



## Disaster Management Community



### Solution Exchange for the Disaster Management Community Consolidated Reply

*Query: Integrating DRR with Jawaharlal Nehru National Urban Renewal Mission (JNNURM) - Experiences*

Compiled by [G. Padmanabhan](#), Resource Person and [Nupur Arora](#), Research Associate  
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From [Amit Tuteja](#), National Alliance for Disaster Risk Reduction (NADRR), New Delhi

Posted 12 December 2008

You would know the National Alliance for Disaster Risk Reduction (NADRR) brings together regional, national and local stakeholders to integrate Disaster Risk Reduction (DRR) concerns into mainstream development planning and actions on the ground.

The alliance has taken up a grassroots campaign titled, "**Demystifying DRR**", to learn, share, guide, advocate and partner to promote disaster resilient programmes and policies that enhance capacities of vulnerable communities.

In view of this NADRR with the DM Community of Solution Exchange is facilitating discussions on possibilities of integrating DRR with ongoing programmes of Government of India.

We would like to focus this discussion on integrating DRR with Jawaharlal Nehru National Urban Renewal Mission (JNNURM), being carried out by the Ministry of Urban Development, Government of India. It encourages reforms and fast track planned development of certain identified cities. (To know more click <http://urbanindia.nic.in/moud/programme/ud/jnnurm/Overview.pdf> (PDF, Size: 416 KB)

JNNURM covers in total 63 cities, many of which are fall under Earthquake prone zones. As part of the mission, the Integrated Housing and Slum Development Programme (IHSDP) proposes a healthy and enabling urban environment through adequate shelter and basic infrastructure to the urban poor. However, programme is silent on the aspects of safety such as earthquake safe construction, flooding etc.

We request members to share experiences on urban initiatives where risk reduction and safety aspects have been integrated as part of implementation and suggestions on how it can be done in the JNNURM. Based on the valuable feedback received from members, the NADRR would like to compile and to be put forth for consideration to the Government of India.

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**Responses were received, with thanks, from**

1. [Satheesh K. K. Sridharan](#), Urban Earthquake Vulnerability Reduction Programme (UEVRP), United Nations Development Programme (UNDP), Vijaywada
2. [U. C. Pandey](#), School of Good Governance and Policy Analysis, Government of Madhya Pradesh, Bhopal
3. [M. P. Sajnani](#), Independent Consultant, New Delhi
4. [Lakshmy Parameswaran](#), Central Road Research Institute, New Delhi
5. [Puthumai A. Nazarene](#), Social Welfare Institute, Raiganj, West Bengal
6. [Digbijoy Bhowmik](#), Deloitte Touche Tohmatsu India Private Limited, New Delhi
7. [Abha Mishra](#), United Nations Development Programme (UNDP), New Delhi
8. [Rajeev Issar](#), United Nations Development Programme (UNDP), Bureau for Crisis Prevention and Recovery (BCPR), New Delhi
9. [Sampurnananda Mahapatra](#), Ministry of Home Affairs, Government of India, New Delhi
10. [Kailash Chandra Pandey](#), Uttarakhand Bio-Diesel Ltd., Dehradun
11. [Farrukh Rahman Khan](#), Oxfam India, Lucknow\*

*\*Offline Contribution*

*Further contributions are welcome!*

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## Summary of Responses

Currently India is witnessing exponential growth in urban centres and the urbanization trend is expected to intensify in coming decades. It is projected that by 2021 the number of cities with a population of more than one million will rise to 75 (in 2001 there were only 35) with nearly 40% of India's population living in urban areas. Given this scenario, members welcomed the query on integrating Disaster Risk Reduction (DRR) initiatives into the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) and responded by providing comprehensive recommendations, and sharing experiences with urban DRR initiatives.

Respondents expressed concern that the emerging urban risks are likely to pose a far greater challenge due to concentration of large populations in a relatively small geographical area, unplanned and haphazard expansion of urban horizons, unsafe construction patterns, lack of preparedness at either the community or administration level, an inadequate capacity to meet the gargantuan proportions of the catastrophic post-disaster situation in urban areas etc.

Discussing the issue of integrating risk reduction and safety aspects in urban initiatives, members shared experiences of In [Vijayawada](#), under the Urban Earthquake Vulnerability Reduction Programme (UEVRP), an organization trained masons and Rod benders in the earthquake resistant construction practices who were then involved in the construction of Houses in the JNNURM.

Respondents strongly advised the implementers of JNNURM to conduct analyze vulnerabilities and assess the risks with future projections of urban population. They also suggested preparing detailed city disaster management plans by involving district administration, city authorities, JNNURM officials and community members. This exercise would help identify mitigation activities to reduce the city's risks and vulnerabilities.

Highlighting the fact that JNNURM provides district level funding for developing sanitation structures, water supply systems, roads, and power plants, discussants suggested making it mandatory to integrate disaster management aspects into the design of new structures (i.e. buildings, bridges, power and sewage plants, and water pipes).

Members also mentioned that since the General Development Control Regulation (GDCR) addresses compliance to safe construction practices and land use to avoid building on areas prone to natural hazards, cities can be advised to utilize their GDCR to ensure safer urban development. However, most of the cities under the JNNURM did not amend their GDCR prior to implementing projects under JNNURM, therefore, discussants proposed cities amend their GDCR, building bylaws, and local development authorities town planning act to ensure future safe physical development.

Other suggestions mentioned included:

- Consider local vulnerabilities when planning construction and retrofitting activities
- Ensure that the basic physical infrastructural facilities provided under JNNURM, such as sewerage development, city road networks, and urban lighting, do not add to the vulnerability of an area and are designed to withstand possible disasters
- Give adequate importance to healthcare management issues by partnering with agencies working on health
- Develop an effective Government-NGO-Community interface to ensure better coordination
- Avoid the beautification drives in cities that leads to increase of Non-Structural elements nor fills up the open grounds needed during an earthquake, thus adding to the vulnerability.
- Use Compact Fluorescent Lamps (CFL) in streetlights, which are more environment friendly
- Engage in futuristic urban area infrastructure development

Another very strong point that came up was to prepare district disaster management plans addressing future DRR concerns. Additional research shows that an NGO has carried out Urban Risk Management in cities like [Goplapur, Puri, Shimla and Port Blair](#), wherein they identify most vulnerable spots in city and make block disaster management plans. Discussants opined that there is a need to create and adopt different strategies for handling disasters for "sites" already developed and "potential sites" under development.

In addition, respondents noted that traditional architecture and construction techniques have proved to be seismic resistant and recommended current urban initiatives like JNNURM employ such earthquake resistant building techniques in their projects. They also stressed using locally available materials and technologies for housing for the poor.

Discussing the ways to integrate DRR with urban development programmes, discussants shared a few experiences. In [Vijayawada, Andhra Pradesh](#), under the Urban Earthquake Vulnerability Reduction Programme (UEVRP), an organization trained construction workers, building houses through the JNNURM, on earthquake resistant construction techniques. Additional research highlighted that in [Delhi](#), the government has formed the Delhi Disaster Management Authority to ensure effective disaster management in the city and under the GoI-UNDP [Urban Earthquake Vulnerability Reduction Project](#), various cities have created City Disaster Management Authorities, in several cities such as [Mumbai, Surat, Ahmedabad and Delhi](#).

Finally, members noted various challenges related to integrating DRR into JNNURM. While JNNURM is a laudable initiative it has a limited reach, in terms of the states it is covering, goals (are short term) and approach (rather fragmented). Thus, respondents suggested thinking in terms of in-situ urbanization for DRR, instead of selecting few cities. Another challenge highlighted involved meeting programme targets and the dilution of targets related to the integration of DRR elements, apprehensions regarding escalation

of costs, and planners trying to avoid re-designing schemes and implementation patterns to meet safe standards.

JNNURM provides an excellent vehicle to address urban disaster related risks, discussant concluded. However, they also pointed out that integration involves slow, steady and systematic focus on assessing, analyzing and reducing risks through key interventions. Countries the world-over have devised decade long strategies in order to move up the 'safety ladder' and require schemes that provide the right platform to achieve this goal. Members hoped that planners would capitalize on the opportunity provided by JNNURM and effectively use it to further the DRR agenda.

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## **Comparative Experiences**

### **Andhra Pradesh**

#### **Masons Trained on DRR Work on JNNURM Projects, Viaywada** (from [Satheesh K. K. Sridharan](#), *Urban Earthquake Vulnerability Reduction Programme, Vijaywada*)

Under the Urban Earthquake Vulnerability Reduction Programme (UEVRP), 100 masons and rod benders were trained in earthquake resistant construction practices. After training, they were involved in constructing houses under a JNNURM project. UEVRP also sensitized engineers from the municipal corporation about the need to integrate earthquake resistance practices into their work. This can be incorporated in the other activities of the projects under the JNNURM. Read [more](#)

From [Nupur Arora](#), *Research Associate*

### **Delhi**

#### **Strengthening Institutional Mechanisms, Delhi**

The government has under taken many disaster risk reduction initiatives through various projects. The Delhi Disaster Management Authority (DMA) was set up along with district committees and community level committees being formed. DMA and the different committees now organise mock-drills at the state, district and community level to strengthen response mechanism and coordination system in the city.

### **Maharashtra**

#### **E-Learning for Police Officials, Pune**

Some e-solutions and e-learning companies are working with NGOs and the local police to build e-learning programmes for the police and public. These programmes are interactive, make use of various pedagogic techniques to make effective presentations based on tackling the commonest problems in traffic and accidents. This modle has been succesfully educated police and public on traffic management and accidents.

### **Uttar Pradesh**

#### **Reducing Disaster Risk initiatives by the Government , Sitapur**

Under the GoI-UNDP Disaster Risk Management Programme a series of measures have been under taken at the community, local government and other levels, to create a culture of disaster preparedness and risk reduction. One step has been the creation of a database on the water level and rainfall amount, which is made available through an online centre. This has resulted in increased community preparedness and disaster mitigation activities across the project states.

### **Multiple States**

## Urban Risk Management, Gopalpur, Puri, Shimla, and Port Blair

The SEEDS programme identified the most vulnerable spots in these four cities by evaluating and assessing physical, social, economic and environmental vulnerabilities and the capacity of each block in the city. They then strengthen each city's capacity through training and capacity building. Finally they developed a Disaster Management plan for each block with the help of key stakeholders and integrate these to make a composite City Disaster Management Plan. Read [more](#)

## Urban Earthquake Vulnerability Reduction

The Ministry of Home Affairs, GoI with support from UNDP is implementing a project named Urban Earthquake Vulnerability Reduction Project (UEVRP) in 38 cities across the country aiming at reducing earthquake risk in urban areas. The project closely works either with Municipal Corporations or District Administration in respective cities. City Disaster Management Plans have been prepared in batious cities.

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## Related Resources

### Recommended Documentation

**Overview- Jawaharlal Nehru National Urban Renewal Mission (JNNURM)** (from [Amit Tuteja](#), *National Alliance for Disaster Risk Reduction (NADRR), New Delhi*)

Programme Overview; Ministry of Urban Development, Government of India; India

Available at <http://urbanindia.nic.in/moud/programme/ud/jnnurm/Overview.pdf> (PDF Size: 420 KB)

*Document shared information about the JNNURM programme that encourages reforms and fast track planned development of certain identified cities.*

**Traditional Construction Practices in the Seismically Active Areas of Uttaranchal** (from [U. C. Pandey](#), *School of Good Governance and Policy Analysis, Government of Madhya Pradesh, Bhopal*)

Article; by M. S. Miral, Kireet Kumar and R. K. Dumka; G B Pant Institute of Himalayan Environment and Development, Kosi-Katarmal, Almora; Uttranchal; 2003

Available at [http://gbpihed.gov.in/envis/HTML/vol11\\_1/msmiral.pdf](http://gbpihed.gov.in/envis/HTML/vol11_1/msmiral.pdf) (PDF; Size: 90 KB)

*Presents the earthquake data from Uttaranchal and discusses how traditional construction practices have worked well in the seismically active areas of the state.*

**The Disaster Management Act 2005** (from [M. P. Sajjani](#), *Independent Consultant, New Delhi*)

Ministry of Home Affairs, Government of India, New Delhi; 2005

Available at [http://www.nidm.net/DM\\_act2005.pdf](http://www.nidm.net/DM_act2005.pdf) (PDF; Size: 1.67 MB)

*The Act covers the whole country and address the issue of management of disasters and plans for disaster preparedness.*

**Minutes of the 27th Meeting of the Central Sanctioning and Monitoring Committee (CSMC) of Sub-Mission on Basic Services to the Urban Poor (BSUP) under Jawaharlal Nehru National Urban Renewal Mission** (from [Digbijoy Bhowmik](#), *Deloitte Touche Tohmatsu India Private Limited, New Delhi*)

Report; Ministry of Urban Development, Government of India; New Delhi; 27 December 2007

Available at [https://jnnurmmis.nic.in/jnnurm\\_hupa/Meeting/BSUP/2007-08/27.pdf](https://jnnurmmis.nic.in/jnnurm_hupa/Meeting/BSUP/2007-08/27.pdf) (PDF; Size: 287 KB)

*Details the basic services provided to the urban poor under the JNNURM, could be used while planning integration of DRR into JNNURM*

### Recommended Organizations and Programmes

From [Satheesh K. K. Sridharan](#), *Urban Earthquake Vulnerability Reduction Programme, United Nations Development Programme (UNDP), Vijaywada*

**Government of India-United Nations Development Programme (UNDP), Disaster Risk Management Programme (DRM), New Delhi**

55 Lodhi Estate, New Delhi 110003; Tel.: 46532333, 24627612;

[http://www.undp.org.in/index.php?option=com\\_content&task=view&id=80&Itemid=163](http://www.undp.org.in/index.php?option=com_content&task=view&id=80&Itemid=163)

*Working 17 states to make communities more disaster resilient, designed seismically safe school buildings in urban areas of Uttar Pradesh*

**Urban Earthquake Vulnerability Reduction Programme Programme, United Nations Development Programme, New Delhi**

New Delhi; Tel: 91-11-24628877; Fax: 91-11-24633042; <http://www.ourvmc.org/uevrp.htm>;

<http://data.undp.org.in/dmweb/uverp-rpts/ProgmDocmnt.pdf>

*Aims at reducing earthquake risks in 38 cities across the country, one strategy is to train masons and sensitise engineers on integrating DRR into projects being done in Vijaywada under JNNURM*

From [Nupur Arora](#), Research Associate

**Sustainable Environment and Ecological Development Society (SEEDS) India, New Delhi**  
(from [Shivangi Chavda](#))

D-11, Panchsheel Enclave, New Delhi 110017; Tel: 91-11-26498371, 41748008; Fax: 91-11-26498372;

[http://www.seedsindia.org/our\\_campaign.htm](http://www.seedsindia.org/our_campaign.htm)

*Working towards making communities resilient to disasters, they have carried out Urban Risk Management Programmes in various cities of India*

***Related Consolidated Replies***

**Handling Urban Disasters - Experiences, from V. R. Raghavan, Satyam Foundation, Hyderabad.** Consolidated Issued on 14 December

Available at: <http://www.solutionexchange-un.net.in/drm/cr/cr-se-drm-18110701.pdf>

*Shares examples of standard operating procedures and mechanisms and processes that can be developed to enable disaster risk reduction in urban areas.*

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**Responses in Full**

**[Satheesh K. K. Sridharan](#), Urban Earthquake Vulnerability Reduction Programme (UEVRP), United Nations Development Programme (UNDP) Vijaywada**

I work for the United Nations Development Programme, for the Urban Earthquake Vulnerability Reduction Programme (UEVRP) in Vijayawada City where both the GoI-UNDP Disaster Risk Management and UEVRP projects are being implemented; this discussion has come in right time, as we are the verge of completion of the project. We have taken a few initiatives to integrate the UEVRP in the JNNURM projects.

During April 2008, we have trained about 100 Masons and Rod benders in the earthquake resistant construction practices who are involved in the construction of Houses in the JNNURM project. We have also sensitized the Executive Engineers another Engineers of the Corporation about the integrating the Earthquake resistance practices which can be incorporated in the other activities of the projects under the JNNURM viz. ELSR's (Elevated Level Storage Reservoirs).

Participants of the training were taught both theoretical and practical aspects of the EQ resistance technologies. A model unit of 203 SQFT was also constructed by the participants themselves, so that they can have a practical experience of the features of the EQ resistant construction practices. For more details please visit the corporation's website: <http://www.ourvmc.org/uevrp.htm>

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**U. C. Pandey, School of Good Governance and Policy Analysis, Government of Madhya Pradesh, Bhopal**

I think we also need to be aware about the fact that in some of the areas like in Uttarakhand traditional building architecture and construction techniques have proved to be highly seismic resistant.

Though during past few decades people of this area have started using modern construction techniques which are of course good enough for plain areas but do not suit the requirements of hilly areas. The old system of knowledge embedded in the construction practices need to be kept alive if we are really interested in promoting disaster risk reduction through seismic resistant architecture.

Members may like to see a study, which I just saw as a reference on the web:

[http://gbpihed.gov.in/envis/HTML/vol11\\_1/msmiral.pdf](http://gbpihed.gov.in/envis/HTML/vol11_1/msmiral.pdf)

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**M. P. Sajani, Independent Consultant, New Delhi**

I am a Disaster Management Consultant with earlier experience of having worked in the Ministry of Home Affairs, United Nations Disaster Preparedness and Asian Disaster Preparedness Centre.

My first reservation to JNNURM, though a laudable project, is that it has limited reach and does not look for long term future strategy, except in bits and pieces. The urban population, presently around 300 million, is likely to increase to about 500 million by 2021 and further to around 1000 million (almost equal to the total population in 2001) by the turn of century, if not earlier. We should really start thinking in terms of in-situ urbanization for DRR, instead of selecting few cities, which, of course should also be taken up as a component of over-all urbanization issues.

For these 63 districts under JNNURM, it is necessary to carry out vulnerability analysis and risk assessment with future projections of population, say for the year 2051. A district disaster management plan may be prepared which should address future DRR concerns also.

Review of Building Bye Laws, Town and Country Planning Acts, Development Control Regulations etc for safe constructions should be a mandatory reform and not an optional reform as proposed. And we should not think in terms of major natural disasters only; we should also be conscious of deaths in road and fire accidents.

JNNURM will not provide funding for "Health sector". Adequate health care and emergency medical relief is a pre-requisite of any comprehensive DRR strategy. The partners (concerned government departments and other stakeholders) for health care management should be identified right now so that they are conscious of fund out-go from their budgets during the next 7 years and recurrent expenditure thereafter, in line with projections of JNNURM.

Last, at least some body should give a careful second look to the provisions of the Disaster Management Act, 2005 at district level and ensure that these are integrated with the future plans for cities under JNNURM.

It speaks of sustainable development; Fine. But what about safe development? Sustainability does not necessarily embrace safety, so it is better to express the need for safe development in the JNNURM document.

In the terms of achieving DRR, this is just the tip of the iceberg.

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**Lakshmy Parameswaran, Central Road Research Institute, New Delhi**

I am working in the Central Road Research Institute, and have experience of designing earthquake, and wind prone structures.

It would be advisable to integrate DRR with JNNRUM. Under JNNRUM, funding is being given to development for sanitation, water supply, Roads and power projects. While sanctioning the funds to various districts by the competent authority, it should be made mandatory to check that the disaster management aspects have been appropriately included in the design of new structures, like buildings, bridges, power plant structures, sewage plants water supply pipes etc.

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**Puthumai A. Nazarene, Social Welfare Institute, Raiganj, West Bengal**

The whole idea of integrating Government, Non-Governmental Organizations and the Community in DRR has been the focal point of most of the Disaster Risk Reduction measures by various UN and other organizations. However, participation of the community has been limited to the "recipient" model of Disaster Management, in spite of the use of tools such as PRA / PLA. The second bigger problem in West Bengal has been relating to policy formulation and implementation. It has been quite sometime that the Disaster Management Policy and Framework was to be released, but has been caught in the web of bureaucracy.

Hopefully this will be out by the end of this financial year. The bigger issue is to do with implementation. With so much of corruption around the corner, will the policies be equitably and justly implemented? Most laws on Urban Development, housing and safety measures have not been implemented with the type of dedication they deserve.

Finally, practically speaking, for an effective integration of DRR in urban renewal, a proper Government-NGO-Community interface needs to be in place. I remember Mr. Manish Jain the former District Magistrate of North Dinajpur, presently of Burdwan, who took several efforts to build such interface to ensure that the Government can lead from the front with policies and administrative support, with community mobilization, regular contacts and a good amount of problem solving to be left to the NGOs, while building community structures for sustainability of the process and program through participatory planning and monitoring.

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**Digbijoy Bhowmik, Deloitte Touche Tohmatsu India Private Limited, New Delhi**

Some facts that may help understand the practicalities of applying disaster resistant technologies to assets created under JNNURM are:

- Nearly 60% of the capital expenditure has been made on assets that serve as support infrastructure to settlements - viz. roads, bridges, ROB/RUBs, water supply and sewerage schemes, solid waste management projects and even transportation projects. These are high capital intensive assets and usually have considerable safeguards built into them - though not necessarily physical always. Obviously, an asset such as a road, RUB/ ROB, BRT or MRT (without the rolling stock) needs to be adequately protected against seismic or other disruptive events. However, in the case of line systems such as water supply and sewerage, good design economics are characterized by "...easily serviceable, easily replaceable..." assets, and this is generally seen as a better way to combat vulnerability. Effectively it is to say, "...better have something that can be repaired/ replaced fast as compare to something that is cost intensive and may not be easy to replace immediately..."
- Insofar as the sub-missions (II and IV) on Basic Services to the Urban Poor and the Integrated Housing and Slum Development Programme are concerned, this entails construction of a significantly large quantity of housing for the underserved and poorer population of cities. The capital structure



for these houses entail a Central subsidy of 60%, 80% or 90% (depending on what State such a project is located in) and the remainder being supported by the State/ local Government. In the initial phases, it was insisted that a minimum of 12% (10% in the case of SC/ST/OBC/PH etc.) of the capital cost be passed on to the end user/consumer.

However, how diligently this has been followed still remains a somewhat fuzzy question, for obvious reasons. However, over a period of time, the Central Government has desired that (a) the cost per dwelling unit should generally not exceed 2.5 lakh, of which at least 50% should go into the dwelling unit substructure and superstructure, and the remainder into local site level infrastructure. (The document can be referred to at [https://jnnurmmis.nic.in/jnnurm\\_hupa/Meeting/BSUP/2007-08/27.pdf](https://jnnurmmis.nic.in/jnnurm_hupa/Meeting/BSUP/2007-08/27.pdf), at the time of sending this mail, something is wrong with the site and it does not open, nevertheless, readers can find this page by Googling "JNNURM HUPA Minutes CSMC dwelling unit cost" and requesting this file in HTML instead).

Also, it has been desired that the maximum contribution by a beneficiary should not exceed INR 40,000. Earlier, the general stipulation from the Government of India recommended usage of G+3, i.e. ground floor plus three floors as the standard configuration for buildings built under the programme for providing housing to the urban poor, and that the built-up area per unit should be no less than 25 square meters.

Anyone who has ever seen the CPWD website would come across a very good document that provides Plinth Area Rates for unit area of construction - this was meant to be made effective 1 October 2007. Now, most States are actually aware of what vulnerability zone they lie in, and almost as a rule, they have adapted usage of RCC framed structures.

Problem is, as per the PAR model (which incidentally is slightly less expensive than a few other State Schedules of Rates), a 25 square meter RCC framed structure itself would cost Rs. 25,000 (the stated rate in there is Rs. 9,000 per square meter). Further, for reinforcing against seismic forces, additional structural design and detailing is listed at Rs. 630/- per square meter - so now, the cost of a reinforced frame itself is Rs. 9,630 per square meter. Add to it the cost of finishes, internal plumbing, electrification, painting etc. and the site development and the cost goes well over Rs. 300,000, plus IDC.

With the Centre usually not supporting more than 80% (except a hilly state/ NER State), the beneficiary contribution restricted to 40,000 and the fact that land for the scheme is meant to be given free of cost by the State, all-out efforts are made to cut costs wherever possible. To make matters worse, CPWD has supposedly notified a 15% escalation over these PAR's, which means that the costs have well gone over 3.25 lakh per dwelling unit. Central Government has refused to entertain natural escalation in costs thus far.

With the bulk of construction activity now being focused on SEZ's, townships and more market friendly housing schemes (even in this time of recession), BSUP projects are being known to suffer from want of contracting parties, who are reluctant to give up on their margins on high value projects, and often simply do not bid for these. And for those who do bid, they are in a perpetual hurry to finish the project within minimum costs and earn 'brownie points' that accredit them for higher value projects.

Indeed, there are pilots that defy convention and have constructed quality housing units - but risks for these have usually been underwritten through some manner of controlled and highly supervised funding other than JNNURM, and such projects have been too few and too far in between.

Till such time that disaster resistant construction is treated as a compliance issue and not a marketable USP, it would be difficult to internalise DRR in practice. Likewise, fiscal projections and stipulations must also be aligned so as to ensure adequate room for compliance. Some examples can be used as follows:

- A DPR that is certified by a structural auditor, say, could earn a premium in terms of supported cost (that would be borne by the Centre), depending on the degree of intervention proposed and innovations taken to make the project palatable (business-wise) to the construction community. This is possible in case of States applying tools such as long distance arbitrage based PPP's - allowing a contractor/ developer prioritised/relaxed development norms at one location in exchange for quality construction of a BSUP project in another. [At this time, the General Development Control Regulations of Gujarat are also under review as several stakeholders have claimed that the FSI norms, imposed after the Bhuj earthquake in 2001 have caused considerable imbalances and inflation within the housing market itself, which is further thwarting production of quality housing stock for urban poor.]
- Real Estate firms, while making transaction indices and valuations, may consider adding resistance to hazards as an added feature - the Institution of Valuers could possibly help in this regard.
- Insurance companies may also consider offering lower premium in case of properties that are certified with hazard resistant features - BSUP or otherwise (maybe Government of India could allow incentivizing this by authorizing one or two premium installments included as part of the approved cost of projects - in case of a mass housing system, the premium per unit would also probably reduce).
- Akin to SEZ's, there is a demand for creation of SRZ's as well - ostensibly to reduce the demand supply gap in housing stock. Now, since JNNURM makes it mandatory (eventually) to ensure that 25% of the developed land/ FSI in any housing scheme (public/ private) is earmarked for housing for urban poor, and it is likely that proponents of SRZ's will ask for exemptions on VAT and ST as in the case of SEZ's, it can be made conditional to development of the housing subsystem that such allowances will be provided ex-post facto, only after the proponents prove that the SRZ had adequately internalised hazard resistant features and has a DRR plan in place.

**Abha Mishra, United Nations Development Programme (UNDP), New Delhi**

The CDP that is prepared should first and foremost integrate disaster risk reduction in all the planned activities and it should not be just a para in the whole document.

A City Disaster Management Planning should also be done where each of the units (schools, hospitals, offices etc.) also has a Disaster Management Plan (which may already being undertaken by the district administration but is the city authorities aware about it or has there been discussion between the city authorities implementing the JNNURM and the district administration) which would also help in identifying the mitigation activities that are needed to reduce the risk and vulnerability of the city. For example, Puri city is situated near the sea shore- has the city while designing its infrastructure taken into consideration the strong cyclonic winds? or prepared for a storm surge/ tsunami? or has the infrastructure looked at the back flow from the local stream? Activities should be done with active involvement of the community for which it is being done as they know their environment best

As mentioned by many already the infrastructure that would be constructed afresh needs to adhere to BIS codes and the building byelaws besides ensuring that the local vulnerability of the area is also kept in mind (which requires participation from the local community members during the planning phase). Besides when we are talking about rehabilitation of old areas are we also planning for the retrofitting measures that are needed in the old city areas.

Housing for the poor should look at the locally available materials and technologies that are more appropriate for a particular area than importing new technologies that is not ecologically viable- can we also use these initiatives to increase the capacity of the construction artisans (masons, bartenders, engineers etc.) for building a safe environment?

Besides the above what is necessary is also ensuring that measures that would help in reducing the impact is also kept in mind a beautification drive should not lead to increase of Non-Structural elements

nor should it fill up all the open grounds which are needed during an earthquake (at normal time the children need them to play etc.).

When we talk about street lighting are we ensuring that we are using the CFL bulbs, which are more environment friendly.

While improving the urban areas infrastructure we need to be futuristic besides referring to the past to ensure that we are not increasing the vulnerability of the city to the changing climatic conditions (flooding due to unprecedented rainfall) also.

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**[Rajeev Issar](#), United Nations Development Programme (UNDP) Bureau for Crisis Prevention and Recovery (BCPR), New Delhi**

The Query is quite topical. We are witnessing an exponential growth of urban centres and the urbanization trend will further intensify in coming decades. Open economic environment has led to large-scale migration to urban centers in search of employment and livelihood. It is estimated that the number of cities with more than one million population will rise to 75 by 2021 as compared to 35 in 2001 and nearly 37.1% of the total population will be living in urban areas by then. This coupled with the vulnerability of the urban infrastructure and our housing stock, with nearly 50% of existing housing units consisting of clay, adobe or stone walls and nearly 35% having burnt brick walls – both highly susceptible to seismic forces – makes for a grim scenario.

The emerging urban risks are likely to pose a far greater challenge due to concentration of large populations in a relatively small geographical area, unplanned and haphazard expansion of urban horizons, unsafe construction patterns, lack of preparedness at either the community or administration level, an inadequate capacity to meet the gargantuan proportions of the catastrophic post-disaster situation in urban areas etc. The experience of past few years in many urban centres like Mumbai, Chennai, Vishakhapatnam etc. must be viewed as a foretaste of things to come and makes a strong and urgent case for integration of risk reduction concerns in schemes like JNNURM.

Although unexceptionable, yet it is easier said than done. The schemes like JNNURM present wonderful opportunities to do so and efforts must be made, I believe some have already been made, to ensure that these flagship programmes are piggy-backed upon for furtherance of risk reduction agenda. Howsoever hard we may wish, the fact remains that the scheme does not address risk reduction concerns holistically.

Under the GoI-UNDP DRM Programme, successful interventions have been made to incorporate risk reduction elements in other flagship programmes like the Sarva Shiksha Abhiyan and the Indira Aawas Yojana. Many practitioners might be aware that the State Government of UP has adopted hazard-resistant design of construction for all schools constructed in the State under SSA. Similarly, advocacy efforts to promote hazard-resistant design of construction under IAY have also been made with relative success. The typical challenges of meeting the targets set under such schemes and dilution of the same with integration of DRR elements, apprehensions of cost escalation and the lethargy to avoid the trouble of re-designing the schemes and their implementation patterns has led to a mindset of neglect and stalling of efforts in this direction.

The need to sensitize policy and decision-makers at various levels about the need to integrate DRR into various development schemes has been an oft-stated prognosis. It seems that sensitization might not by itself be an adequate response and needs to be complemented by some legislative or policy directives.

A related issue is one of siting of habitations and industrial/commercial centres without adequate risk and vulnerability assessments. This introduces newer risks or sharpens the existing ones. Rapid urbanization has already contributed to a consequent redefinition of hazard, vulnerability and risk profiles.

The need for a habitat is leading to unregulated and 'patch-work' constructions. In many states/cities, the building by-laws, land-use regulations and development control regulations have either not been devised/implemented. The compliance regime remains slack. There is a general lack of awareness and apathy among the common people. An inadequate risk mitigation, preparedness and response planning/strategy at the community and administration level and lack of involvement of civil society or private sector entities has further accentuated the problem of urban risks. Yet the will to enact/enforce building by-laws, town and country planning acts, development control regulations etc. is missing.

JNNURM provides an excellent vehicle for addressing these and many more issues related to urban risk. The experience world-over of reducing risks entails a slow, steady and systematic focus on assessing, analyzing and reducing risks through key interventions like this scheme. Countries have devised decadal strategies to move along the safety ladder and such schemes provide the right platform for the same. The opportunity provided by JNNURM must not be allowed to go untapped and it must be used to further DRR agenda. It is better to be pro-actively disaster safe today than tomorrow by hindsight --- albeit it would have become far more complicated by then.

I hope it helps.

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**Sampurnananda Mahapatra, Ministry of Home Affairs, Government of India, New Delhi**

JNNURM is expected to serve Govt. of India's objectives of better delivery of urban services/civic amenities in identified cities. Hence, a massive investment of around more than Rs. 55 thousand crore in physical development of the cities under JNNURM is running on its way. At this context, disaster risk reduction from the point of view of reduction of risk from physical development in the JNNURM cities becomes quite relevant. I would like to move my points from two aspects.

1. The basic physical infrastructural facilities such as sewerage development, city road networks, urban lighting etc as proposed to be delivered to the cities under JNNURM should not be a cause to any disaster or should not lead to the circumstances of more damage to life and properties during any disaster.
2. The facilities being brought to the cities under JNNURM should withstand against any disaster.

However, JNNURM appears to not to pay much attention to above aspects. Especially, on the 1st aspect. The Mission asks for preparation of city development plan to seek assistance from JNNURM, which unlike Master Plan need not require to take legal sanctions from the Floor of the Assembly. A General Development Control Regulation (GDCR) of any city that addresses compliance to safe construction practice as well as land use planning for avoiding areas prone to natural hazards, could ensure better and safe development.

However, most of the cities roped in under JNNURM have not paid much attention to amend their GDCR to ensure a safe built environment prior to implementing projects under JNNURM. In fact Central Govt. could have made a condition for the cities to amend first their existing GDCR as per above concern for accessing funds from JNNURM. This would have motivated the city administrations to amend their GDCR prior to executing the physical projects under JNNURM that would have ultimately ensured a safe built environment.

In this context, after learning the lessons from Gujarat Earthquake 2001, Ministry of Home Affairs, Govt. of India since September 2004 (much before launch of JNNURM) have been pursuing the States/UTs to amend the GDCR, building bylaws, town planning act of their local development authorities to ensure a safe physical development in future. However, I doubt if a substantial number of cities under JNNURM have properly amended their GDCR prior to implementation of schemes under JNNURM in their cities. The haphazard and uncontrolled growth of urban areas in Gujarat bore a wrath of fury of earthquake in 2001. Hence, the importance of guided growth of cities was felt necessary to save the urban areas from

any natural hazards. By 2025, around 40% of India's population will be living in urban areas. In the absence of guided development of cities, the risk of natural and man made hazards to the cities is likely to increase in many fold.

Hence, I would like to conclude herewith that to ensure sustainable development of physical infrastructures in the cities; the JNNURM must have to ensure a techno-legal regime in cities under its fold that promises a safe built environment.

**Kailash Chandra Pandey, Uttarakhand Bio-Diesel Ltd, Dehradun**

Integration of the Disaster safety and prevention techniques/behavior is essential not only for JNNURM but for all programmes/schemes where common man addresses. Under the scheme there are provisions to improve sanitation, road, parks, drinking water facilities etc to the urban areas. These all facilities are directly relate to the common man interest. First of all one has to think about the implementing agency/ authority, who will draw the plan, lay down strategy and recruit human resource to do so. They are key players/ stakeholders to focus on.

The entire machinery who is involved to execute the JNNURM must sensitize and aware about the Disaster Risk Reduction concept, its importance, their roles and responsibilities, conglomeration of JNNURM and DRR etc. To draw the plan for the slums first identify the problems areas of the slums/ town/city through PRA or RRA techniques, thou it has already been done when DPR under the JNNURM was prepared. It may be faulty and need to be changed. City Technical Group constituted by experienced and active citizens of the area and is supposed to act as advisory group under the scheme and give suggestion to the local administration for policy reforms, technicality and feasibility of any taken initiatives.

This group can be targeted, advocated and given information to dovetail DRR methodology while making any kind of infrastructure development plan for the area. It could be earthquake safe buildings, bridges, complex, houses in slums etc. The Voluntary Technical Crop at the ward level can also be targeted, sensitized and trained to formulate plan of action of their area. The town planners, architect local builders, contactors, govt. officers can also be covered and sensitized about the latest building codes, earthquake proof structure etc before any major planning for the area.

**Farrukh Rahman Khan, Oxfam India, Lucknow\***

Following are the major concerns:

1. The City Development Plans prepared for cities under JNNURM have no link with disaster plan developed by authorities.

2. The DRR intervention requires realistic planning for timely and effective response. However one of the biggest challenge for 73 cities under JNNURM (and also those not covered) issue is that a fairly large proportion of urban population living below poverty line remains unreported in government records & the true urban poverty scenario remains invisible. Following table provides a glimpse of this gap between official reporting and Slum mapping conducted by Oxfam and its partners.

CITY	Number of slum habitats	
	As per Government Records	Oxfam Slum Mapping (2005-06)
Agra	252 (District Urban Development Authority)	386
Allahabad	185 (District Urban Development Authority) & 61 according to draft City	283

	Master Plan (2021)	
Bhopal	380 (Bhopal Municipal Corporation)	491
Lucknow	587 (State Urban Development Authority)	787

Hence any mitigation plan based on distorted data can not be effective.

It is no hidden truth that majority of urban poor live in slums (authorized/non-authorized) situated in most vulnerable and risk prone areas in the city such as river embankments/drains, under flyovers without any land entitlements etc.

If we look at the micro level data, about 40-50 percent of the urban poor do not have ration card or any identity proof to avail services and benefits. And therefore they also remain deprived of relief and rehabilitation package... The experience during floods in Lucknow in this monsoon season are testimony that while the entire government machinery was busy ensuring relief and response in flood affected villages across the state. Thousands of flood affected slum dwellers in the state capital were left with no alternative but depend upon the charitable food distribution and health camps organised by enthusiastic civil society groups and philanthropists.

3. The housing facilities being created under JNNURM or under Kanshi Ram Awas Yojna for urban poor families (in Uttar Pradesh) are neither adequate nor being constructed keeping disaster and safety measure standards in mind.

*\*Offline Contribution*

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***Many thanks to all who contributed to this query!***

*If you have further information to share on this topic, please send it to Solution Exchange for the Disaster Management Community in India at [se-drm@solutionexchange-un.net.in](mailto:se-drm@solutionexchange-un.net.in) with the subject heading "Re: [se-drm] Query: Integrating DRR with Jawaharlal Nehru National Urban Renewal Mission (JNNURM)-Experiences. Additional Reply."*

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