



CEDRIG
Operational

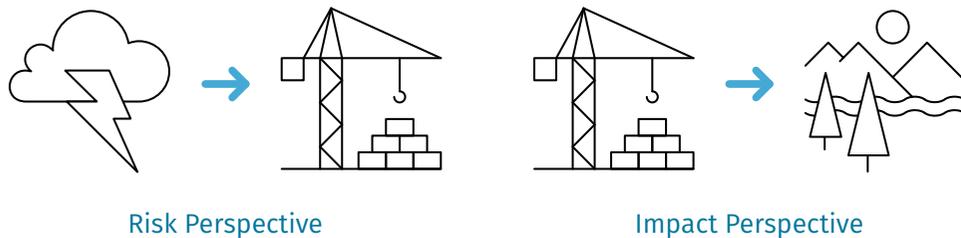
DETAILED ASSESSMENT AND INTEGRATION

Climate, Environment And Disaster Risk Reduction Integration Guidance (CEDRIG)

Introduction

Aim: The aim of CEDRIG Operational is to systematically integrate climate change, environmental issues and natural hazards at the project level. CEDRIG Operational helps to determine whether or not the project goals, aims or priorities are at risk from climate change, environmental degradation or natural hazards. It also aims at determining whether the project may have a negative impact on the climate or on the environment, or whether it creates new or exacerbates existing risks (“do-no-harm” approach).

Adjusting the project by integrating these three aspects increases the resilience of systems and communities. Depending upon the result of CEDRIG Light either a full (i.e. risk and impact) or only a partial (risk or impact) detailed assessment shall be chosen.



How: CEDRIG Operational is proposed to be conducted as a multi stakeholder workshop. It requires a thorough preparation.

What is needed: The starting point is an in-depth context analysis in the area of the project, describing the climate change, environmental and disaster risk

conditions. This analysis needs to be done prior to the workshop and can be carried out with the help of external experts. The results shall be presented to the participants at the beginning in order to provide a common ground for the subsequent detailed assessment.

Furthermore, a document describing the main components of the project or a draft of it should be available, possibly a logical framework.

Who: CEDRIG Operational involves key responsible staff and selected partners. It is recommended to benefit from an external facilitator familiar with the CEDRIG tool.

When: Ideally, CEDRIG Operational is applied at the very beginning of the planning process of a project or at the mid-term review.

Duration: Approximately two days, with the recommended option of adding a day by visiting the location of the project on the second day.

Result: Applying CEDRIG Operational helps to achieve three complementary goals:

- 1) Creation of a shared understanding on the relevance of climate change, disaster risk and environmental aspects;
- 2) Identification of possible risks which may affect the targeted achievements of the project as well as potential negative impacts by the intervention;
- 3) Integration of necessary measures and/or risk reduction options into the project (possibly in the results framework).



Overview

General Information

Project title

Overall goal

Country/Region

Budget

Please specify the amount of resources allocated to fund this project or strategy/ programme. Please specify also the currency used.

Duration of the project

Description and Keywords

Description (maximum 5 lines)

Please, give a brief description of the activity here. Specify the main components according to the logical framework if available (objectives, outcomes, outputs, activities)

Keywords (maximum 10)

Please provide some keywords to describe the activity such as sectors of intervention (agriculture and food security, health, water and sanitation, education, natural resources management, forestry, biodiversity conservation, rural development, urban development, tourism, energy, construction, transport, infrastructure) or /and ecological zones (arid/ semi-arid zones, tundra, mountain ecosystems, tropical/sub-tropical forests, primary forests, small islands, coastal regions, lake/lagoon zones, deltaic areas, flood plains, alluvial fans, peatlands).

This will help other members of the CEDRIG community to learn from similar applications.

In-depth context analysis (information to be collected prior to the workshop)



Based on the rapid screening of CEDRIG Light, it was concluded that a detailed assessment needs to be carried out. This requires more research, including the collection and analysis of primary and secondary information from different sources about climate change, the environment, disaster risks, and economic and political factors. The result of the in-depth context analysis should be presented to the participants at the beginning of the workshop.

Prior to the workshop, collect information and analyse the context of climate change, the environment, disaster risks and with a particular focus on the area of the project. You may:

Task 1: Identify the most important climate change related, environmental and natural hazards (considering past, present and future conditions).

To do this, consider local perceptions and take into account primary and secondary information; if needed consult experts. Remember that the main characteristics of hazards are likelihood (one or more times a year, every 2-4 years, every 10 years or less frequently) and intensity (low, medium, high, very high). In cases of potentially gradual degradation such as soil erosion, deforestation or desertification, hazards are rather characterized by their extent.

Links:

Past disasters:

- DESINVENTAR : more detailed, covers 82+ countries (hosted by UNISDR)
<http://www.desinventar.net>
- EM-dat is an international database on past disasters. You can find core data on occurrence and effects of disasters from 1900 to present per country
<http://emdat.be>
- Munich RE NatCatSERVICE:
<http://www.munichre.com/en/reinsurance/business/non-life/natcatservice/annual-statistics/index.html> (requires registration for datasets older than the last year)
- Germanwatch Global Climate Risk Index: The annually published Global Climate Risk Index analyses to what extent countries have been affected by the impacts of weather-related loss events (storms, floods, heat waves etc.).
<http://germanwatch.org/en/cri>

Risk by country:

- INFORM is a global, open-source risk assessment for humanitarian crises and disasters. You can find information per country on hazards, vulnerabilities and risks
<http://www.inform-index.org/>

- Global Assessment Reports (UNISDR), produced every 2 years, by country
<http://www.preventionweb.net/english/countries/>
- GFDRR Climate Risk and Adaptation Country Profiles (88 countries).
http://sdwebx.worldbank.org/climateportalb/home.cfm?page=country_profile

Task 2: Compile the official policies, strategies, and plans related to climate change, the environment and disaster risk reduction both at national and sub-national level; map the involved/concerned actor groups at all levels and extract the key elements relevant for the project.

Consult the following available national information sources as appropriate:

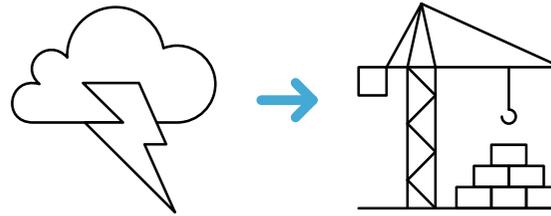
- National Communications to the United Nations Framework Convention on Climate Change (UNFCCC); National Adaptation Programmes of Action (NAPAs, for LDCs11); in future National Adaptation Plans (NAPs);
- National implementation reports (e.g. midterm review, HFA & SFA Monitor) of the UN ISDR's HFA 2005–2015 and Sendai Framework for Disaster Risk Reduction 2015–2030; National disaster risk management strategies (e.g. preparedness strategies), GFDRR's Country Programmes;
- National Environment Action Plan of the respective country or other links outlined in the "Recommended links and supporting material";
- Common Country Assessment (CCA) of the United Nations Development Assistance Framework, World Bank Country Assistance Strategies (CAS); World Bank's Country Environmental Analysis (CEA).

Task 3: Review relevant development interventions and extract the main lessons learned (e.g. good and bad practices); identify eventual gaps and needs for further studies.

Analyze to what extent development efforts have considered the integration of these aspects in their priorities. Assess the effectiveness, impact and pertinence of development efforts targeting climate change, environment and disaster risks related challenges.

A) CEDRIG Operational - Risk perspective

The workshop participants shall collectively follow the subsequent steps A1 to A6, complete the respective tasks and capture the results in the table further down.



Risk Perspective

Step A1 – Identify hazards

Task: Based on the in-depth context analysis, select the hazards present in the area(s) where your project is taking place.

Keep in mind the observed and expected future changes in climate and environmental degradation identified in the detailed context analysis.

Step A2 – Identify potential consequences

Task: By reviewing the document describing the main components of the project (or a draft of it), specify which goals, objectives or priorities could be at risk from the respective identified hazards and explain what the consequences would be. Consider that the same hazard can affect more than one component of the project.

In addition, specify the severity of the consequences for each component (i.e. slightly harmful, harmful, or extremely harmful).

The severity of the consequences of heavy rain fall for a project focusing on market access could manifest as a temporary interruption of road access either for a few hours (slightly harmful), or for a few days (harmful), or for several weeks (extremely harmful).

Step A3– Identify vulnerabilities

Task: For each potential consequence on the project (Step A2), identify the vulnerabilities explaining the causes behind the consequences. It is a crucial step that will allow identifying measures in later steps with the intention to reduce the risks for the project.

The consequences of a hazard, such as a hydrological drought, could be explained by a strong vulnerability to this hazard, for example if there isn't a strong drought monitoring and early warning system in place and if there are no saving opportunities that can help absorb the shock.

The various types of vulnerabilities could be classified as follows:

- **Social vulnerabilities:** poor social resources, including lack of informal networks, weak relationships of trust that facilitate cooperation and inclusion of vulnerable groups
- **Natural vulnerabilities:** over exploitation of natural resources such as land, soil, water and forests
- **Financial vulnerabilities:** resources including lack of savings, credit, insurance opportunities and low income from employment, trade and remittances
- **Political vulnerabilities:** poor opportunities to influence political decision-making, weak formal and informal participation, lack of access to political processes, restriction on freedom and capacity to collectively organize and declare rights
- **Physical vulnerabilities:** poor basic infrastructure (roads, drinking water and sanitation, schools, information and communication technology, manufactured goods, tools, and equipment)
- **Human vulnerabilities:** poor knowledge of risks, poor health condition of the population and low ability to work.

Step A4 – Estimate likelihood (or extent)

Task: Estimate the likelihood of occurrence of each of the identified hazards based on the past and future trends: unlikely, likely, very likely. Likelihood (=probability) can be categorised as “unlikely” (once in a life time i.e in 80-100 years), “likely” (once in a generation i.e. in 20-30 years), “very likely” (every few years i.e. in less than 10 years).

In cases of potentially gradual degradation such as soil pollution, deforestation or desertification, likelihood refers to the extent of the phenomenon: limited extent = unlikely, moderate extent = likely, large extent =very likely.

Step A5 - Estimate risk significance

Task: Risk is a combination of consequences for the project (Step A2) and likelihood (Step A4). Estimate the significance of the risks for the project (high/medium/low) with the help of the matrix provided below.

	Slightly harmful	Harmful	Extremely harmful
Likely	●	●	●
Unlikely	●	●	●
Highly unlikely	●	●	●

● Low risk ● Medium risk ● High risk

Step A6 – Select risks to be treated

Task: Analyze for all the risks identified in the previous steps if they have been adequately addressed in the process of the project development. Select the ones which still need to be treated taking into account the level of acceptable risk.

This is a very important decision, as the selection is a process of subjective negotiation in which aims, institutional interests and elements of internal and external context are involved.

The workshop participants shall collectively follow the subsequent steps A7 to A9, complete the respective tasks and capture the results in the table further down.

Step A7 – Identify potential measures

Task: Discuss and identify potential measures to reduce the risks selected in Step A6.

Reducing the vulnerabilities identified under Step A3 helps in identifying measures. Bear in mind that societies normally have plenty of experience and ways in managing (known) risks. It is therefore important to consider local knowledge and coping strategies (e.g. social mobilization in case of a sudden interruption of key irrigation channels or community seed banks in the case of crop failure).

Potential measures could be:

- adjusting the existing components (e.g. improve the design of water pipes to resist landslides)
- adding a new component (e.g. a slope stabilization element or protection for the water pipes).

Step A8 – Assign score to potential measures (optional)

If you want to go through a detailed multi-criteria analysis of the different measures identified, go through tasks 1 and 2 presented below. If not, move to step A9.

After having brainstormed different options with regards to adaptation to climate change, to degraded environments and natural hazards, you should select the most appropriate options based on a “multi-criteria analysis”. Note: the assessment of options is highly subjective and depends on individual perceptions of the people involved. This step shall therefore be pursued by a multidisciplinary team, through discussions and consultations among partners and other relevant stakeholders. The overall evaluation requires a close involvement of all partners of the project, as they have to decide whether or not to include the newly identified options into the project.

Task 1: Select proper criteria to evaluate the various potential measures and eventually assign a percentage weight (from 1 to 100%) to each criterion. The total of all criteria should not exceed 100%.

Examples of criteria:

- **Effectiveness for resilience:** *The extent to which the option enhances resilience of systems and/or communities. You might also think of no regret or low regret options: these are options that would be justified under current climate as well as under all plausible future scenarios, including the absence of climate change. No regret adaptation options are beneficial and cost effective, even if no climate change or environmental degradation occurs and shall therefore be favored. Try to answer the following questions:*
 - Is the option reducing vulnerability and enhancing resilience?
 - Is the option providing co-benefits for other sectors?
 - Is the option flexible i.e. can it be adjusted in response to changing conditions?
 - Is the option a no- or low-regret option?
 - How big is the group of beneficiaries? Note: options that provide small benefits to large numbers of people will often be favored over those that provide larger benefits, but to fewer people.
 - Is the option targeting the most vulnerable communities/people?
- **Cost (cost/benefit relationship):** *This criterion assesses how costly the option is. It includes investment costs as well as costs over time such as operation and maintenance costs, re-construction costs, etc. Note: high costs can be justified by the high effect they have on enhancing resilience, meaning that low costs do not immediately mean superiority of the measure over a higher cost option. Try to answer the following questions:*
 - Is the option relatively expensive or inexpensive compared to other options (“cost efficient”)?
 - How high are the initial costs of implementation?
 - What are the costs over time (operation and maintenance, administration and staffing, etc.)?

- *How high are the external costs of the option? Note: take into account non-economic costs and economic and/or quantifiable costs.*
- **Feasibility (including acceptability):** *This criterion addresses how feasible the implementation of the options might be. It refers to whether the necessary human, legal, administrative, financial, technical and other resources are available. It also refers to whether general/public acceptance/willingness is present. Options that can be implemented under the current operational framework will normally be favored over adaptation options that require new authority, new technology, changes in people's preferences or other significant changes. Try to answer the following questions:*
 - *What human, legal, administrative, financial and technical resources are required?*
 - *What are the needs for adjusting other policies to accommodate the adaptation option?*
 - *How acceptable is the option to local stakeholders (socially, culturally)?*
- **Sustainability:** *This criterion addresses how sustainable the measure would be. Note: this doesn't only include social, economic and ecological sustainability but also assesses whether the measure will be sustainable without further financial support e.g. from development cooperation. Try to answer the following questions:*
 - *How sustainable is the option with regard to social, economic and environmental aspects?*
 - *How sustainable is the option in the longer term without financial support from external development cooperation?*

Task 2: Evaluate the options for measures identified in the task of Step A7 by applying the selected criteria and their respective weight (Task 1 of this Step A8) by assigning a value to each of the criteria.

The evaluation is done on a default scale from 1 to 4. A low value means that the measure is poor for this criterion. Note: You can extend the score range if needed/more appropriate.

Step A9 – Select appropriate measures

Task: Taking into account the results obtained by Steps A1-A8 and other relevant inputs, select the measures that can be realistically implemented. Globally check whether the selected measures make sense as a whole. You can also prioritize the measures to be implemented on a short, medium or long term perspective.

Assess the measures from a general perspective, then identify the most promising ones for the project as a whole and decide which are to be implemented. It is also desirable to combine measures on a short, medium and long term basis, including less costly measures that benefit development and long-term measures, such as adaptation management. Note: you should try to avoid selecting only short-term measures. Add a brief comment to explain your choice.

Step A10 – Adapt your project

Task: Insert the measures identified under Step A9 in the project. Adapt the results framework/logical framework accordingly. Identify or develop respective indicators for monitoring. Consider sharing the new document with the relevant partners and keeping a copy in your CEDRIG application.

Step A1	Step A2	Step A3	Step A4	Step A5	Step A6
Hazards	Consequences	Vulnerabilities	Likelihood	Significance	Selected risks

Selected risks (from step A6)	Step A7	Step A8	Step A9	Comments
	Potential measures	Score for measures (optional)	Selected measures	

Step A10 – Adapt your project

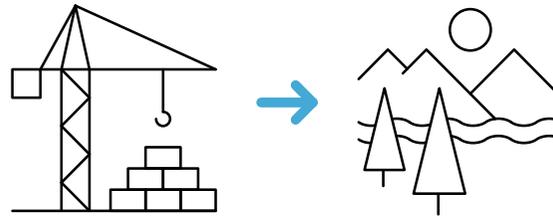
B) CEDRIG Operational - Impact perspective

The impact perspective will help you to become more aware of significant negative impacts that a project can have on climate or on the environment, or whether it creates new or exacerbates existing risks.

There can also be potential opportunities arising from the components of the project associated with the reduction of negative impacts on climate, the environment and disasters. For instance, a component at community level that modifies the energy sources from coal to renewable energy would have the double effect of reducing greenhouse gas (GHG) emissions and providing opportunities related to the independence of the energy supply (e.g. use of local biomass).

While the CEDRIG approach is not as comprehensive as a regular Environmental Impact Assessment (EIA) it still helps to raise awareness and flag potential unintended negative impacts.

The workshop participants shall collectively follow the subsequent steps B1 to B5, complete the respective tasks and capture the results in the table further down.



Impact Perspective

Step B1 – Assess potential negative impacts

Task 1: Identify the most relevant components of the project that could have a negative impact on the climate or the environment and that could create new or exacerbate existing risks.

The activities of the project can have a direct negative impact (e.g. by increasing surface runoff which in turn causes more frequent and severe floods) or increase the vulnerability of the communities or systems with regard to existing hazards (e.g. by increasing the exposure of people and their assets).

Task 2: Specify the potential negative impacts (maladaptation) for each of the identified components. This could encompass an increased emission of GHG, the depletion of ground water resources, the exposure of people or their assets, or the raise in magnitude of hazards. Furthermore, think about components that could lead to maladaptation.

Maladaptation is a business-as-usual development which by overlooking climate change impacts, inadvertently increases exposure and / or vulnerability to climate change. Maladaptation could also include actions undertaken to adapt to climate impacts that do not succeed in reducing vulnerability but increase it instead.

Step B2 – Estimate significance

Task: Estimate the significance of the potential negative impacts identified in the

previous step (describe the magnitude and the importance).

CEDRIG recognizes the subjectivity of the term “significance”.

The two key characteristics of negative impacts that should be considered in determining significance are “magnitude” and “importance”. Magnitude assesses quantifiable factors such as the size or the extent of an impact e.g. the area of flooded forest by a dam impoundment. Importance relates to the subjective degree of disturbance according to the sensitivity or vulnerability of the system. Other factors such as the duration of the impact, its frequency, probability, or degree of reversibility, can help in estimating the overall significance.

Step B3 – Select most significant impacts

Task: Analyze for all the potential negative impacts and their identified significance in the previous steps whether they have already been adequately addressed in the project. Select the ones that still need to be tackled with respective measures.

This is a very important decision, as the selection is a process of subjective negotiation in which aims, institutional interests and elements of internal and external context are involved.

The workshop participants shall collectively follow the subsequent steps B4 to B6, complete the respective tasks and capture the results in the table further down.

Step B4 - Identify potential measures

Task: In this step you will brainstorm possible (new or adjusted) mitigation options for the negative impacts identified above. You can consider two categories:

- **Options improving existing processes and practices:** for example, considering energy efficiency in building and industries, using the potential of restoration of natural degraded forests and bush land, re- and afforestation, reducing emissions from deforestation, reducing air pollutants from processes by altering technologies and transport systems, reducing soil and water contamination by altering practices and technologies and unsound waste management, modifying agricultural practices and introducing agro forestry, choosing eco-friendly products and services, adopting sustainable procurement policies.
- **Options adding new components to decrease the identified negative impacts:** for example, using agricultural waste for energy production, energy recovery, using renewable energy sources, promoting technical approaches (e.g. water conservation techniques, waste water treatment, sustainable waste management and soil conservation measures).

Please note that several impact mitigation options (mainly climate change mitigation options) may also serve as adaptation options.

Step B5 - Assign score to potential measures (optional)

If you want to go through a detailed multi-criteria analysis of the different measures identified, go through tasks 1 and 2 presented below. If not, move to step B6.

After having brainstormed different options with regards to climate change mitigation, preservation of the environment and/or disaster risk reduction, you should now select the most appropriate options based on a “multi-criteria analysis”. The assessment of options is highly subjective, and depends on

individual perceptions of the people/institutions involved. The overall evaluation requires a close involvement of all partners of the project, as they have to decide whether or not to include the newly identified options into the project.

Task 1: Select proper criteria to evaluate the various potential measures and eventually assign a percentage weight (from 1 to 100%) to each criterion. The total of all criteria should not exceed 100%.

Examples of criteria:

- **Effectiveness in reducing / preventing negative impacts:** To what extent does the option reduce the negative impacts of the activity on climate change, environmental degradation and/or natural risks? You might also think of no regret or low regret options. These are options that would be justified under the current climate as well as under all plausible future scenarios, including the absence of climate change.
- **Cost (cost/benefit relationship):** This criterion assesses whether an adaptation or disaster risk reduction option is relatively expensive or inexpensive. It includes investment costs as well as costs over time such as operation and maintenance costs, re-construction costs, etc. Please note that costs always have to be seen in the context of their benefits. High costs can be justified by the high effect they have on enhancing resilience, meaning that low costs do not immediately mean superiority of the measure over a higher cost option. Try to answer the following questions:
 - Is the option relatively expensive or inexpensive compared to other options (“cost efficient”)?
 - How high are the initial costs of implementation?-
 - What are the costs over time (operation and maintenance, administration and staffing, etc.)?
 - How high are the external costs of the option? Note: take into account non-economic costs and economic and/or quantifiable costs.
- **Feasibility (including acceptability):** This criterion addresses how feasible the implementation of the options might be. It refers to whether the necessary human,

legal, administrative, financial, technical and other resources are available. It also refers to whether general/public acceptance/willingness is present. Options that can be implemented under the current operational framework will normally be favored over adaptation options that require new authority, new technology, changes in people's preferences or other significant changes. Try to answer the following questions:

- What human, legal, administrative, financial and technical resources are required?
- What are the needs for adjusting other policies to accommodate the adaptation option?
- How acceptable is the option to local stakeholders (socially, culturally)?

– **Sustainability:** This criterion addresses how sustainable the measure would be.

Note: this doesn't only include social, economic and ecological sustainability but also assesses whether the measure will be sustainable without further financial support e.g. from development cooperation. Try to answer the following questions:

- How sustainable is the option with regard to social, economic and environmental aspects?
- How sustainable is the option in the longer term without financial support from external development cooperation?

Task 2: Evaluate the options for measures identified in the task of Step B4 by applying the selected criteria and their respective weight (Task 1 of this Step B5) by assigning a value to each of the criteria.

The evaluation is done on a default scale from 1 to 4. A low value means that the measure is poor for this criterion. Note: you can extend the score range if needed/more appropriate.

Step B6 - Select appropriate measures

Task: Taking into account the results obtained by Steps B1 to B4 or B5 and other relevant inputs, select the measures that can be realistically implemented. Globally check whether the selected measures make sense as a whole. You can also prioritize the measures to be implemented on a short, medium or long term perspective. Note: the assessment of options is highly subjective, and depends on individual perceptions of the people involved. This step shall therefore be pursued by a multidisciplinary team through discussions and consultations among key partners and other relevant stakeholders. The overall evaluation requires a close involvement of all partners of the project, as they have to decide whether or not to include the newly identified options into the project.

Assess the measures from a general perspective, then identify the most promising ones for the project as a whole and decide which are to be implemented. It is also desirable to combine measures on a short, medium and long term basis, including less costly measures that benefit development and long-term measures. Note: you should try to avoid selecting only short-term measures. Add a brief comment to explain your choice.

Step B7 - Adapt your project

Task: Insert the measures identified under Step B6 in the project. Adapt the results framework/logical framework accordingly. Identify or develop respective indicators for monitoring. Consider sharing the new document with the relevant partners and keeping a copy in your CEDRIG application.

Component of the project	Step B1	Step B2	Step B3
	Potential negative impact	Significance	Selected impacts
IMPACT ON CLIMATE			
IMPACT ON ENVIRONMENT (WATER, SOIL, AIR, ECOSYSTEMS)			
IMPACT ON DISASTER RISKS (CREATION OF NEW RISKS, EXACERBATION OF EXISTING ONES)			

Selected impacts (from step B3)	Step B4	Step B5	Step B6	Comments
	Potential measures	Score for measures (optional)	Selected measures	

Step B7 - Adapt your project