

*Asian Conference on Disaster Reduction*

**NSET EXPERIENCES  
ON  
SAFER SCHOOLS INITIATIVE**

**Session 3: School DRR Education for Enhancing Capabilities  
to Cope with Unexpected Situation in Disasters**

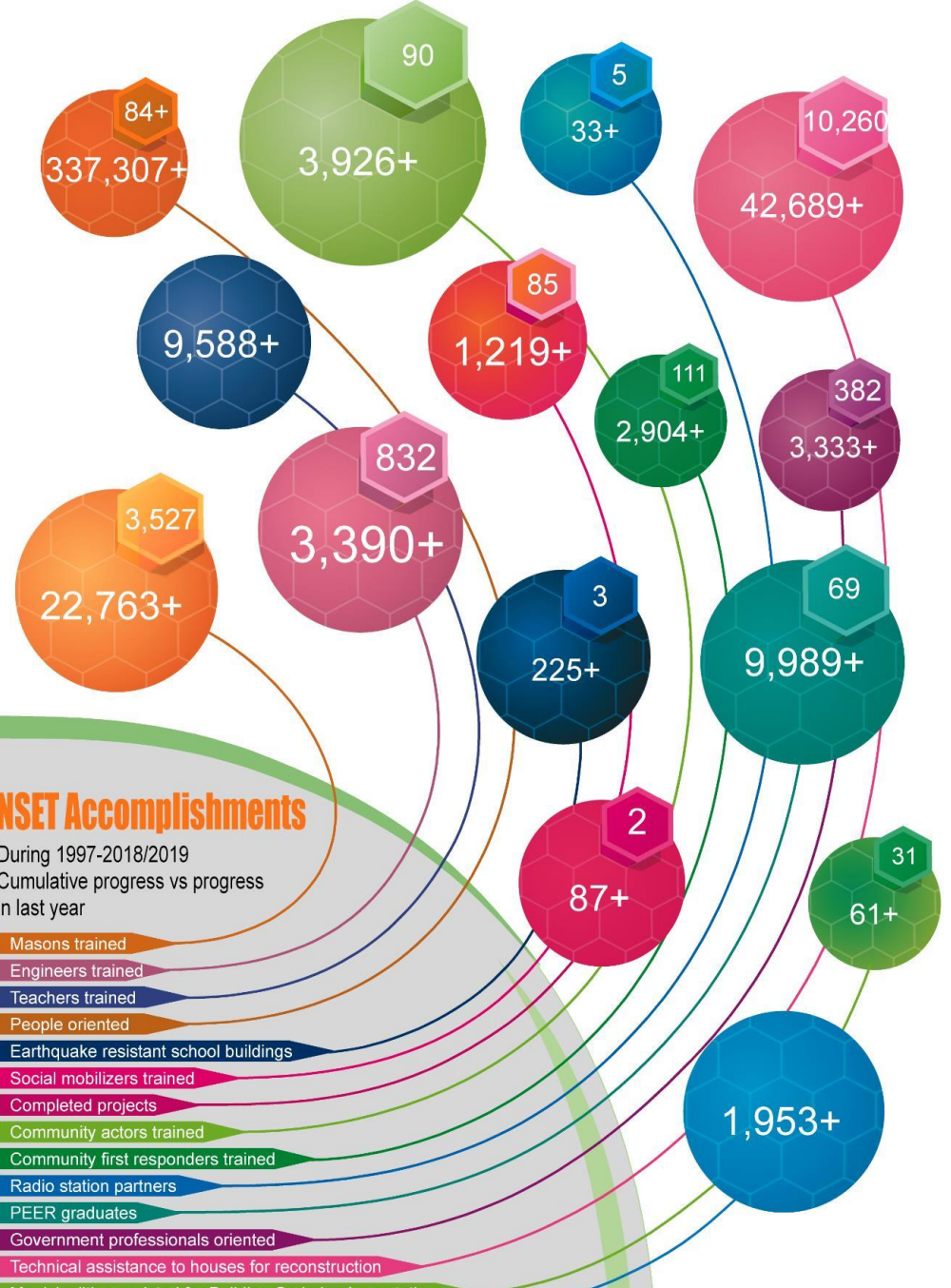
**25 - 27 November 2019  
Ankara, Republic of Turkey**



# NSET Accomplishments

During 1997-2018/2019  
Cumulative progress vs progress  
in last year

- Masons trained
- Engineers trained
- Teachers trained
- People oriented
- Earthquake resistant school buildings
- Social mobilizers trained
- Completed projects
- Community actors trained
- Community first responders trained
- Radio station partners
- PEER graduates
- Government professionals oriented
- Technical assistance to houses for reconstruction
- Municipalities assisted for Building Code Implementation
- Seismic vulnerability assessment of buildings

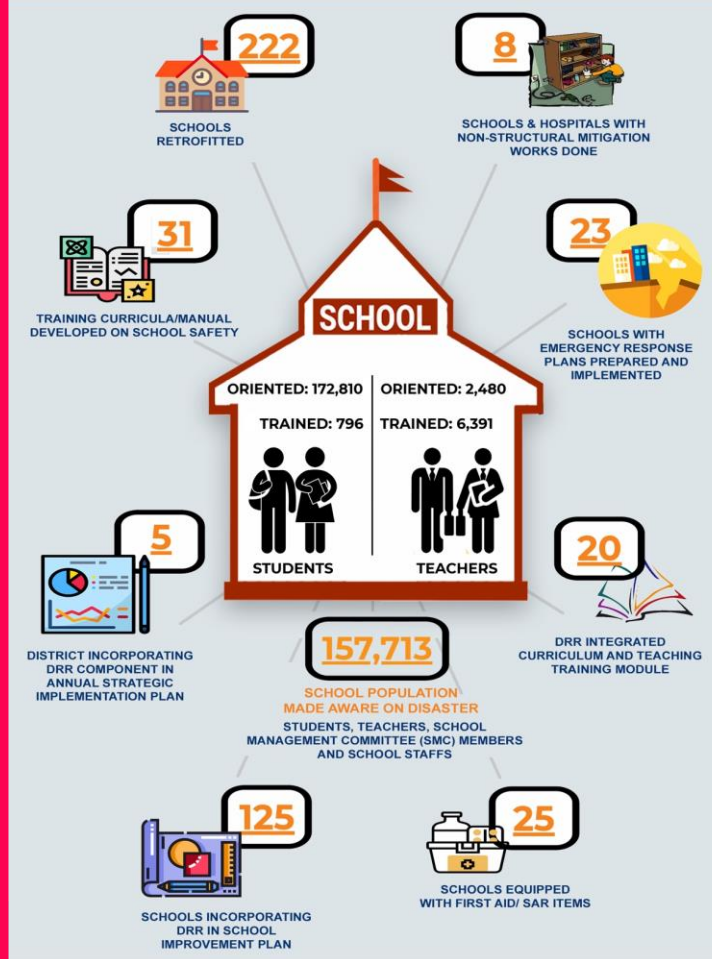


→ Progress achieved during FY 2018/19  
→ Progress achieved during FY 1997-2018/19

# NSET Accomplishment During 25 Yrs



## SAFER SCHOOLS AND INFRASTRUCTURES



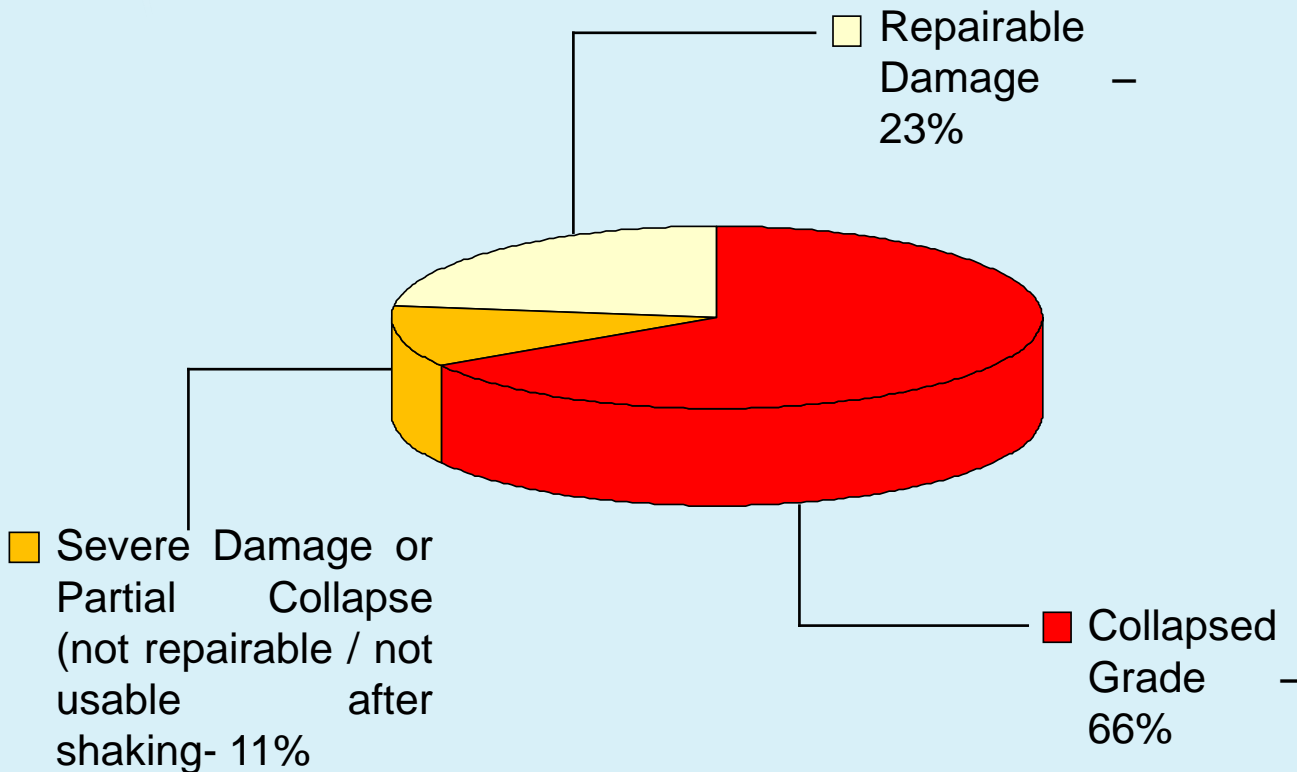
# School Safety Approach

- **Community Based Approach**
- Awareness raising on risk and risk reduction measures
- **Multi-stakeholders Collaboration (Government, Civil Society Organizations, Private sector)**
- Disseminate and replicate best practices that works in the context of Nepal
- **Assist community to manage, implement and own the project**
- Develop/ adapt appropriate, cost effective, replicable technology
- **Emphasis on the use of local materials and resources**
- **Education and empowerment**



## Schools Risk Assessment Results (1996)

643 Public Schools in KV



**Potential Damage of School Buildings in KV**  
(MMI shaking)



# School Earthquake Safety Program

1997



## Questions

- Technical Feasibility
- Economical Affordability
- Cultural Acceptability
- Local Capability





# SESP: Components

## Awareness



Retrofitting + Mason  
Training + Convincing  
Parents + Motivating  
Students + Teachers  
Orientation +  
Institutionalization



## Training



## Construction



## We continue:

- **Vulnerability assessments and Retrofitting**
- Awareness, training and capacity building
- **School disaster preparedness**
- Advocacy and policy support
- Researches for more feasible and appropriate technology

# Major SESP Partners

**Govt., USAID/OFDA, UNICEF, JICA, ADB,  
World Bank, DFAT/PLAN, NTU, SVA,  
Action Aid, ARC, GHI, LWF Nepal ++  
Student Summit Consortium**





# Turning Point on School Retrofit Program

- **1997-2007**

Model retrofit and awareness activities to convince GON, Donor, and Communities that retrofit is feasible

- **2007-2010**

Detail Study on Nepal schools vulnerability and Developed Comprehensive strategy for safer schools in Nepal

- **2011-2015**

Government own the strategy and Donor agreed to fund for school retrofit and successfully retrofitted 300 schools during 2012-2015 just before the Gorkha Earthquake



# And Gorkha Earthquake Tested the technology...

District	No effect	Hairline cracks on plaster	Need major repair	Total
Kathmandu	66	12	0	78
Lalitpur	29	17	0	46
Bhaktapur	30	6	0	36
<b>Total</b>	<b>125</b>	<b>35</b>	<b>0</b>	<b>160</b>

**Impact of 25 April Gorkha earthquake on already retrofitted 160 buildings**



# On the Job Masons Training during Retrofitting



# Capacity Building





# Children Safety Club



# Awareness program by safety Club



**Humla**



# Training & Awareness materials



**For Teachers and Children**

# SESP Replication in other Countries

- Concept of SESP replicated in **Pakistan** after 2005 earthquake
- SESP adapted in **Bangladesh** under DPSS 2012



17 Different Countries by UNCRD





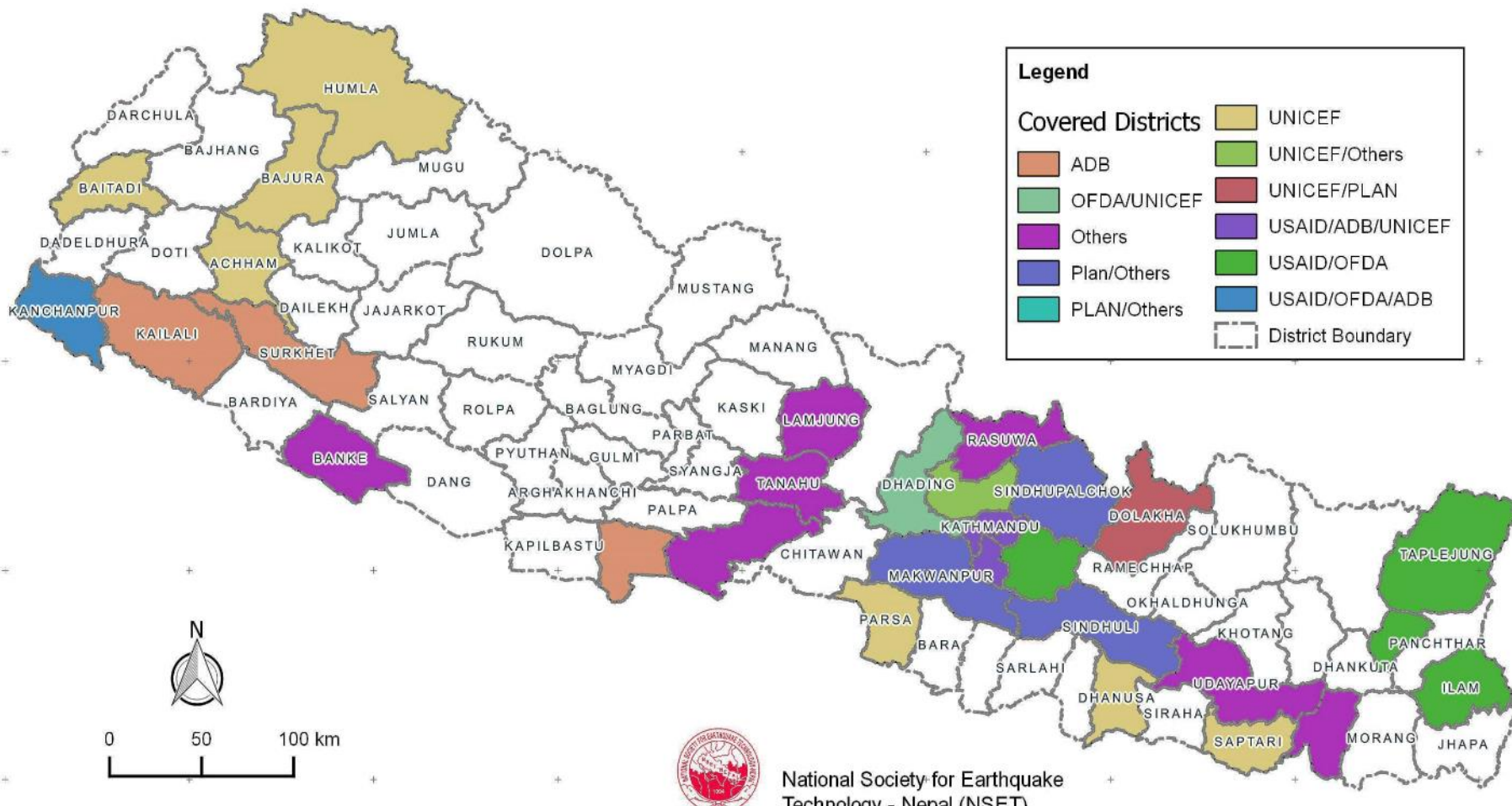
# Experience Sharing & Learning (Student Summit)





29 districts

## School Earthquake Safety Program in Nepal Districts Covered



National Society for Earthquake  
Technology - Nepal (NSET)

## SESP Coverage Districts



# Realized Needs based on Lessons

- **Comprehensiveness**

- HW/SW, MH, All Schools,

- **More appropriate technology**

- Further research
- Type design

- **Multi-pronged approaches of implementation**

- SMC led, Contractors

- **All schools**

- **Private schools**

**NSSP**



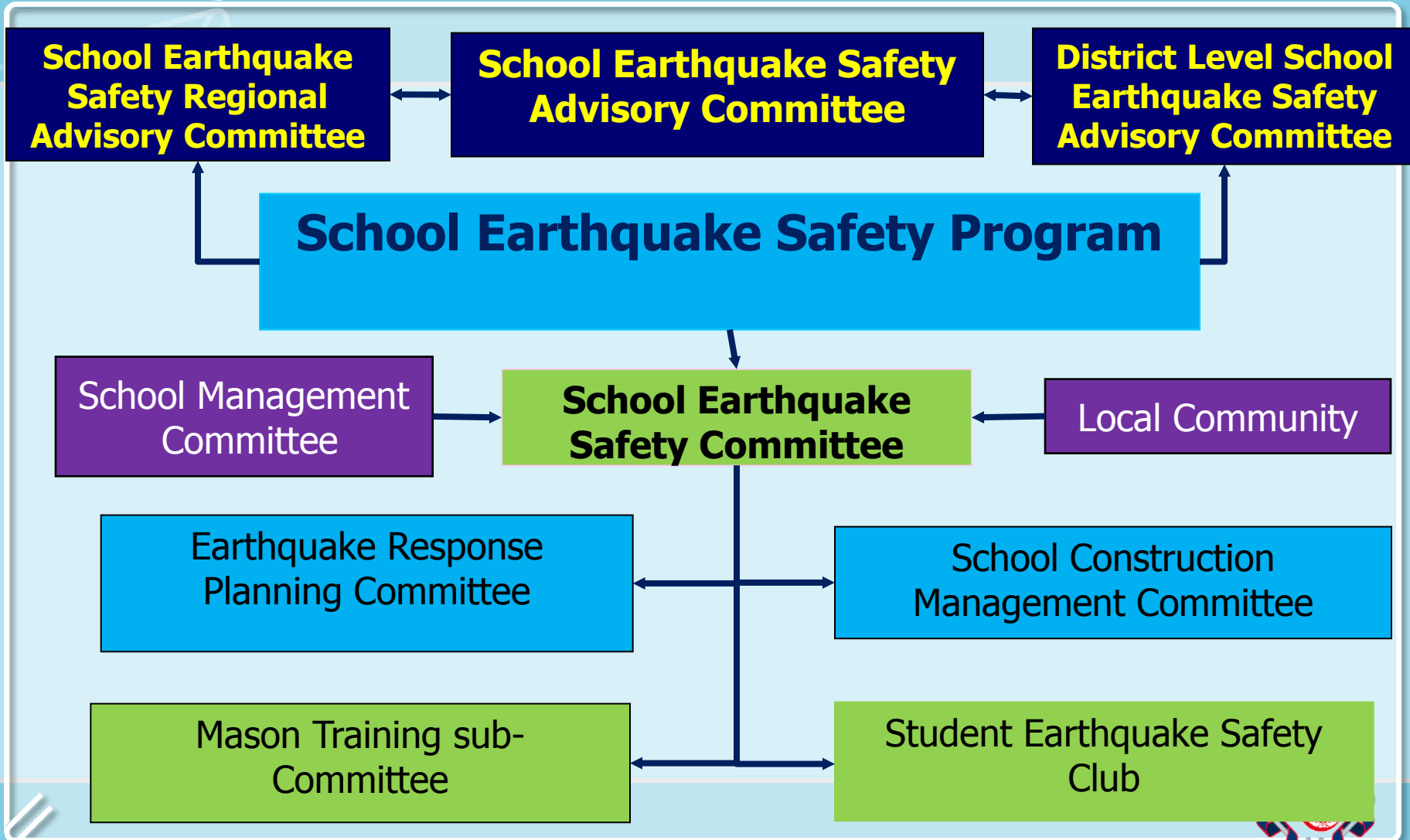
# Realized Needs based on Lessons

## 1. Comprehensiveness

1. Balance between Hardware/Software
  - Multi-Hazard Approaches
  - All buildings within compound
  - Involving all stakeholders



# SESP Model: Involvement



# Realized Needs based on Lessons

## 2. Need Additional Technologies

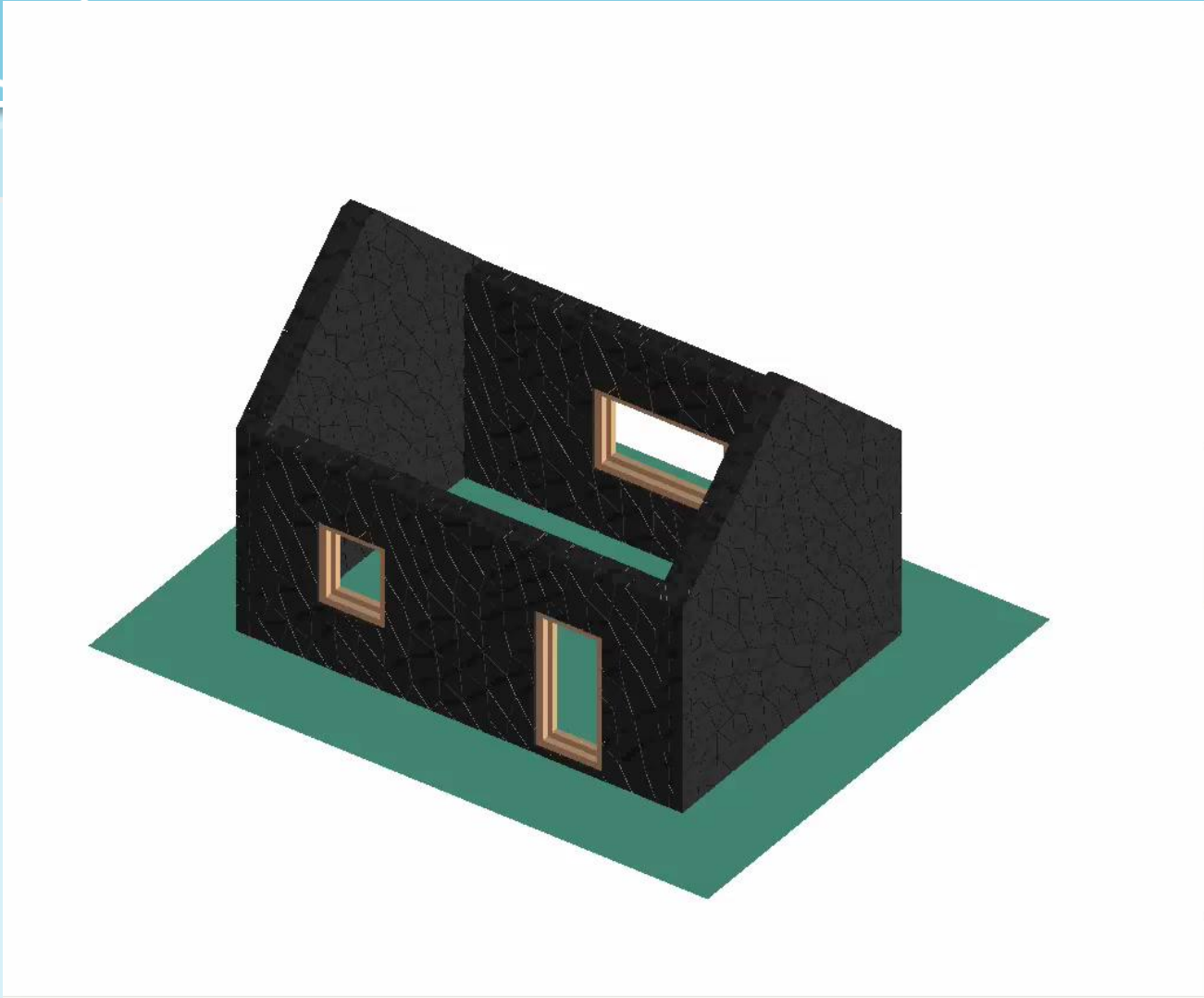
- Technically Feasible
- Economically Affordable
- Locally Available
- Culturally Acceptable
- Sustainable

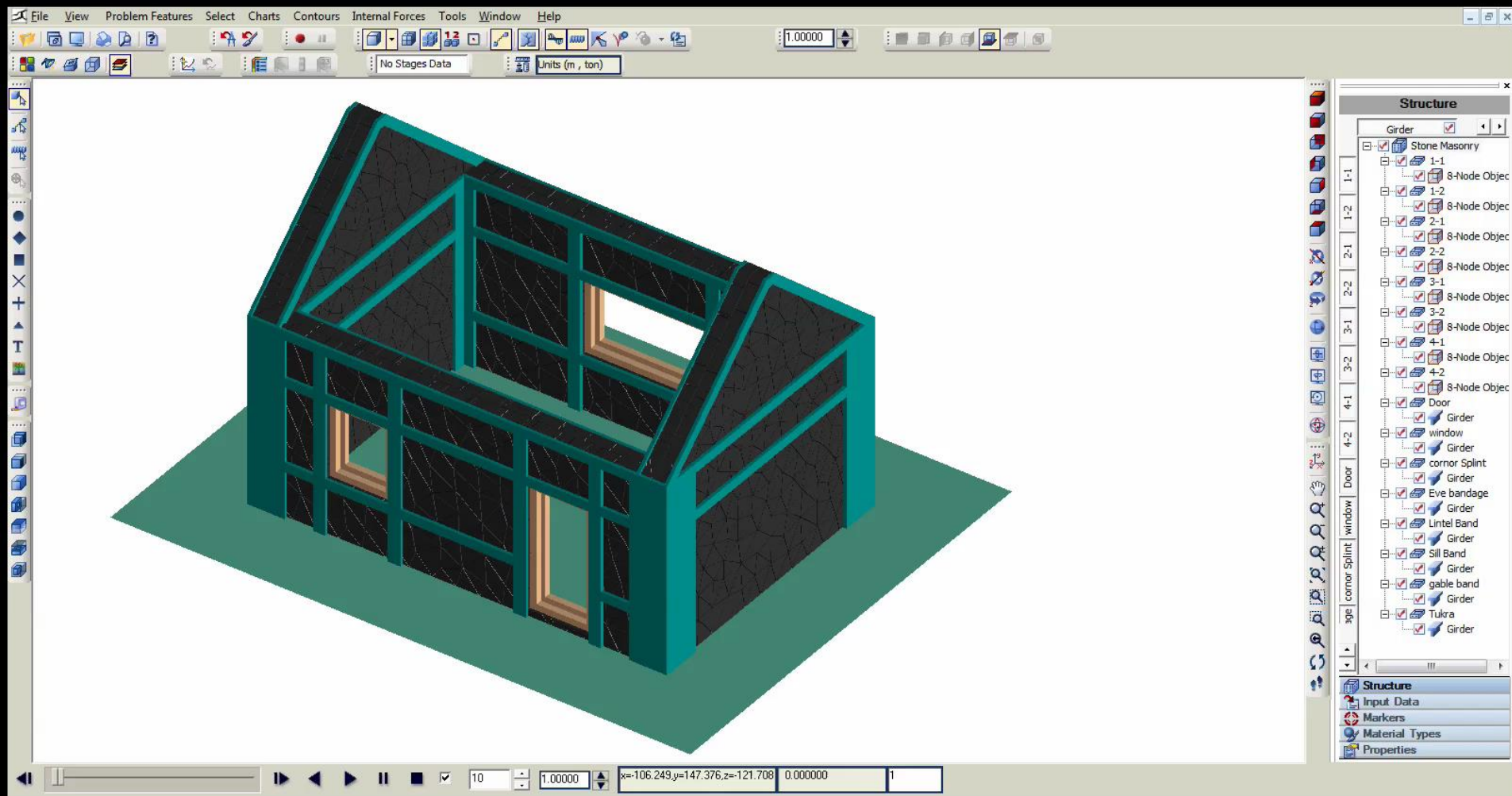
Appropriate



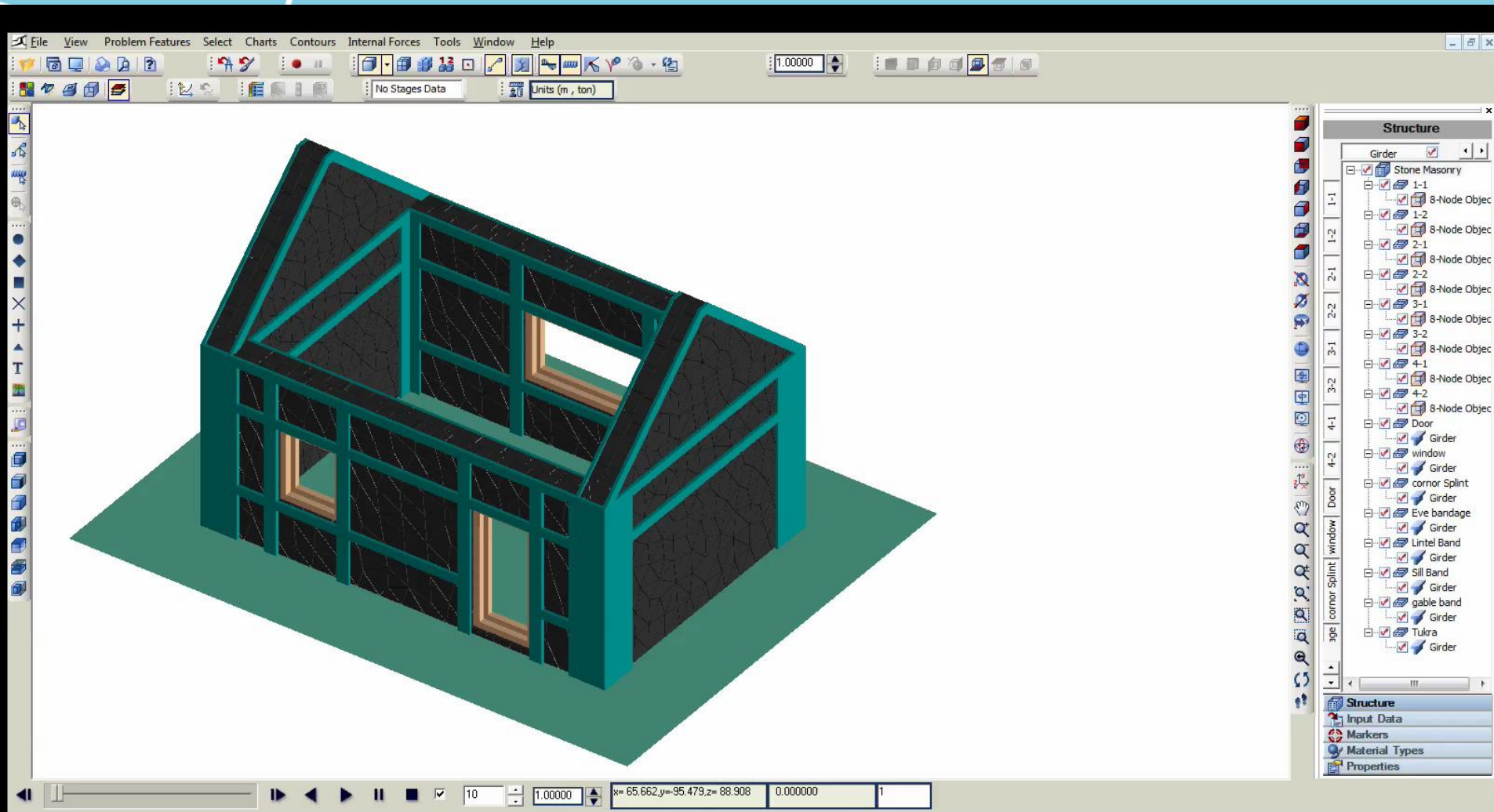


# Reliability for Rural Buildings





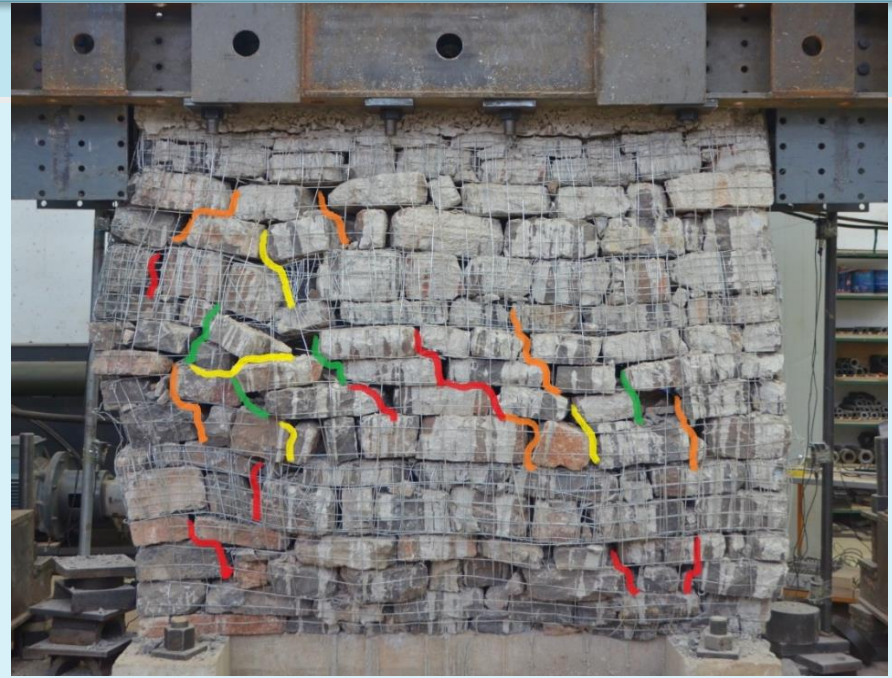




## Continuously conducting further researches on other methods



Stone in Mud



Dry Stones

Test in China with DFID Funding by BNU, NSET and IOE



# Seismic Safety and Resilience of Schools in Nepal

Principal Investigator: Dr Anastasios Sextos, Reader in Earthquake Engineering

Co-Investigators: Dr Nick Alexander, Dr. Jitendra Argawal, Dr. Mohammad M Kashani, Dr. Flavia De Luca, Dr. Paul Vardanega, Dr. Max Werner

International Collaborator and Named Visiting Researcher:

California Institute of Technology (CALTECH) (Prof. D. Assimaki), University at Buffalo, SUNY, United States (UBUF) (Prof. A. Stavridis), University of Fuzhou, China (FU) (Prof. B. Briseghella), University of Roma Tre, Italy (UR3) (Prof. C. Nutti), National Society for Earthquake Technology, Nepal (NSET) (Dr. Amod Mani Dixit), Tribhuvan University, Institute of Engineering, Nepal (TU-IOE) (Prof. Prem Nath Maskey), University of Kathmandu (KU), Nepal (Assist. Prof. Prachand Man Pradhan), Arup International Development (ARUP-ID) (Hayley Gryc), Save the Children, UK (STC-UK) (Michele Young), Earth Investigation and Solution Nepal Pvt Ltd (EISN) (Dr. Rama). Visiting Researcher: Bill Flynn (Care International).



# Realized Needs based on Lessons: Sustainability

Special Nature of Public Schools in Nepal

Affordable/Simple Technology

Involvement of All

Local Government

Institutionalization

Central Government

Training

Transparency

Construction Mechanism

Other Awareness Campaigns





**NSET**  
Earthquake Safe Communities In Nepal

# Continue under NSSP

