Localizing Seismic Resilience
A Journey from reluctance to appreciation.

From collapse → To temporary shelter → To resilient reconstruction

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On behalf of Sushil Poudel, Program Manager-
Technical Infrastructure
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Nepal Earthquake 2015 impact at a glimpse...
Loss and Damage: 2015 EQ, Nepal

- 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.

Sources: GoN/DRR Portal
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

PDNA VOL A 2015

- 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

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

Complete Model House

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*

### Table: GoN Program Schedule for ToT on Eq Resistant Building Construction

<table>
<thead>
<tr>
<th>Time</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
<th>Day 6</th>
<th>Day 7</th>
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<tbody>
<tr>
<td>9:00</td>
<td>9:30</td>
<td>10:45</td>
<td>Introduction to MRT 205 (MKR)</td>
<td>Group Work Frame Structure Damaged (Photographs will be Provided) (MKR)</td>
<td>Details Load Bearing Masonry (MKR)</td>
<td>Details Load Bearing Masonry (MKR)</td>
<td>Details Load Bearing Masonry (MKR)</td>
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<td>10:45</td>
<td>11:00</td>
<td>11:30</td>
<td>Frame Structure Details (MKR)</td>
<td>Participants Presentation (MKR)</td>
<td>Frame Structures Issues and Remedies – 4 Groups (20 mins Each) (MKR)</td>
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<td>11:45</td>
<td>12:00</td>
<td>Earthquake Preparedness (MKC)</td>
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<td>Lunch Break</td>
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<td>14:00</td>
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<td>Nepal Building Code Status and Implementation Strategy (PK)</td>
<td>Quality Control (PA)</td>
<td>Introduction to NRC 205 (MKR)</td>
<td>Damage Assessments/Maintenance &amp; Retrofitting (MK)</td>
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Making the learning practical...

Training of Trainers:
• Learn the theory, then:
  • Watch one
  • Do one
  • 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
Supporting government capacity through community engagement

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

NRA Representative Handing Over the Model House

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

Trained Mason’s OJT at Model House

Formation and Engagement of Reconstruction Group

Model House for the most Vulnerable

Community Orientation at Model House
The proof is in the pudding...

- 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 resilient houses
Together: NGO+Community+Government

Success: Together we can bridge the gaps

It is possible