3rd Anniversary of PMAY (U)
July 27-28, 2018
at Lucknow, Uttar Pradesh

Presentation on:
Uttarakhand – Disaster Resistant Technologies

Urban Development Department,
Uttarakhand
Seismic Zoning Map of India

Uttarakhand Zone “IV and V”

Source: IS 1893
Pithoragarh, Bageshwar, Chamoli and Rudraprayag fall totally in Zone V

Source: IS 1893
Uttarakhand: At a Glance

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<table>
<thead>
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<tbody>
<tr>
<td>Area</td>
<td>51,152 sq km</td>
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<tr>
<td>Divisions</td>
<td>2 (Garhwal &amp; Kumaun)</td>
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<tr>
<td>Districts</td>
<td>13</td>
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<tr>
<td>Tehsils</td>
<td>103</td>
</tr>
<tr>
<td>Development Blocks</td>
<td>95</td>
</tr>
<tr>
<td>Population</td>
<td>1,01,16,752</td>
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<tr>
<td>Females</td>
<td>49,62,574</td>
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<tr>
<td>Urban population</td>
<td>30,91,169</td>
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Source: Census of India, 2011
Epicenters of previous earthquakes

Source: USGS
Institutional Arrangements and Interventions for:
Disaster/Earthquake Resistance
Institutional Arrangements for Disaster/Earthquake Resistance

- Department of Disaster Management, Uttarakhand
- State Disaster Management Authority
- District Disaster Management Authorities

Capacity Building

- 248 State Government engineers trained under NPCBEERM (National Program on Capacity Building of Engineers in Earthquake Risk Management)
- 526 engineers and 37 architects trained under various other programs
- 1,225 masons trained in earthquake safe construction for BLC (Beneficiary Led Construction) construction under PMAY, RAY.
Interventions: Disaster Resistance Technologies
(For BLC: Beneficiary Led Construction)

- During site selection, handholding with beneficiary and ULB engineer to select proper site; away from land slide zone and flash flood zone.

- At Four places Demo Units/ Model DUs constructed (Earthquake Resistant Design) having provisions of RCC Columns, Plinth Beams, Lintel Beams and Slab etc including placement and binding of “Steel Bars”.

- Each Demo Unit Costing Approx. Rs. 1.5 Lakh.

…… continue
Interventions: Disaster Resistance Technologies

- Four Places of Demo DUs: 1- Badkot (Uttarakashi), 2- Sitarganj (Udham Singh Nagar), 3- Rudraprayag, 4- Joshimath (Chamoli)

- During the construction and after construction hand holding/ Capacity Building Trainings for “Mesons” as well as to “Beneficiaries”, of all Earthquake prone Districts/ Areas.

- Regular visits and guidance to beneficiaries by ULB engineers for Disaster Resistance Provisions.
Interventions: Disaster Resistance Technologies
(For BLC: Beneficiary Led Construction)

- During construction of Demo DUs/ Units following technical details/ precautions explained:
  - Proper leveling of foundations trenches and leveled PCC;
  - MS Bars placement and numbers with dia details with stirrups;
  - Casting of RCC footing and columns with minimum voids (using vibrators/ steel bars);
  - Beams at “Plinth Level” and Lintel Level”;
  - RCC bends along windows and doors;
  - RCC slab, proper joining of beams, columns and slab etc.

(PCC- Plain cement concrete, MS- Mild Steel, RCC- Reinforced Cement Concrete)
GLIMPSES OF PROGRESS
(BLC/ Beneficiary Led Construction)

Beneficiary : Smt. Reena Bisht
Id : 058002940434900001
W/o Shri Safar Singh
ULB : Gauchar (Chamoli)
GLIMPSES OF PROGRESS
(BLC/ Beneficiary Led Construction)

Beneficiary:
Smt. Shusheela Devi
W/o Shri Ram Singh
ULB : Chamoli
Gopeshwar
GLIMPSES OF PROGRESS
(BLC/ Beneficiary Led Construction)

Beneficiary : Shri Devendra Singh
Id : 058002940434600002
S/o Shri Jaypal Singh
ULB : Gauchar
Beneficiary: Smt. Nasima  
W/o Shri Hamid  
ULB: Jhebreda (Haridwar)

Beneficiary: Smt. Poonam  
W/o Shri Ambrish  
ULB: Jhebreda (Haridwar)
GLIMPSES OF PROGRESS
(BLC/ Beneficiary Led Construction)
Capacity Building for Retrofitting
Details of BLC/ Beneficiary Led Construction

- Under PMAY (U), 11860 DUs sanctioned, 119 constructed and 4876 are in progress.

- Under RAY, 3130 DUs sanctioned, 1406 DUs constructed and 536 are at different stages of construction, construction to be started soon for remaining 1188 DUs.

- Under BSUP & IHSDP, 3699 DUs sanctioned, 3099 DUs constructed and 600 are at different stages of construction.
Thank You