

Need for pre-disaster education in rural India – A Study

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Abstract - Peninsular India is vulnerable for many major natural and manmade disasters. About 70% of Indian sub continent is vulnerable for earthquakes of different intensities. Eastern coastal belts experienced disasters due to Tsunamis resulting in severe loss of lives and property. Villages near to the down slopes of foothills experience devastating landslides resulting in total loss. Ill planned drainage system in urban built environments lead to inundation of living areas due to floods followed by torrential rains. Every summer season sees worst fire accidents resulting in loss valuable documents and lives. Acts of terrorism lead to loss lives of innocent people. Increase in major transport accidents is a big concern for the government to tackle. Industrial accidents result due to unsafe manufacturing activities. Outbreak of diseases erupts in developing counties for men and animals due to unhygienic environment and habits. This technical paper deals with natural as well as manmade disasters occurred in the recent past in rural India in Thiruvallur district. The authors have conducted survey belonging to six villages namely, Pandur, Kanagavallipuram, Kaivandur, Kuppammachathiram, Kolunthaur and Patraiperumandur with about 200 subjects in each village to assess the disaster preparedness of rural men and emphasize the importance of pre-disaster education for women in Rural India. Case studies clearly indicate that major losses are due to the ill-informed rural population and failure on the part of state to educate them, in effective manner, to get prepared to face a disaster.

Key words: pre disaster education, natural and manmade disasters, rural India, illiteracy



Fig.1 Thiruvallur district map

I. INTRODUCTION

The authors make a sincere attempt in uncovering the ignorance of rural men against all the natural and manmade disasters mentioned above and try to infer apt solutions to save the lives and property of rural Indians in the event of a disaster. Thiruvallur district is

highly vulnerable for many natural disasters like cyclone, flood and earthquake; Man-made disasters like acts of terrorism, transport accidents and outbreak of diseases. Almost 70% of rural men is illiterate and remains ignorant against all disasters and fall as helpless victims due to lack of disaster preparedness. The details of study conducted at villages in Thiruvallur district clearly depict that pre-disaster education is necessary for rural population, especially for the women.

II. THE NEED FOR EDUCATION

The authors have conducted survey in the villages namely, Pandur, Kanagavallipuram, Kaivandur, Kuppammachathiram, Kolunthaur and Patraiperumandur and interviewed 200 subjects in each village. The subjects were asked basic questions about disasters and present the findings herein under. In Pandur village about 33% were literate and 67% were illiterate. 6% of the houses were provided with toilet facilities. About 75% of men have availed loans from the self help group and struggle to repay the loan, hopping for government's loan waiver proposal. In the village, Kanagavallipuram about 40% of the subjects interviewed were female. About 20% of the population remains literate and about 75% of the people are in debts. Only 10% of the houses have toilet facilities. In the village, Kuppammachathiram 42% of the subjects interviewed are men and about 12% of the people are literate. About 67% of the people are in debts struggling for repayment. About 27% of the houses are provided with toilets. In the village Kolunthaur about 55% of the subjects handled were male and 115 of the population is literate. About 87% of the people were with the burden of loans. In Patraiperumandur village among the subjects interviewed, 55% were men. About 12% of the population is literate. 65% of the people are in debts. Only 20% of the houses are provided with toilets. In Kaivandur village about 58% of the subjects interviewed were men. About 11% of the population were literate and 74% of them are in debts. Only 10% of the houses were provided with toilets. As far as awareness for disaster is concerned, only about 24% of the total subjects of 1200 know about the dangers of the disasters like earthquake, flood and fire. There were domestic and septic sewage flowing on the ground with ample chances for the outbreak of diseases for men and animals like cow and sheep reared by them. About 75% are unaware of the

government's disaster management policy. About 44% has the knowledge of the recent Uttarakhand disaster, which got triggered due to human intervention, along the sloppy terrains

In a country like ours where about almost all the rural population remain as illiterate, the government has the ethical duty to prepare the rural people to learn about the possible hazards in and around their villages and to impart knowledge about preparing them to face any eventual disaster. The easier way to save rural people is educate women, who will behave in a more responsible manner, as they could also guard children and elders of the family from the clutches of deadly disasters. Even in developed countries, disaster education and effective communications play vital role in minimizing the losses. Thiruvallur district next to boundary of Andhra Pradesh state, having thick population is prone to natural disasters like flood, fire and earthquake. The possible manmade disasters are act of terrorism, transport accidents and outbreak of diseases, not to speak of all other disasters.

III. NATURAL DISASTERS

A. FLOOD:

The district has a reservoir at Poondi and has a hydrological research station, which is situated along the Uthukottai village route. This reservoir is of gravity type earthen dam and is not a rigid concrete dam. This has to be maintained every season with total care in order to keep the profile of the dam section without any damage. The main canals connecting the dam have more significance for public safety. The canal linings on the side slopes remain damaged due to human intervention at many places. These canals connect the water flow from Andhra Pradesh and there is every chance for flash floods, in case of excess flow from the neighboring state. The bitter truth is that there is lot of improvised human settlements on the down streamside of the reservoir, in spite of repeated warnings from the state government. There is common type of building failures due to the cohesive soils on the downstream side of any water body due to landslip or liquefaction.

B. EARTHQUAKE

This district has experienced moderate tremors due to earthquake having its epicenter near Chennai in the past. Though there were no major damages except cracking of non-engineered buildings, this district is in seismic Zone 3 of Indian earthquake map, vulnerable to moderately high intensity earthquakes. Masons, without proper technical supervision and without adopting earthquake resistant features, build all the constructions here. The poor people cannot afford to incur additional expenditure in strengthening their buildings to face an earthquake. This was what exactly happened in Bhuj, a rural township in Gujarat state,

experiencing total destruction due to the Republic day earthquake (26.1.2001). When the downtrodden become victims to a disaster, they become economically weaker, in its worst dimension, and could not survive for another possible disaster. Almost all the rural women have their heavy utensils and household items stored in the lofts of their homes and it is highly dangerous in the event of an earthquake. This district is vulnerable to moderately strong earthquakes at any point of time.

C. FIRE

Fire gets itself listed as a natural disaster in case of forest fires and becomes a man-made disaster in the event of fire due to human intervention. It takes hardly 30 minutes for a small spark to become a major fire. Here the immediate fire management by the community people is of paramount importance than the fire brigade to fight with fire in vain, two hours after the onset of fire. The rural people belonging to these villages are very ignorant of different types of fire and the techniques with which they can extinguish fire. However, every summer spell faces disastrous fire accidents from hut dwellers, making all the people deprived of their belongings.

IV MANMADE DISASTERS

A. ACT OF TERRORISM

As this district is adjacent to the border of the neighboring state of Andhra Pradesh, there is a blend of bi-lingual culture at many places making it difficult to differentiate an unlawful intruder. There are small terror groups indulging in illegal activities, there had been incidents of looting, and theft related murders to meet their needs. Rural people fall as a prey to them as they are vulnerable towards these organized thefts. The state police though effective in handing them, find it difficult to educate the rural women to protect them.

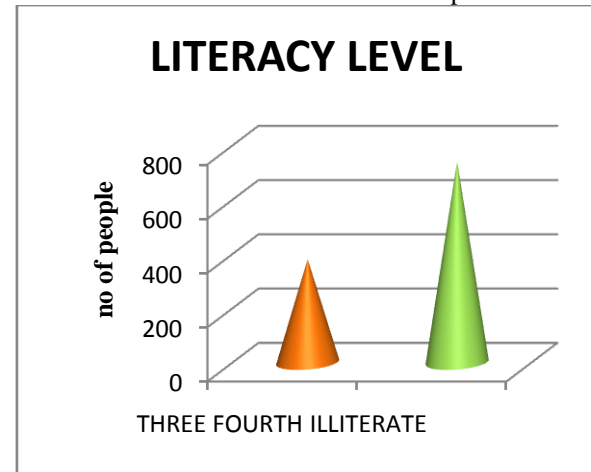


Fig.2 Literacy level

B. MAJOR TRANSPORT ACCIDENTS

This district has many important high roads like state and national highways linking all major destinations from eastern and northern India and serves as hub for container handling throughout the year. The Kolkata high road from Ponneri, the

Thiruvallur highway linking Thirupathi and the Bangalore highway connecting Kanchipuram contribute heavy traffic volume. There are many fatal accidents in reaches adjoining these villages, as the rural women are ignorant in adopting safety measures to use or cross these highways. The authors conducted traffic survey last month at Gummudipoondi village, with the help of Traffic police belonging to Kavaraipettai Police Station, along the Kolkata NH and near Kavaraipettai village. It is recorded that an average traffic volume of about 2600 heavy vehicles like trucks and containers for a period of ten hours starting from 9 am, not to speak of many light commercial vehicles and two wheelers. The police station has recorded road accident up to 752 last year, neglecting minor ones without injuries. The government has to take up lot of measures to curtail the increase in road accidents to ensure public safety by building pedestrian crossing and subways across the Kolkata National highway at vulnerable traffic junctions

C. OUTBREAK OF DISEASES



Fig.3 Septic sewage near drinking water

This district has recorded many outbreaks of diseases for cattle, the main means of livelihood of the villagers, as noted by the animal husbandry department. The common outbreak of diseases is foot and mouth disease, anthrax, foot and tongue, etc due to improper preventive maintenance of cattle. The rural woman breeding the cattle becomes vehicle for carrying these infectious diseases making their children exposed to these fatal bacterial and viral infections. Yet they have adjusted themselves to live with these threats as the cattle remain as a main breadwinner for the majority of farmhouses. The rural landscape in and around the residential settlements is flooded with domestic and septic sewage paving way for diseases.



Fig.4 Dirty living condition in rural India

V.ROLE OF GOVERNMENT IN EDUCATING RURAL MEN

Though ignorant, many rural women are committed to their family welfare and children development and build a family of sentiments, which differs from the urban settlements. Hence, if we can educate the rural women, we can be successful in implementing disaster preparedness for rural people. Children educate their family members what they learn from schools and other agencies about the disaster management techniques. There must be a corollary change in incorporating disaster management techniques into economic development strategies in rural India. This will greatly build confidence for the rural men to adhere strictly to the advices of government agencies, if they believe that there will be enhancement in their standard of living, instead of tempting them with free rice and household articles. Often the intention to have short-term solutions for disaster management overrides the necessity to preserve or restore environmental stability. The destruction of property and livelihood of rural people aggravates the free falling down in their poverty cycle and it becomes near to impossible for them to survive in event of another minor mishap in future. Pre disaster education for rural mass is the process of creating awareness for rural people, especially among rural women, to prepare them in advance to face any disaster vulnerable to their geographical identification and to create a long-term strategy for their sustainment. The rural women should be equipped to acquire talents based on these exercises and they should break all the barriers of ignorance and illiteracy to save their family against disasters. The following pre-disaster management tasks by state and will greatly help in maintaining societal harmony and save huge amount of government expenses.

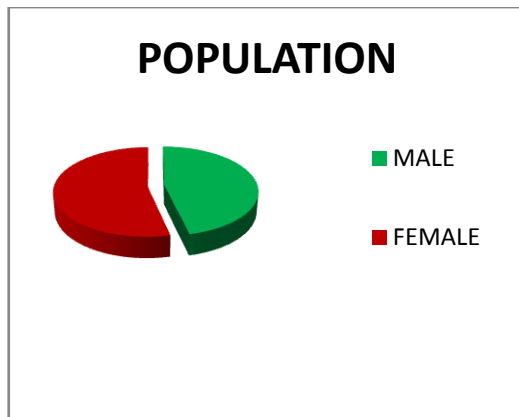


Fig.5 Population distribution

VI CONCLUSIONS

Pre-disaster education measures will reduce the loss of property and lives in the event of a disaster for rural India in general and this Thiruvallur district in particular.

1. To impart training for the select fairly educated local people about the possible disasters that can strike, in the defined geographical areas, to make them known to others.
2. To install dedicated battery operated local community radio in AM wavelength, to take care of disaster education as well as guide them in vernacular languages about the steps to be followed to save them in the event of a disaster.
3. To install amateur radio, namely Hams Radio, in interior villages and hill areas to monitor the possible disaster events and warn the people to respond appropriately to minimize losses. This will get worldwide disaster managing persons connected.
4. To develop control rooms to monitor disasters and to connect to the 20 to 25 base stations built in villages connected by WLL VSAT with hand held communication terminals to take care of people in hilly area to alert about possible landslides, earth tremors and cyclones. This will greatly help to get assistance from other countries through satellite.
5. To impart proper training to the students of schools and colleges: to take immediate action before, during and after the strike every type of disaster.
6. To screen visual aids by movies to make the people to understand the extent damages anticipated in the event of a disaster. We can also include a health check up camp.
7. To display permanent posters every prominent place of gathering of people about disaster preparedness and to advice them to have reserve of foods and dry fruits for a minimum period of 72 hours after the strike of a disaster for survival before government supply arrives at. We can also have a mobile team in a van to go to villages to educate them.

8. To make use of the battery operated public address system available at temples, churches and mosques to alert people for possible steps to take at periodic manner.
9. To develop and supply first aid kit for every rural family for facing flood, fire etc.
10. To devise suitable methods for the reunion of the families of the village after the effects of the disaster are over. The place will be at least 100 km away from to place of living.
11. You should also educate the rural women to have a meeting place locally immediately after the disaster. They can also keep all valuable documents at a safer place.
12. To have comprehensive and effective response plan for rural people especially for women to have sustainable growth built by confidence and self-reliability.

REFERENCES

- [1] Journal of Emergency Management, Vol. 4, No. 3, May/June 2006.
- [2] Defense Threat Reduction Agency, Federal Bureau of Investigation, and U.S. Joint Forces Command. Human Behavior and WMD Crisis/Risk Communication Workshop – Final Report. Washington, D.C., March 2001.
- [3] Federal Emergency Management Agency, Guide for All-Hazard Emergency Operations Planning. Washington, D.C., September 1996.
- [4] Kentucky Office of Homeland Security. "Protect Your Family." <http://homelandsecurity.ky.gov/families/protectyourfamily>
- [5] Emergency Management Accreditation Program, EMAP Standard, Lexington, Ky., April 2006.
- [6] Katrina and Its Aftermath. Sept. 7, 2005. <http://www.newswise.com/articles/view/514241>
- [7] Covello, Vincent T. "Risk Communication and Message Mapping: A New Tool for Communicating Effectively in Public Health Emergencies and Disasters." Journal of Emergency Management, Vol. 4, No. 3, May/June 2006.
- [8] Centers for Disease Control and Prevention. Crisis & Emergency Risk Communication: By Leaders For Leaders. Atlanta, Ga., n.d.
- [9] Perrow, C. 1999 [1984]. Normal Accidents: Risk in a Technological World. Princeton: Princeton University Press.
- [10] Pidgeon, N., P. Slovic, and R.E. Kasperson. 2003. The Social Amplification of Risk. Cambridge: Cambridge University Press.
- [11] Griffin, L.J. 1993. Narrative, event-structure analysis, and causal interpretation in historical sociology. American Journal of Sociology 98, 1094-1133.
- [12] Krinsky, S., and A. Plough. 1988. Environmental Hazards: Communicating

- [13] Lundgren, R.E. and A. McMakin. 1998. Risk Communication: A Handbook for Communicating Environmental, Safety, and Health Risks. Columbus, OH: Battelle Press.
- [14] Chess, C., A. Saville, M. Tamuz, and M. Greenberg. 1992. The organizational links between risk communication and risk management: The case of Sybron Chemicals Inc. Risk Analysis 12, 431-438.
- [15] Krinsky, S., and A. Plough. 1988. Environmental Hazards: Communicating.