# TERMS OF REFERENCE (INDICATIVE)

***Disaster and Climate Change Risk Assessment – Project Level (Simple)***

REGIONAL
*RG-T4437: Infrastructure Resilient to Disasters*

## 1. Background and Justification

**1.1.** The Technical Cooperation: Infrastructure Resilient to Disasters aims to mainstream disaster risk management (DRM) in infrastructure projects financed by IDB and complete the rolling out of the Disaster and Climate Change Risk Assessment (DCCRA) Methodology. The financing of project, sector, and territory-specific disaster risk studies, coupled with the provision of technical guidance in the formulation and implementation of disaster risk reduction (DRR) measures, are expected to raise the interest in investments in resilience for critical infrastructure. Moreover, addressing the integration of disaster resilience considerations, particularly in critical infrastructure, would ensure the sustainability of public investment.

**1.2.** *(Provide a brief justification for the existence of this project/contract explaining why the project/contract is needed. This will help the consulting firms to better understand the overall direction and context of the project/contract and its goals. This justification should be clear and precise to identify quantifiable measure of success for the end of the project.)*

## 2. Objectives

**2.1.** The overall purpose of this consultancy is to develop a Disaster and Climate Risk Assessment (DRA) and an accompanying Disaster and Climate Risk Management Plan (DRMP) for the [*project name*] project, to provide resiliency and improve or enhance the project's sustainability, as well as to meet with the IDBG's Disaster Risk Management Policy and the Environmental and Social Policy Framework.

## 3. Scope of Services

**3.1.** The DRA is expected to go beyond a generic literature review of all possible risks, it is expected to focus on the specific project-related issues that have been identified as relevant for this risk assessment, and which are specified next, and use accepted or standard methods to conduct a [*qualitative and/or quantitative*] analysis. The disaster and climate risks shall be evaluated for [*seismic, volcanic, landslide, tsunami, hurricane wind, storm surge, inland flooding, coastal flooding, sea level rise, drought and/or heatwave*] hazards in the study area of [*location*] and specifically for the following components or aspects of the operation: [*components/aspects*].

**3.2.** This analysis shall provide a [*qualitative and/or quantitative*] measure of the baseline risk conditions, as well as those of any proposed design or operation alternatives (that is, on a first instance for the existing conditions without the operation, and on a second instance

for the newly generated conditions after the operation is in place), for (i) the operation itself and (ii) for the operation's surrounding area and communities.

It is important to highlight that in assessing the risk for the surrounding communities, special care should be taken to identify (i) the marginal risk and (ii) additional impacts for these as a result of the implementation of the operation. This shall be done keeping in mind the difference between risk and impacts, where risk refers to the end result of combining the magnitude of a consequence with its frequency of occurrence, whereas impacts refer to the individual and frequency-independent consequences. Hence, there may be cases where the implementation of an operation generates new or additional impacts on its surroundings that would not be possible without the project, but overall reduces the risk. In consequence, the marginal risk refers to identifying how the risk (including both recurrent-small and rare-large events) changes for the surroundings, with respect to the situation without the operation, making sure that the operation does not exacerbate the risk for its surroundings. In addition to this, the newly generated impacts shall also be identified and assessed.

**3.3.** Based on a careful analysis of these results, the consultancy should provide recommendations and design/management guidelines aimed at reducing or managing the disaster risk of both the operation and the surrounding area, as well as a management plan for the identified impacts on surrounding communities and population.

## 4. Key Activities

### 4.1. [Conduct a **qualitative** risk assessment.

**4.1.1.** Gather data.

Gather all valuable data regarding studies, documents and considerations that the project may already have, and document how and to what extent disaster and climate risk management measures have already been incorporated, as well as identify gaps.

**4.1.2.** Perform a complete qualitative risk assessment.

This can be done through a workshop where disaster and climate risk experts work with technical personnel from the design/construction firms and the operation's executing agency to discuss and gauge all possible risks, contributing factors, potential consequences and intervention measures. Other qualitative techniques include formally applying the Delphi method of consulting expert opinion or using risk matrices. It must be indicated if it is possible to characterize and estimate the order of magnitude of possible social, economic and environmental impacts that would not be possible without the existence of the project.

**4.1.3.** Build a Disaster and Climate Risk Management Plan[1].

[1] Follow the IDB Guidelines available.

Using the results from the previous activities, build a risk management plan for those features of the operation that are deemed to not condition the technical and/or economic viability of the project. On the other hand, if specific features of the operation are found to condition the project's viability, these must be assessed quantitatively.]

**4.2.** Conduct a **deterministic quantitative** risk assessment.

**4.2.1.** Conduct a **baseline** (current conditions, pre-interventions) [*input hazard(s)*] Risk Assessment for (a) the operation, and (b) the communities of [*names of communities*] located in the influence area.

[*Only for hydrometeorological hazards:* For each of these analyses, two configurations of the risk model should be considered, baseline weather without considering climate change, and with climate change]. This activity is comprised of the following specific activities:

4.2.1.1. Hazard evaluation: evaluate the [*input hazard(s)*] hazard in terms of spatial extent, intensity and frequency of occurrence. For this, select one or more individual hazard scenarios, which may be reproductions of historical events or modeled design or worst-case scenarios. [*Input specific simplified method according to specific hazard*]. [*Only for hydrometeorological hazards:* Two hazard conditions should be considered, without considering climate change, and with climate change].

4.2.1.2. Exposure evaluation: assemble a geodatabase of all the physical assets (infrastructure and buildings) and social assets (population) that are part of (i) the operation itself, if something already exists and it comprises multiple assets that are spatially distributed, and (ii) the surrounding area of influence (nearby communities or settlements). These must be characterized through their physical conditions, their use sectors, and their economic value.

4.2.1.3. Vulnerability evaluation: evaluate the vulnerability conditions of (i) the project itself (if something already exists) and (ii) nearby assets and population. Best professional judgement and expert opinion should be used to assign this characteristic to individual assets (for the case of the operation) and grouped assets (for multiple assets in surrounding communities).

4.2.1.4. Risk evaluation: evaluate the resulting risk from the combination of hazard, exposure and vulnerability, evaluated above. For this, use GIS tools to obtain the values of the hazard intensity ([*input intensity measures corresponding to each hazard(s)*]) for the location of each exposed asset, determine the corresponding affection/damage level expected for each asset under the specific hazard intensity, and finally associate an economic value to the computed damage levels to obtain risk. [*Only for hydrometeorological hazards:* this calculation shall be carried out twice, using the hazard conditions without considering climate change, and with climate change].

**4.2.2.** Conduct a [*input hazard(s)*] Deterministic Risk Assessment including the operation and alternatives.

Based on the results obtained from activity 4.2.1, introduce the proposed project, together with risk reduction/mitigation/intervention measures or design alternatives, and conduct a second [*input hazard(s)*] Deterministic Risk Assessment, using the same methods and conditions as in activity 4.2.1, now introducing these interventions. For this, modifications must be made to the hazard, exposure or vulnerability evaluations if appropriate, responding to the changes that introducing the operation and intervention measures may cause.

The results for each of the evaluations made shall be expressed through the estimated economic losses, and these should be compared among themselves, but more importantly, compared to the results from activity 4.2.1, analyzing the differences in losses between the baseline and the post-operation implementation conditions. Hazard and risk maps should also be developed for the studied scenarios, and these should be compared to the maps from activity 4.2.1.

**4.2.3.** Build a Disaster and Climate Risk Management Plan[2].

Using the results from the previous activities, build a risk management plan that considers additional measures to further reduce the risk and to control the expected impacts.

## 5. Expected Outcome and Deliverables

**5.1.** Report 1: workplan and detailed study methodology
**5.2.** [Report 2: risk and data diagnosis from the **qualitative** risk assessment (activity 4.1.1.)
**5.3.** Report 3: results from the **qualitative** risk assessment (activity 4.1.2.)
**5.4.** Report 4: disaster & climate risk management plan from the **qualitative** risk assessment (activity 4.1.3.)]
**5.5.** Report 5: results from the baseline deterministic **quantitative** risk assessment (activity 4.2.1.)
**5.6.** Report 6: results from the deterministic **quantitative** risk assessment including the operations and intervention measures (activity 4.2.2.)
**5.7.** Report 7: disaster & climate risk management plan from the deterministic **quantitative** risk assessment (activity 4.2.3.)

*(Bank policy GN-2765-1 does not allow the procurement of goods and related services except when such goods and related services are necessary to achieve the objectives of the Bank-executed Operational Work and are included in the consulting services contract and represent less than ten percent (10%) of the consulting services contract value.) If it is determined that acquisition of goods is necessary by the consulting firm, please add a*

[2] Follow the IDB Guidelines available.

*very detailed technical specification of the minimum requirement of said goods.)*

## 6. Project Schedule and Milestones

**6.1.** Report 1 must be presented within 10 calendar days after the signature of the contract.
**6.2.** Report 2 must be presented within 25 calendar days after the signature of the contract.
**6.3.** Report 3 must be presented within 40 calendar days after the signature of the contract.
**6.4.** Report 4 must be presented within 50 calendar days after the signature of the contract.
**6.5.** Report 5 must be presented within 80 calendar days after the signature of the contract.
**6.6.** Report 6 must be presented within 120 calendar days after the signature of the contract.
**6.7.** Report 7 must be presented within 130 calendar days after the signature of the contract.

## 7. Reporting Requirements

**7.1.** Products must be presented in English/Spanish. All reports will be delivered as follows: i) the relevant electronic files in MS Word, Excel, or other application acceptable to the IDB (must include all annexes and appendices); ii) an electronic PDF file for each full report. These reports and electronic files should be delivered within the time limits mentioned above.
**7.2.** Provide verified working copies of all digital map files (.shp, .tiff, .grd, .gdb, .mxd, etc.), models, databases, and other files created during the consultancy.
**7.3.** Additionally, major findings of the consultancy must be summarized in a MS PowerPoint presentation in English/Spanish.

## 8. Acceptance Criteria

**8.1.** The *[division acronym]* Division of the IDB will have the technical responsibility of the execution of this contract as well as approval of products prepared by the consulting firm. This will be done in close coordination with the Environment, Rural Development and Disaster Risk Management Division (CSD/RND), the Social Infrastructure Group (VPS/INE/GIS), the Environmental and Social Safeguards Unit (VPS/ESG) and the Climate Change Division (CSD/CCS). In representation of the IDB, the technical coordination for this consultancy rests with *[xx, (position), [division] (email)]*, in close coordination with RND, GIS, ESG and CCS.

## 9. Other Requirements

**9.1.** *(Describe any special requirements, such as security requirements, any IT access restrictions/requirements or system downtime/maintenance if required.)*

## 10. Supervision and Reporting

**10.1.** The *[division acronym]* Division of the IDB will have the technical responsibility of the execution of this contract as well as approval of products prepared by the consulting

firm. In representation of the IDB, the technical coordination for this consultancy rests with *[xx, (position), [division] (email)]*, in close coordination with RND, GIS, ESG and CCS.

## 11. Schedule of Payments

**11.1.** Payment terms will be based on project milestones or deliverables. The Bank does not expect to make advance payments under consulting contracts unless a significant amount of travel is required. The Bank wishes to receive the most competitive cost proposal for the services described herein.

**11.2.** The IDB Official Exchange Rate indicated in the RFP will be applied for necessary conversions of local currency payments.

| **Payment Schedule** | |
|---|---|
| ***Deliverable*** | **%** |
| 1. At Bank's approval of Report 1 | 10% |
| 2. At Bank's approval of Report 2 | 10% |
| 3. At Bank's approval of Report 3 | 15% |
| 4. At Bank's approval of Report 4 | 10% |
| 5. At Bank's approval of Report 5 | 15% |
| 6. At Bank's approval of Report 6 | 20% |
| 7. At Bank's approval of Report 7 | 20% |
| **TOTAL** | 100% |

# TERMS OF REFERENCE (INDICATIVE)

***Disaster* and *Climate Change Risk Assessment – Project Level (Full)***

REGIONAL
*RG-T4437: Infrastructure Resilient to Disasters*

## 1. Background and Justification

**1.1.** The Technical Cooperation: Infrastructure Resilient to Disasters aims to mainstream disaster risk management (DRM) in infrastructure projects financed by IDB and complete the rolling out of the Disaster and Climate Change Risk Assessment (DCCRA) Methodology. The financing of project, sector, and territory-specific disaster risk studies, coupled with the provision of technical guidance in the formulation and implementation of disaster risk reduction (DRR) measures, are expected to raise the interest in investments in resilience for critical infrastructure. Moreover, addressing the integration of disaster resilience considerations, particularly in critical infrastructure, would ensure the sustainability of public investment.

**1.1.** *(Provide a brief justification for the existence of this project/contract explaining why the project/contract is needed. This will help the consulting firms to better understand the overall direction and context of the project/contract and its goals. This justification should be clear and precise to identify quantifiable measure of success for the end of the project.)*

## 2. Objectives

**2.1.** The overall purpose of this consultancy is to develop a Disaster and Climate Risk Assessment (DRA) and an accompanying Disaster and Climate Risk Management Plan (DRMP) for the [*project name*] project, to provide resiliency and improve or enhance the project's sustainability, as well as to meet with the IDBG's Disaster Risk Management Policy and the Environmental and Social Policy Framework.

## 3. Scope of Services

**3.1.** The DRA is expected to go beyond a generic literature review of all possible risks, it is expected to focus on the specific project-related issues that have been identified as relevant for this risk assessment, and which are specified next, and use accepted or standard methods to conduct a [*qualitative and/or quantitative*] analysis. The disaster and climate risks shall be evaluated for [*seismic, volcanic, landslide, tsunami, hurricane wind, storm surge, inland flooding, coastal flooding, sea level rise, drought and/or heatwave*] hazards in the study area of [*location*] and specifically for the following components or aspects of the operation: [*components/aspects*].

**3.2.** This analysis shall provide a [*qualitative and/or quantitative*] measure of the baseline risk conditions, as well as those of any proposed design or operation alternatives (that is, on a first instance for the existing conditions without the operation, and on a second instance for the newly generated conditions after the operation is in place), for (i) the operation itself and (ii) for the operation's surrounding area and communities. To conduct these

assessments, the consultancy will [*qualitatively and/or quantitatively*] evaluate the hazard conditions in terms of its spatial extent, intensity and frequency of occurrence (for the above mentioned hazards), the project's and surrounding communities' physical vulnerability to these hazards in terms of their expected behavior/response to being affected, and the expected levels of damage, losses and affection in population, ecosystems and infrastructure of the operation and surrounding communities.

It is important to highlight that in assessing the risk for the surrounding communities, special care should be taken to identify (i) the marginal risk and (ii) additional impacts for these as a result of the implementation of the operation. This shall be done keeping in mind the difference between risk and impacts, where risk refers to the end result of combining the magnitude of a consequence with its frequency of occurrence, whereas impacts refer to the individual and frequency-independent consequences. Hence, there may be cases where the implementation of an operation generates new or additional impacts on its surroundings that would not be possible without the project, but overall reduces the risk. In consequence, the marginal risk refers to identifying how the risk (including both recurrent-small and rare-large events) changes for the surroundings, with respect to the situation without the operation, making sure that the operation does not exacerbate the risk for its surroundings. In addition to this, the newly generated impacts shall also be identified and assessed.

**3.3.** Based on a careful analysis of these results, the consultancy should provide recommendations and design/management guidelines aimed at reducing or managing the disaster risk of both the operation and the surrounding area, as well as a management plan for the identified impacts on surrounding communities and population.

## 4. Key Activities

### 4.1. [Conduct a **qualitative** risk assessment.

**4.1.1.** Gather data.

Gather all valuable data regarding studies, documents and considerations that the project may already have, so as to document how and to what extent disaster and climate risk management measures have already been incorporated in the project designs and in general in the area of study, as well as to identify the gaps that exist.

**4.1.2.** Perform a complete qualitative risk assessment.

This can be done through a workshop where disaster and climate risk experts work with technical personnel from the design/construction firms and the operation's executing agency to discuss and gauge all possible risks, contributing factors, potential consequences and intervention measures. Other qualitative techniques include formally applying the Delphi method of consulting expert opinion or using risk matrices. It must be indicated if it is possible to characterize and estimate the order of magnitude of possible social, economic and environmental impacts that would not be possible without the existence of the project.

**4.1.3.** Build a Disaster and Climate risk Management Plan[3].
Using the results from the previous activities, build a risk management plan for those features of the operation that are deemed to not condition the technical and/or economic viability of the project. On the other hand, if specific features of the operation are found to condition the project's viability, these must be assessed quantitatively.]

**4.2.** Conduct a [*fully- or pseudo-*] **probabilistic quantitative** risk assessment (see section 9.1 for details on the methodology to conduct this assessment).

**4.2.1.** Conduct a **baseline** (current conditions, pre-interventions) Probabilistic [*input hazard(s)*] Risk Assessment for (a) the operation, and (b) the communities of [*names of communities*] located in the influence area.

[*Only for hydrometeorological hazards:* For each of these analyses, two configurations of the risk model should be considered, without considering climate change, and with climate change]. This activity is comprised of the following specific activities:

4.2.1.1. Hazard evaluation: probabilistically evaluate the [*input hazard(s)*] hazard in terms of spatial extent, intensity and probability of occurrence. [*Only for hydrometeorological hazards:* Two hazard conditions should be considered, without considering climate change, and with climate change].

4.2.1.2. Exposure evaluation: assemble an updated geodatabase of all the physical assets (infrastructure and buildings) and social assets (population) that are part of (i) the operation itself, if something already exists and it comprises multiple assets that are spatially distributed, and (ii) the surrounding area of influence (nearby communities or settlements).

4.2.1.3. Vulnerability evaluation: probabilistically evaluate the vulnerability conditions of (i) the project itself (if something already exists) and (ii) nearby assets and population.

4.2.1.4. Risk evaluation: probabilistically evaluate the resulting risk from the combination of hazard, exposure and vulnerability, evaluated above. [*Only for hydrometeorological hazards:* this calculation shall be carried out twice, using the hazard model without considering climate change, and with climate change].

**4.2.2.** Conduct a Probabilistic [*input hazard(s)*] Risk Assessment including the operation and proposed alternatives.
Based on the results obtained from activity 4.2.1, introduce the proposed project, together with risk reduction/mitigation/intervention measures or design alternatives, and conduct a second Probabilistic [*input hazard(s)*] Risk Assessment, using the same methods and conditions as in activity 4.2.1, now introducing these

[3] Follow the IDB Guidelines available.

interventions. This activity is comprised of the following specific activities:

4.2.2.1. Propose risk reduction measures: based on the risk evaluations from activity 4.2 provide structural (physical construction or engineering techniques or technology) and/or nonstructural (policies, laws, training or education) designs guidelines and strategies to reduce and manage the [*input hazard(s)*] risk of the area and increase its adaptive capacity.

4.2.2.2. Run a second Probabilistic [*input hazard(s)*] Risk Assessment: for this, modifications must be made to the hazard, exposure or vulnerability evaluations if appropriate, responding to the changes that introducing the operation and intervention measures may cause.

The results of this new evaluation made shall be expressed through the estimated economic losses, and these should be compared among themselves, but more importantly, compared to the results from activity 4.2.1, analyzing the differences in losses between the baseline and the post-operation implementation conditions. Hazard and risk maps should also be developed, and these should be compared to the maps from activity 4.2.1.

**4.2.3.** Build a Disaster and Climate risk Management Plan[4].

Using the results from the previous activities, build a risk management plan that considers additional measures to further reduce the risk and to control the expected impacts.

## 5. Expected Outcome and Deliverables

**5.1.** Report 1: workplan and detailed study methodology

**5.2.** [Report 2: risk and data diagnosis and results from the **qualitative** risk assessment (activity 4.1.1. and 4.1.2.)

**5.3.** Report 3: disaster & climate risk management plan from the **qualitative** risk assessment (activity 4.1.3.)]

**5.4.** Report 4: results from the **baseline probabilistic quantitative** hazard assessment (activity 4.2.1.1.)

**5.5.** Report 5: results from the **baseline probabilistic quantitative** exposure, vulnerability and risk assessment (activities 4.2.1.2 – 4.2.1.4.)

**5.6.** Report 6: operation design and risk reduction and intervention measures (activity 4.2.2.1.)

**5.7.** Report 7: results from the **probabilistic quantitative** risk assessment including the operation and intervention measures (activity 4.2.2.2.)

**5.8.** Report 8: disaster & climate risk management plan from the **probabilistic quantitative** risk assessment (activity 4.2.3.)

*(Bank policy GN-2765-1 does not allow the procurement of goods and related services except when such goods and related services are necessary to achieve the objectives of*

[4] Follow the IDB Guidelines available.

*the Bank-executed Operational Work and are included in the consulting services contract and represent less than ten percent (10%) of the consulting services contract value.) If it is determined that acquisition of goods is necessary by the consulting firm, please add a very detailed technical specification of the minimum requirement of said goods.)*

## 6. Project Schedule and Milestones

**6.1.** Report 1 must be presented within 10 calendar days after the signature of the contract.
**6.2.** Report 2 must be presented within 40 calendar days after the signature of the contract.
**6.3.** Report 3 must be presented within 50 calendar days after the signature of the contract.
**6.4.** Report 4 must be presented within [80/120: pseudo- or fully-probabilistic] calendar days after the signature of the contract.
**6.5.** Report 5 must be presented within [130/180: pseudo- or fully-probabilistic] calendar days after the signature of the contract.
**6.6.** Report 6 must be presented within [140/190: pseudo- or fully-probabilistic] calendar days after the signature of the contract.
**6.7.** Report 7 must be presented within [200/250: pseudo- or fully-probabilistic] calendar days after the signature of the contract.
**6.8.** Report 8 must be presented within [210/260: pseudo- or fully-probabilistic] calendar days after the signature of the contract.

## 7. Reporting Requirements

**7.1.** Products must be presented in English/Spanish. All reports will be delivered as follows: i) the relevant electronic files in MS Word, Excel, or other application acceptable to the IDB (must include all annexes and appendices); ii) an electronic PDF file for each full report. These reports and electronic files should be delivered within the time limits mentioned above.
**7.2.** Provide verified working copies of all digital map files (.shp, .tiff, .grd, .gdb, .mxd, etc.), models, databases, and other files created during the consultancy.
**7.3.** Additionally, major findings of the consultancy must be summarized in a MS PowerPoint presentation in English/Spanish.

## 8. Acceptance Criteria

**8.1.** The *[division acronym]* Division of the IDB will have the technical responsibility of the execution of this contract as well as approval of products prepared by the consulting firm. This will be done in close coordination with the Environment, Rural Development and Disaster Risk Management Division (CSD/RND), the Social Infrastructure Group (VPS/INE/GIS), the Environmental and Social Safeguards Unit (VPS/ESG) and the Climate Change Division (CSD/CCS). In representation of the IDB, the technical coordination for this consultancy rests with *[xx, (position), [division] (email)]*, in close coordination with RND, GIS, ESG and CCS.

## 9. Other Requirements

**9.1.** The consulting firm should follow the methodology detailed next to conduct activity 4.2.

Probabilistic [*hazard(s)*] Risk Assessment methodology: a *[pseudo- or fully-]* probabilistic risk assessment seeks to estimate the losses (economic or human) that in average can be expected to occur with a certain temporal recurrence in a determined set of assets or population that is exposed to one or more natural hazards. A study of this nature consists of four modules – hazard module, exposure module, vulnerability module and risk module – each of which is explained next.

**Hazard module:** the hazard module of a *[pseudo- or fully-]* probabilistic risk assessment consists of a [set of integrated hazard results each one with an associated return period // set of stochastic events which as a whole represent the entire universe of possibilities of [*hazard(s)*] in the study area*: pseudo- or fully-probabilistic respectively*]. Each of these [integrated hazard scenarios // individual hazard events*: pseudo- or fully-probabilistic respectively*] must contain the spatial distribution of the intensity measure selected for analysis – [*hazard intensities*] in this case –, and an associated [return period // frequency of occurrence, so that a probability distribution can be built for the selected intensity measure*: pseudo- or fully-probabilistic respectively*].

[*Input specific probabilistic modeling method according to specific hazard*]. [*Only for hydrometeorological hazards:* Climate change must be included, using future climatic projections drawn from similar conditions as the Intergovernmental Panel on Climate Change (IPCC) scenarios. Regional climate model projections should be used (if possible), applying downscaling techniques when necessary. The resulting projections should directly be used to alter or modify the historic analysis and subsequent process of generating stochastic events. To do this it is recommended to use weather generator models such as the *non-parametric K-Nearest Neighbor*[5] (Simonovic and Peck, 2009), *SDSM*[6] (Wilby and Dawson, s.f.) or similar.]

**Exposure module:** the exposure module of a probabilistic risk assessment consists of a geo-referenced database containing all of the physical assets, as well as population, that may be affected by a natural hazard. The hazard module (explained above) will affect what is contained in this module. This module must properly characterize the assets, storing attributes such as their physical conditions, construction types and materials, number of stories, use sector, economic value, and any others that may be needed to connect to the vulnerability module.

**Vulnerability module:** the vulnerability module of a probabilistic risk assessment consists of a set of probabilistic vulnerability curves which depict the expected behavior

[5] https://ir.lib.uwo.ca/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1027&context=wrrr
[6] http://www.lboro.ac.uk/departments/sspgs/social-impact/climate-adaptation/

of an asset under a determined hazard. These relate hazard intensity with a level of damage, typically expressed through a percentage of the asset's value that is lost. To create these functions for individual assets that are required to be studied in detail, adequate and structure-specific engineering models must be built; [*input specific modeling method according to specific hazard*]. On the other hand, for the surrounding communities, which may be comprised by numerous assets, the exposure database shall be classified into general structural typologies (groupings), and existent vulnerability functions may be used.

**Risk module:** the risk module of a *[pseudo- or fully-]* probabilistic risk assessment combines the hazard, exposure and vulnerability modules and computes losses in a probabilistic manner. The objective of a PRA lies in obtaining the complete universe of possible losses and their probability or frequency of occurrence. The sequence of the risk calculation is as follows: [for each integrated hazard scenario the expected loss is computed for each exposed asset, the contribution from all assets is computed and the corresponding losses for different return periods are obtained / for each hazard event, the probability distribution of the loss is computed for each exposed asset, then the probability that the loss for this scenario exceeds a certain value is computed, then this is multiplied by the annual frequency of occurrence of the scenario, and finally the contribution of all scenarios is computed*: pseudo- or fully-probabilistic respectively*].

[Risk results are usually depicted in terms of the Annual Average Loss (AAL) computed from the resulting losses and their corresponding return periods // Risk results are usually depicted in what is called the loss exceedance curve (LEC) which contains all the necessary information on losses. From the LEC, a couple of metrics can be derived, which are usually used to express risk: the Average Annual Loss (AAL), Probable Maximum Loss (PML) and probabilities of exceeding certain losses in specific timeframes*: pseudo- or fully-probabilistic respectively*. ] Risk maps can be created, illustrating the geographic distribution of the AAL, both in absolute (economic losses) and relative (as a percent of the exposed assets' value) terms, to visually identify areas at higher or lower risk.

**9.2.** The consulting firm must have experience in disaster risk assessments, [*only for hydrometeorological hazards:* climate modelling, climate change vulnerability assessments], [*hazard*] modelling, and statistical analysis. Having a local team member is a plus. At least one member of the team should have proved know-how of the intervention area. The consultant team can be composed by any number of specialists as soon as they combine at least the following experience:

- Project leader: At least 15 years of demonstrated professional experience in leading multidisciplinary groups in disaster risk assessments, [*only for hydrometeorological hazards:* climate risks and climate change]. Master's degree in project management, engineering, administration, economy, finance, or related field.
- Disaster risk specialist: At least 10 years of demonstrated professional experience in

conducting disaster risk analysis, [*only for hydrometeorological hazards:* specifically working with climate-related risks and climate change]. Proven experience in developing [*hazard*] models and conducting probabilistic [*hazard*] risk analysis. Proven knowledge of using probabilistic disaster risk methodologies and modelling platforms such as CAPRA, HAZUS or similar. Professional degree (preferably Master's) in civil or environmental engineering, geography, or similar.

- [*Only for hydrometeorological hazards:* Climate Modeler: University professional with master's degree in Civil or Environmental Engineering, Atmospheric or Climate Science, or related field.]
- [*Hazard*] Modeler: Professional with master's degree in engineering or similar, and at least 5 years of demonstrated [*hazard*] modelling. [*Input hazard-specific requirements*].
- Local specialist: University professional with at least 10 years of proven working experience in the intervention area.

## 10. Supervision and Reporting

**10.1.** The *[division acronym]* Division of the IDB will have the technical responsibility of the execution of this contract as well as approval of products prepared by the consulting firm. In representation of the IDB, the technical coordination for this consultancy rests with *[xx, (position), [division] (email)]*, in close coordination with RND, GIS, ESG and CCS.

## 11. Schedule of Payments

**11.1** Payment terms will be based on project milestones or deliverables. The Bank does not expect to make advance payments under consulting contracts unless a significant amount of travel is required. The Bank wishes to receive the most competitive cost proposal for the services described herein.

**11.2** The IDB Official Exchange Rate indicated in the RFP will be applied for necessary conversions of local currency payments.

| **Payment Schedule** | |
|---|---|
| ***Deliverable*** | **%** |
| 1. At Bank's approval of Report 1 | 5% |
| 2. At Bank's approval of Report 2 | 10% |
| 3. At Bank's approval of Report 3 | 10% |
| 4. At Bank's approval of Report 4 | 10% |
| 5. At Bank's approval of Report 5 | 15% |
| 6. At Bank's approval of Report 6 | 20% |
| 7. At Bank's approval of Report 7 | 20% |
| 8. At Bank's approval of Report 8 | 10% |
| **TOTAL** | 100% |

# TERMS OF REFERENCE (INDICATIVE)

***Consultancy for the inspection and assessment of potential disaster and climate change risks post-event in projects financed by the Bank***

REGIONAL
*RG-T4437: Infrastructure Resilient to Disasters*

## 1. Background and Justification

**1.1.** The Technical Cooperation: Infrastructure Resilient to Disasters aims to mainstream disaster risk management (DRM) in infrastructure projects financed by IDB and complete the rolling out of the Disaster and Climate Change Risk Assessment (DCCRA) Methodology. The financing of project, sector, and territory-specific disaster risk studies, coupled with the provision of technical guidance in the formulation and implementation of disaster risk reduction (DRR) measures, are expected to raise the interest in investments in resilience for critical infrastructure. Moreover, addressing the integration of disaster resilience considerations, particularly in critical infrastructure, would ensure the sustainability of public investment.

**1.1.** This consultancy will evaluate disaster and climate risk related aspects in the following operation: (*name and project number*). (*Provide a brief justification for the existence of this project/contract explaining why the project/contract is needed. This will help the consulting firms to better understand the overall direction and context of the project/contract and its goals. This justification should be clear and precise to identify quantifiable measure of success for the end of the project.)*

## 2. The team

**2.1.** The *[division]* division is part of the *[sector]* and provides *[type of services provided, or work conducted by the division]*.

## 3. What you'll do

**3.1.** The consultant will conduct a site visit to the *(project number)* project in *(country and municipality)* and perform the following activities:

- Site visit to *(country and municipality and specific locations)*.
- Perform a qualitative assessment of the current disaster and climate risk for the project.
- Propose a set of short-term recommendations to manage pressing issues.
- Propose a set of medium/long-term recommendations to manage remaining risks (*only for the case where TOR are needed:* including detailed Terms of Reference for further studies if these are found to be needed.)

## 4. Deliverables

**4.1.** The consultant will deliver the following:

- Product 1: Memory aid report including the results of the diagnosis performed and of the meetings and/or interviews conducted during the site visit.
- Product 2: Report summarizing the findings and short-term recommendations.
- Product 3:Report summarizing the medium and long-term recommendations (*only for the case where TOR are needed:* including detailed Terms of Reference for further studies.)

## 5. Payment timeline

- 25% after dellivery and approval of Product 1
- 35% after dellivery and approval of Product 2
- 40% after dellivery and approval of Product 3

## 6. Skills you'll need

**6.1.** The consultant must have the following skills:

- **Education:** Master's degree in civil or environmental engineering, environmental sciences or related fields. *(specific specialties such as hydraulic engineering, geotechnical engineering, structural engineering, etc.)*.
- **Experience:** At least 5 years of experience in *(specific studies)* studies.
- **Languages:** Spanish/English/Portuguese/French required, Spanish/English/Portuguese/French desired.
- **Core and Technical Competencies:** *(specific competencies)* and disaster and climate risk assessment methodologies.

## 7. Opportunity Summary

**7.1. Type of contract and modality:** Products and External Services Cotractual (PEC), Lump Sum.

**7.2. Length of contract:** X months/beginning XXX.

**7.3. Location:** *(specific locations(s))*

**7.4. Responsible person:** The *[division acronym]* Division of the IDB will have the technical responsibility of the execution of this contract as well as approval of products prepared by the consultant. This will be done in close coordination with the Environment, Rural Development and Disaster Risk Management Division (CSD/RND), the Social Infrastructure Group (VPS/INE/GIS), the Environmental and Social Safeguards Unit (VPS/ESG) and the Climate Change Division (CSD/CCS). In representation of the IDB, the technical coordination for this consultancy rests with *[xx, (position), [division] (email)]*, in close coordination with RND, GIS, ESG and CCS.

**7.5. Requirements:** You must be a citizen of one of the IDB's 48 member countries and have no family members currently working at the IDB Group.

## 8. Our culture

**8.1.** Working with us you will be surrounded by a diverse group of people who have years of experience in all types of development fields, including transportation, health, gender and diversity, communications and much more.

## 9. About us

**9.1.** At the Inter-American Development Bank, we're devoted to improving lives. Since 1959, we've been a leading source of long-term financing for economic, social, and institutional development in Latin America and the Caribbean. We do more than lending though. We partner with our 48-member countries to provide Latin America and the Caribbean with cutting-edge research about relevant development issues, policy advice to inform their decisions, and technical assistance to improve on the planning and execution of projects. For this, we need people who not only have the right skills, but also are passionate about improving lives.

## 10. Payment and Conditions

**10.1.** Compensation will be determined in accordance with Bank's policies and procedures. The Bank, pursuant to applicable policies, may contribute toward travel and moving expenses. In addition, candidates must be citizens of an IDB member country.

## 11. Visa and Work Permit

**11.1.** The Bank, pursuant to applicable policies, may submit a visa request to the applicable immigration authorities; however, the granting of the visa is at the discretion of the immigration authorities. Notwithstanding, it is the responsibility of the candidate to obtain the necessary visa or work permits required by the authorities of the country(ies) in which the services will be rendered to the Bank. If a candidate cannot obtain a visa or work permit to render services to the Bank the contractual offer will be rescinded

## 12. Consanguinity

**12.1.** Pursuant to applicable Bank policy, candidates with relatives (including the fourth degree of consanguinity and the second degree of affinity, including spouse) working for the IDB, IDB Invest, or MIF as staff members or Complementary Workforce contractuals, will not be eligible to provide services for the Bank.

## 13. Diversity

**13.1.** The Bank is committed to diversity and inclusion and to providing equal opportunities to all candidates. We embrace diversity based on gender, age, education, national origin, ethnic origin, race, disability, sexual orientation, and religion. We encourage women, Afro-descendants and persons of indigenous origins to apply.

**HRD Terms of References** **ANNEX A**

**Infrastructure and Energy Sector Social Infrastructure / Infrastructure Consultant**

**Post of duty: Washington D.C.**

The IDB Group is a community of diverse, versatile, and passionate people who come together on a journey to improve lives in Latin America and the Caribbean. Our people find purpose and do what they love in an inclusive, collaborative, agile, and rewarding environment.

## Background and Justification

The Technical Cooperation: Infrastructure Resilient to Disasters aims to mainstream disaster risk management (DRM) in infrastructure projects financed by IDB and complete the rolling out of the Disaster and Climate Change Risk Assessment (DCCRA) Methodology. The financing of project, sector, and territory-specific disaster risk studies, coupled with the provision of technical guidance in the formulation and implementation of disaster risk reduction (DRR) measures, are expected to raise the interest in investments in resilience for critical infrastructure. Moreover, addressing the integration of disaster resilience considerations, particularly in critical infrastructure, would ensure the sustainability of public investment.

## About this position

We are looking for a diligent, experienced, and motivated architect or engineer to work with social infrastructure projects in all bank borrowing countries. As a social infrastructure consultant, you will provide technical assistance in planning, architecture/engineering, disaster risk reduction, climate change adaptation, procurement guidance, and construction work.

You will work in the Social Infrastructure Group (GIS for its abbreviation in Spanish), belonging to the Infrastructure and Energy department (INE). This team is responsible for providing technical assistance in planning, architecture/engineering, disaster risk management and resilience, procurement, and construct works coordination for the social infrastructure components of projects of other IDB departments, including educational, health, social protection, security, tourism, and housing; and promoting the development of sustainable, resilient, and innovative social infrastructure in the region.

## What you'll do:

- Support the Team Leader during project preparation, to plan and describe the social infrastructure component, including scope of works, and list of projects, sites analysis, risks identification, designs reviews, preliminary budget, execution strategy, among others.
- Review the designs, norms and standards for the design and construction, and propose improvements with a focus on environmental sustainability using energy and water efficient solutions, and the promotion of quality spaces.
- Provide technical advice on disaster risk management to country and IDB project teams during the formulation, implementation and evaluation of social infrastructure projects, components, or activities.
- Review and prepare tender documents for design, construction and coordination of works, supervision, and other consultancies.

- Support supervision of the construction works, together with local consultants, and review the coordination reports, monitoring the construction progress.
- Support the Team Leader in the technical dialogue with the Executing Agencies and other team members.
- Develop significant guidelines and recommendations that will support and improve the design and execution of projects, conduct workshops, develop documents, publications, and blogs.
- Contribute to the collection, dissemination, documentation, and analysis of lessons learned in social infrastructure.
- Promote and participate in the collaborative work with other areas and divisions of the IDB.
- Organize and participate in missions and / or seminars, when requested.

**What you'll need**

- **Education:** Bachelor in architecture or engineering. Master in architecture or engineering.
- **Experience:** At least 5 years of experience in operations/projects that includes social infrastructure projects in different countries. Experience in project management, planning, coordination and construction of architectural works, including experience in the design, construction and disaster risk management of social infrastructure projects. Experience in the design and execution of projects and loans, preferably financed by international development agencies.
- **Languages:** Proficiency in Spanish and English, spoken and written, is required. Additional knowledge of French and Portuguese is preferable.

**Key skills:**

- Learn continuously.
- Collaborate and share knowledge.
- Focus on clients.
- Communicate and influence.
- Innovate and try new things.

**Requirements:**

- **Citizenship:** You are a citizen of one of our 48-member countries.
- **Consanguinity**: You have no family members (up to the fourth degree of consanguinity and second degree of affinity, including spouse) working at the IDB, IDB Invest, or IDB Lab.

**Type of contract and duration:**

- **Type of contract:** International Consultant Full-Time.
- **Length of contract:** 19 months.
- **Work Location:** On site.

## What we offer

The IDB group provides benefits that respond to the different needs and moments of an employee's life. These benefits include:

- A **competitive compensation** packages.
- **Leaves and vacations**: 2 days per month of contract + gender- neutral parental leave.
- **Health Insurance**: the IDB Group provides a monthly allowance for the purchase of health insurance.
- **Savings plan**: The IDB Group cares about your future, depending on the length of the contract, you will receive a monthly savings plan allowance.
- We offer assistance with **relocation and visa applications** for you and your family when it applies.
- **Hybrid** and **flexible** work schedules.
- **Development support:** We offer learning opportunities to boost your professional profile such as seminars, 1:1 professional counseling, and much more.
- **Health and wellbeing:** Access to our Health Services Center which provides preventive care and health education for all employees.
- **Other perks:** Lactation Room, Daycare Center, Gym, Bike Racks, Parking, and others.

**Consultant Part-Time**

- A **competitive compensation** packages.
- A flexible way of working. You will be evaluated by deliverable.

## Our culture

At the IDB Group we work so everyone brings their best and authentic selves to work, willing to try new approaches without fear, and where they are accountable and rewarded for their actions.

Diversity, Equity, Inclusion and Belonging (DEIB) are at the center of our organization. We celebrate all dimensions of diversity and encourage women, LGBTQ+ people, persons with disabilities, Afro-descendants, and Indigenous people to apply.

We will ensure that individuals with disabilities are provided reasonable accommodation to participate in the job interview process. If you are a qualified candidate with a disability, please e-mail us at diversity@iadb.org to request reasonable accommodation to complete this application.

**Our Human Resources Team reviews carefully every application.**

## About the IDB Group

The IDB Group, composed of the Inter-American Development Bank (IDB), IDB Invest, and the IDB Lab offers flexible financing solutions to its member countries to finance economic and social development through lending and grants to public and private entities in Latin America and the Caribbean.

## About IDB

We work to improve lives in Latin America and the Caribbean. Through financial and technical support for countries working to reduce poverty and inequality, we help improve health and

education and advance infrastructure. Our aim is to achieve development in a sustainable, climate-friendly way. With a history dating back to 1959, today we are the leading source of development financing for Latin America and the Caribbean. We provide loans, grants, and technical assistance; and we conduct extensive research. We maintain a strong commitment to achieving measurable results and the highest standards of integrity, transparency, and accountability.

**Follow us**:

https://www.linkedin.com/company/inter-american-development-bank/

https://www.facebook.com/IADB.org

https://twitter.com/the_IDB

**TÉRMINOS DE REFERENCIA**
**Regional**

**Consultoría para la Facilitación de Ediciones del Curso SPOC sobre Análisis de Riesgos de Desastres y Cambio Climático en Proyectos de Infraestructura.**

## 1. Antecedentes y justificación

La evaluación del riesgo de desastres naturales constituye la base para la identificación y diseño de las políticas públicas más idóneas para la gestión del riesgo de desastres y la adaptación al cambio climático**.** A pesar de que existe evidencia sobre el impacto de las amenazas naturales en el desarrollo, en América Latina y el Caribe (LAC) la incorporación formal de la evaluación del riesgo de desastres en los procesos de planificación de la inversión y de la protección financiera en el sector público, ha recibido, hasta ahora, escasa atención. Si la cuantificación de las pérdidas futuras no forma parte de los procesos de planificación de la inversión pública y de definición de estrategias de protección financiera en un gobierno, resulta casi imposible proveer adecuadamente los recursos presupuestales para enfrentar los desastres y reducir las pérdidas potenciales.

Esta falta de progreso en la integración del análisis del riesgo de desastres en dichos procesos se ha debido, en gran medida, al desconocimiento que hay sobre este tipo de evaluaciones y las metodologías existentes. Por lo cual, es necesario difundir conocimiento sobre el marco conceptual y el estado del arte de las metodologías de análisis del riesgo de desastres. Este conocimiento es muy importante también para la comunidad de cambio climático, porque a raíz de los esfuerzos para llegar a los objetivos de cambio climático y las Contribuciones Previstas y Determinadas a Nivel Nacional (NDCs), se están impulsando esfuerzos con los ministerios de finanzas y los sistemas de inversión pública que tienen que estar muy bien articulados con los esfuerzos en materia de gestión del riesgo de desastres para no duplicar esfuerzos y trabajar de forma articulada.

El Instituto Interamericano para el Desarrollo Económico y Social (INDES), ofrece capacitación a través de diferentes modalidades de enseñanza y aprendizaje. Utiliza para ello soporte tecnológico asíncrono y síncrono con el propósito de llegar a un público objetivo variado, con diferentes necesidades de capacitación y disperso geográficamente. Las modalidades de autoaprendizaje y eLearning son soluciones que agilizan la posibilidad de llevar conocimiento y generar aprendizaje para el personal profesional y administrativo del Banco, clientes y asociados, dentro y fuera de la sede central. En el caso del staff, estas modalidades contribuyen a desarrollar y aumentar la cultura de aprendizaje continuo.

La División de Medio Ambiente, Desarrollo Rural y Gestión de Riesgos por Desastres (CSD/RND, en conjunto con KNL/SDI está apoyando el desarrollo de una serie de **Cursos privados en línea dirigidos a audiencias específicas (SPOC por sus siglas en inglés)** sobre el tema de Gestión de Riesgos de Desastres y Cambio Climático, como complemento a los programas y cursos que actualmente ofrece el Banco a audiencias específicas a través de la plataforma virtual INDES. Estos cursos están disponibles al público en IDBx, un espacio virtual del Banco en edX, plataforma de cursos online desarrollada por Harvard y el MIT.

En este marco, el Banco busca un contratar una **Firma Consultora** del área de capacitación para externalizar los procesos de diseño, desarrollo de recursos de aprendizaje y tutorización del SPOC. “Análisis de riesgo

y cambio climático para la toma de decisiones en el ciclo de vida de los proyectos de infraestructura", para la versión en [inserte país] durante el [primer/segundo] semestre de 202X.

La Firma deberá trabajar estrechamente con el equipo del BID en todas las etapas del proyecto y deberá seguir los lineamientos y estándares de calidad establecidos por el Banco para la elaboración de todos los entregables del proyecto.

## 2. Objetivos

Desarrollar el diseño instruccional, elaboración de contenidos de recursos de aprendizaje, facilitación y tutorización del SPOC "Análisis de riesgo de Desastres y cambio climático para la toma de decisiones en el ciclo de vida de los proyectos de infraestructura".

A continuación, se enlistan los objetivos específicos:

- Asistir en la elaboración de recursos de aprendizaje, incluidos casos prácticos, del curso SPOC dirigido a los especialistas de [insertar país].
- Facilitar los talleres y tutorizar participantes en el SPOC que serán organizados en [inserte país] durante el [primer/segundo] semestre de 202X.

## 3. Alcance de los servicios

La Firma entregará los recursos de aprendizaje y casos prácticos desarrollados para el curso específico para [inserte país] y facilitará el SPOC "Análisis de riesgo de desastres y cambio climático para la toma de decisiones en el ciclo de vida de los proyectos de infraestructura", durante el [primer/segundo] semestre de 202X.

## 4. Actividades clave

**4.1.** La Firma consultora deberá realizar las siguientes actividades:

Para la **elaboración de los recursos de aprendizaje** del curso SPOC:

- Revisión y organización de los casos prácticos seleccionados.
- Preparación de los casos prácticos para su presentación en el taller adicional.

En la etapa **de implementación** del curso SPOC:

- Tutorizar y facilitar las fases virtuales del SPOC.
- Responder a las preguntas/dudas/inquietudes de los participantes.
- Enviar periódicamente a los participantes mensajes de información y motivación para reforzar su compromiso y participación en las actividades del curso.
- Calificar semanalmente las actividades realizadas en grupo o de manera individual en la plataforma.
- Dar retroalimentación personalizada a las actividades realizadas en grupo o de manera individual.
- Facilitar semanalmente sesiones virtuales de retroalimentación y consulta con el objeto de facilitar el conocimiento cruzado entre los participantes.
- Enviar semanalmente a la coordinación del curso el Informe de Seguimiento de Participantes.

- Reportar a la coordinación del curso.
- Cumplimentar y enviar el Informe Final del curso a la Coordinación del curso.

A lo largo de toda la consultoría:

- La Firma será responsable de respetar el alcance del proyecto tanto en términos de cronograma como de presupuestos y en caso de solicitarse cambios por parte del BID, debe indicar el impacto que estos cambios pueden producir en términos de duración del proyecto, costos, calidad y cronograma.
- La Firma trabajará con el equipo del Banco para buscar e implementar soluciones ante cualquier desafío que pueda surgir a lo largo del proyecto.
- La Firma respetará todos los lineamientos corporativos del BID a lo largo del proyecto, entre ellos, imagen de marca, respeto a la diversidad, promoción de la igualdad de género, accesibilidad, etc. El equipo del Banco proporcionará al inicio del proyecto estos lineamientos generales.
- Propiedad intelectual: todos los materiales desarrollados por La Firma para este proyecto pasarán a ser propiedad intelectual del BID, respetándose los reconocimientos de obra correspondientes. La Firma o institución deberá indicar al equipo de IDBx sobre el uso de materiales o contenidos licenciados que pudieran limitar la distribución de estos.

## 5. Resultados y productos esperados

El resultado principal de esta consultoría es la capacitación de entre 30 y 50 participantes del curso SPOC en en [inserte país] durante el [primer/segundo] semestre de 202X. Se espera que la Firma entregue los siguientes productos:

- Producto 1: Reporte de elaboración de los recursos de aprendizaje que incluye la revisión y organización de los casos prácticos seleccionados, y presentación de los casos prácticos seleccionados para taller adicional.
- Producto 2: Informe de Seguimiento de Participantes, grabaciones de las sesiones tutorizadas y reporte de asistencia.
- Producto 3: Informe Final de Curso

## 6. Calendario del proyecto e hitos

| Etapa | Fecha de entrega |
|---|---|
| Producto 1: Reporte de elaboración de los recursos de aprendizaje | QX 202X |
| Producto 2: Informe de Seguimiento de Participantes | QX 202X |
| Producto 3: Informe Final de Curso | QX 202X |

## 7. Requisitos de los informes

**7.1**. Se proveerá plantilla para la entrega de los informes finales y parciales de la tutorización de los SPOCs.

## 8. Criterios de aceptación

**8.1.** Seguir los estándares de calidad de IDBx referentes a la producción de lecturas, evaluaciones, guiones y demás actividades interactivas a desarrollar. El equipo de IDBx les proporcionará acceso a los estándares de calidad del programa.

**8.2.** El equipo IDBx tendrá la oportunidad de realizar las revisiones y ajustes necesarios hasta cumplir con los estándares de calidad requeridos.

## 9. Supervisión e informes

**9.1.** La supervisión del trabajo estará a cargo del Especialista Principal en Gestión de Riesgos por Desastres Naturales de RND/CSD y de los expertos temáticos, diseñadora instruccional y equipo IDBx quienes supervisarán y aprobarán el trabajo realizado. Será responsabilidad de la Firma garantizar que dichas reuniones se lleven a cabo y los informes se presenten al Banco.

## 10. Calendario de pagos

**10.1.** Las condiciones de pago se basarán en los hitos o entregables del proyecto.

| **Plan de Pagos** | |
|---|---|
| **Entregables** | **USD** |
| Producto 1 | $3,000 |
| Producto 2 | $3,000 |
| Producto 3 | $4,000 |
| **TOTAL** | **$10,000** |