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Status of Disaster Preparedness Among Women: A Case study of Delhi

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Disasters come in many forms, both natural and manmade. India is one of the most densely populated country in the world with 1210.2 million people according to **2011 Census**. The population of Delhi is just 1,67,53,235 with highest density 11,297 people according to 2011 Census, making it the first largest city in India. A powerful 6.8 magnitude **quake** on Richter scale rocked **north India** including Chandigarh, Kashmir and other areas in region -- the initial tremor felt was at 4.01 pm in **Delhi**. The **earthquake** was earlier said to be of 7.1 magnitude (11 April, 2016) , A magnitude 5.1 **earthquake** struck India, at depth of 16.1 km (10 mi), near Rudraprayag district in the state of Uttarakhand on February 6, **2017**. Tremors were felt continuously for thirty seconds in national capital **Delhi** , the 23rd Oct. 2011 the earthquake disaster in Turkey has proved that the disaster can occur at any place and at any time. An earthquake disaster in Delhi has the potential to go well which also happens to be a major commercial and industrial centre will have huge economical and political implications which will affect the entire country and not just the population of Delhi. This adds an extra dimension to an earthquake problem for Delhi. As per the Indian seismic zone map, Delhi and its surroundings are placed in what is termed seismic zone IV. As per the Vulnerability Atlas of India (1997), for a shaking intensity of VIII, 6.5% houses in Delhi have a high damage risk, and 85.5% houses have a moderate phase with a large number of bridges and flyovers and together with the metro project

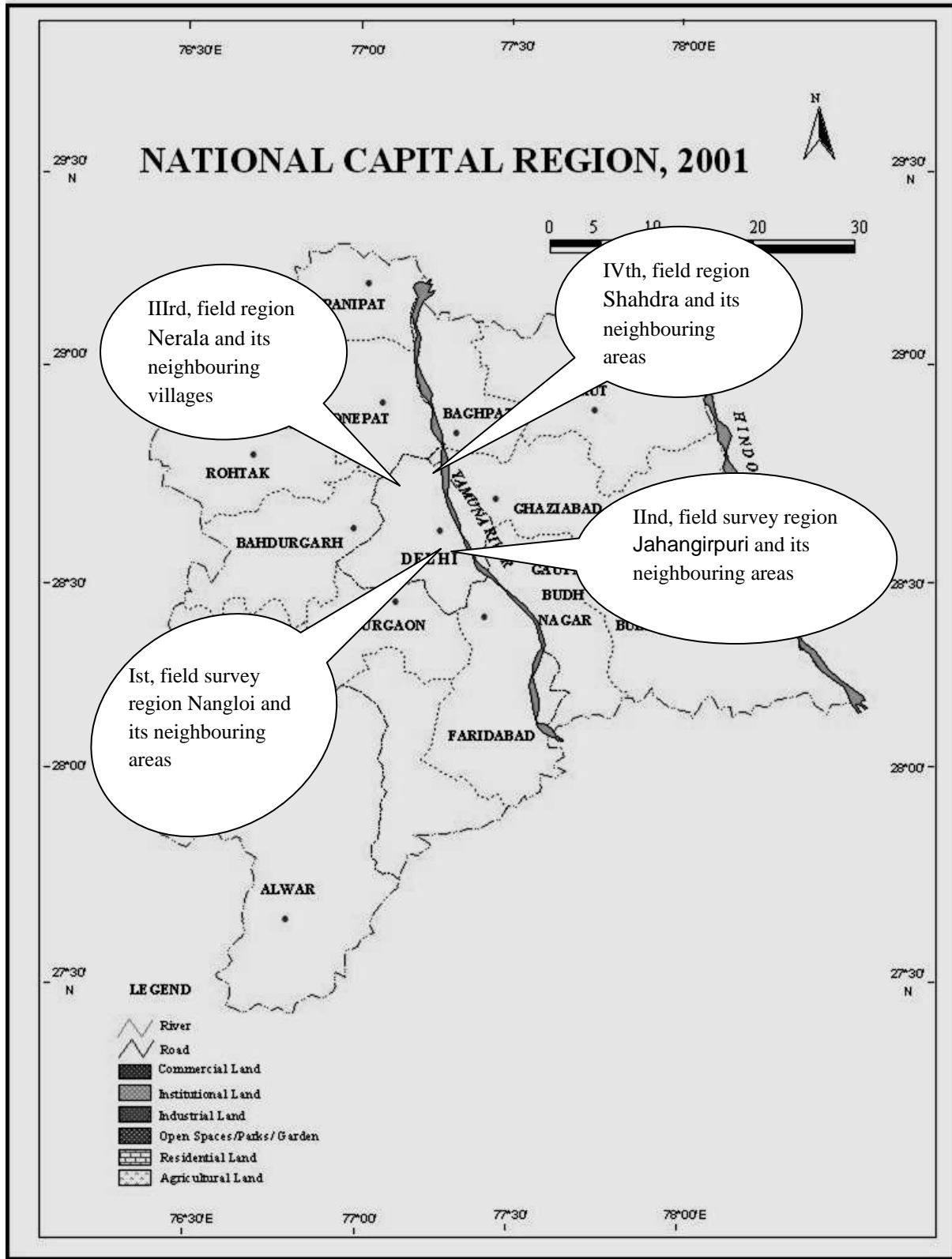
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which is under construction. After a severe earthquake, this transport infrastructure is earthquake resistant but the old one must be seismically retrofitted. Damage could be slight in specially designed structures, considerable in ordinary substantial buildings with partial collapse and very heavy in poorly built structures. According to 2011 Census Delhi State has become first state in India in terms of highest density 11,297 followed by Chandigarh with 9,252. Around 60% population lives in informal housing and slums. Building codes/standards have been poorly implemented. Many building and other structure are very old and weak. In the below lines we are analyzing the field survey data which we have got on the basis of and intensive questionnaire are as follows: Disaster preparedness among women in Delhi is varying from one geographical unit to another. To assess the status of women in disaster and preparedness and intensive field study has been carried out. One thousand respondents covered through this questionnaire and we got very much satisfactory results related to the disaster risks and preparedness in Delhi among women. There is a lot of difference in women status regarding disaster management. Therefore, the status of women is still very low to know about the disaster risk in their locality and how they can reduce the risk in their concerned area.

The below map shows the geographical area of Delhi and four geographical sub-divisions chosen for the field survey.

The below given information shows the different perceptions of women related to different



disaster and they have given the preference of all the disasters.

The table below shows the women's perception of the disaster risk in Delhi.

| S. No. | Major Disaster Risks | Total no. of women | Total no. of %age | Preferences |
|--------|----------------------|--------------------|-------------------|-------------|
| 1. | Earthquake | 300 | 30% | 1 |
| 2. | Fire | 240 | 24% | 3 |
| 3. | Flooding | 60 | 6% | 5 |
| 4. | Terrorism | 290 | 29% | 2 |
| 5. | Other | 110 | 11% | 4 |
| | Total | 1000 | 100% | |

Source: Field Survey, January, 2017

We took five parameters to know the women view about their preparedness' for disaster management. On the basis of this survey we found that the 30% of the women think that earthquake is the major disaster risk in their area and they given first preference and they also felt that due to the expansion of high rise buildings with lack of poor quality construction may be created the big disaster. They also observed that, terrorism is also 2nd major disaster in the Delhi and about 29% women given second preference, which is new man made disaster risk and it can be a serious disaster in NCR in future, if the govt. will not take serious steps. Only 24% said that, fire is also disaster risk and 6% women said that the flooding, On the basis of above information, we can reach this conclusion that in Delhi natural disaster like earthquake is serious disaster risk and we know the whole Delhi region lies in the fourth zone of the earthquake and flooding, fire and terrorism is also concerned disaster risk in Delhi region.

The table below shows the educational status among the women in Delhi.

| S. No. | Educational Status | Total no. of women | Total no. of %age |
|--------|--------------------|--------------------|-------------------|
| 1. | High School | 350 | 35% |
| 2. | Secondary School | 500 | 50% |
| 3. | University | 95 | 9.5% |
| 4. | Others | 55 | 5.5% |
| | Total | 1000 | 100% |

Source: Field Survey, January, 2017

The above table shows that educational status of women is differ from school to university. 50% women, we surveyed women from secondary school, university and high school as well. We found that the basic education status is quite good but the awareness about disaster management is quite low.

The table below shows the time spend in their houses in different zones of Delhi.

| S. No. | Name of Town | Male | Male %age | Female | Female %age | Total male & female |
|--------|--------------|------|-----------|--------|-------------|---------------------|
| 1. | Nerala | 87 | 39.7 | 313 | 40.7% | 400 |
| 2. | Nangloi | 22 | 10.04 | 66 | 8.4% | 88 |
| 3. | Shahdra | 45 | 20.54 | 167 | 21.3% | 212 |
| 4. | Jahangirpuri | 65 | 29.68 | 235 | 30.7% | 300 |
| | Total | 219 | 100 | 781 | 100% | 1000 |

Source: Field survey, January, 2017

The above table shows that that 219 males and 781 females out of 1000 spend more time in the houses, it indicates that in Nerala and Jahangirpuri town men and women in %age wise not so differ. Therefore, we can say that the presence of women in houses are lower in Nangloi compare to other zones of Delhi due to migrants community and they go for domestic labours in small Industries..

The table below shows the %age of women in different houses.

| S. No. | Name of Town | Total no. of Male | Male %age | Total No. of Female | Female %age | Total male & female |
|--------|--------------|-------------------|-----------|---------------------|-------------|---------------------|
| 1. | Nerala | 80 | 29.62 | 120 | 16.43 | 200 |
| 2. | Nangloi | 70 | 25.92 | 130 | 17.80 | 200 |
| 3. | Shahdra | 60 | 22.22 | 240 | 32.87 | 300 |
| 4. | Jahangirpuri | 60 | 22.22 | 240 | 32.87 | 300 |
| | Total | 270 | 100 | 730 | 100 | 1000 |

Source: Field Survey, January, 2017

To understand the status of women in different houses we found that the presence of gender in four zones at their houses having different ratio. Hence, in Shahdra and

Jahangirpuri the female lives higher than male but in the case of Shahdra and Jahangirpuri the males are higher than female with 22 and 23 in percentage. Therefore, it is clearly assumption that Nerala is the only zone in Delhi where females percentage is 16.43 and males are only 29.62 percentage.

The table below shows the past disaster experience in Delhi.

| S. No. | Name of Towns | Earthquake | Flooding | Fire | Others | Total |
|--------|---------------|------------|----------|------|--------|-------|
| 1. | Nerala | 15 | 15 | 60 | 10 | 100 |
| 2. | Nangloi | 25 | 20 | 115 | 40 | 200 |
| 3. | Shahdra | 4 | 46 | 245 | 5 | 300 |
| 4. | Jahangirpuri | 12 | 140 | 245 | 3 | 400 |
| | Total | 56 | 221 | 665 | 58 | 1000 |

Source: Field Survey, January, 2017

To know the past experience in disaster, we found that most of respondents gave first preference to fire disaster and also the respondents felt that flood disaster occurred at time to time almost in every monsoon season and then people gave the second rank to fire. It is very important to notice here that earthquake awareness is almost negligible which shows that the women community in Delhi is not having any knowledge about the high risk of earthquake in Delhi as Delhi lies in seismic zone IV, which means it can be a wake up call for all of us to understand the strength of earthquake and accordingly to prepare our women and other community leaders to reduce the loss of earthquake disaster as we cannot predict and to stop the earthquake. Therefore, this is a statement that earthquake never kill the people, but the buildings do.

The table below shows the steps been taken in the house to reduce the effect of a disaster in Delhi.

| S. No. | Name of Towns | Quality building construction | Disaster Evacuation plan | Disaster supply kit | Joining disaster management organization | Total |
|--------|---------------|-------------------------------|--------------------------|---------------------|--|-------|
| 1. | Nerala | 120 | 30 | 10 | 140 | 300 |
| 2. | Nangloi | 75 | 25 | 90 | 10 | 200 |

| | | | | | | |
|----|--------------|-----|-----|-----|-----|------|
| 3. | Shahdra | 25 | 25 | 5 | 95 | 150 |
| 4. | Jahangirpuri | 170 | 30 | 95 | 55 | 350 |
| | Total | 390 | 110 | 200 | 300 | 1000 |

Source: Field Survey, January, 2017

To understand the quality of construction of the houses and other steps to reduce the effects of disaster in Delhi, we found that mostly people in Jahangirpuri had no knowledge about how the quality of building construction is important for earthquake while in Nerala 120 women out of 300, they said quality of building construction is important factor for reducing the earthquake disaster risk and they were very poor with knowledge of disaster evacuation plan. But in Jahangirpuri the people emphasize on quality building construction and disaster supply kits are the major aspects for reducing the disaster risk. Only few people were in favour of joining the disaster management organization to reduce the disaster impact.

The table below shows the main reasons for lacking the disaster preparedness among women in Delhi.

| S. No. | Major Disaster Risks | Total no. of women | Total no. of %age | Preferences |
|--------|----------------------|--------------------|-------------------|-------------|
| 1. | Earthquake | 300 | 30% | 1 |
| 2. | Fire | 50 | 5% | 5 |
| 3. | Flooding | 285 | 28.5% | 2 |
| 4. | Terrorism | 180 | 18% | 4 |
| 5. | Other | 185 | 18.5% | 3 |
| | Total | 1000 | 100% | |

Source: Field Survey, January, 2017

To know the status of disaster preparedness among women in Delhi we find many reasons for lacking like in the case of earthquake 30% gave first preference It means that in Delhi the women's knowledge about earthquake risk is very poor and therefore it is very important for us to trained and give basis disaster preparedness training. So that, they can save their life from earthquake disaster in the future. Only fire and flooding they feel are the main aspects for disaster preparedness.

The table below shows the main suggestions by the women to reduce the disaster risk in Delhi.

| Major Steps | Total no. of women | Total no. of %age | Preferences |
|--|---------------------------|--------------------------|--------------------|
| Provide multi-language pamphlets for migrants people. | 50 | 15% | 5 |
| Through advertising from TV, newspapers, radio and magazines. | 220 | 22% | 2 |
| Start radio programmes on disaster management. | 330 | 20% | 1 |
| Should school and university girls be more encouraged from disaster management basic training. | 175 | 17.5% | 4 |
| Provide more posture to school girls. | 200 | 18% | 3 |
| Organize an annual regional and local conferences event on gender and disaster management. | 25 | 7.5% | 6 |
| Total | 1000 | 100% | |

Source: Field survey, multiple choices were allowed, January, 2017

On the basis of above table attributes, we can judge that about 22% of the women has given the first preference for advertisement through TV, newspapers, radio and magazines for reducing the disaster risk in the Delhi. But in the case of multi-language pamphlets they gave only third preference, which shows that for migrant people, it is not important for having different languages pamphlets and they feel that radio programmes on disaster management can be more effective for reducing the disaster risk in the Delhi region.

Most recently, the a magnitude 5.1 earthquake struck India, at depth of 16.1 km (10 mi), near Rudraprayag district in the state of Uttarakhand on February 6, 2017. Tremors were felt continuously for thirty seconds in national capital Delhi. Such a moderate earthquake does not normally cause damage at such large distance. And yet, several buildings in Delhi sustained non-structural damage possibility due to peculiar geological and geotechnical features if this area. The Chamoli earthquake effects in Delhi indicate that there is real possibility of a large earthquake in the Himalaya causing considerable damage to Delhi.

The dangers facing an earthquake in Delhi:

- Delhi suffers from an over population dilemma.
- The roads are already congested and even one ambulance cannot get through.
- There is a complete lack of infrastructure.
- There is also poor quality in the housing construction and there is no public awareness of what to do in an earthquake.
- Also, there is no knowledge of what possible food to have on hand in a disaster.
- There are questions to be asked. How can the general public help the injured? The danger from fire is very high as many gas bottles are used in India.
- Helipads to withstand an earthquake need to be constructed as they will provide the only help possible.
- New Buildings are to have a limited height and be able to
- “Shake” as in Japan.
- Awareness is needed for women communities as well as individual Apartments to be organized in earthquake Disaster Management.
- There is a lack of locally trained people everywhere.
- Many people have to many glass picture frames on the walls and objects near their beds.
- Single brick walls have been built in slum areas without cement. This will cause injuries and be an obstacle to any rescue operation.
- There is also a lack of emergency hospital tents and their location.

- Every house should have a disaster management domestic kit-whistle, small torch, mask, bandages, water bottle and phone numbers for the hospital, police and ambulance.
- A Helicopter Disaster Team should be trained and on hand for any disaster.
- At least there should be one trained women for disaster management in each house.
- Local women should make a small club for disaster management so that they know the contact number and they can send sms if they face any disaster in future.
- The women should be trained by Fire Services and other agencies fir disaster crisis management.
- Delhi Govt. should give incentive to all the women who are keen to get training for disaster management.

The Govt. must consider the disaster management as important subject in Delhi as we are in zone fourth and the earthquake can occur at any time. Therefore it is special need to prepare women for disaster management. The field study indicates that the status of women in disaster preparedness is very poor and mostly women spend much time in the house where they are high vulnerable as well. In all zones like Nerala, Nangloi, Shahdra and Jahangirpuri the women status is disaster preparedness is very poor and even those who are educated they also do not know if any disasters like earthquake , fire and terrorist attack occur in Delhi what first step they have to take. Over all we can say that the National Commission for Women has taken a new step in this direction and very soon many women will come forward to get basic training for disaster management as they spent more time in their houses and they also high vulnerable as well.

It is fact that Delhi is unlikely to be at the epicentre of a moderate to large earthquake and there is high possibility of earthquake in Delhi and it can be a big disaster. The highest earthquake magnitude experienced in Delhi in about a century was on July 27, 1960. It registered 5.6 on the Richter scale. Some buildings in the New Delhi area were partially damaged during that quake. Delhi has had many damaging earthquakes in the past and is placed in a high seismic zone (zone IV). Delhi is prone not only to damaging earthquakes in or near Delhi, but due to its peculiar geological setting it could also sustain strong shaking due to a large earthquake in the Himalayas. Unfortunately, most buildings in Delhi many not meet Indian standards on seismic construction and may be considered deficient from a

seismic safety view point. Thus, there is a real potential for a great earthquake disaster in Delhi, the implications of which go well beyond casualties because of their political and commercial significance. There is an urgent need for healthy debates on the seismic risk aspects of Delhi to be held a reasonable assessment of the problem. Studies are needed on seismic hazard evaluation for different types of construction. Using these, seismic risk scenarios must be developed and implementation strategies chalked out for new and old constructions. The efforts required are truly multidisciplinary and should include components on technical training for women, institutional development, development of technical manuals, legal and enforcement aspects and public awareness programmes for women. Most importantly, we need the political will to handle this problem and the biggest challenge perhaps lies in drawing the attention of political leadership to this problem while the city faces many other urgent problems as well.

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