Understanding Risk, Urban Resilience and the Ten Essentials for Making Cities Resilient

Online Workshop on Risk-informed Governance, Climate Action and Finance Mechanisms for Local Resilience | Session 3 – Promoting Climate Action for Achieving the 2030 Agenda for Sustainable Development

12 July 2022

UNDRR
UN Office for Disaster Risk Reduction

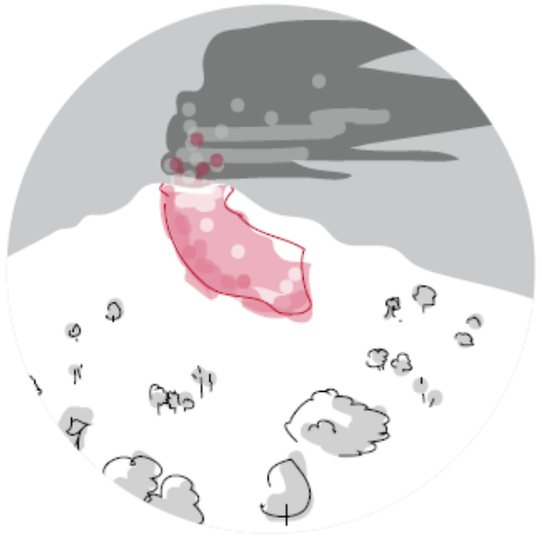
SENDAI FRAMEWORK
FOR DISASTER RISK REDUCTION 2015-2030

With the support of
Ministry of the Interior and Safety
Incheon Metropolitan City

disasters are not natural

Understanding Risk

Risk and the context of hazard, exposure and vulnerability



There is no such thing as a **natural disaster**, only **natural hazards**

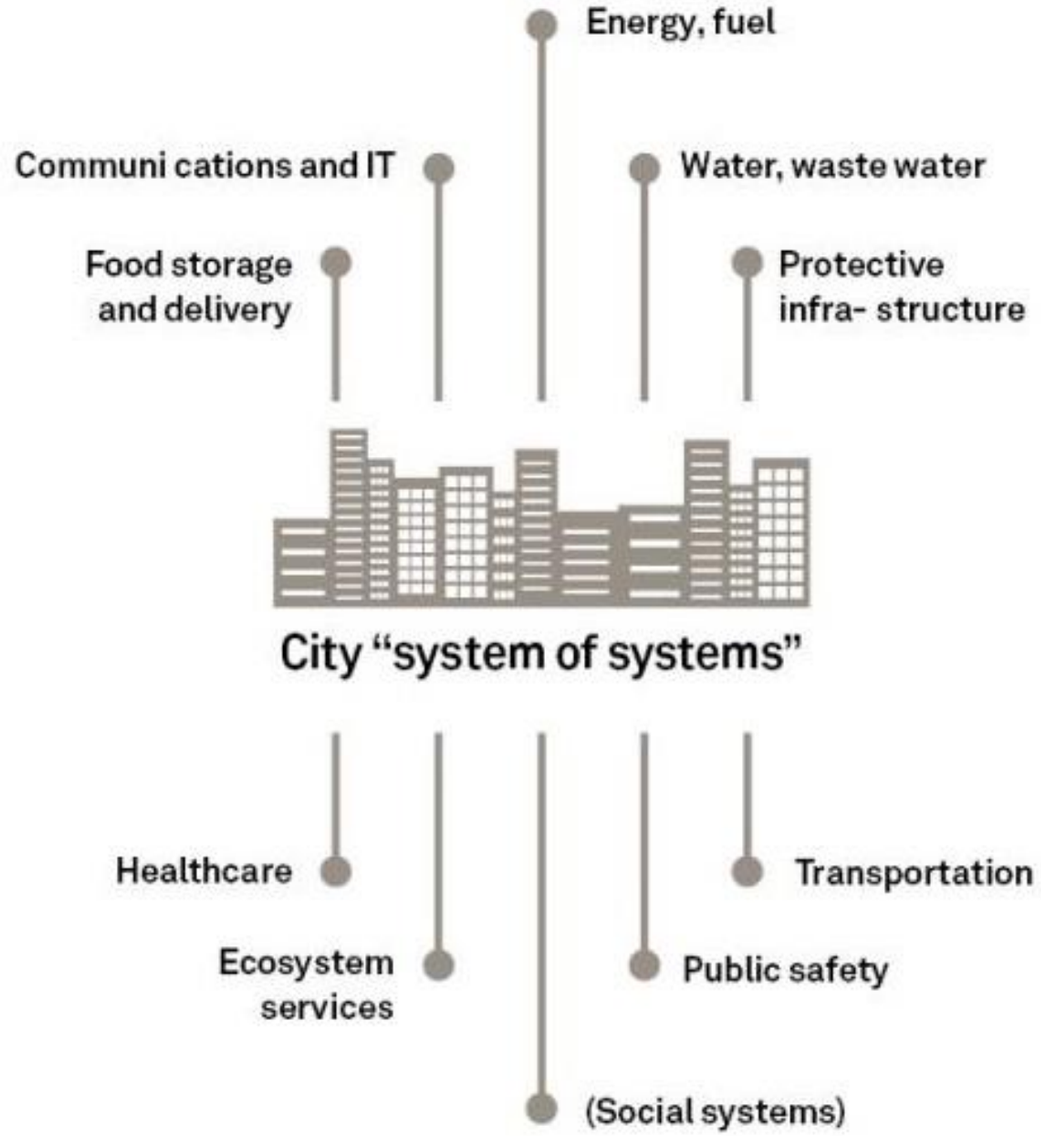
We make **choices** as to where we inhabit, how we build and what research we do

Risk is the combination of **hazard**, **exposure** and **vulnerability**

Death, **loss** and **damage** is the function of the context of hazard, exposure and vulnerability

Resilience has to address the “system of systems” that makes up a city.

- *Cities are complex and are made up of different systems.*
- *These systems have multiple connections and interactions: causal, resources and data.*
- *Failure of one system may impact other systems and create cascading failures.*
- *A system approach must be taken in order to make a city resilient.*
- *Because each system is owned and operated by different players and stakeholders, resilience is a multi-organizational endeavor.*



Overall approach

Concept

Understand the **10 Essentials for Making Cities Resilient**

Tools

Understand risks & use the **Scorecard (Indicators)** to assess the progress and status of resilience building

Analysis

Identify gaps that need to be addressed & **prioritize actions** to increase resilience

Strategy/Plan

Develop the DRR Strategy & Action Plan

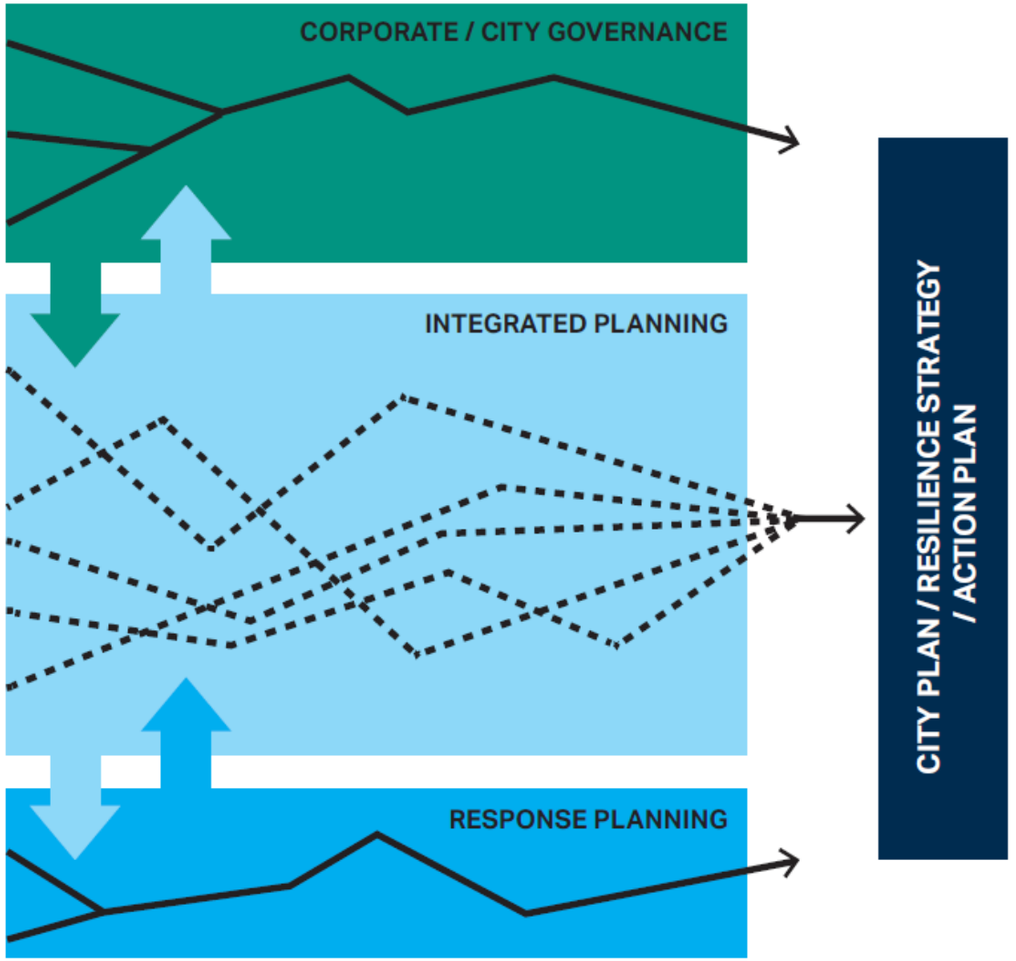
Implementation

Implement the plan & reduce disaster risks

Paving ways towards disaster risk reduction and disaster resilience building at the local level – supporting MCR2030 Resilience Roadmap

The Ten Essentials for Making Cities Resilient – the Guiding Principles

1. ORGANISE FOR DISASTER RESILIENCE
2. IDENTIFY, UNDERSTAND AND USE CURRENT AND FUTURE RISK SCENARIOS
3. STRENGTHEN FINANCIAL CAPABILITY FOR RESILIENCE
4. PURSUE RESILIENT URBAN DEVELOPMENT AND DESIGN
5. SAFEGUARD NATURAL BUFFERS TO ENHANCE THE PROTECTIVE FUNCTIONS OFFERED BY NATURAL CAPITAL
6. STRENGTHEN INSTITUTIONAL CAPACITY FOR RESILIENCE
7. UNDERSTAND AND STRENGTHEN SOCIETAL CAPACITY FOR RESILIENCE
8. INCREASE INFRASTRUCTURE RESILIENCE
9. ENSURE EFFECTIVE DISASTER RESPONSE
10. EXPEDITE RECOVERY AND BUILD BACK BETTER



Learn more about the 10 Essentials at:
https://mcr2030.undrr.org/ten-essentials-making-cities-resilient

Essential 1: Organise for Disaster Resilience

How?

- Establish and strengthen the **local level institutional and coordination capacity**
- Build alliances and networks
- Form a legislative framework and action mechanisms for resilience

- ***Albay Makes Risk Reduction a Formal and Permanent Priority***

Government of Philippines

DRR Policy and Legislative Frameworks

In 2010, the Government of the Philippines enacted the Disaster Risk Reduction and Management Act (RA 10121) and adopted a Strategic National Action Plan for Disaster Risk Reduction.

- **It mandates the preparation of a National Disaster Risk Management Plan** (NDRMP)
- **It also creates a National Disaster Risk Reduction and Management Council.**
- It also transforms **the Local Calamity Fund into the Local Disaster Risk Reduction and Management Fund** (LDRRMF) and **allocates no less than 5% of the estimated revenue** from regular sources to support disaster risk management activities.

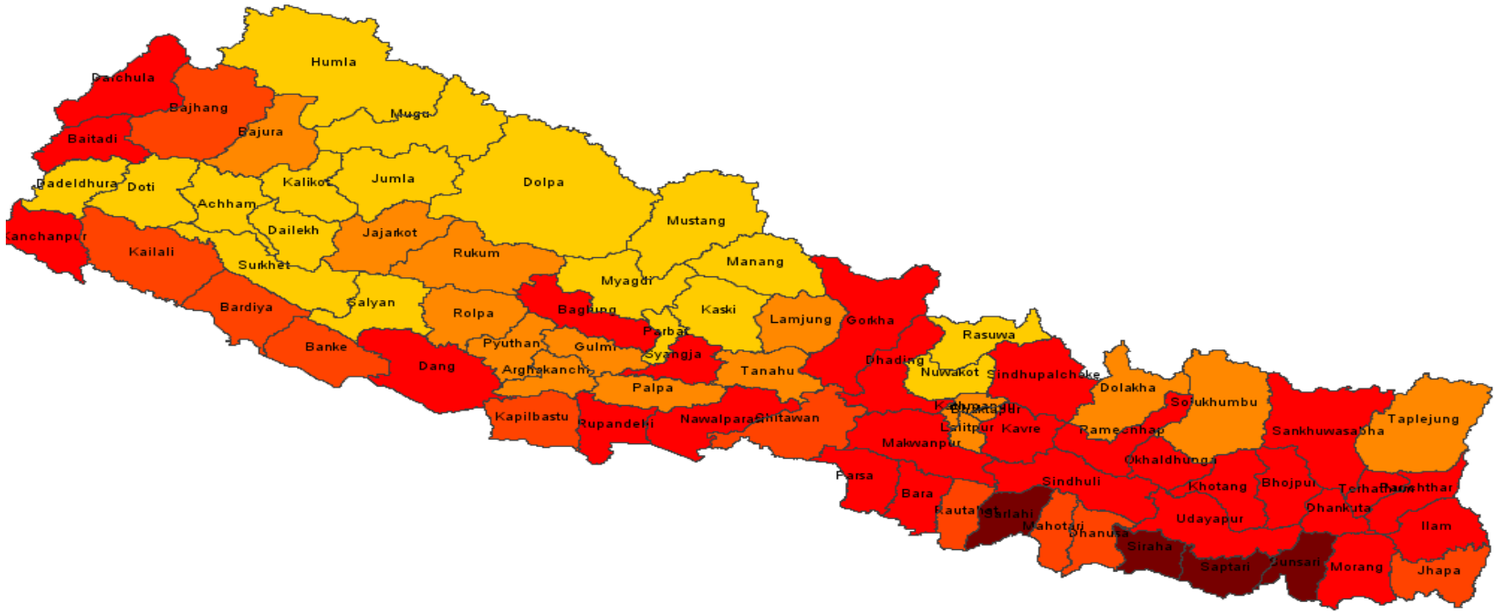
At subnational levels, the Disaster Risk Reduction and Management Act mandates:

- **The establishment** of a disaster risk reduction and management office (DRRMO) **in every province, city and municipality;**
- **The creation** of a Barangay Disaster Risk Reduction and Management Committee (BDRRMC) **in every barangay** (the smallest administrative division);
- The development of **local disaster risk reduction and management plans** (LDRRMPs).

Source : Words into Action Local DRR & Resilience Strategies

Photo : Preventionweb

Essential 2: Identify, Understand and Use Current and Future Risk Scenarios



How?

- Risk profiles of cities to identify frequent and worst-case scenario
- Patterns and vulnerabilities
- Use in urban and land use plans

Lanzarote, Canary Islands

Risk Assessment Updates

- After **updating an assessment** carried out a decade ago, Lanzarote conducted a **diagnosis of current vulnerabilities and challenges** including climate change and biosphere conservation.

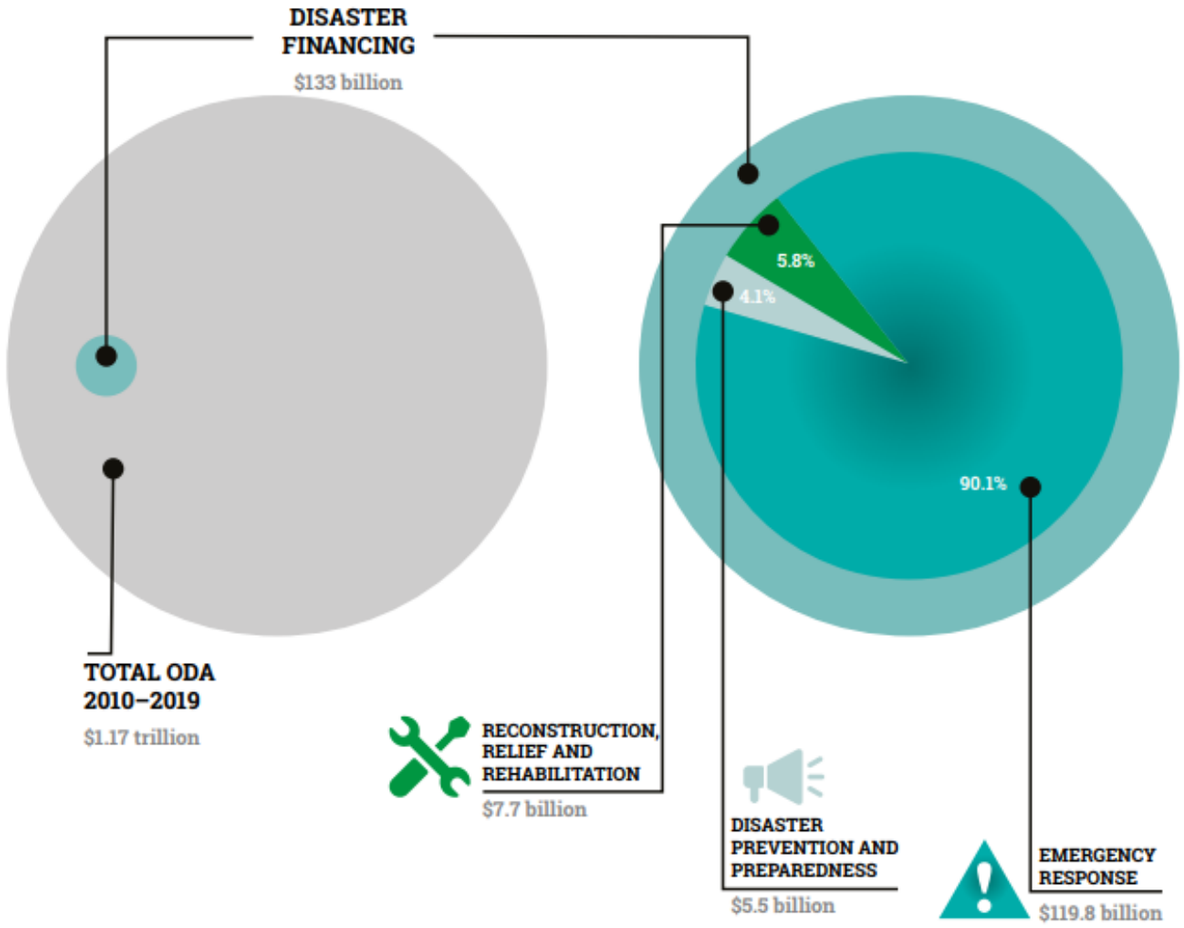
- The results of the assessment served as the basis for **preparation of the 2020 Sustainable Development Strategy** and eight **Local Action Plans**
- Regular meetings are held **every three months to update** plans and measure progress
- **By the end of 2014, 25 projects were carried out and another 73 projects are ongoing**.

Source : Handbook for Local Government Leaders

Photo : PreventionWeb

Essential 3: Strengthen Financial Capacity for Resilience

Figure S.8. Disaster-related financing as share of ODA



UN, 2022: The Global Assessment Report on Disaster Risk Reduction (GAR) 2022

Kuroshio Town, Shikoku, Japan

DRR co-financing

Residential areas of Kuroshio are growing in tsunami flood risk areas along the coast.

Enforcing land-use restrictions would involve substantial re-locations, but there are **not enough suitable areas** to do so.

Due to budget limitations, it was not realistic to implement structural measures which need large investments.

For this reason, Kuroshio concentrated on **developing an evacuation system** and on **building tsunami evacuation towers**.

Six tsunami evacuation towers were constructed in areas that lacked any high ground to which people could escape. To achieve this, **Kuroshio negotiated financing with the national and the prefectural governments.**

Source : Words into Action Local DRR & Resilience Strategies

Photo : Words into Action Local DRR & Resilience Strategies

Essential 4: Pursue Resilient Urban Development and Design

How?

- Place urban planning and land-use management at the core of urban resilience
- Conduct systemic and specific vulnerabilities mapping
- Mainstream resilience into ongoing urban master plan updates and sectoral strategies

Hoboken, New Jersey, USA

Regulatory Support, Resilient Design

During **Superstorm Sandy nearly 80%** of Hoboken was **flooded,** resulting in **more than $100 million in private property damage**, more than $10 million in damage to municipal property. The city recognized the need to develop a comprehensive **Resilience Building Strategy to recover** from and **prepare** for the impact of future hurricanes and floods

- This experience has led Hoboken to prepare **a Municipal Hazard Mitigation Plan** and to seek ways to preserve open spaces, and historic and recreational sites. **A five-year Capital Improvement** Plan focuses on municipal **resiliency and hazard mitigation.**
- The city purchased **three tracts of land in the flood hazard area** to be used as parks. **Storm water retention facilities are incorporated** into the design to reduce runoff. The design includes **resilient 'green infrastructure' for floodplain management to reduce the effects** of extreme storm events.

Source : Handbook for Local Government Leaders

Photo : Handbook For Local Government Leaders

Essential 5: Safeguard Natural Buffers to Enhance Ecosystems' Protective Functions

Prey Veng Province, Cambodia

Making Cities Resilient

Reforestation

Simple technologies can save lives and livelihoods. **Tree planting**, whether it be coconuts or other deep rooted species, has multiple benefits, **such as reducing damage associated with floods and high winds**. It can also help to restore ecological balance, maintain biological diversity and stabilize soil

- In the south east Prey Veng province of Cambodia, locals celebrate “Green Day” by planting trees

Source : Handbook for Local Government Leaders

Photo : Handbook For Local Government Leaders

Essential 6: Strengthen Institutional Capacity for Resilience

How?

- Identify the specific nature of each vulnerability and map against the respective institution(s)

- Build local capacities and strengthen participation in disaster management and resilience improvement

- Ensure the consistence of data and disaster risk information among the stakeholders

- ***Santa Tecla, El Salvador: A Risk Sensitive City Development Plan***

Karlstad, Sweden

Making Cities Resilient

Stakeholder Engagement

The Swedish Government has identified Karlstad as the **city with the largest urban population likely to be affected by a 100-year flood**.

- Karlstad is working in a number of ways to secure its critical infrastructure.
- The city's **contingency plan for flooding**, developed **in coordination with stakeholders** from the municipality and civil society, prioritizes critical infrastructure.
- **Public employees take courses on** climate change adaptation measures and environmental management.

Source : Handbook for Local Government Leaders

Photo : Prevention Web

Essential 7: Understand and Strengthen Societal Capacity for Resilience

How?

- Ensure that the whole of society understands risks and are engaged in DRR planning and implementation

- Strengthen capacities of vulnerable communities

- Ensure private sector embed risk reduction in development projects

Sao Paulo, Brazil

Community Capacity Building

In Brazil, an innovative educational approach teaches students to reduce risks caused by rain events. The goal is to train **30,000 students** in public schools throughout the State of Sao Paulo.

- **A virtual game** called “The Adventure” teaches students **what they can do** to prevent floods and other hazardous conditions brought about by rain, landslides and thunderstorms.

- **The course is free and uses an interactive platform that can be accessed from any computer.** The virtual environments replicate real situations, and working with an avatar the young participants’ mission is to make these environments safe and secure.

Source : Handbook for Local Government Leaders

Photo : Handbook For Local Government Leaders

Essential 8: Increase Infrastructure Resilience

How?

- Assessment the capacity and adequacy of critical infrastructure
- Strengthen/retrofit the vulnerable infrastructure
- Establish alliances with environmental managers and the private sector
- Recognize the relevance of priority services and operations during and after a disaster

Sendai, Japan

MCR 2030 Making Cities Resilient

Infrastructure Improvement

Even prior to the 2011 Great East Japan Earthquake and Tsunami, **Sendai had taken important steps** to earthquake-proof its schools by installing **solar power generators and storage batteries** to secure electric power, creating disaster **response manuals**, and holding evacuation **drills** twice a year.

- To ensure the safety of children and secure the schools' ability to serve as evacuation centers**, all schools were retrofitted** according to seismic assessments.
- A few schools were also designated as '**disaster prevention model schools**,' that implemented the **most advanced research and practices.**
- After the earthquake, a junior high school in each ward and multiple elementary schools in the same district were **designated as model schools**. Each school has **a disaster prevention officer**.
- Research was conducted on how to improve **collaborative practices with the families of schoolchildren and the community**.

Source : Handbook for Local Government Leaders

Photo : Handbook For Local Government Leaders

Essential 9: Ensure Effective Disaster Response

Bangkok, 20 October 2011

Galle, Sri Lanka

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Early Warning System

Galle was one of the most severely affected districts in Sri Lanka following the Indian Ocean tsunami of December 2004**, which killed 4,330 people and displaced 26,278 families.**

- **The Disaster Management Centre** operates **seven early warning towers** in the Galle district and the DDMCU is managing a 24/7 emergency operation center.
- When a warning message is received, the **DDMCU distributes the message to the community**. Police stations and army camps in the district are also connected to the systems to support the dissemination of tsunami warnings.
- In order to better prepare communities for impending coastal hazards, the Galle District Disaster Management Coordinating Unit (DDMCU), under the guidance of the Disaster Management Centre and the Galle District Secretary, **formed village disaster management committees in 146 coastal villages** lying along Galle's 72-km coastline.

Source : Handbook for Local Government Leaders

Photo : PreventionWeb

Essential 10: Expedite Recovery and Build Back Better

"Ensure of sufficient pre-disaster plans according to risks identified and that after any disaster, the needs of the affected are at the centre of recovery and reconstruction."

Aceh Province, Indonesia

Stakeholder Engagement

After the Indian Ocean tsunami in 2004, Indonesian government created a **Master Plan with wide range of stakeholders.**

- The local community and civil society were **involved in all phases of the reconstruction process** from planning to project implementation.
- Local officials and public figures were **invited to provide commentary and advice.**
- **At the implementation** stage, **local personnel** constituted the majority of the BRR staff.
- **Local companies** were also **given priority** in the tendering process and encouraged to create **joint ventures** with larger national companies

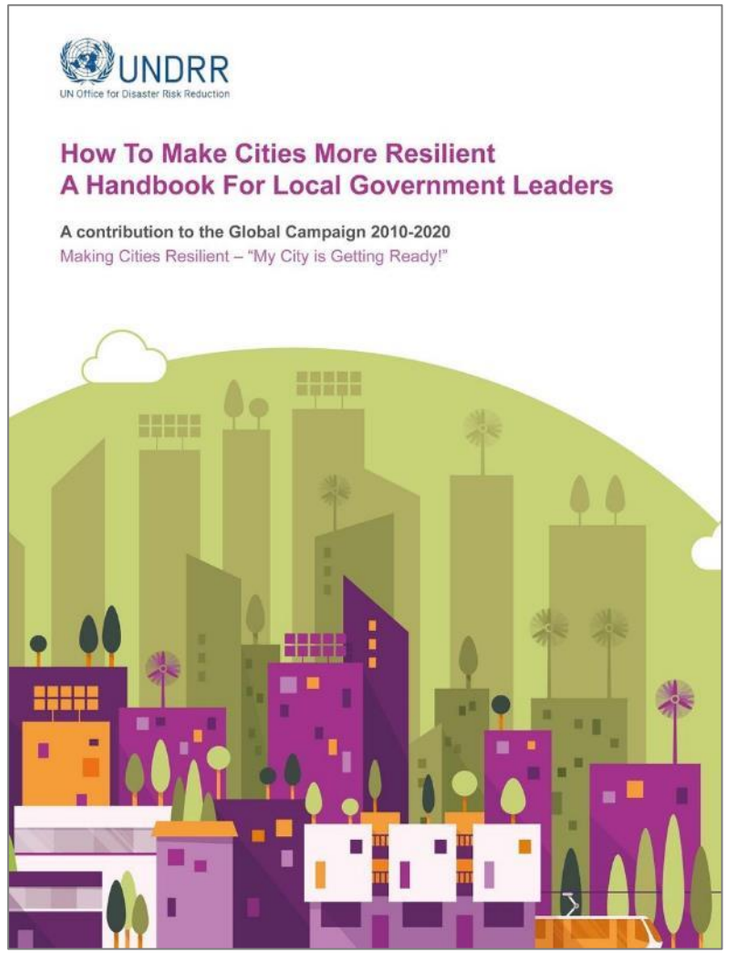
Source : Handbook for Local Government Leaders

Photo : DailyMail

Handbook for Local Government Leaders

- **A practical guidance for implementing disaster risk reduction**

- **Why invest in DRR?** Building the case - policy options
- **What are the 10 essentials?** Strategies and key actions, critical and interdependent for building resilience: Why, What and Examples from cities?
- **How to implement the 10 essentials?** Strategic planning principles, phases and key steps- resourcing options
- **Available** in English, Spanish, Arabic, Portuguese and Korean



Downloadable at https://www.preventionweb.net/publication/how-make-cities-more-resilient-handbook-local-government-leaders-0

Key Resources

- ***Disaster Risk Reduction Terminology:*** *http://www.preventionweb.net/english/professional/terminology/*
- ***Sendai Framework for Disaster Risk Reduction 2015-2030, UN:*** *http://www.preventionweb.net/drr-framework/sendai-framework*
- ***Global Assessment Report 2022 – Our World at Risk: Transforming Governance for a Resilient Future:*** *https://www.undrr.org/gar2022-our-world-risk*
- ***Global Assessment Report 2019:*** *https://gar.undrr.org/report-2019*
- ***Making Cities Resilient 2030 Website:*** https://mcr2030.undrr.org
- ***A Handbook For Local Government Leaders [2017 Edition]:*** https://www.preventionweb.net/publication/how-make-cities-more-resilient-handbook-local-government-leaders-0
- ***10 Essentials for Making Cities Resilient:*** https://mcr2030.undrr.org/ten-essentials-making-cities-resilient

https://www.undrr.org/gar2022-our-world-risk

SUSTAINABLE DEVELOPMENT GOALS

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Thank You

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