of an international waterway where the tributary runs exclusively in one state and the state is the lowest downstream riparian, unless there is concern that the project could cause appreciable harm to other states.

Presentation of Loans to the Executive Directors

8. The Project Appraisal Document (PAD) for a project on an international waterway deals with the international aspects of the project, and states that Bank staff have considered these aspects and are satisfied that

- (a) the issues involved are covered by an appropriate agreement or arrangement between the beneficiary state and the other riparians; or
- (b) the other riparians have given a positive response to the beneficiary state or Bank, in the form of consent, no objection, support to the project, or confirmation that the project will not harm their interests; or
- (c) in all other cases, in the assessment of Bank staff, the project will not cause appreciable harm to the other riparians, and will not be appreciably harmed by the other riparians' possible water use. The PAD also contains in an annex the salient features of any objection and, where applicable, the report and conclusions of the independent experts.

1. "Bank" includes IDA; "loans" include credits; and "project" includes all projects financed under Bank loans or IDA credits, but does not include adjustment programs supported under Bank loans and IDA credits; and "borrower" refers to the member country in whose territory the project is carried out, whether or not the country is the borrower or the guarantor.

Note: OP and BP 7.50 replace OP and BP 7.50, dated October 1994. Questions may be addressed to the Chief Counsel, Environmentally and Socially Sustainable Development and International Law.

These policies were prepared for use by World Bank staff and are not necessarily a complete treatment of the subject.

Safety of Dams

Note: OP and BP 4.37 replace the versions dated September 1996. Other Bank policies that may apply to projects that involve dams include the following: OP/BP 4.01, Environmental Assessment; OP/BP 4.04, Natural Habitats; OP 4.11, Cultural Property; OD 4.20, Indigenous Peoples; OD 4.30, Involuntary Resettlement; and OP/BP 7.50, Projects on International Waterways. Questions on dam safety should be addressed to the Director, Rural Development Department (RDV).

1. For the life of any dam, the owner¹ is responsible for ensuring that appropriate measures are taken and sufficient resources provided for the safety of the dam, irrespective of its funding sources or construction status. Because there are serious consequences if a dam does not function properly or fails, the Bank² is concerned about the safety of new dams it finances and existing dams on which a Bank-financed project is directly dependent.

New Dams

2. When the Bank finances a project that includes the construction of a new dam,³ it requires that the dam be designed and its construction supervised by experienced and competent professionals. It also requires that the borrower⁴ adopt and implement certain dam safety measures for the design, bid tendering, construction, operation, and maintenance of the dam and associated works.

3. The Bank distinguishes between small and large dams.

- a) Small dams are normally less than 15 meters in height. This category includes, for example, farm ponds, local silt retention dams, and low embankment tanks.
- b) Large dams are 15 meters or more in height. Dams that are between 10 and 15 meters in height are treated as large dams if they present special design complexities—for example, an unusually large flood-handling requirement, location in a zone of high seismicity, foundations that are complex and difficult to prepare, or retention of toxic materials.⁵ Dams under 10 meters in height are

treated as large dams if they are expected to become large dams during the operation of the facility.

4. For small dams, generic dam safety measures designed by qualified engineers are usually adequate. For large dams, the Bank requires

- a) reviews by an independent panel of experts (the Panel) of the investigation, design, and construction of the dam and the start of operations;
- b) preparation and implementation of detailed plans: a plan for construction supervision and quality assurance, an instrumentation plan, an operation and maintenance plan, and an emergency preparedness plan;6
- c) prequalification of bidders during procurement and bid tendering,7 and
- d) periodic safety inspections of the dam after completion.

5. The Panel consists of three or more experts, appointed by the borrower and acceptable to the Bank, with expertise in the various technical fields relevant to the safety aspects of the particular dam.8 The primary purpose of the Panel is to review and advise the borrower on matters relative to dam safety and other critical aspects of the dam, its appurtenant structures, the catchment area, the area surrounding the reservoir, and downstream areas. However, the borrower normally extends the Panel's composition and terms of reference beyond dam safety to cover such areas as project formulation; technical design; construction procedures; and, for water storage dams, associated works such as power facilities, river diversion during construction, shiplifts, and fish ladders.

6. The borrower contracts the services of the Panel and provides administrative support for the Panel's activities. Beginning as early in project preparation as possible, the borrower arranges for periodic Panel meetings and reviews, which continue through the investigation, design, construction, and initial filling and start-up phases of the dam.9 The borrower informs the Bank in advance of the Panel meetings, and the Bank normally sends an observer to these meetings. After each meeting, the Panel provides the borrower a written report of its conclusions and recommendations, signed by each participating member; the borrower provides a copy of that report to the Bank. Following the filling of the reservoir and start-up of the dam, the Bank reviews the Panel's findings and recommendations. If no significant difficulties are encountered in the filling and start-up of the dam, the borrower may disband the Panel .

Existing Dams and Dams under Construction

7. The Bank may finance the following types of projects that do not include a new dam but will rely on the performance of an existing dam or a dam under construction (DUC): power stations or water supply systems that draw directly from a reservoir controlled by an existing dam or a DUC; diversion dams or hydraulic structures downstream from an existing dam or a DUC, where failure of the upstream dam could cause extensive damage to or failure of the new Bank-funded structure; and irrigation or water supply projects that will depend on the storage and operation of an existing dam or a DUC for their supply of water and could not function if the dam failed. Projects in this

category also include operations that require increases in the capacity of an existing dam, or changes in the characteristics of the impounded materials, where failure of the existing dam could cause extensive damage to or failure of the Bank-funded facilities.

8. If such a project, as described in para. 7, involves an existing dam or DUC in the borrower's territory, the Bank requires that the borrower arrange for one or more independent dam specialists to (a) inspect and evaluate the safety status of the existing dam or DUC, its appurtenances, and its performance history; (b) review and evaluate the owner's operation and maintenance procedures; and (c) provide a written report of findings and recommendations for any remedial work or safety-related measures necessary to upgrade the existing dam or DUC to an acceptable standard of safety.

9. The Bank may accept previous assessments of dam safety or recommendations of improvements needed in the existing dam or DUC if the borrower provides evidence that (a) an effective dam safety program is already in operation, and (b) full-level inspections and dam safety assessments of the existing dam or DUC, which are satisfactory to the Bank, have already been conducted and documented.

10. Necessary additional dam safety measures or remedial work may be financed under the proposed project. When substantial remedial work is needed, the Bank requires that (a) the work be designed and supervised by competent professionals, and (b) the same reports and plans as for a new Bank-financed dam (see para. 4(b)) be prepared and implemented. For high-hazard cases involving significant and complex remedial work, the Bank also requires that a panel of independent experts be employed on the same basis as for a new Bank-financed dam (see paras. 4(a) and 5).

11. When the owner of the existing dam or DUC is an entity other than the borrower, the borrower enters into agreements or arrangements providing for the measures set out in paras. 8-10 to be undertaken by the owner.

Policy Dialogue

12. Where appropriate, as part of policy dialogue with the country, Bank staff discuss any measures necessary to strengthen the institutional, legislative, and regulatory frameworks for dam safety programs in the country.

1. The owner may be a national or local government, a parastatal, a private company or a consortium of entities. If an entity other than the one with legal title to the dam site, dam, and/or reservoir holds a license to operate the dam, and has responsibility for its safety, the term "owner" includes such other entity.
2. "Bank" includes IDA, and "loans" include credits.
3. For example, a water storage dam for a hydropower, water supply, irrigation, flood control, or multipurpose project; a tailings or a slimes dam for a mine project; or an ash impoundment dam for a thermal power plant

4. When the owner is not the borrower, the borrower ensures that the obligations of the borrower under this OP are properly assumed by the owner under arrangements acceptable to the Bank.
5. The definition of "large dams" is based on the criteria used to compile the list of large dams in the World Register of Dams, published by the International Commission on Large Dams.
6. BP 4 37, Annex A, sets out the content of these plans and the timetable for preparing and finalizing them. In the dam safety practice of several countries, the operation and maintenance plan includes both the instrumentation plan and the emergency preparedness plan as specific sections. This practice is acceptable to the Bank, provided the relevant sections are prepared and finalized according to the timetable set out in BP 4 37, Annex A.
7. See Guidelines Procurement under IBRD Loans and IDA.
8. The number, professional breadth, technical expertise, and experience of Panel members are appropriate to the size, complexity, and hazard potential of the dam under consideration. For high-hazard dams, in particular, the Panel members should be internationally known experts in their field.
9. If the Bank's involvement begins at a later stage than project preparation, the Panel is constituted as soon as possible and reviews any aspects of the project that have already been carried out.

Appendix VI.H

Turkey – Renewable Energy Project

[Model] Terms of Reference (TOR) for the Dam Safety Review Panel (DSRP)

General

The Turkey Renewable Energy Project is assisting to finance privately developed renewable energy projects, which include low impact hydropower projects with reservoir areas less than [15] km², reservoir volumes less than [100] million m³, and installed capacities less than [50] MW – based on the Annex II limits of the Turkish Environmental Impact Assessment Regulation.

As part of the Renewable Energy Project a Special Purpose Debt Facility (SPDF) will be established in two financial intermediaries (FIs), specifically TSKB and TKB, who will make sub loans to private developers [Eligible project Owner]

Eligible projects involving large dams are subject to the provisions of the World Bank Operational Policy OP 4.37 (attached). For such projects the World Bank requires the appointment of an independent panel of experts to review the investigation, design, and construction of the dam and the start of operations.

These Terms of Reference outline the responsibilities of the Dam Safety Review Panel (DSRP).

Organization and Membership

The DSRP is appointed by the sub-borrowers and shall initially contain at least three permanent members with wide and specialized experience which collectively covers the following fields [may vary depending on individual eligible projects]:

- Engineering Geology
- Concrete Dam Design.
- Embankment Dam Design
- Hydraulic Structures Design Layout and Operation.
- Rock Mechanics and Design of Underground Works.
- Concrete Technology
- Construction of Dams and Hydropower Facilities.

If necessary, the DSRP can be enlarged on a temporary basis by the addition of specialists with expertise in areas such as: flood hydrology, sedimentology, seismology, Seismic-related analysis and design etc.

A Chairman will be appointed by the sub-borrower to co-ordinate communications of the DSRP, to call and chair its meetings, to ensure the membership's activity and to provide balance to its reviews and recommendations.

Composition of the DSRP, and the areas of expertise which it covers may vary during the course of the Project as considered appropriate by the [Eligible project Owner] in consultation with the Chairman and concurrence of the [FI] and the World Bank.

Meetings and Schedules

The DSRP will convene at regular intervals to review the status of work in progress. Frequency of meetings, their location and timing will be adjusted to conform to the schedule of design and construction, but the time between meetings shall not normally exceed nine months. At each meeting the scheduled dates for the next meeting and tentative timing for the subsequent meeting will be approximately fixed, to enable DSRP members to arrange their individual schedules. Extraordinary meetings of the DSRP may be called in critical situations, and services of individual members may be solicited between meetings as considered necessary or desirable by the Owner, with copies of their input being sent to other DSRP members.

Prior to adjournment of DSRP meetings, the DSRP will prepare and submit written findings, conclusions, and recommendations (regular or extraordinary), signed by all members in attendance. All reports will be submitted to [Eligible project Owner] and through [Eligible project Owner] to [FI] and thence to the World Bank.

Scope of Reviews

The primary purpose of the Panel is to review and advise the [Eligible project Owner] on matters relative to dam safety and other critical aspects of the dam, its appurtenant structures, the catchment area, the area surrounding the reservoir, and downstream areas. Specific subjects on which the DSRP are expected to comment, as relevant to the specific eligible project, are listed below. The DSRP should also comment on any other matter which it perceives to be important to the successful design, construction and operation of the projects and to the long-term safety of the dams and appurtenances.

- Engineering Geology: Quality and sufficiency of geological investigations and interpretation thereof; correctness of geological and hydro-geological models of the regions, reservoir areas and dam sites; engineering implications with respect to foundation design, stability of natural and excavated slopes; and support of surface and underground excavations.
- Rock Mechanics/Underground Excavations: Design of surface and underground excavations, including selection of stable slopes; appropriate shapes and orientations for underground excavations; design of temporary and permanent support systems and linings; and drainage of excavated areas.

- Concrete and Embankment Dam Design: Choice of materials, analysis and design procedures, factors of safety, provisions for earthquake, specified construction procedures.
- Hydraulic Structures Design: Hydraulic and structural design and specifications for the spillways and diversion facilities.
- Flood Hydrology: Appropriateness of selection of design flood, and provisions for extreme events.
- Concrete Technology: Application of appropriate technology for the design & manufacture of concrete mixes
- Construction of Dams and Hydropower Facilities: With particular reference to quality control procedures.

The DSRP will also review the various detailed plans required to be prepared in accordance with OP4.37: the plan for construction supervision and quality assurance, the instrumentation plan, the operation and maintenance plan, and an emergency preparedness plan.

Report on Project Completion

Following the filling of the reservoir and start-up of the dam, the DSRP will prepare a final report summarizing its findings on project design, construction and preparation for operations. Based on this report, and if no significant difficulties are encountered in the filling and start-up of the dam, the work of the DSRP with regard to the specific eligible project would be deemed to have been successfully completed.

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