DRAFT

DISASTER RISK REDUCTION IN THE PROJECT CYCLE MANAGEMENT

A TOOL FOR PROGRAMME OFFICERS AND PROJECT MANAGERS

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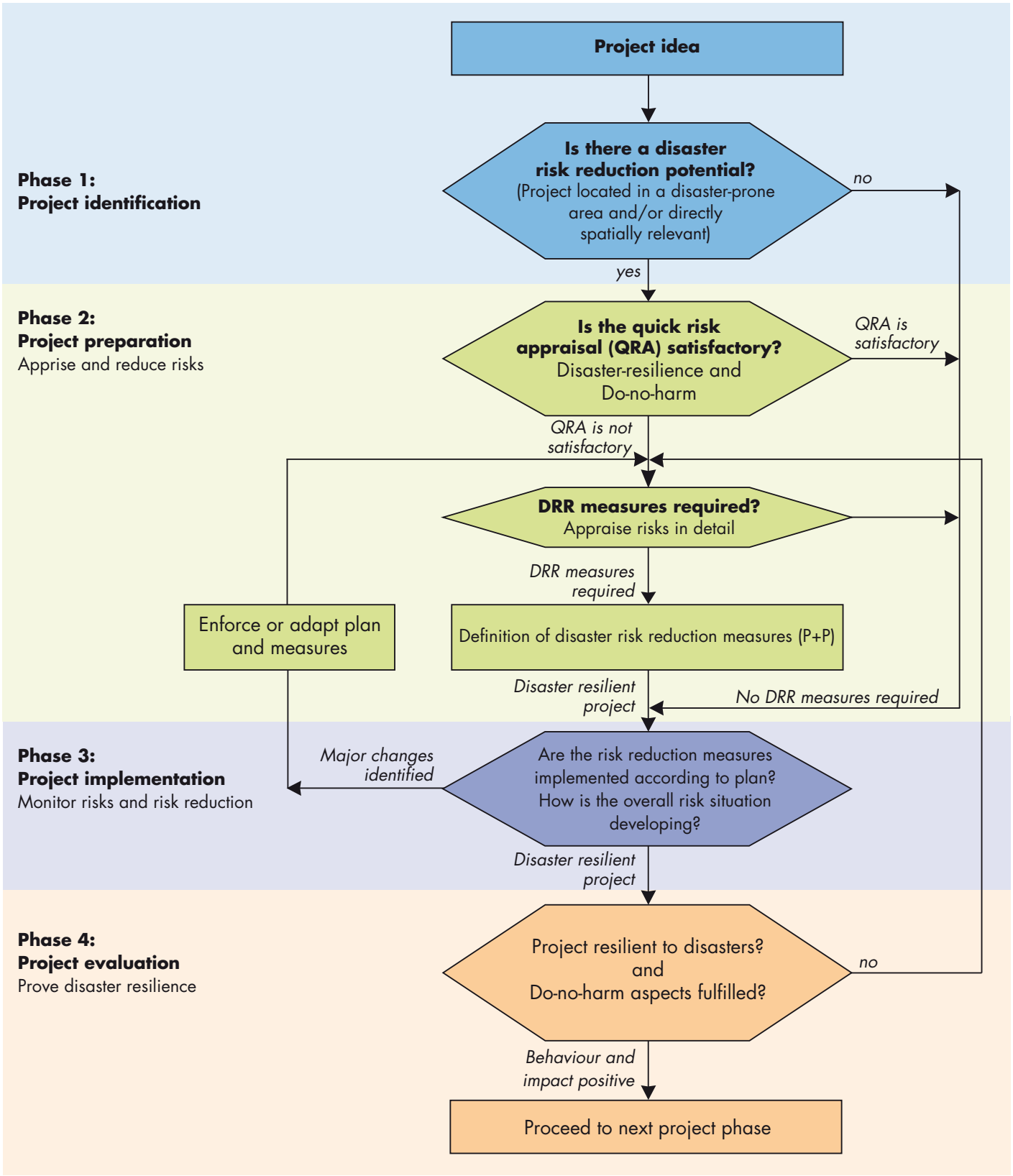
Table of Content

Summary

Natural events and naturally induced technical failures constitute a major threat to any kind of development activities in disaster-prone areas. Therefore, the integration of disaster risk reduction (DRR) issues in the planning process of humanitarian and development projects substantially contributes to the sustainability of those efforts. The project cycle management (PCM) provides several opportunities to include DRR, thus to prevent the failure of projects during times of crisis.

Key questions with explanations and additional information will guide the reader to fulfil the tasks to consider disaster risk reduction issues in all four phases of the project cycle. The procedure is outlined and further explained on the following pages.

Overview


Phase 1:
Project identification
Project idea
Is there a disaster risk reduction potential?
(Project located in a disaster-prone area and/or directly spatially relevant)
no
yes
Phase 2:
Project preparation
Apprise and reduce risks
Is the quick risk appraisal (QRA) satisfactory?
Disaster-resilience and Do-no-harm
QRA is satisfactory
QRA is not satisfactory
DRR measures required?
Appraise risks in detail
DRR measures required
Enforce or adapt plan and measures
Definition of disaster risk reduction measures (P+P)
Disaster resilient project
No DRR measures required
Phase 3:
Project implementation
Monitor risks and risk reduction
Major changes identified
Are the risk reduction measures implemented according to plan?
How is the overall risk situation developing?
Disaster resilient project
Phase 4:
Project evaluation
Prove disaster resilience
Project resilient to disasters?
and
Do-no-harm aspects fulfilled?
no
Behaviour and impact positive
Proceed to next project phase

Purpose and objectives

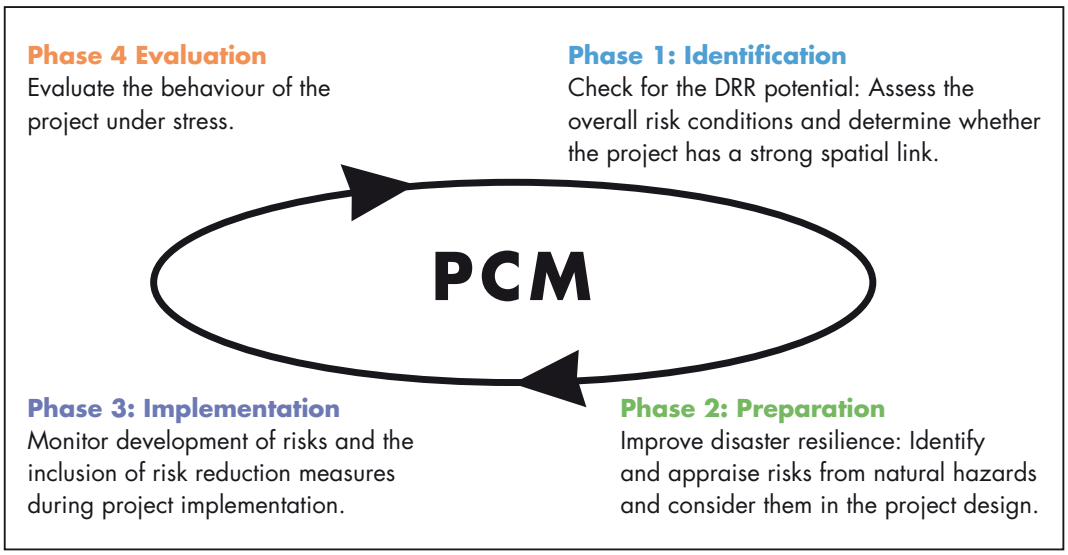
The purpose of this tool is to provide SDC personnel and partners with the basics to integrated risk management from natural hazards and experiences of integrating risk management into the Programme Cycle Management (PCM) process, thus contributing to the overall sustainability of projects in disaster-prone areas. Disasters normally have a natural trigger, however, damage or destruction is often the result of inappropriate development that created high vulnerability of structures, institutions or networks. The integration of risks from natural hazards into the planning stage of projects

- increases the resilience of projects to extreme events (sustainability aspect) and
- ensures that project activities in disaster-sensitive areas do not increase the risk conditions (do-no-harm aspect).

The integration of risks from natural hazards into the PCM is a requirement outlined in the "SDC Guidelines on Disaster Risk Reduction". This document calls for:

- Systematic assessment whether a project has a disaster risk reduction potential; or not
- Integration of DRR issues into development and humanitarian projects where appropriate; and
- The application of an integrated approach for disaster risk reduction.

Within the four project cycle phases the following tasks have to be fulfilled

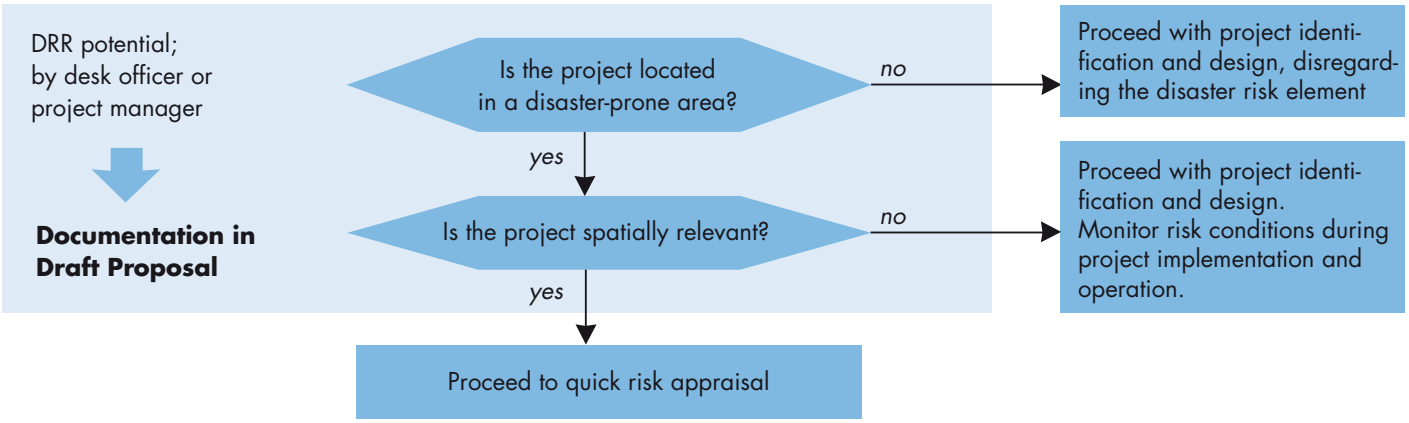


A glossary on "Terms and Examples" is available in Annex1

Phase 1 Project Identification: Determine the DRR potential

During the project identification phase it has to be decided whether the project has a disaster risk reduction potential. On the one hand, this potential is reflected in the prevailing hazards occurring in the area and on the other hand, by the kind of project. The following key questions have to be answered by the desk officer or the local project manager/project planner:

DRR Potential (tool is available in annex 2)



Key question	**Tasks and guide to answers**	**Source of information** (indicative)	**To be documented in**
Is the project located in a disaster-prone area/ region?	The area is considered to be disaster-prone if: – Records of past disasters are available and assessed – People or authorities report about risks and disasters – Documents highlighting hazards and risks are available – Hazards are known and the overall vulnerability is high and coping capacities are weak	Draft project document with description of project area **World Disaster Report** by IFRC, www.ifrc.com **CIA Fact book** www.cia.gov/cia/ publications/factbook **World Map of Natural Hazards** by Munich Re: www.munichre.org/ Topics&Solutions / Georisks **Natural disaster hotspots** http://geohotspots.worldbank.org/ hotspot/hotspots/disaster.jsp/ **Disaster Risk Index by UNDP** www.undp.org/bcpr/disred/ english/wedo/rrt/dri.htm **for detailled information on local risk level, seek local information*	Risk profile for the area with prevailing hazards and vulnerabilities Project document and credit proposal
Is the project spatially relevant?	**The project is spatially relevant if it is directly linked to:** – Land use and land management – Agriculture or forestry development – Livelihood improvement – Natural resources management – Infrastructure development – other direct links to be specified **Indirect links of the project to spatial issues exist if:** – The project has a mid-term effect on land-use or land management (e.g. law development) – It is responsible for the migration of people to a particular location (increase of attractiveness) – Creates new pressure on natural resources – other indirect links to be specified	Draft project document	Project document and credit proposal

Phase 2 Project Preparation: Appraise and reduce risks

During the project preparation phase (project planning) two levels of investigations have to be foreseen. A quick and / or detailed risk appraisal is required if the project is located in a disaster-prone area and it has direct or indirect links to space. The investigations have to be done in the project area.

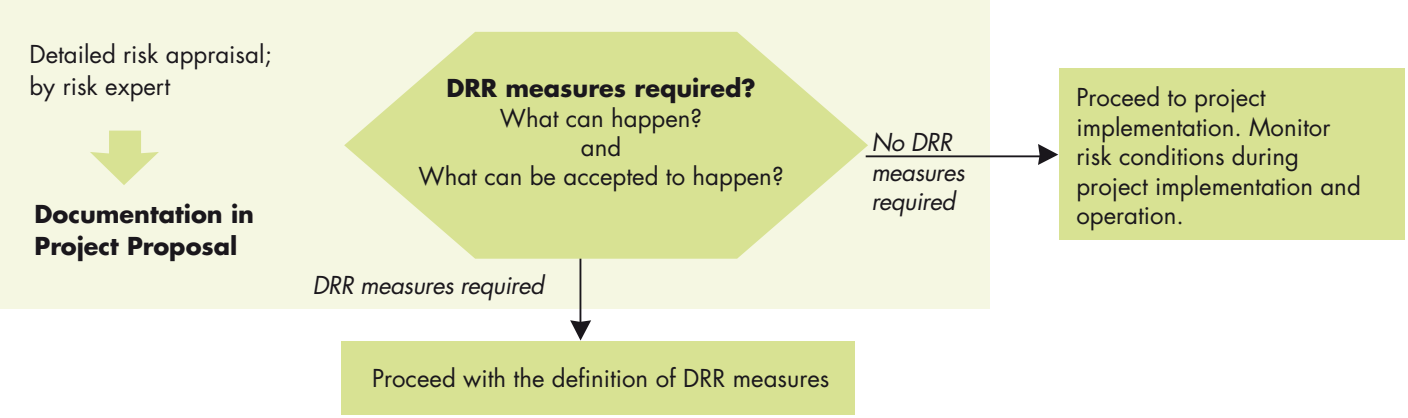
2.1 Quick risk appraisal, QRA (tool is available in annex 3)

The quick risk appraisal is performed by the local project manager or by local project staff. The personnel require good risk awareness but no specialized knowledge and know-how about hazards, vulnerabilities or risks. The following main questions have to be answered:

Key question	Tasks and guide to answers	Source of information	To be documented in
Is the project resilient to disasters occurring in future?	**Appraise** – **Hazards** in the project area and at project location, type of hazards, approximate information about frequency and magnitude of hazard – Vulnerability of the project area and its communities: distinguish between physical, social, economic, environmental vulnerability – Existing coping capacities in the area (structural and non-structural) *Use the **QRA** checklist*	Good topographic maps; Interviews with locals, mainly elderly persons and community leaders; Interviews with local authorities and services (e.g. fireguard, civil defence etc.). Interviews with representatives of NGOs and others Reports about risk conditions (if any)	Project document and credit proposal
Is the project not negatively influencing the risk environment?	**Assess the possibly negative effect of the project on:** – Hazards environment (e.g. shifting hazards to others; inducing new hazards, deteriorating environment) – Overall vulnerability of the area/community concerned (e.g. reducing access to community in case of crisis) – Overstraining the coping capacities (e.g. absorbing recovery means). *Use the **QRA** checklist*		

2.2 Detailed risk appraisal

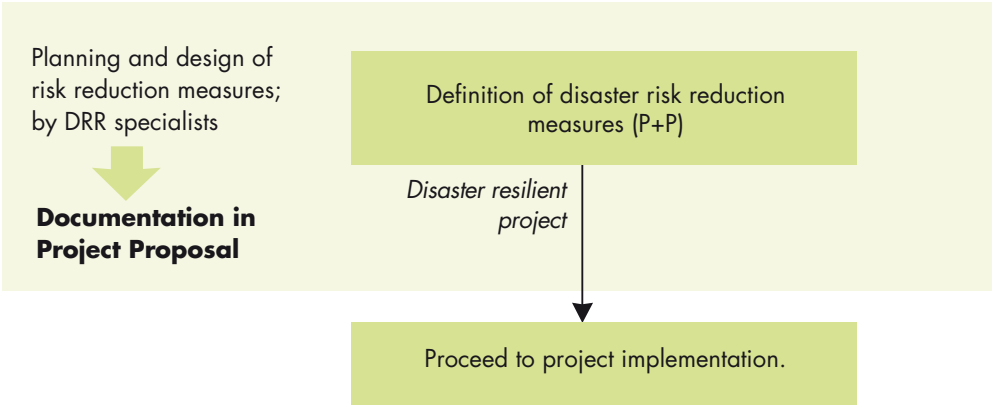
A detailed risk appraisal is required if the quick risk appraisal was dissatisfactory, i.e. the project might be damaged or destroyed by the forces of nature or the development is negatively influencing the risk environment for others. The detailed risk appraisal requires specialized personnel (experts for risk assessment and for the planning of measures). In addition, a dialogue with all stakeholders concerned (authorities, people, etc.) is required for the discussion of protection objectives for the project activity.



Key question	Tasks and guide to answers	Source of information	To be documented in
What can happen? Is the project at risk from particular hazards? Could the project negatively influence the risk environment?	**Detailed assessment of** – Hazards which may threaten the project location and hazards which may be triggered by the project. Delineation of affected areas; magnitude / probability analysis; assessment of climate change impact – Vulnerability of project components and of the project area i.e. detailed analysis of physical, economic, social and environmental vulnerability – Community's coping capacities in the project area. Assess mitigation and response options and recovery potential (mitigation, response, recovery capacities)	Detailed field investigation by risk expert Interviews with locals, with local authorities	Special report with maps / description of threats to the project (hazards, vulnerabilities and coping capacities); Main findings to be reflected in project document
What can be accepted to happen? Which risks are accepted, which need to be reduced?	**Facilitating a risk dialogue among stakeholders of the project and in the project area:** – What is the awareness on disaster risk within stakeholders in the project area? – What is the importance of disaster risks compared to other risks the communities in the project area are facing (e.g. health risks, economic risks) – Are the risks for the project identified acceptable? Or do the risks need to be reduced? (protection objectives) – What are the goals for risk reduction? (hazard or vulnerability reduction) *Use the software **RiskPlan**, if in a complex environment www.riskplan.ch*	Interviews with local stakeholders Workshops with local stakeholders; Household investigations	Special report with description of protection objectives and lack of safety Main findings to be reflected in project document

2.3 Definition of measures

Based on existing risks and according to the outlined protection objectives (how much safety at what price) the relevant disaster risk reduction measures (preventive and preparedness measures) can be planned and designed. The planning must follow an integrated approach (balanced consideration of mitigation, response and recovery means) and needs to consider the principle elements of sustainability (economic element, social element, environmental element).

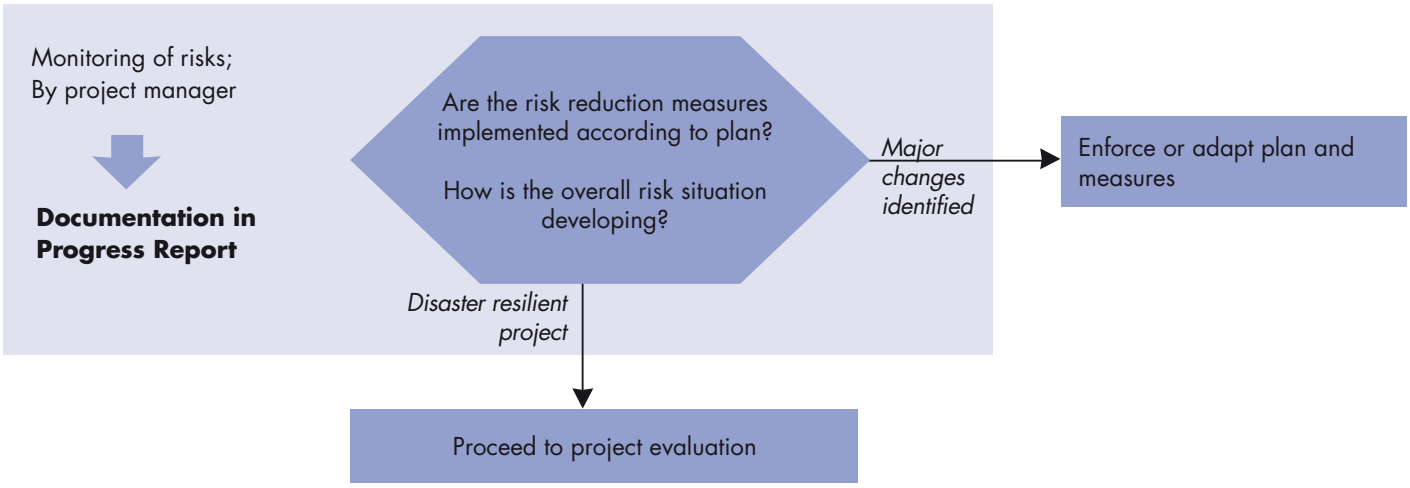


Key question	Tasks and guide to answers	Source of information	To be documented in
What has to be done?	**Definition and design of risk reduction measures in an integrated manner:** – Prevention of risks: e.g. land-use restrictions, watershed management, reforestation, training dike for avalanches – Mitigation of risks: Reduction of vulnerability (impact of event on project): e.g. respecting building code, local proofing, irrigation system in drought-prone area, drought resistant crops (adaptation capacity to changing environment). – Increase coping capacities (preparedness for an effective response system) – Distribute risks (risk transfer for possible recovery)	On-site inspection DRR guidebooks Local knowledge and know-how	Risk profile for the area with prevailing hazards and vulnerabilities Project document and credit proposal
Principle elements of sustainability	– Economic element: use quantitative risk considerations to determine economic efficiency – Social element: consider the social acceptance for any type of measures – Environmental element: prevent any negative influence on nature and natural resources	Risk analysis and risk evaluation Interviews with local stakeholders	Detailed description in project document

Phase 3

Project Implementation: Monitor risks and risk reduction

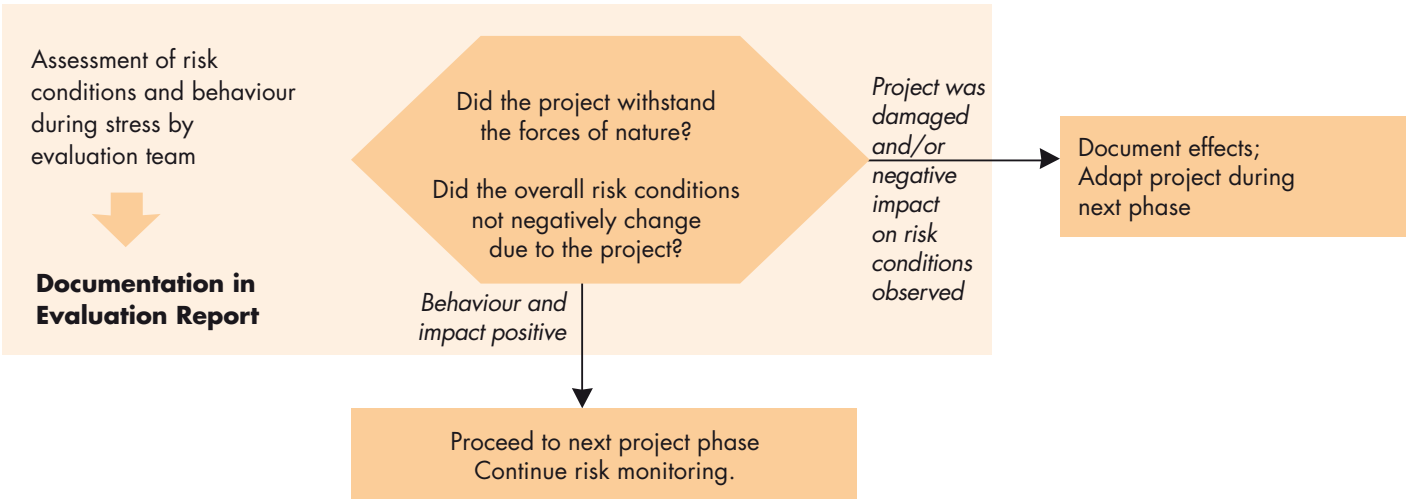
The implementation of a project in a disaster-prone environment requires regular observation of the risks and the careful implementation of risk reduction measures. These activities are an integral part of the whole monitoring process (quality assurance). The following risk issues have to be monitored:



Key issue	Tasks and guide to answers	Source of information	To be documented in
Are the risk reduction measures implemented according to plan?	**Project monitoring** – Compare implementation procedures with project objectives, plans and processes – Check the quality of structural and non-structural elements on-site – Check the maintenance of the various elements	On-site inspection	Progress report Final report
How is the risk developing?	**Environmental risk monitoring:** – Design and implement risk monitoring procedures and devices (e.g. seismic network, remote sensing for watershed development) – Check for possible changes of the overall risk conditions (improving or deteriorating) – Develop risk adaptation strategies *Use the **Risk Profile** checklist or similar instruments to monitor changes*	On-site inspection Remote sensing data	Progress report Final report

Phase 4 Project Evaluation: Prove disaster resilience

The aim of the project evaluation is to determine the resilience of the project during a disaster and the impact of the project on the environment. The following questions have to be answered:



Key issue	Tasks and guide to answers	Source of information	To be documented in
Did the project withstand the forces of nature?	**Assessment of behaviour during stress** – Check whether all DRR measures were implemented – Assess the behaviour of the project during stress, i.e. during a disaster (if one occurred) – Document possible damage	On-site inspection	Evaluation report
Did the overall risk conditions not negatively change due to the project?	**Assessment of impact on risk conditions** – Design and implement risk monitoring system – Develop risk adaptation strategies *Use the **Risk Profile** checklist to evaluate overall risk conditions for the site.*	On-site inspection Remote sensing data	Evaluation report

Final comment

The consideration of disaster risks (risks from drought, floods, earthquakes or soil degradation) in the planning and implementation of spatially relevant projects contributes to the sustainability of the projects themselves and guarantees that the overall risk conditions are not negatively influenced by the projects. As such Disaster Risk Reduction (DRR) can be considered as a cross-cutting issue. However, once the DRR potential is evaluated to be low or not existing, the disaster risks don't need to be considered in the further planning process.

Necessary utilities

Identification of DRR potential (checklist) / Quick Risk Appraisal (QRA) / Risk Plan software

Annex 1 Glossary: Terms and examples

Disaster risk reduction
The conceptual framework of elements considered with the possibilities to minimize vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) the adverse impacts of hazards, within the broad context of sustainable development.

Watershed management focusing on water and its relations with other resources contributes to the sustainable development of the Cochabamba area (Bolivia). The integration of disaster risk reduction issues is an important part of PROMIC (Programma Manejo Integral de Cuencas).

Risk
Risk is the probability of expected losses resulting from interactions between hazards (earthquake, drought, oil spill) and the degree of vulnerability (susceptibility of the structure, institution, network to be damaged). By convention, risk is expressed by the notation Risk = Hazards x (Vulnerability – Coping capacities) It is quantified by an expected loss per year (or event).

Increased agricultural production (tomatoes and other crop) in the Jordan Valley: at risk from water shortage and frost.

Hazard: A potentially damaging physical event, phenomenon or human activity that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.
Vulnerability: The conditions determined by physical, social, economic and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards.
Coping capacity: A combination of all the strengths and resources available within a community, society or organization that can reduce the level of risk, or the effects of a disaster.

Houses on stilts in flood-prone areas at the foot of Mt. Pinatubo, Philippines. A simple mean to cope with flood damage.

Risk assessment
A methodology to determine the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability that could pose a potential threat or harm to people, property, livelihoods and the environment on which they depend.

Hazard map of Dipilto, Nicaragua. Such instruments serve communities for land-use planning and land management.

Prevention
Activities to avoid the adverse impact of hazards and means to minimize related environmental, technological and biological disasters.

Mitigation
Structural and non-structural measures undertaken to limit the adverse impact of natural hazards, environmental degradation and technological hazards.

Preparedness
Activities and measures taken in advance to ensure effective response to the impact of hazards, including the issuance of timely and effective early warnings and the temporary evacuation of people and property from threatened locations.

The fire brigade of Damascus (Syria) is well prepared to reach possible disaster sites through the narrow roads of the city.

Structural measures
Structural measures refer to any physical construction to reduce or avoid possible impacts of hazards, which include engineering measures and construction of hazard-resistant and protective structures and infrastructure.

Gabions are a cheap and effective way to protect a community from flooding. Quality assurance during implementation is of utmost importance for a long life of the structure.

Disaster
A disaster is a serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources.

Evacuation camp of the October 2005 earthquake near Balakot (Pakistan). Camp partly damaged by a debris flow in July 2006.

Spatial relevance
Spatially relevant human activities take place somewhere in the natural or built-up landscape. Land-use planning or any sector planning are means to control this activity. Natural hazards may impair the work by sudden onset disasters (like a flood) or slow onset disasters (like a drought).

Switzerland provides the new Kyrgyz farmers with technical advice and supports them to take entrepreneurial decisions. Farming has a high spatial relevance. The integration of disaster risk reduction in the decision-making process is important.

Annex 2 Identification tool: DRR Potential

7F .....
Project .....

The DRR potential provides information whether risks from natural hazards need to be considered in the project planning and implementation.

Project in disaster-prone environment

A) Hazards occur in the project area?	yes	no	**Comments**
Earthquake, volcanic activity			
Soil degradation			
Drought			
Flooding: flood plain, costal flooding, tsunami			
Mountain hazards: local flooding, landslide, rock-, snow-, ice-avalanche, debris flow			
Tropical storm			
Extreme temperatures			
Biological hazard (e.g. locust infestation)			
other (specify)			

B) Vulnerability is high in the project area?	yes	no	**Comments**
Physical vulnerability (damage to buildings, lifelines, roads from hazard is possible)			
Social vulnerability (critical health conditions, low education, fragile networks, minorities)			
Economic vulnerability (overall poverty, mono-culture, high unemployment)			
Environmental vulnerability (degradation of vegetation, scarcity of natural resources, hazardous materials)			

C) Coping capacities are low in the project area?	yes	no	**Comments**
Mitigation is missing (land-use planning, watershed management, building codes, structural protection)			
Preparedness is weak (response units, early warning and alert systems, household preparedness, recovery means)			

Project in disaster-prone environment

The project is linked to	yes	no	**Comments**
Land use or land management			
Agriculture or forestry development			
Livelihood improvement			
Natural resources management			
Infrastructure development			
other (specify)			

There is a **DRR potential** if yes
– the project is in a disaster-prone environment (at least one item in A, B and C "yes") **and** ☐
– the project is spatially relevant (at least one item "yes") ☐
→ **Perform a Quick Risk Appraisal if both aspects are yes (DRR potential)**
DRR Potential identified by: .....
Place and date: .....

Annex 3a Quick Risk Appraisal (QRA) tool: Resilience

7F .....
Project .....

The QRA (resilience) provides information whether the project is resilient to the forces of nature and does not be severely damaged or destroyed during a natural event.

Site-specific issues of the project

Project location is	yes	no	**Comments**
in a flood plain or on an alluvial fan			
in the reach of rock fall, rock avalanche, snow avalanche			
on or under an unstable slope (landslide)			
in the reach of volcanic activity (ash, lava, mud flow)			
near an active tectonic fault line			
along the shore line (tsunami, storm surge) other (specify)			
other (specify)			

Impact on livelihood assets (vulnerability) of the project

Natural hazards* have an impact on the livelihood assets (vulnerability) of the project	yes	no	**Comments**
physical assets (infrastructure, lifelines, communication destroyed or interrupted)			
human assets (people's health, education, employment etc.)			
economic assets (livestock; producers goods, financial means etc)			
social assets (social networks, gender issues, etc.)			
natural assets (water, fertile land, vegetation, other natural resources)			

** Check against the occurrence of: drought, soil degradation, (tropical) storm, cold- and heat wave, flooding, mud flows, landslide, earthquake, volcanic activity, biological hazards (locust or other infestation)*

Impact of overall risk conditions on project

The project is at risk because	yes	no	**Comments**
the overall awareness about hazards and risks in the area is missing			
the local know-how about the management of risks is weak			
early warning, alarm and evacuation schemes are missing			
the link of the project to the local emergency management unit is missing			
the project activity is highly susceptible to climate change phenomena (too much, too little rain)			
other (specify)			

The project is disaster resilient if	fulfilled
– the site is not endangered by natural hazards (all items "no") **and**	☐
– there is no impact by natural hazards on the livelihood assets (all items "no") **and**	☐
– there are not more than two items relevant ("yes") for the overall risk conditions	☐

→ **Perform the "do-no-harm" check**

Disaster resilience checked by: .....

Place and date: .....

Annex 3b Quick Risk Appraisal (QRA) tool: Do no harm

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Project .....

The QRA (do no harm) provides information whether the project does not negatively influence the overall risk environment of the area.

Project's unintended influence on the hazard context

Project location is	yes	no	**Comments**
causes increased soil degradation by inappropriate land management			
causes increased drought susceptibility by overexploiting water resources			
triggers slope instability (rockfall, landslide) by inappropriate water management			
causes increased flood probability in downstream areas by river training upstream			
deviates water floods, sediment flows, avalanches into other (susceptible) areas by training dikes or other structural measures			
other (specify)			

Project's unintended effect on communities' vulnerability (livelihood assets)

The project	yes	no	**Comments**
causes the collapse or interruption of infrastructure during crisis			
causes serious health problems			
results in strong single-crop dependency, which itself is susceptible to climate extremes (storm, drought, cold/heat wave)			
disrupts social networks which are relevant for the communities' recovery after a crisis			
causes additional impact on already scarce natural resources, e.g. by induced migration			
other (specify)			

Project's unintended effect on communities' coping capacities

The project	yes	no	**Comments**
neglects existing risk-conscious land use regulations			
overstrains the locally existing emergency resources			
absorbs locally available recovery means			
reduces people's climate adaptation capacity			
other (specify)			

The project fulfils the do no harm criteria if — fulfilled

– the project has no unintended influence on the hazard context (all items "no") **and** ☐
– the project has no unintended effect on communities' vulnerability (all items "no") **and** ☐
– the project has no unintended effect on communities' coping capacities (all items "no") ☐

→ **Perform a detailed risk appraisal and plan for DRR measures if the project is not disaster resilient and /or the project does not fulfil the "do no harm" criteria.**

Do no harm checked by: .....
Place and date: .....