Localizing Seismic Resilience

A Journey from reluctance to appreciation.







From collapse



To temporary shelter



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Nepal Earthquake 2015 impact at a glimpse...

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Source: GoN/MoHA

Loss and Damage: 2015 EQ, Nepal



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- Sat 25 April 2015: Magnitude 7.6 EQ
- 12 May 2015: Magnitude 7.3 EQ
- Avalanches triggered on Mount Everest and in the Langtang valley.
- Villages flattened and people made homeless across 31 districts. Highest impact in 14 districts.
- Historic neighbourhoods and heritage sites destroyed in the Kathmandu Valley.
- Post-Disaster Needs Assessment (PDNA): NPR 669 billion required to reconstruct.

Government's Housing Reconstruction Approach

- Owner Driven Construction
- Financial support in tranches for reconstruction
- Retrofitting support
- NBC Compliance to define tranche eligibility
- Monitoring by Technical Officers
- Use of Local Material and Resources

- National Reconstruction and Rehabilitation Policy 2015



The scale of earthquake damage caused a gap in implementing the National Building Code

- National Building Code Implementation Gap
- Inadequate Community Awareness,
- Insufficient Skills and Competency:
 - Artisans
 - Engineers and
 - Builders



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- National Building Code Enacted in 2003
- Piloting started in one Municipality
- The pilot was expanded to 49 Municipalities (Municipal Technical capacity required for implementation was overlooked)
- NBC field level compliance has been questioned since the beginning which was somehow proved to be less effective during Eq-2015

Identifying the Gaps

We need more than just production of standards

- Standards need locally contextualising by local people
- We need to ensure local understanding and ownership of the standards if we are to achieve effective implementation
- This is true at all levels district engineers, technicians, masons/contractors, householders





Building Standards were Revised but not the Implementation Approach



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House Constructed After Earthquake While Code was being Revised

Integrated approach for comprehensive capacity development to achieve safer construction

Stages:

- Masons' Training, Including Demonstration structure
- Model House Construction -Immersion training of masons
- Community Orientation and buy-in
- Handover of Model House to Extremely Vulnerable HHs
- ToT for government Engineers -Immersion on Mason's Training





Help masons practice and get used to new Techniques

Safer Construction Booklets

Checklist

Government Prescribed Demo





Tearfund Mason's demo structure









Trained Masons to build model house

Contextualising learning

- The government engineering curriculum was for a pre earthquake scenario – Make it consistent to address the current need
- GoN Program Schedule for ToT on Eq Resistant
 Building Construction
- Improved Program Schedule

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Tome		Day L	Cay-3	Day I	Day-R.	Ony-5	Day-6	Cey-7
8.00	9.30	Registration	Previous Day Review (MR3)	Previous Day Review (MRB)	Previous Day Review (MKE)	ICONY (MXE) IOW A Y (MXE) IOW A Y (MXE) IOW A IOW IOW IOW IOW IOW IOW IOW IOW	Participant Presentation Mesons Training Topics (5 Groups- 30 Mins-each) (Adv-04())	Previous Day Review
8.30	2045	chevel	Introduction 10 MRT 205 (MAR)	Group Work-Frame Structure Demaged (Photographs will be Provided) (MKB)	Defails Low Strength Meconry (MRB)			Mecor's Multitudium, Community Engagement & Courdette, (Mil
10:45	11:00			Participants Details Lo Bearing Presentation (Frame Miscelures Issues and Remedies – 4 Groups (20 Mine Each) (MXB) Proparab Technique				
11:00	51:30	Earthquake Basics and Effects of Earthquake (Midd)	Preme Mouchare Details (MKB)		Details Load Bearing Mesonry (RCT)			Training Evaluation and Clining (5P)
11:30	13:25	Gunch Break			Concernance of the second			
18:25	24:20	Earthquake Resistance Design and Construction Philosophy(HIC)	Earthquake Propanedress (MRC)		Stab, Stone Block & Brick Preparation Techniques (NP		Stanagement (SP)	
14:30	14:15	Nepal Building Code: Status and Implementation Itrategy (H)	Quality Control (54)	Introduction to NBC 201 (MKB)	Exemuge Assessments/ Maintenance & Retrofiting (BK)		Presentation Styles (85)	
16:15	14:30	Teta Torne	1900	1992				
34:30	18-00	Building Configuration and Site Selection (HKC)	Keld : Rame Structure Demo (MKB+SK)	Introduction to NBC 202 (RCT)	Architecture Design, Frie Safety & Sentary Design Res. (3K)		Supervision and Monitoring (SP)	

Making the learning practical...

Training of Trainers:

- Learn the theory, then:
 - Watch one
 - Do one

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• Teach one



Prioritise the needs of the most vulnerable...

- Identifying Extremely Vulnerable: Set and agree the criteria
- Community selects the beneficiaries (Based on Criteria)
- Construct and handover the model house to the most vulnerable
- Model house remains open to all visitors

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Supporting government capacity through community engagement

Community meetings to identify and engage appropriate experts and local stakeholders and build local government understanding and collaboration.

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Supporting Local Authorities and CBOs: A Bottom up approach

- Engaging from the beginning Building Relationships
- **Communicating Objectives**
- Listening to Feedback •

- World Citizen Forum
- LDMC
- Village Development Committees
- Local Party Leaders
- DDRC (CDO)
- DDC (LDO/DTO)
- DUDBC Division (Chief)

Community led - technical expert review - stakeholder endorsement



Ensuring government approval through engaging local institutions and leaders endorsement





Multiple Stakeholders at a stone laying ceremony

Ensuring project support from all stakeholders



First MH Handover Ceremony in Presence of Government Officers





Local Dev Officer/Dist. Planning Officer/VDC Secretary during Handover Ceremony



NRA Representative Handing Over

the Model House

Demonstrating impact to stakeholders - to influence good practice





Minister of Home Affairs/Parliamentarian/CDO visit to Model House Construction Site

Project Director/Deputy (MoUD-CLPIU) visit to Model House Construction Site



Demonstrating the impact to Communities



Mason's Training/Demo Construction



Formation and Engagement of Reconstruction Group





Model House for the most Vulnerable

Community Orientation at Model House



Trained Mason's OJT at Model House



The proof is in the pudding . . .

*Central Level Project Implementation Unit Babarmahai Kathmandu

Anna 18" Calaber, 2010

Kit: Sushi Poudul Sketor Project Manuper Feedfund

Letter of Appreciation

This is to appreciate and recognize peer invaluable contribution in peol earthquake necessary and reconstruction. The concept of systemgting Masor's Training. Community Drientation and Model Hause logether as a comprehension capacity development peckage was programic indeed to complement safer construction. Formation and mobilization of Reconstruction timus plend will in your project area in instrumentally complementary. Training of Trainers program on 'Larthquake Reconstruct Rubbing Construction Technology' in integration of real measure training respectators rematival truccial in developing tespecation practical IABs of CLPNI Technical officials. The integration of technical, under and mobilizations dimensions of recovery and teconstruction in conditionation of appropriate management chements you considered while developing your program was influential. We acknowledge your entite contribution in plasming, decigning and implementing these teoryethese concepts.



pet March Marcan Products

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Training Strategy for Disaster Resistant Housing Reconstruction

(Earthquake Recovery and Reconstruction Programme)

However, 2011

- Tearfund is the first agency to complete substantial numbers of houses
- Government endorsed
 Tearfund's integrated approach
- Other NGOs are adopting TF's integrated approach
- Mason's practice has changed
- Communities now insist on the seismic resilient design
- Houses are seismic resilient
- The most vulnerable receive model houses
- Government requested TF train their engineers
- Government Engineers' practice changed - now training masons and verifying quality

People are constructing and they are constructing EQ <u>resilient</u> houses









Success: Together we <u>can</u> bridge the gaps



It is possible

