The Environmental and Social Norms of the Islamic Development Bank

Environmental and Social Norm 4 (ESN4): Community Health and Safety

Acronyms and Abbreviations

AESR	Annual Environmental and Social Report
ACHPR	African Commission on Human and Peoples Rights
AMR	Anti-microbial Resistance
BC	Black Carbon
BMP	Biodiversity Management Plan
CBD	Convention on Biological Diversity
CBO	Community Based Organization
CDD	Community-Driven Development
CHMP	Cultural Heritage Management Plan
CO_2	Carbon Dioxide
CITES	Convention on the International Trade in Endangered Species
CSO	Civil Society Organization
DLI	Disbursement Linked Indicator
DUC	Dam Under Construction
EHSGs	World Bank Group Environmental, Health and Safety Guidelines
ESDD	Environmental and Social Due Diligence
ESIA	Environmental and Social Impact Assessment
EITI	Extractive Industries Transparency Initiative
EPRP	Emergency Preparedness and Response Plan
ES	Environmental and Social
ESA	Environmental and Social Assessment
ESP	Environmental and Social Plan
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
ESNs	Environmental and Social Norms
FAO	Food and Agriculture Organization (of the UN)
FI	Financial Intermediary
FPIC	Free, Prior and Informed Consent
GBV	Gender-Based Violence
GCF	Green Climate Fund
GHG	Greenhouse Gas
GM	Grievance Mechanism
GMO	Genetically Modified Organism
GIIP	Good International Industry Practice
HIA	Health Impact Assessment
HSMP	Health and Safety Management Plan
HVRMs	Highly Vulnerable Rural Minorities
IDEV	Independent Development Evaluation Department
IFC	International Finance Corporation
IFI	International Financial Institution
ILO	International Labour Organization
IPP	Indigenous Peoples Plan
IPM	Integrated Pest Management
IRM	Independent Recourse Mechanism
ISS	Integrated Safeguards System
IUCN	International Union for the Conservation of Nature
IVM	Integrated Vector Management
LIMP	Labour Influx Management Plan
LMPs	Labour Management Procedures
MFI	Multilateral Financial Institution
NGO	Nongovernmental Organization
NSO	Non-Sovereign Operation
O&M	Operation and Maintenance
OHS	Occupational Health and Safety
OP	Operational Policy

OS	Environmental and Social Operational Safeguard
POPs	Persistent Organic Pollutants
PMP	Pest Management Plan
PPP	Public-Private Partnership
RAP	Resettlement Action Plan
RBF	Results-Based Financing
RCIP	Riparian Communities Involvement Plan
RHA	Risk Hazard Assessment
RMC	Regional Member Country
SDGs	Sustainable Development Goals
SEAH	Sexual Exploitation and Harassment
SEP	Stakeholder Engagement Plan
SESA	Strategic Environmental and Social Assessment
SO	Sovereign Operation
SPV	Special Purpose Vehicle
TA	Technical Assistance
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples

Introduction

1. ESN4 recognizes that projects, activities, equipment, and infrastructure can increase communities' exposure to risks and impacts. In addition, communities that are already subjected to impacts from climate change may also experience an acceleration or intensification of impacts due to a project or set of activities.

2. ESN4 addresses the health, safety, and security risks and impacts on project-affected individuals and communities and the corresponding responsibility of the Client to avoid or minimize such risks and impacts, with particular attention to people whom, because of their circumstances, may be vulnerable. Occupational health and safety of project workers is addressed in ESN2. Some sources of risk or impact may be relevant to both project workers and individuals and communities.

Objectives

3. The objectives of ESN4 are as follows:

- To anticipate and avoid adverse impacts on the health and safety of project-affected communities during the project or operation life cycle from both routine and non-routine circumstances.
- To help promote public health and safety across the project's area of influence by, inter alia, promoting and supporting programmes, which aim at preventing the spread of major communicable diseases.
- To promote quality and safety, and considerations relating to climate change, in the design and construction of infrastructure, including dams.
- To avoid or minimize community exposure to project-related traffic and road safety risks, diseases and hazardous materials.
- To have in place effective measures to address emergency events.
- To ensure that the safeguarding of personnel and property through the provision of public or private security is carried out in a manner that avoids or minimizes risks to the project-affected communities and in a manner consistent with international human rights standards and principles.
- To help prevent against Sexual Exploitation, Abuse and Sexual Harassment (SEAH) of members of the community by project workers.

4. The applicability of this ESN is established during the environmental and social assessment

described in ESN1.

5. This ESN addresses potential risks and impacts on communities that may be affected by project activities. Occupational health and safety (OHS) requirements for project workers are set out in ESN2, and measures to avoid or minimize impacts on human health and the environment due to existing or potential pollution are set out in ESN3.

Requirements

6. The Client/ will evaluate the risks and impacts of the project on the health and safety of the affected communities during the project life cycle, including those who, because of their particular circumstances, may be vulnerable. To this end, the Client/ will develop and implement a Health and Safety Management Plan (HSMP). This plan will as a minimum, (i) identify risks and impacts and propose mitigation measures in accordance with the mitigation hierarchy (ii) address requirements for emergency prevention, preparedness and response and disease prevention and containment planning. The Plan will inter-relate functionally with other plans such as a Labour Influx Management Plan or plan against SEAH as appropriate.

7. The Client will ensure that all relevant requirements are incorporated into the procurement and bidding documents and contracts of primary suppliers, service providers, contractors and sub-contractors as appropriate. All health and safety management plans should form an integral part of the project's overall Environmental and Social Management Plan, which should be regularly reviewed and updated as required. All project workers will comply with the HSMP.

8. The Client will design, construct, operate, and decommission the structural elements of the project in accordance with national legal requirements, the ESNs and associated Guidance Notes, taking into consideration safety risks to third parties and affected communities. Structural elements of a project will be designed and constructed by competent professionals and certified or approved by competent authorities or professionals[1]. Structural design will take into account issues related to climate change such as changing vegetation patterns, local weather patterns, changes in hydrological conditions and the frequency and intensity of extreme weather events, as appropriate. Overall design will take into account the provision of universal access for persons with disabilities.

9. Where the project or activities supported by the Bank include new buildings and structures that will be accessed by members of the public, the Client will consider the incremental risks of the public's potential exposure to operational accidents or natural hazards, including extreme weather events. Where technically and financially feasible, the Client will also apply the concept of universal

[1] This may include, where appropriate, third-party life and fire safety audits for existing buildings that are used for communal purposes and for new buildings prior to their commissioning or use.

access[2] to the design and construction of such new buildings and structures.

10. When structural elements or components of a project or activities are situated in high-risk locations, including those with risk of extreme weather or slow onset events, and their failure or malfunction may threaten the safety of communities, the Client will engage one or more independent experts with relevant and recognized experience in similar projects, separate from those responsible for the design and construction, to conduct a review as early as possible in project development and throughout the stages of project design, construction, operation, and decommissioning. Where the Bank's operation involves a new or existing dam, the Client will provide sufficient resources to apply the requirements on safety of dams, as set out in Annex 1.

B. Traffic and Road Safety

11. The Client will identify, evaluate and monitor the potential traffic[3] and road safety risks to workers, affected communities and road users throughout the operational life cycle and, where appropriate, will develop measures and plans to address them. The Client will incorporate technically and financially feasible road safety measures into the project designs to prevent and mitigate potential road safety risks to road users and affected communities.

12. Where appropriate, the Client will undertake a road safety risk assessment for each phase of the project or activities (considering the needs and usage of the road by people that may be considered vulnerable[4]), and will monitor incidents and accidents, and prepare regular reports of such monitoring. The Client will use the reports to identify safety issues and establish and implement measures to resolve them.

13. For vehicles or fleets of vehicles for the purposes of the project or activities (owned or leased), the Client will put in place appropriate processes, including driver training, to improve driver and vehicle safety, as well as systems for monitoring and enforcement. The Client will consider the safety record or rating of vehicles in purchase or leasing decisions and require regular maintenance of all project vehicles.

14. For projects and activities that involve the operation of construction and other equipment on public roads or where the use of project equipment could have an impact on public roads or other public infrastructure, the Client will take appropriate safety measures to avoid the occurrence of incidents and injuries to members of the public associated with the operation of such equipment.

[2] May include all powered/motorized transportation relevant to the project.
[3] For example,children, elders, persons living with disability.
[4] The concept of universal access means unimpeded access for people of all ages and abilities in different situations and under various circumstances, as set out in GIIP.

C. Ecosystem Services

15. Direct impacts on ecosystem services may result in adverse health and safety risks to and adverse impacts on affected communities[5]. With respect to this ESN, ecosystem services are limited to provisioning and regulating services as defined in ESN1. Where appropriate and feasible, the Client will identify the operation or project's potential risks and impacts on ecosystem services that may be exacerbated by climate change. Adverse impacts will be avoided, and if they are unavoidable, the Client will implement appropriate mitigation measures.

D. Community Health Risks

16. Risks to public health and safety should be identified in the environmental and social scoping phase of E&S assessment. These may be addressed by competent and experienced experts during environmental and social assessment though, when the nature of the operation entails significant and/or cumulative public health risks and impacts it may be more appropriate to undertake a separate health impact assessment (HIA).

17. Potential adverse impacts affecting the health and safety of communities may arise from the following:

- Release of and exposure to hazardous materials or chemicals (e.g. seepage into ground water, contamination of surface water supplies) and increase risk of exposure to zoonotic diseases.
- Waste disposal (e.g. unsanitary landfills).
- Construction activity impacts, such as increased noise, dust and/or light levels throughout the day and for extended periods.
- Transportation-induced changes (e.g. changes in nature and volume of traffic provoking increase in levels of noise, dust and respiratory problems, environmental pollution, changes in nature, speeds and volumes of traffic and road accidents, etc.).
- When new building and structures will be accessed by members of the public, the promoter will consider incremental risks of the public's potential exposure to operational accidents and/or natural hazards and ensure consistency with the principle of universal access.
- Changes in population composition through, for example, in-migration of labour force, opportunity seekers or sex workers, in turn provoking pressure on health systems and infrastructure, exposure to sexually transmitted/communicable diseases, pressure on existing natural resources, increased vulnerability of local populations.
- Resource use related impacts (e.g. through modification of water courses, changes from earth movements).

[5] For example, land use changes or the loss of natural buffer areas, such as wetlands, mangroves and upland forests, which mitigate the effects of natural hazards such as flooding, landslides and fire, may result in increased vulnerability and community safety- related risks and impacts. The diminution or degradation of natural resources, such as adverse impacts on the quality, quantity, and availability of freshwater, may result in health-related risks and impacts.

- Structural component impacts (e.g. from failure of structures such as dams, faulty design, disruption of existing access); and,
- Introduction of new or change of existing (public or private) security arrangements.

18. In line with ESN2, in the event that hazardous materials and substances are part of existing project infrastructure or components, the Client will take special care that these are transported, made operational and decommissioned in accordance with good international industry practice, in a way that avoids or minimizes public exposure within the limits of governing national law and international good practice. Where there is a risk to public health and safety arising from the exposure to hazardous materials and substances, especially those that are life-threatening or known to cause serious hazards to human health and/or the environment, the Client will take due care to identify, eliminate and substitute such hazardous materials and substances accordingly. An emergency preparedness plan is required accordingly.

19. The Client will avoid or minimize the potential for community exposure to water-borne, water-based, water-related, and vector-borne diseases, and communicable and non-communicable diseases that could result from project activities, taking into consideration differentiated exposure to and higher sensitivity of vulnerable groups. Where specific diseases are endemic in communities in the project area, the Client is encouraged to explore opportunities during the project life cycle to improve environmental conditions that could help minimize their incidence.

E. Influx of Workers

20. To the extent possible, the Client will take the necessary measures to avoid, mitigate and manage the risks and potential adverse impacts on public health and safety arising from the influx of workers for the project or other activities supported by the Bank. Such risks and impacts may be associated with changes in population composition, intangible cultural heritage, health implications and exposure to communicable diseases, increased risk of GBV/SEAH and increased vulnerability of communities in the area of influence of the project due to increased pressure on available health facilities. The Client will take measures to avoid or minimize transmission of communicable diseases that may be associated with the influx of temporary or permanent labour. In conflict and post-conflict areas, the Client shall also endeavour to mitigate the exacerbation of rivalries that in-migration can cause.

21. The Client will ensure that women, girls, boys and men are protected from SEAH and GBV; and avoid and contain the spread of diseases associated with immigration, especially sexually transmitted diseases (including HIV/AIDS), tuberculosis, COVID-19, Ebola and malaria. To these ends, the Client shall organize training and awareness programmes and ensure that codes of conduct (for workers and people living in labour camps if any) are in accordance with GIIP[6].

[6] Such as the AfDB Bank Best Practice Note on Managing the Risk of Adverse Impacts on Communities from Temporary Project Induced Labour Influx.

22. Where project-induced migration risks are deemed to be significant, the Client will prepare a Labour Influx Management Plan. This will be complementary to or part of broader environmental and social assessment studies and plans. It will identify and assess health risks associated with the project and propose interventions such as those related to project design and management.

F. Promoting Public Health and Safety

23. The Client will support initiatives promoting community and public health, safety and security and aiming to reduce the spread of communicable and non-communicable diseases and disorders, such as Ebola, COVID-19, HIV/AIDS, Tuberculosis and Malaria, where an increased incidence of the above is linked to project or other activities supported by the Bank. In essence, the Client will collaborate with public authorities and other stakeholders (such as NGOs, CSOs) and build upon existing measures to implement public programmes and policies, including disease monitoring plans, that will raise the public's awareness and understanding of communicable and preventable diseases and will effectively counter their spread. Such existing measures could build upon relevant national programmes, include community awareness programmes and support mechanisms, and account for any long-term human resource implications (e.g. time lost, skills shortages, training needs). As part of the ESMP monitoring program, the Client will monitor any incidence of such diseases.

G. Management and Safety of Hazardous Materials

24. The Client will avoid or minimize the potential for community exposure to hazardous materials and substances that may be released by the project. Where there is a potential for the public (including workers and their families) to be exposed to hazards, particularly those that may be life-threatening, the Client will exercise special care to avoid or minimize their exposure by modifying, substituting, or eliminating the condition or material causing the potential hazards. Where hazardous materials are part of existing project infrastructure or components, the Client will exercise due care during construction and implementation of the project, including decommissioning, to avoid exposure to the community.

25. The Client will implement measures and actions to control the safety of deliveries of hazardous materials, and of storage, transportation and disposal of hazardous materials and wastes, and will implement measures to avoid or control community exposure to such hazardous material.

H. Emergency Preparedness and Response

26. The Client will identify and implement measures to address project-related emergency events that could compromise community health and safety. An emergency event is an unanticipated incident, arising from both natural and man-made hazards, typically in the form of fire, explosions, leaks or spills, which may occur for a variety of different reasons, including failure to implement operating procedures that are designed to prevent their occurrence, extreme weather or lack of early warning. The measures will be designed to address the emergency event in a coordinated and expeditious

manner, to prevent it from injuring the health and safety of the community, and to minimize, mitigate and compensate for any impacts that may occur.

27. Clients engaged in projects or activities having the potential to generate emergency events will conduct a risk and hazard assessment (RHA), as part of the environmental and social assessment undertaken pursuant to ESN1. Based on the results of the RHA, the Client will prepare an Emergency Preparedness and Response Plan (EPRP) in coordination with the relevant local authorities and the affected community, and will take into account the emergency prevention, preparedness and response arrangements put into place with project workers under ESN2[7].

28. An EPRP will include, as appropriate: (a) engineering controls (such as containment, automatic alarms, and shut-off systems) proportionate to the nature and scale of the hazard; (b) identification, of and secure access to emergency equipment available on-site and nearby; (c) notification, response and evacuation procedures and protocols for designated emergency responders; (d) diverse media channels for notification of the affected community and other stakeholders; (e) a training program for emergency responders including drills at regular intervals; (f) public evacuation procedures; (g) designated coordinator for EPRP implementation; and (h) measures for restoration and clean-up of the environment following any major accident.

29. The Client will document its emergency preparedness and response activities, resources, and responsibilities, and will disclose appropriate information, as well as any subsequent material changes thereto, to affected communities, relevant government agencies, or other relevant parties. The Client will assist and collaborate with affected communities, relevant government agencies and other relevant parties in their preparations to respond effectively to an emergency event, especially where their participation and collaboration will be an important part of an effective response.

30. The Client will review the EPRP on a regular basis and confirm that it is still capable of addressing the potential range of emergency events that might arise in connection with the project or activities supported by the Bank. The Client will support affected communities, relevant government agencies and other relevant parties through training and collaboration and will conduct such training in conjunction with the training provided to workers as part of the OHS requirements under ESN2.

I. Response and Reporting related to Accidents and Emergencies

31. Where any fatality, major incident, significant injury or ill-health occurs in the course of implementing project activities, or there is a potential of such occurrence, the Client will investigate, document, and analyze the findings, adopt measures to prevent occurrence or recurrence; and where required by law, notify and cooperate with the competent government authorities. The Client will report to the Bank any such project-related fatality, major incident, significant injury, and/or ill health as soon

[7] ESN2, paragraph 27 to 33

as possible after the Client becomes aware of it and no later than 24 hours after the event or as specified in the project ESMP/ESAP. This will be followed up by a detailed report outlining root cause analysis and future preventive measures and actions within an indicative time frame as specified in an ESMP/ESAP. In circumstances where it is not possible to complete a detailed report within such specified time, the Client and the Bank will agree on a more feasible date. For any project-related fatality, major incident, significant injury, and/or ill-health that necessitate changes to the HSMP, the Client will inform and consult with the relevant project workers and/or workers' representatives and their organizations, where applicable, on the changes. The Client will require its contractor(s) to record and maintain an accident and incident register throughout the project construction and implementation phases. For any fatality, major incident resulting in significant injury or ill-health caused by project activities, the Client will provide appropriate and timely compensation in accordance with the requirements of the host country's applicable laws, and, if relevant, GIIP.

32. In the course of ensuring that project assets and personnel are secured and safeguarded in a legitimate manner, the Client will assess the risks and impacts upon workers and communities in and surrounding the project area of influence resulting from the use of arrangements provided by security personnel, whether privately outsourced or publicly provided. Such security arrangements shall be defined in the ESMP. A security management plan may be required by the Bank, where deemed necessary.

33. All security management arrangements introduced and delivered either by public law and order and security forces or private service providers will be expected to comply with the Voluntary Principles on Security and Human Rights, the UN Basic Principles on the Use of Force and Firearms by Law Enforcement Officials, the UN Code of Conduct for Law Enforcement Officials and the International Code of Conduct on Private Security Providers, therein maintaining the safety and security of assets and persons on the project within an operating framework that ensures respect for human rights and fundamental freedoms.

34. In particular, such arrangements will reflect the principles of proportionality and GIIP, and by applicable law, in relation to hiring, rules of conduct, training, equipping, and monitoring of security personnel. The Client will not sanction any use of force by direct or contracted workers in providing security except when used for preventive and defensive purposes in proportion to the nature and extent of the threat.

35. The Client will ensure that government security personnel deployed to provide security services act in a manner consistent with the above and encourage the relevant authorities to disclose the security arrangements for the Clients' facilities to the public, subject to overriding security concerns.

36. The Client will (i) make reasonable inquiries to verify that the direct or contracted workers retained by the Client to provide security are not implicated in past abuses; (ii) train them adequately (or determine that they are properly trained) in the use of force (and where applicable, firearms), and appropriate conduct toward workers and affected communities, including against SEAH and GBV; and

(iii) require them to act within the applicable law and any requirements set out in the ESMP.

37. The Client will review all allegations of unlawful or abusive acts of security personnel, take action (or urge appropriate parties to take action) to prevent recurrence and, where necessary, report unlawful and abusive acts to the relevant authorities.

ESN 4 ANNEX 1: DAM SAFETY

New Dams

38. The Client will engage experienced and competent professionals for the supervision of the design and construction of new dams[8], and require the owner of the dam to adopt and implement dam safety measures during the design, bid tendering, construction, operation, and maintenance of the dam and associated works.

39. The dam safety requirements set out in this Annex apply to:

- "Large dams" which are defined as dams with a height of 15 meters or greater from the lowest foundation to crest or dams between 5 meters and 15 meters impounding more than 3 million cubic meters;
- All other dams regardless of size or retention capacity (referred to as "small dams") that (i) could cause safety risks, such as an unusually large flood-handling requirement, location in a zone of high seismicity, foundations that are complex and difficult to prepare, retention of toxic materials, or potential for significant downstream impacts or (ii) are expected to become large dams during their operating life.

40. These dams require:

- Reviews by an independent panel of experts (the Panel) of the investigation, design, and construction of the dam and the start of operations.
- Preparation and implementation of the following detailed plans, as further described in Section C[9]: a plan for construction supervision and quality assurance, an instrumentation plan, an operation and maintenance plan, and an emergency preparedness plan.
- Prequalification of bidders during procurement and bid tendering; and
- Periodic safety inspections of the dam after completion, and implementation of measures required addressing safety deficiencies.

41. The risks associated with a dam are design and situation specific, and will vary depending on structural components, socioeconomic factors and the environment within which the dam is being constructed and will operate. Application of the requirements set out in paragraph 40 will reflect these considerations, and be proportionate to the size, complexity and potential risk of the dam.

42. Where a dam does not fall into the categories set out in paragraph 39, dam safety measures designed by qualified engineers in accordance with GIIP will be adopted and implemented[10].

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[8] Dams include, for example, a water storage dam for a hydropower, water supply, irrigation, flood control, or multipurpose project, a tailing or a slimes dam, or an ash impoundment dam.

[9] As part of established dam safety practices in certain countries, the Operation and Maintenance (O&M) Plan includes the Instrumentation Plan and the Emergency Preparedness and Response Plan as specific sections of the O&M Plan. This method will be acceptable provided the relevant sections of the O&M Plan contain the details, and are prepared in accordance with the timing, set out in Section C below..

[10] In such circumstances, the Client will confirm, through the environmental and social assessment, that there will be no or negligible risk of significant adverse impacts due to potential failure of the dam structure to local communities and assets,

43. The Panel referred to in paragraph 40 above consists of competent qualified and experienced experts, appointed by the Client and acceptable to the Bank, with expertise in the various technical fields relevant to the safety aspects of the particular dam[11]. The Panel will review and advise the Client 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. The Client will normally extend 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, ship lifts, and fish ladders.

44. The Client will contract the services of the Panel and will provide administrative support for its activities. Beginning as early in project preparation as possible, the Client will arrange for periodic Panel meetings and reviews, which will continue through the investigation, design, construction, and initial filling and start-up phases of the dam[12]. The Client will inform the Bank in advance of the Panel meetings[13]. After each meeting, the Panel will provide the Client with a written report of its conclusions and recommendations, signed by each participating member; the Client will provide a copy of the Panel's report to the Bank. Following the filling of the reservoir and start-up of the dam, the Bank will review the Panel's findings and recommendations. If no significant difficulties are encountered in the filling and start-up of the dam, the Client may disband the Panel.

Existing Dams and Dams under Construction (DUC)

45. Where a project or activities rely or may rely on the performance of an existing dam or a dam under construction (DUC) in the host country territory, the Client will 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.

46. Such projects include, for example, 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 project facilities; 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

including assets to be financed as part of the proposed project. Such dams could include farm ponds, local silt retention dams and low embankment tanks.

[11] The number, professional breadth, technical expertise, and experience of Panel members need to be appropriate to the size, complexity, and hazard potential of the dam under consideration. For high-hazard dams, in particular, the Panel members will possess recognized international expertise in their field.

[12] 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.

[13] The Bank will normally send an observer to these meetings.

if the dam failed. They also include projects 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 project facilities.

47. The Client may use a previously prepared dam safety assessment or recommendations for improvements needed in an existing dam or DUC, if: (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 have already been conducted and documented and are satisfactory to the Bank.

48. For projects that include additional dam safety measures or require remedial work, the Client will require that: (a) the design and construction of dams are supervised by competent professionals; and (b) the reports and plans required for a new dam (specified in paragraph 40 (b)) are prepared and implemented. For high-hazard cases involving significant and complex remedial work, the Client will also employ a panel of independent experts on the same basis as for a new dam (see paragraphs 40 (a) and 43 of this Annex).

49. When the owner of the existing dam or DUC is an entity other than the Client, the Client will enter into agreements or arrangements providing for the measures set out in paragraphs 45 to 48 of this Annex to be undertaken by the owner.

50. Where appropriate, the Client may discuss with the Bank any measures necessary to strengthen the institutional, legislative and regulatory frameworks for dam safety programs in the country.

Dam Safety Reports

51. Dam safety reports will contain the information set out below and be prepared as follows:

• Plan for construction supervision and quality assurance. This plan will set out details of the organization, staffing levels, procedures, equipment and qualifications for supervision of the construction of a new dam or of remedial work on an existing dam. For a dam other than a water storage dam[14], this plan takes into account the usual long construction period, covering the supervision requirements as the dam grows in height—with any accompanying changes in construction materials or the characteristics of the impounded material—over a period of years. This plan will be prepared and submitted to the Bank during project preparation.

• Instrumentation plan. This is a detailed plan for the installation of instruments to monitor and record dam behaviour and the related hydro-meteorological, structural and seismic factors. This plan will be prepared and submitted to the Panel and Bank before bid tendering.

• Operation and maintenance (O&M) plan. This plan will set out details of the organizational structure, staffing, technical expertise and training required; equipment and facilities needed to operate and maintain the dam; O&M procedures; and arrangements for funding O&M, including

[14] For example, tailings dam or ash impoundment dam.

long-term maintenance and safety inspections. The O&M plan for a dam other than a water storage dam, in particular, will reflect changes in the dam's structure or in the nature of the impounded material that may be expected over a period of years. Elements required to finalize the plan and initiate operations are normally financed under the project. A preliminary plan will be prepared and provided to the Bank during project preparation. The plan will be refined and completed during project implementation. The final plan will be completed not less than six months prior to the start of the initial filling of the reservoir. Elements required to finalize the plan and initiate operations are normally financed under the project.

• Emergency preparedness and response plan. This plan will specify the roles of responsible parties when dam failure is considered imminent, or when expected operational flow release threatens downstream life, property, or economic operations that depend on river flow levels. It will include the following: clear statements on the responsibility for decision-making relating to dam operations and for the related emergency communications; maps outlining inundation levels for various emergency conditions; flood warning system characteristics; and procedures for evacuating threatened areas and mobilizing emergency forces and equipment. The plan for emergency communication will include the mechanism through which potentially affected downstream communities will be informed. The broad framework plan and an estimate of funds needed to prepare the plan in detail will be prepared and provided to the Bank during project preparation. The plan itself will be prepared during implementation and is provided to the Panel and Bank for review not later than one year before the projected date of initial filling of the reservoir).

ESN 4 ANNEX 2: INDICATIVE OUTLINE OF AN EMERGENCY PREPAREDNESS AND RESPONSE PLAN

General Objective

52. The Emergency Preparedness and Response Plan (EPRP) aims to organize emergency measures and the interveners, in a preventive and timely manner, with a view to the total and orderly sheltering of the populations and property at risk in the event that the physical integrity of the dam is threatened. It allows to:

- Plan for human, material and financial resources.
- Anticipate any disaster that could result from an accident at the dam site.
- Coordinate stakeholders' interventions.
- Protect communities' health and safety.
- Protect public and worker health.
- Protect the biophysical environment.
- Protect the property of third parties and the Dam operator.
- Accelerate the recovery/return to the normal situation.

Key elements of EPRP

1. **Summary of resp**onsibilities (including the responsibilities of national institutions in charge of civil protection)
2. **Alert Diagram/Chart** (who must be informed first of the incident, by whom, sequence the concerned are alerted according to their levels of responsibility, etc.)
3. **Statement of objectives** (see section A above)
4. **Description of the project/infrastructure and risks**

- Description of the characteristics of the dam (type, height, volume of the reservoir, downstream slope, characteristics of the site, etc.) in figures
- Critical events in the area (exceptional rain, upstream flooding, exceptional storm / thunderstorm, seismicity, etc.)
- Identification of the risks/hazards
- Dam failure/breach
- Other incidents (Cracks, slides, accidental spills, safety releases, subduction, leaks, etc.)

5. **Emergency response procedure** (consider existing systems: fire brigade, local emergency services, responsibilities of local authorities, health care centers, shelters, etc.)

- Step 1. Hazard Detection, Assessment and Determination of Level of Urgency
- Step 2. Alert-communication-notification to public (Dam failure, Other incident)
- Step 3. Relief actions and assistance (Evacuation and securing procedures, logistics, etc.)
- Step 4. End of the intervention, restoration and monitoring-evaluation.

6. **Key Responsibilities** (consider existing emergency systems in the country, region, municipality, etc.)

- Owner's Responsibility
- Alerting and Communication Responsibilities
- Responsibilities in terms of security, declaration of end of actions and follow-up
- Responsibility of the Emergency Plan Coordinator
- Responsibility of Emergency responders

7. **Preventive measures** (to be written using the ''who does what'' approach)

- Monitoring and follow-up
- Evaluation of the incident detected and phasing of the response/reaction
- Management of site access
- Reaction/intervention in darkness/low visibility conditions
- Reaction/intervention on public holidays or weekends
- Reaction/intervention under unfavorable weather conditions (storm, shower, strong wind, etc.)
- Alternative source of electrical energy
- Emergency equipment (logistics, kits, materials, etc.) and information
- Reserve equipment and materials
- Coordinating information
- Simulation/test and Training including drills
- Communication channels/medias and public awareness

8. **Maps of flood zones in the event of an incident**

- The immediate proximity zone (IPZ): area located just downstream of the dam and which would suffer considerable damage regardless of the type of incident
- The specific inundation zone (SIZ): area located downstream of the IPZ; it ends at "the point where the rise in water level is of the order of that of the strongest known floods"
- The extended inundation zone (EIZ): it extends downstream of the SIZ, beyond the emergency response area

9. **Appendices**

- Dam operation and maintenance requirements
- Information relating to the analyzes of the breach/failure probabilities
- Records of the reviews and updates of the plans
- The EPRP distribution list
- Updates of the EPRP
- History of recorded incident