Case examples:

Sectoral Mainstreaming of DRR

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

Environment

https://www.recoveryplatform.org/assets/Guidance_Notes/Guidance%20Note%20on%20Recovery-Environment.pdf

Rebuilding to scale with 'eco-materials' in Cuba

Approach: Utilizing wastes from sugar industry to produce cement

- CIDEM developed a product made with **recycled wastes from the sugar industry** – replace 40% of regular cement
- CIDEM provides **training** and support.
- The municipalities co-operate with **local banks to finance** house owners willing to repair using materials from these local workshops.

Lessons

- Materials are produced locally - **diminishes transportation costs**
- Recycling of hazardous waste materials presents a **viable alternative**.
- Management of the projects by **local governments** can ensure that environmental benefits extend beyond the disaster reconstruction phase and become **integrated in development planning**

Health

https://www.recoveryplatform.org/assets/Guidance_Notes/Guidance%20Note%20on%20Recovery-Health.pdf

Community-based health and first aid (CBHFA), Cyclone Nargis, Myanmar

Community mobilization by CBHFA-trained 2,730 volunteers

- 56,573 beneficiaries were reached through community-oriented activities such as hygiene promotions in schools and communities, as well as health education for communities.
- Hygiene promotions included hand-washing exercises and clean-up campaigns, while health education has covered discussions on disease awareness and prevention, immunizations and malaria-prevention activities.

Lessons

- Community-based health and first aid (CBHFA) programs are an **effective method for reaching targeted populations** in remote areas – leave no one behind

Safer Facilities in the Future

- Systematic **survey of health facilities**
- **Vulnerability** and impact **analysis** of health facilities
- Rehabilitation of health facilities, including **repair, strengthening, new construction** as per new revised norms of earthquake safety, and **retrofitting**
- Guidelines developed for buildings according to earthquake seismic zones
- **Seismic zoning** of the state
- Training and mock drills

Lessons

- When rebuilding medical facilities it is important to incorporate disaster resilient measures into the **siting, construction and repair** so that they can survive the next disaster
- Preparedness measures should be included in the DRR activities including **conducting preparedness exercises** in health facilities, linking with other sectors and engaging the community

Hospital retrofit in Costa Rica, 1990 and El Salvador, 2001

- An ambitious **program to retrofit** five major hospitals was **underway** in Costa Rica when a 6.8 magnitude earthquake struck in 1990. The partial retrofitting of one hospital is credited with **saving the facility and its occupants**. In other hospitals, those parts of the facility that had already been retrofitted came through the quake in excellent condition, while other parts which had not yet been reinforced showed evidence of structural failure.

- The 286-bed Benjamin Bloom Children's Hospital in El Salvador's capital, San Salvador, was seriously damaged in a 1986 earthquake and was **repaired adhering to anti-seismic norms**. Fifteen years later when major quakes once again struck in 2001, this hospital suffered mostly cosmetic damage.

Lessons

- You can retrofit a facility to reduce the impacts of a disaster
- Retrofits can save money and lives by ensuring the hospital will remain functioning after a disaster
- Guides easily available - http://www9.who.int/hac/techguidance/en/

Program to reduce impact of future events on medical infrastructure, Nepal

Recognizing the gap between current hospital capacity and predicted medical needs in a post earthquake scenario, a **seismic assessment** (**Stress Test**) of 14 hospitals was conducted in 2001 in Kathmandu Valley.

An earthquake **mass casualty scenario** was used for Kathmandu Valley to estimate the number of people that would require hospital services, based on: (1) **expected damage** to buildings; (2) a one-to-five ratio of deaths to injuries; and (3) the Kathmandu Valley's population of 1.5 million (in 2002).

Lessons

- **Understanding the hazard and risk** to a hospital can help plan for whether that hospital will survive a disaster
- Helps to identify those preparedness measures that must be in place to deal with the damage to the hospital and retain functionality post-disaster.

Preparedness training for hospital workers, 2004 Tsunami in Sri

- Ampara General Hospital was the tertiary care institution in Sri Lanka that managed the highest number of tsunami victims. Fortunately, training in disaster preparedness and response had just been completed.
- **Preparedness**
  - For over five years now, the annual “Public Health and Emergency Management in Asia and Pacific” (PHEMAP) course has been introducing participants to the concepts of health action in times of disaster.
  - As a result of the preparedness measures, when the tsunami on 26 December. 2004, the Ampara General Hospital **staff were well aware of what their duties were**.

Lessons

- Preparedness **training** for health workers and first responders enhances capacity health sector in disasters
- Pre-disaster **drills** introduce health workers and first responders to mass casualty management system
- **Mass casualty management training** and drills strengthen communication, coordination and collaboration among key stakeholders

Climate Change Adaptation

Climate-Resilience Through Insurance Services

1. **Caribbean Catastrophe Risk Insurance Facility (CCRIF)** - furnishes **short-term liquidity** if they suffer catastrophic losses from a hurricane or earthquake - **parametric insurance** - disburses funds based on the occurrence of a predefined event of a particular intensity, without having to wait for onsite loss assessments
2. **Weather-indexed insurance for agriculture in Andhra Pradesh, India -** Less susceptible to the problems intrinsic to traditional crop insurance - **publicly available weather indicators** are the automatic trigger - reduce the insurer's administrative costs

Financing DRR

Mainstreaming DRR into the budget

- Peru was the first country to **include disaster risk** into its **evaluation criteria** for **public investment projects**, followed by **Costa Rica** and **Guatemala**. In Peru, it is now a legal requirement that all public investment projects be evaluated for disaster risks. **If the risks are not addressed, the project is not financed**. In Peru, the National System for Public Investment was created in 2000, and disaster risk was formally incorporated by 2007.

- This was achieved by developing risk concepts and assessment methods, convening a large number of actors from different levels of government and across departments, training more than 900 professionals, implementing new standards and instruments, and developing a long-term vision of investment.

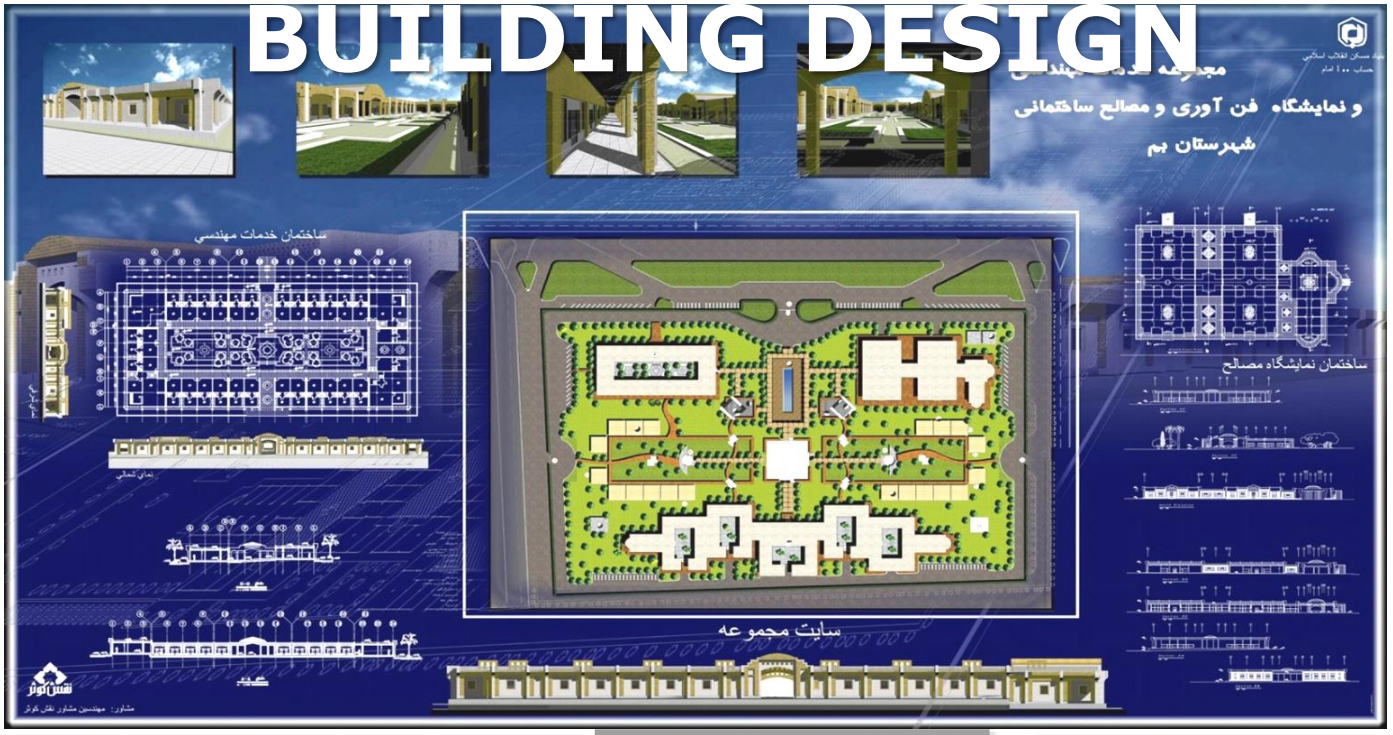
- *(GAR 2011)*

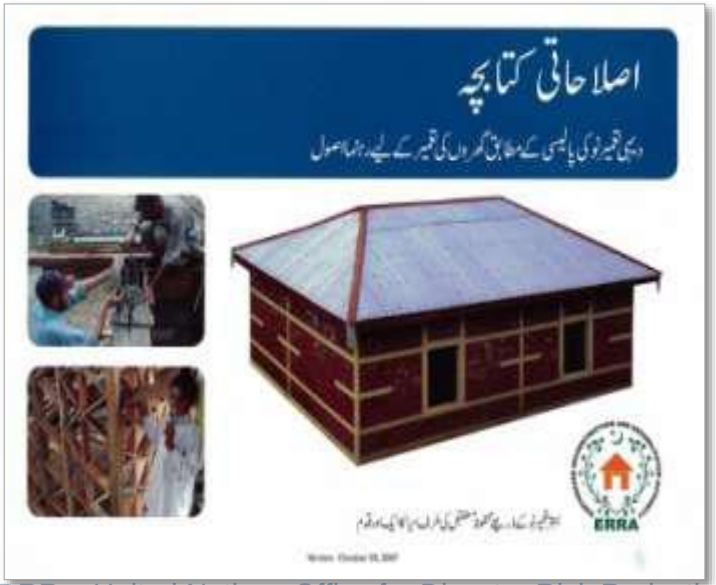
The Turkish Catastrophe Insurance Program

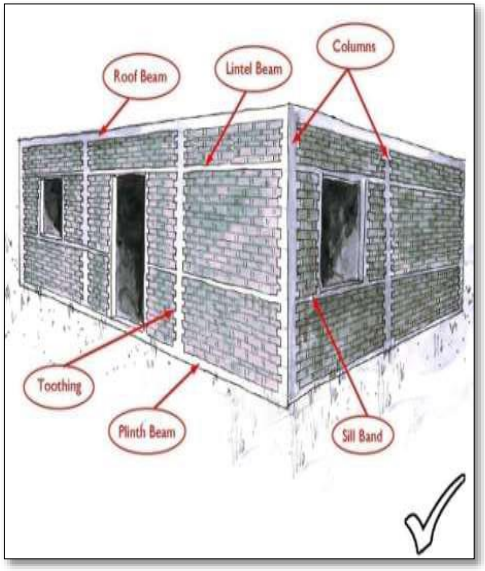
- Following the 1999 Marmara Earthquakes, the TCIP was established in 2000 with the support of the World Bank. TCIP purchases commercial reinsurance and the Government of Turkey acts as a catastrophe reinsurer of last resort for claims arising out of an earthquake with a return period of greater than 300 years.
- The objectives for TCIP were to:
  - **Ensure that all property tax-paying dwellings have earthquake insurance cover;**
  - **Reduce government fiscal exposure** to the impact of earthquakes;
  - **Transfer catastrophe risk** to the international reinsurance market;
  - **Encourage physical risk mitigation** through insurance.
- The TCIP Policy was designed as a stand-alone property earthquake policy with a **maximum sum insured per policy** of US$65,000 and an **average yearly premium** of US$46. **Premium rates** are based on the **construction type** (two types are possible) and **property location** (**five earthquake risk zones** were identified) and vary from less than 0.05% for a concrete reinforced house in a low risk zone to 0.60% for a house located in the highest risk zone.
- The policy is distributed by about thirty existing Turkish insurance companies, which receive a commission. The government invested heavily in **insurance awareness campaigns** and made earthquake insurance **compulsory** for home-owners in urban areas.
- Cover is **voluntary for homeowners in rural areas**.

Land Use Planning & Housing

BUILDING DESIGN







http://www.ucl.ac.uk/drrconference/presentations/VHarris.pdf

Critical Infrastructure

Reinforcement of Shinkansen (bullet train)

Elevated tracks and bridges reinforced twice after the Great Hanshin-Awaji Earthquake 1995 and the Sanriku Minami Earthquake 2003

No significant damage to main structures → Early resumption of the train service

Pooling of technical staff

Trained infrastructure utility experts can be **inventoried** prior to a disaster – through regional cooperation

- **The Caribbean Electric Utility Services Corporation (CARILEC) provides services to members including the CARILEC Hurricane Action Plan (CHAP). CARILEC created CHAP to provide for the assembly, dispatch and coordination of emergency teams of linesmen from member utilities.**

- **Their role is to help restore electric transmission and distribution systems in a country affected by a serious hurricane. To be eligible for assistance and training under the program, each utility pays an annual fee of US$2,000 to the Hurricane Fund. After Hurricane Ivan, Grenlec requested assistance through the CHAP, which deployed 100 linesmen from the region to help repair and restoration of Grenlec's operations.**

For more information :

https://www.recoveryplatform.org/resources/guidance_notes_on_recovery

Gender-analysis in livelihoods, Caribbean after hurricane Lenny 1990

Approach: methodological analysis of work activities of men & women

The banana industry in the Windward Islands. Gender activity analysis shows-

- Men = prepare& plant; Women = harvest & market
- Hurricane Lenny damaged most of the banana crop
- Gender-specific and time-based analysis
- Total crop loss meant that entire fields had to be replanted (and harvesting would resume after nine months)
- This translated to a **loss of earnings for women workers** for approximately four months (in the case of partially damaged fields) to nine months (in the case of totally destroyed fields)
- **Men** would be **less adversely affected**, since they are able to earn waged work for field preparation, replanting and early crop care

Building upon women's traditional livelihoods, Sri Lanka

Approach: strengthening existing & new income earning activities

- World's largest supplier of **coir**. **Women make up 75 percent of the workforce**. The 2004 tsunami hit the industry hard, wiping out coconut palm trees.
- The National Institute of Business Management carried out a **market chain analysis** to learn how the spinners could eventually increase their profits. They determined that if the women could **improve the quality** and consistency of their yarn, they could take advantage of growing international interest in natural, renewable products.
- They proposed creating a **worker-controlled company** that would represent the interests of village-level coir spinners and improve their leverage in the marketplace. The results have been dramatic: the women have doubled or tripled their pre-tsunami incomes. And they report that they are thinking and working like.

Women's disaster insurance through microfinance, India

Approach: provision of gender equitable financial services

- SEWA, the Self Employed Women's Association
- Set up village development committees to provide small loans to the poorest village women.
- SEWA provides an integrated microfinance package that combines savings, credit and insurance.

Lessons

- Since the financial service was **managed by fellow women** within the communities (SEWA members), the beneficiaries could easily access needed information.
- Linking livelihood of women with insurance can be a vital tool not only for mitigation of disasters but also as a **cushion for recovery**.

Thank You

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