# National Workshop on Flagship 1: School Safety

## Update and Progress Report on flagship 1

## School Safety

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FLAGSHIP PROGRAM FOR DISASTER RISK MANAGEMENT (DRM): (In 2009 A.D.)

Flagship 1 : School and Hospital Safety

Component A: School Safety (ADB & Ministry of Education).

Components:

1. Structural and non structural vulnerability assessment of school building in Kathmandu valley
2. Physical retrofitting and seismic strengthening of school building
3. Awareness raising on constructing resilient structures

## Progress on SESP

### Assessment

| S. No | Assessment type | No. of Buildings | Remarks |
|---|---|---|---|
| 1 | Preliminary Survey | >1800 | Under open DRI of the World Bank and NSET |
| 2 | Qualitative assessment, prepare priority list, identify buildings to be retrofitted or dismantled | 236 | Under SESP of the DoE including 15 buildings retrofitted in 2011 (with 57 buildings by ADB through NSET and remaining consultants) |
| 3 | Quantitative assessment | 135/236 | |

## Progress on SESP

### Retrofit design

| S. No | Details | No. of Buildings | Remarks |
|---|---|---|---|
| 1 | Retrofit design of school buildings of the Valley | 15 | Under SESP of the DOE from the TA ADB through NSET in 2011 |
| 2 | Retrofit design of school buildings of the Valley | 50 | 43 buildings Under SESP of the DOE in 2012, 7 buildings from NSET |
| 3 | Retrofit design of school buildings (136 buildings in the valley and 35 out of valley ) | 20/171 | 50 buildings being designed by NSET under ADB TA and 121 buildings through consultants by the DOE in 2013 |

## Progress on SESP

### Implementation of Structural Retrofitting

| S. No | Details | No. of Buildings | Remarks |
|---|---|---|---|
| 1 | Retrofitting of school buildings of the Valley | 15 | Completed in 2011 Under SESP of DOE and TA from the ADB through NSET |
| 2 | Retrofitting of school buildings of the Valley | 50 | Retrofitting of 23 buildings completed and 27 buildings at the final stage, under SESP of the DOE |
| 3 | Retrofitting of school buildings (136 buildings in the valley and 35 out of valley ) | 171 | Will be completed by the end of 2013 |
| 4 | 36 school blocks destroyed by Sikkim earthquake is completed. | 36 | A DFID funded programmed under RAP |

## Progress on SESP

### Non-structural retrofitting/ preparedness

| S. No | Details | No. of Schools | Remarks |
|---|---|---|---|
| 1 | Non-structural vulnerability reduction (Bhaktapur, Nuwakot and Rasuwa) | 55 | Under Disaster Preparedness for Safer Schools in Nepal by NSET & NRCS supported by American Red Cross |
| 2 | Earthquake Preparedness/ drill Program ( Kathmandu Valley and 8 districts of the eastern region) | 1215 (540 in Ktm. valley and 675 in the east) | With the support from UNICEF/ NSET and implemented by the DOE/RED/DEOs |

## Progress on SESP

### Capacity Building

**Engineers Training**

- 3 Days Vulnerability Assessment: 33
- 5 Days Retrofit Design: 33
- 5 Days Training for Masters Instructors on Seismic Retrofitting: 32
- 3 Regional Workshops/yearly (3 days)

**Involvement of Private Consulting Firms**

## Progress on SESP

### Masons Training

- 54 Masons Trained on the Job
- 120 Masons trained through 5 days training on Retrofitting

- Only trained masons on New Earthquake Resistant Construction
- Retrofitting practice on Real School Building

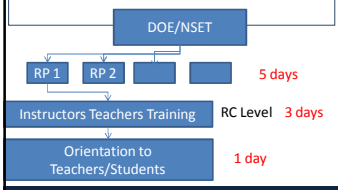
**One Lead Trained Mason is Required for Each Building for Retrofitting**

**Under TA from ADB and AusAID through NSET**

## Progress on SESP

### Teachers Training

- TOT for 81 RP (54 in KV + 27 Outside KV)
- 2580 Teachers Trained at RC level
- Orientation to 12,000 teachers from 1215 Schools from 11 Districts




**Objective: Preparation of Emergency Response Plan of Schools and Drill**

**Supported by UNICEF and NSET**

## Progress on SESP

### Orientation to Students

- About 243, 000 students are provided with 1 day orientation with support from UNICEF and NSET
- About 500 Teachers and students are provided with 1 day orientation in coordination with Mahila Sichhak Samaj
- Yearly Students Summit


## Progress on SESP

### Contingency Plan

- Contingency Plan of 21 flood vulnerable districts in terai and 3 districts of Kathmandu Valley have been prepared with the financial assistance of UNICEF and Technical assistance of UNICEF and DOE.


## year wise Plan for Implementing SESP

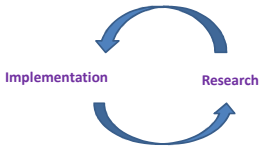
| | | Total Need | Year | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| Retrofit | KV | 700 | **15** | **50** | **136** | **140** | **200** | **159** |
| | Nepal | About 49,000 | | | **35** | **145** | ..... | ..... |

**Training: 1050 masons; 4,000 teachers; 50,000 students orientation**

## Challenges and Strategy to Overcome

**1. Limited Retrofit Options**

**Mainly 3 Options, still Expensive (25-35% cost)**




- Collaboration with NSET for Exploring more economic Retrofitting Options
- Collaboration with NTU Singapore for new retrofitting options like FRP

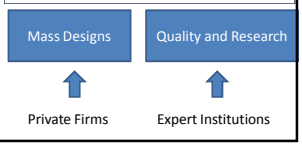
- Technical Feasibility
- Economical Affordability
- Local Availability
- Social Acceptability

## Challenges and Strategy to Overcome

**2. Design**
- **Number of Experienced Professionals**
- **Design Cost**
- **Design time**

Individual Buildings are Assessed, Analyzed and Designed
- Limited Professionals
- Time Consuming
- Problem of Standardization
- Design Quality

- Private Consulting Firms are Encouraged
- Proto-type design for New Construction
- Proto-type Design Manual for Retrofitting is under development
- Steering/Technical Committee for Overall Guidance and Review
- Continuous Training to all Stakeholders including Private sector
- Collaboration with DUDBC, NSET and Academia




## Challenges and Strategy to Overcome

**3. Quality Implementation**
- **Quality Construction**
- **Time**
- **Difficulty in mobilization of Fund from Community**
- **Awareness and Capacity Building**

- Large/complex Buildings through contracting process (about 20%)
- Sufficient budget in case of retrofitting
- Trained engineers for supervision (separate training only for retrofitting supervision)
- Minimum of one trained mason in one site
- Community mobilization and orientation

## Challenges and Strategy to Overcome

**4. SESP Implementation in Private Schools**

- Orientation through PABSON/N-PABSON to all private schools
- Conduct Preliminary study and give existing status to private schools
- Regulation policy (Assessment/retrofitting of existing and safe new construction)
- Awareness to Parents to demand safer schools

## Challenges and Strategy to Overcome

**5. Coordination**
- **Many programs in structural and Non-structural implementation by different organizations**
- **Specially, software components are being implemented by many organizations**
- **Standardization of Training and Awareness**
- **Standardization of Designs/drawings**

- Coordination with DUDBC and Local Governance System
- Coordination among Flagships (NRRC to play more role)
- Promote using standard proto-type designs by DOE
- Promote using DOE published training curricula
- Common awareness messages
- Common reporting format and mechanism

## Challenges and Strategy to Overcome

**6. SESP still to fully Institutionalize**
- **Still in project mode**
- **Total need assessment (Vulnerability Assessment) and preparation of time bound action plan**
- **National Strategy for SESP prepared but still to be formalized**

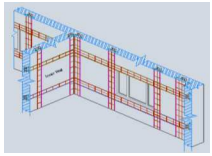
- Convert to the program mode
- Implement National Strategy for SESP to develop time bound Action Plans
- Survey of all school buildings in Nepal

Some Glimpses of SESP Implementation

## Retrofitting Options for Masonry Buildings in Nepal

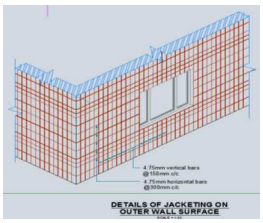
Splint and Bandage





## Retrofitting Options for Masonry Buildings in Nepal

Reinforced Concrete Jacketing


Mixed!

## Retrofitting Options for Masonry Buildings in Nepal

GI Wire jacketing


## School under Retrofit

## School under Retrofit

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## School under Retrofit

**Earthquake Drill**

Emergency Preparedness


Students Summit


## School under Retrofit

**Students observing retrofitting work after orientation**

Thank You!