



Disaster Risk Reduction Course: Multi-Hazard Mapping, Early Warning and Recovery Planning



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Introduction:

Disaster risk reduction, multi-hazard mapping, early warning and recovery planning are the subject of this 10-day course for civil defence, municipal planning and recovery coordination units, who produce a Local Disaster Risk Reduction Plan and Indicator Set for a case municipality. Flash floods, extreme heat, earthquakes and dust events turn the same exposed districts into loss records because hazard maps, warning chains, land use decisions and recovery budgets are managed apart. Nominees plan or coordinate public risk work and practise through case studies built on municipal hazard and census data. CoreConcept Training Center delivers this disaster risk reduction course.

Course Objectives:

- Assess multi-hazard risk for a municipality by combining hazard intensity, exposure, vulnerability and capacity data for flash floods, extreme heat, earthquakes and dust
- Produce hazard and exposure maps with GIS overlays that rank districts and essential facilities for risk reduction action
- Design a people-centred, end-to-end early warning chain across the four Early Warnings for All pillars, from risk knowledge to community response
- Embed risk information in land use zoning, development control and risk reduction investment decisions using avoided-loss appraisal
- Plan community preparedness, post-disaster needs assessment and build back better recovery for housing, services and livelihoods
- Build a local DRR plan with an indicator set aligned to Sendai Framework targets and nationally defined custom indicators

Target Audience:

- Civil defence planning units responsible for hazard analysis, preparedness programmes and warning arrangements
 - Municipal and regional planning departments responsible for zoning, building permits and public investment in exposed areas
 - Secretariats of local disaster risk reduction platforms responsible for coordinating agencies and reporting progress
 - Recovery and reconstruction coordination units responsible for damage and needs assessment and rebuilding programmes
 - Community preparedness and volunteer programme leads responsible for outreach to vulnerable groups
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Course Outline:

Day 1: Disaster Risk Foundations and the Sendai Framework

- Hazard, Exposure, Vulnerability and Capacity Terminology Applied Locally
- Sendai Framework Four Priorities for Action Mapped to Mandates
- Sendai Seven Global Targets Translated Into Municipal Terms
- Disaster Loss Records Review From Past Local Events
- Local Disaster Risk Governance Baseline and Mandate Gap Review

Day 2: Multi-Hazard Risk Assessment Methods

- Multi-Hazard Inventory Covering Flash Floods, Heat, Earthquakes and Dust
- Hazard Interaction Matrix for Cascading and Concurrent Events
- Return Period and Intensity Scales for Hazard Characterisation
- Social Vulnerability Index Construction From Census and Survey Data
- Risk Matrix Scoring of Likelihood Against Consequence per Hazard

Day 3: Hazard and Exposure Mapping for Municipal Districts

- Flash Flood Susceptibility Mapping From Terrain and Valley Lines
- Urban Heat Exposure Mapping Using Land Surface Temperature Layers
- Seismic Hazard Zoning and Building Stock Vulnerability Classes
- Dust Exposure Corridors Mapped Against Settlements and Roads
- Exposure Database of Population, Housing and Essential Facilities

Day 4: GIS Risk Data and People-Centred Early Warning Chains

- GIS Overlay Analysis Combining Hazard Layers With Exposure Data
- Open Risk Data Sources and Metadata Quality Checks
- Early Warnings for All Four Pillars Applied Locally
- Warning Thresholds Linked to Predefined Municipal Response Actions
- Dissemination Channel Mapping for Last-Mile Warning Reach

Day 5: Guided Case Study on a Municipal Multi-Hazard Risk Profile

- Case Municipality Data Pack With Hazard and Census Layers
 - Multi-Hazard Risk Profile Drafting for Priority Districts
 - End-to-End Warning Chain Walkthrough for a Flash Flood
 - District and Facility Risk Ranking for Reduction Action
 - Peer Challenge of Case Risk Profile Assumptions and Gaps
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Day 6: Risk-Informed Land Use and Risk Reduction Investment

- Risk-Informed Zoning and Development Control Overlay Rules
- Building Code Enforcement Gaps and Retrofit Prioritisation Lists
- Nature-Based Solutions for Floodplains and Urban Heat Islands
- Avoided-Loss Cost-Benefit Analysis of Risk Reduction Projects
- Risk Financing Layers With Contingency Funds and Insurance Pools

Day 7: Disaster Risk Governance and Post-Disaster Recovery

- Local DRR Platform Terms of Reference and Coordination Roles
- Post-Disaster Needs Assessment of Damage, Loss and Needs
- Build Back Better Principles for Housing and Livelihoods
- Recovery Framework Sequencing From Early Recovery to Reconstruction
- Recovery Grievance Handling and Transparency Safeguards

Day 8: Community Preparedness and Inclusive Risk Communication

- Community-Based DRR Participatory Mapping and Transect Walks
- Inclusive Warning Formats for Persons With Disabilities
- Gender-Responsive Risk Assessment and Women-Led Preparedness Groups
- School and Health Facility Preparedness Plans and Drills
- Risk Communication Campaign Planning With Volunteers and Media

Day 9: Sendai Indicators, Monitoring and Progress Review

- Sendai Framework Monitor Global Indicators Selected for Local Use
- Custom Input and Output Indicators for Local DRR Strategies
- Indicator Baseline Setting and Data Collection Protocols
- Sustainable Development Goals 1, 11 and 13 Reporting Linkages
- Local Resilience Scorecard Self-Assessment and Peer Benchmarking

Day 10: Case Study Capstone and the Local DRR Plan

- Case Municipality Risk Profile Update From Week-One Work
 - Priority Land Use and Recovery Actions With Budget Owners
 - Warning Chain and Community Preparedness Actions With Lead Agencies
 - Indicator Set With Baselines, Targets and Reporting Cycle
 - Local Disaster Risk Reduction Plan Completion and Panel Review
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Skills You Will Gain:

- Multi-Hazard Risk Profiling
- Social Vulnerability Analysis
- GIS Exposure Mapping
- Warning Chain Design
- Risk-Informed Land Use Planning
- Avoided-Loss Appraisal
- Recovery Needs Estimation
- DRR Indicator Design

Why Attend This Course:

- Deliver a Local Disaster Risk Reduction Plan and Indicator Set for a case municipality to the head of civil defence planning, the municipal planning director or the local DRR platform
- Decide which districts, facilities and hazards receive risk reduction funding first, using mapped exposure and avoided-loss evidence
- Avoid repeated losses from rebuilding in the same flood paths, heat islands and weak building stock after each event
- Brief planners, warning officers and volunteer leads on the hazard maps, warning thresholds and indicators behind the plan

Conclusion:

Back at work, the participant presents the Local Disaster Risk Reduction Plan and Indicator Set to the local DRR platform, the municipal planning director and the civil defence planning lead. They use it to agree which districts are rezoned or retrofitted first, which warning chain gaps are closed and how recovery funds are released after the next event. After the first reporting cycle, the unit should compare indicator results with the baselines, check whether warnings reached vulnerable groups in time and revise priorities and budgets.

Frequently Asked Questions FAQ:

What should participants know before the disaster risk reduction course?

Participants should already work in public planning, civil defence, recovery or community preparedness and read maps and basic statistics. GIS skill helps but is not required. Bringing local hazard records, census extracts or an existing preparedness plan helps them apply the case studies to their own area.

How does disaster risk reduction differ from an emergency response or climate adaptation course?

Disaster risk reduction works before and after events across a whole territory: risk mapping, land use, warnings, preparedness and recovery. Emergency response courses run incident command and evacuation at a site, while climate adaptation courses address an organisation's own assets and climate scenarios.

Why does multi-hazard mapping matter for disaster risk reduction?

Multi-hazard mapping shows where floods, heat, earthquakes and dust overlap on the same people and buildings. Planning hazard by hazard misses concurrent and cascading events and spreads budgets thinly, while a combined map ranks districts and facilities by total risk.

What do participants take back from the disaster risk reduction course?

Participants take back a Local Disaster Risk Reduction Plan and Indicator Set for a case municipality, with a multi-hazard risk profile, warning chain actions, land use and recovery priorities, owners, budgets and Sendai-aligned indicators ready to adapt to their own authority.