

**Community Level Disaster Risk Assessment-  
Lessons learnt and actions taken**  
(A report from Sriram Nagar, Ward No. 22 of Dhanbad City)

**Abstract**

The following report is submitted to highlight one of my experience on community level disaster risk assessment carried out in one Municipal Ward of Dhanbad as a result of which a drastic change among the community for disaster preparedness and mitigation efforts were noticed. The community level participatory exercise for disaster risk assessment carried out among the community of Sriramnagar (A mine labourer's slum) of Ward No. 22 not only sensitized the community for further course of actions but it also changed our dogmatic mindset of focusing only on earthquake preparedness. Through our participatory exercise of risk assessment, the community tried to find a kaleidoscopic view of their factional reasons of their sufferings. The innovative participatory appraisal tool that we exercised among the reluctant community came out inadvertently as an effective community level risk assessment effort. This also fetched the consent of community to carry out mapping exercises, team formation and mock drills. The write up, which is in fact a report from Sriramnagar, Ward No. 22 starts with a prologue of one real incident/accident. The incident that took place on last September 2006 as a part of chronic mine subsidence hazard during my short visit to Dhanbad, compelled me to put it as a prologue prior to my report on impact of community level disaster risk assessment for better preparedness. The following report is entirely on community level preparedness from mine subsidence hazard, which also corroborates to a possible catastrophe of large scale mine subsidence hazard in the wake of any earthquake due to existence of large extent of mine caves and voids at 10-15 mtr beneath the ground. The report attached herewith is expected to create some evidence for better decision-making.

With Regards

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**Prologue**

*"Mother, mother, please give me some food, I would go to play with friends", said Meena (imaginary name), a nine year old girl child after coming from school. This chirping of the child vanished after some time that attracted the attention of her mother from next room who, with suspicion of slipping away of her child without waiting for food, peeped back into the adjacent room with food where Meena was waiting for food. Now to her horror, the sitting place of her child had been converted into a deep void. She immediately smelled that her child might have been slipped into the void, which suddenly occurred as like other mine subsidence hazard. In the absence of her husband, who had been to nearest coal mine for livelihood, she alarmed the bell among the community to rescue her child. To the futility of rescuers, the child's corpse could not even be recovered for last rite near the coalmines of Dhanbad in spite of indefatigable effort carried out by mine safety teams for continuously two days. Meena had slipped away from the lap of her mother on last 20<sup>th</sup> September 2006 to not to return back forever. The area chronically suffers from mine subsidence hazard, a phenomena created due to unscientific mining/coal bed extraction beneath the ground having left with large mine caves/voids.*

At this backdrop, I would jot down my experience on community level disaster risk assessment to answer the query of Mr. Zubair Murshed, Ms. Rita Missal and Ms. Maria Gemma.

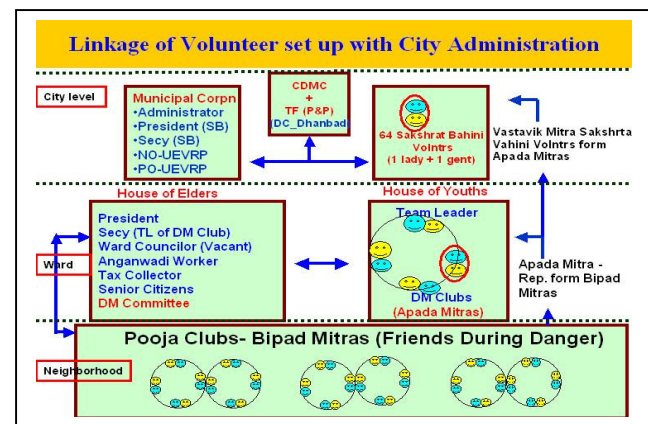
In tune of present e-discussion, the story goes to a case study of one neighborhood (Sriram Nagar) of Municipal Ward No. 22, where we implemented GoI-UNDP's Urban Earthquake Vulnerability Reduction Programme (a Sub-component of DRM Programme) in the city of Dhanbad. In Dhanbad city, we had a unique experience of experimenting on community level disaster risk assessment in the slums of coal mine labourers, where the residing people were chronically suffering from mine subsidence hazard. During the participatory process of community level disaster risk assessment, not only we realized some insidious threatening to the community but also the community itself identified the degree of their exposure towards risk of losing life, livelihood and properties.

Through a community level participatory process, the community not only formed a kaleidoscopic view of their fractured and factional reasons of their chronic sufferings to form a sound community level risk assessment but also they found the mitigation and preparatory measures of their problems as to be tackled by themselves as well as local govt.

## Background

Looking into the earthquake vulnerability prevailing in Dhanbad city, in Jan 2004 the city of Dhanbad was brought under the fold of Urban Earthquake Vulnerability Reduction Project (UEVRP), which was sub-component of GoI-UNDP DRM Programme as presently being implemented in 169 district and 38 cities of 25 States of India. Under UEVRP, we had to facilitate the major activities to local govt. for preparedness from earthquake risk as such 1. Awareness Generation, 2. Planning and Preparedness, 3. Reformation in Policy and local building rules, 4. Training and Capacity building of Construction fraternity. 5. Interacting with other vulnerable cities for networking of local knowledge & practices.

For community level planning & preparedness, we identified 2 key volunteers (one young man and one young woman) from each of 32 larger municipal wards of the city. We titled them as real friend (Vastavik Mitra) who in turn formed Disaster Management (DM) Clubs of 10-15 youths in each ward, the members of which were representing from each neighborhood. The members of Ward level DM Club were titled as Friends during disasters (Apada Mitra), who started to report to Ward level DM Committee of senior citizens/natural leaders constituted as a part of activities of UEVRP. The DM Club members led us again the members of neighborhood level clubs/cricket clubs/pooja club, who were regarded as friends during danger (Vipad Mitras).



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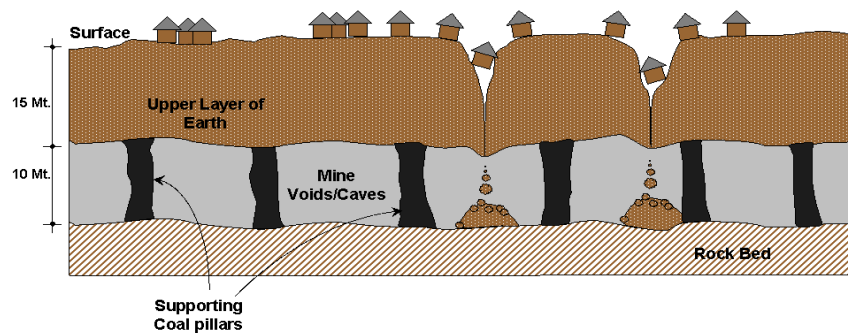
Under the above background, I may now concentrate on successful story of community level risk assessment that took place in the neighborhood namely Sriram Nagar of Municipal Ward No. 22 to specifically answer to the query under present e-discussion.

## Problem Statement

*Zamin dhasnaa, Bimaari failnaa, Aag lagna, yeh to lagaa rehta hai. Iske lie kyaa ronaa dhonaa aur matam manaanaa.* (Mine Subsidence hazard, epidemic or fire hazard are part of our hard life, why to mourn then) - A remark of an elder of Sriram Nagar.

A few youths of Sriram Nagar of Municipal Ward No. 22 approached Apada Mitras volunteering under UEVRP for Ward No. 22 with a hope to do some magic to reduce the number of accidents, injuries and sufferings in the slums of mine labourers who live on daily wages under Petty Contractor engaged for outsourcing jobs of local coal mining companies. The slum people expected solace to their peril from the volunteers of UEVRP, since the programme is connected with the local government. The inquisitiveness towards the ground reality led us to Sriram Nagar. One Mr. Vijay Sao, the key community leader and lone graduate of the slum had by then lost a battle with local petty contractor to extend his clerical job, hence was sitting idle in his home. Mr. Vijay the key man facilitated the background history of growth of this slum and organized several meetings and interactions with inhabitants of Sriram Nagar. The following are the background to perils of Sriram Nagar.

1. Due to non-availability of suitable govt. land, the slum in unauthorized way developed in and around deserted coalmines where the coal beds at 15-25 meter beneath the



*A drawing showing mine subsidence hazard*

*(With thanks from Sh. Jnananjan Panda)*

surface have already been extracted during pre-nationalization phase of 1950-60. However, the private mine owners during this period violated mine safety norms to fetch supernormal profit, hence did not invest anything to fulfill back the underground mine caves/voids with sand that was created after coal bed extraction. Because of above phenomena mine subsidence hazard is rampant in nature due to collapse of mine roofs in Dhanbad coalmine region (upper layer of earth) with aggravation of situation during rainy season.

2. Due to mine subsidence with large underground caves, no groundwater is available for drinking.
3. Community is at peril of vicious circle of poverty.
4. Besides mine subsidence hazard, people have been suffering from epidemics, fire hazard etc.

As usual, our programme-oriented minds prompted us to conduct some participatory exercises for earthquake preparedness only, which was actually not the real concern of the community at that time. In fact by going one step ahead, my highly christened Apada Mitras (Volunteers of 'friends during disaster' group) persuaded the community that earthquake is more dangerous than mine subsidence hazard, hence they should carry out CBDP activities for earthquake preparedness. Looking into our volunteers' single point agenda of earthquake preparedness, the hope of inhabitants of Sriram Nagar of getting some relief/solace of their peril from local administration started to fade away. Now neither the community nor Mr. Vijay, the key man had any time for us to facilitate any more interactions.

At this juncture, I had no option but to instigate the community for a small participatory exercise for which the community would spend only 30 minutes. We proposed for participation of maximum number of people of the slum. Now, with consent of the community elders and Mr. Vijay, we played the following exercise at their convenient time, which in fact later on emerged as **Community level Risk Assessment Exercise**. The following tabular drawing in local Hindi Language on the floor of open space was drawn by Vastavik and Apada Mitras using locally used colours for community level participatory exercise. For example, translation of 'psycho-social trauma' in Hindi as '*maansik aur saamaajik vedna*' caught the immediate realization of the community. 40 men and women represented the community to participate following tabular exercise in the presence of whole community.

At 10 point votes by each participant	Prevailing Chronic Hazards in Sriram Nagar		
	Mine Subsidence Hazard	Fire	Epidemics
Loss of Lives			
Injuries/disease			
Loss of livelihood			
Damage to properties			
Psycho-Social trauma			

*Population - About 1000, Sriram Nagar, Ward No. 22, Dhanbad*

After drawing the above table at the floor of the open space of slum using various local colour powders, we distributed 20 green leaflets to each of 40 participants and offered them to vote for each cell of the above table. To give more weightage to any cell, community may put more number of green leaflets but there should be neither any quantification, nor any calculation but to use only sense of humour to give weightage to each cell. However, the cell carrying striking concern may receive more votes, where as the cell with meager concern may be left with least weightage. The community arrived at following conclusions before going for such participatory exercise.

- To give weightage to each cell on their own discretion
- To give a look to each component before starting the exercise.
- To give a judicious weightage to each cell

At the end of the exercise, we noticed huge votes towards concern of injuries and disease due to chronic mine subsidence hazards and epidemics, where as similar concerns on loss of lives but with low accounts of voting were registered by the participants due to same mine subsidence hazards and epidemics. Similarly the cell cited with 'loss of livelihood' due to epidemics had drawn more votes. The cell cited with damage to property due to fire hazard caught more attention of people also. Now the community was at clear understanding of effect of hazards on their daily lives. During such participatory process, their callousness towards such chronic hazards now started to fade away. Further, the fractured and factional views of community towards the reasons of various hazards were now taking a shape of kaleidoscopic view to chalk out an action plan by the community.

However, one striking surprise came out under the head of psycho-social trauma, while we noticed high attention/votes for psycho-social trauma due to mine subsidence hazard. To answer our query on such high attention towards psycho-social trauma by the community due to subsidence hazard, the people expressed their psychological shock of inability, frustration and agony to stop such human induced causes of death and injuries. They added that they feel helpless at the mercy of mere human errors while losing their nearest and dearest. Their agony and frustration in this regard aggravates, since there is no way but to leave the place to get rid of such chronic hazard. Rehabilitation of the slum anywhere else will invite loss of livelihood from the nearest mines, hence not acceptable by the community.

Further during the course of consultation, we added one more column under the head of "Earthquake induced Mine Subsidence Hazard", which now received maximum number of votes/green leaflets to each cell. Community was now at clear

realization that, their area with underneath voids/empty caves will face severe catastrophe during earthquake in terms of loss of lives, livelihood, injuries and damage to property with maximum trauma due to rampant and severe mine subsidence hazard. After proportionately reducing the green leafs from each cell, we found the following tabular community level risk assessment at the end of the exercise that had lasted for more than 2 hours in one Sunday afternoon. In fact, we had inadvertently arrived at an effective community level risk assessment exercise.

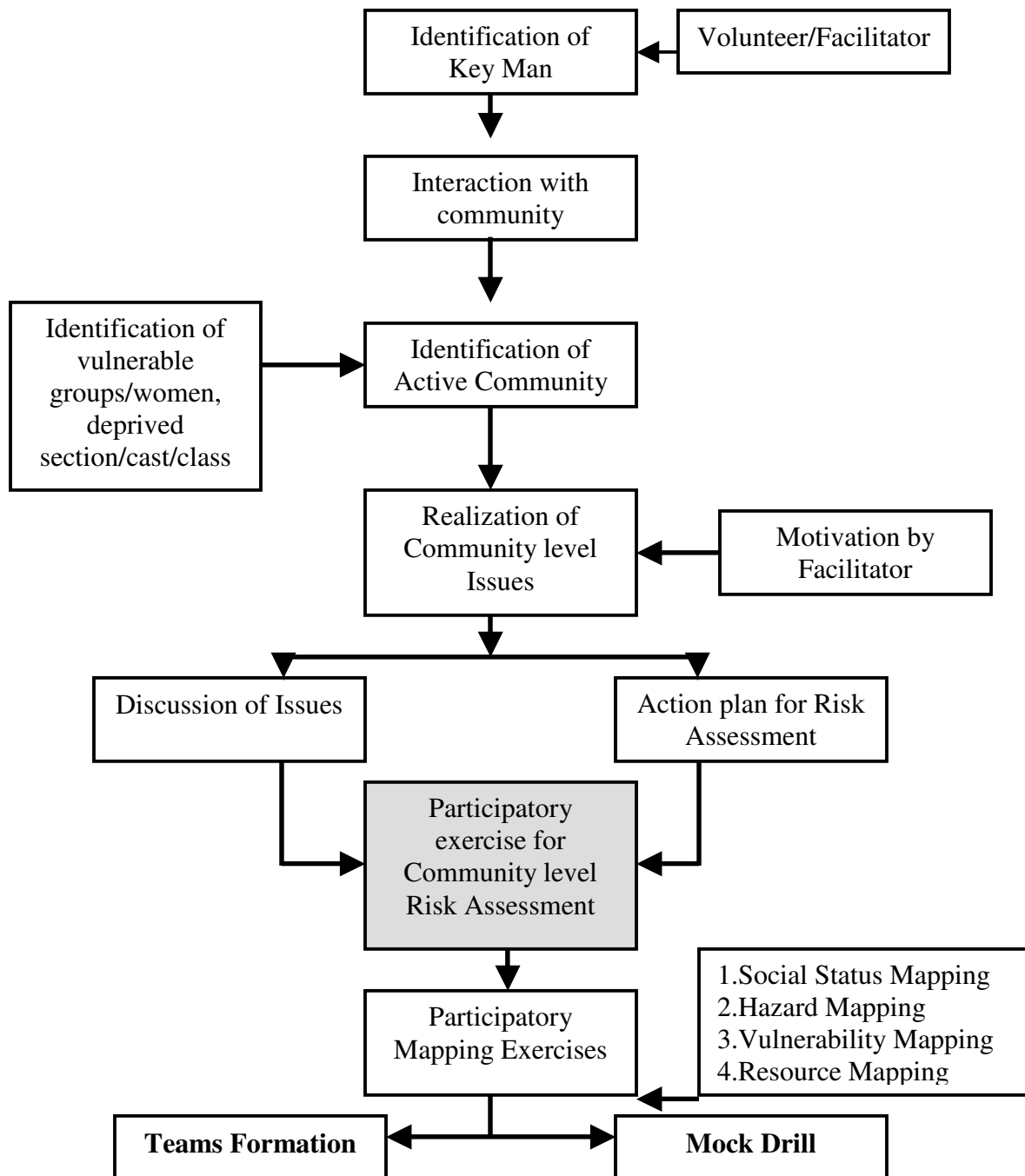
### **Outcome of Community level Risk Assessment Exercise by the Community of Sriram Nagar, Municipal Ward No. 22, Dhanbad City**

Risk assessment by each participant Having with 20 votes capacity	Prevailing Chronic Hazards									Incidental Hazard												
	Mine Subsidence Hazard			Fire			Epidemics			Earthquake induced Mine Subsidence Hazard												
Loss of Lives	h	h				h				h	h	!	h									
Injuries/disease	h	h	h			h	h			h	h	h	h	h	h	h	!	h				
Loss of livelihood			h				h				h	h	h	h				h	h	!	h	
Damage to properties		h	h			!	h	h	h	h								h	h	!	h	
Psycho-Social trauma	h	h	h	h	h			h										h	h	!	h	
<i>Population - About 1000, Sriram Nagar, Ward No. 22, Dhanbad</i>																						

In the process of above mentioned community level risk assessment, not only the community realized for the need of community level earthquake preparedness, but also we as external agents realized about their daily life agonies/frustration associated with cruelty of mine subsidence hazards that needs immediate attention. Hence, we felt embarrassed of imposing earthquake preparedness on them. The realization after above participatory exercise was further refined into following points.

1. The immediate threatening of the community of Sriram Nagar is mine subsidence hazard.
2. In the wake of any bigger earthquake, the community at large understood that the scale of disaster will be very intensive and widespread in their habitat located in mine subsidence hazardous area.

Now the community was at high enthusiasm to work for Community Based Disaster Preparedness (CBDP). Hence, combining with initiatives so far taken and to be taken, the following picture of our intervention in Sriram Nagar was visualized before drawing an action plan.



Now after above exercise, the community adopted two measures.

1stly, they persuaded local administration to have a safe exit route with mass community forestation for reducing the chances of subsidence. Now the community has a pucca road passing through Sriram Nagar. Besides, in persuasion with Additional District Magistrate, we tried for an informal school and adequate supply of water tanker especially during summer for the community.

2ndly, community adopted an extensive preparedness measures for which local administration facilitated Fire Officer and Medical Officer to train the community in search and rescue and first aid. Besides training of search and rescue and first aid, the community moved for series of PRA mapping exercises for proper planning to their preparedness followed by 1<sup>st</sup> Mock drill exercise on 18<sup>th</sup> Jan 2006 , 2<sup>nd</sup> on 21<sup>st</sup> January 2006 and 3<sup>rd</sup> Mock Drill on 23<sup>rd</sup> September 2006 at the presence of District Magistrate.

The community carried out following Participatory Mapping Exercises to assess their strength and weakness.

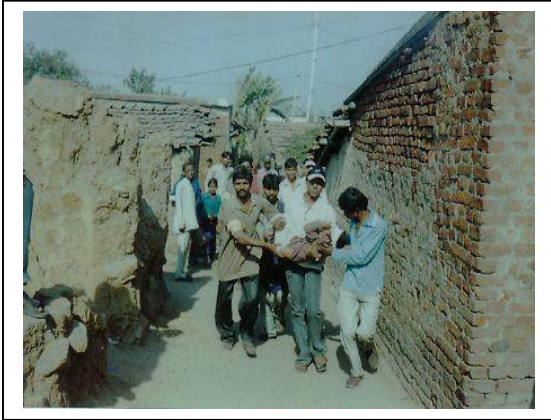
- (a) Socio-economic status mapping
- (b) Hazard identification mapping
- (c) Mapping to identify vulnerable groups and persons
- (d) Local resource inventorisation mapping to use it during crisis

The community in an informal atmosphere carried out the mapping exercises. Rangoli, other available colour powders as such turmeric, indigo used in household, were used by the community to draw maps. Role of our volunteer/facilitator was to guide them for mapping of socio-economic status, identifying possible hazards/risks threatening to lives and livelihoods, identifying vulnerable groups or individuals, inventorising available local resources to use it during disaster. The facilitator also took care that there is adequate participation of women folk in such exercises since they have more understanding to the ground realities of daily lives. Through an intense consultation among each other community identified the possible hazards on the self-drawn community map that may occur within or vicinity of the geographic location of their community. Then



Community of Sriram Nagar Ward No. 22, Dhanbad shows their participatory DM mapping exercise to the Collector, Dhanbad, Mrs.(Dr.) Beela Rajesh  
Source: <http://data.undp.org.in/stories/DecNewsletter.pdf>

through such mapping exercises, they tried to identify the poor sections of the community, people living in structurally weak shelters/houses, houses located in low lying area, poorly built adobe houses with thatched roof, locations of vulnerable individuals as such pregnant women, physically or mentally handicapped persons, old age persons who were more exposed to the risk with less capability to withstand against any possible hazard. Then the community planned and distributed the responsibilities of operational procedures among themselves to face any disaster. They identified the local household resources, which are to be innovatively utilized to save lives and properties during any disaster. The maps drawn on floors through



participatory exercises were transferred into drawings sheets for future reference. They further constituted DM teams as such for search & rescue, first aid, trauma counseling, sanitation, safe drinking water, carcass disposal etc. With such teams, the prepared community now played mock drills to realize or test their preparedness in advance.

The DM teams from the community of Sriram Nagar played their 1<sup>st</sup> role play exercise on 18<sup>th</sup> January 2006 to test their pre-framed community level standard operation procedures. In fact it worked as Confidence Building Measure to face any disaster by the community. Our volunteers also persuaded them for adequate participation of women folk in such mock exercise.

However, one major flaw that emerged in the community level exercises was about volunteers' management. We visualized that the period of 72 hours just after any large scale disaster will be keeping crucial importance to save lives and properties, hence a great number of volunteers from the community will rush into action to save the lives of their nearest and dearest, though in a very disorganized way. A well-prepared community of Sriram Nagar should now respect this sentiment during disaster for a proper volunteer management. It was decided that during such 72 hours of crisis, the community leaders would admit the fresh volunteers to strengthen the back up force for each teams. One may imagine that after a few hours, the teams moved for search and rescue and first aid may feel exhausted and tired. Hence, there should be a back up force of every team, who could replace the front force under a cycle of a particular time frame. Similarly for the disasters that may suddenly happen without giving chance for warning as expected in Sriram Nagar, a fraction of Search and Rescue and First Aid group were identified in advance by the community to act immediately without waiting any instructions from Disaster Management Team Leader or community leaders during of any such

unwarned crisis. This fraction also maintained a list of vulnerable individuals who may immediately need any assistance to save their lives during any such type of unwarned disaster. After the 1<sup>st</sup> mock drill they understood the need for close coordination and cooperation between the teams of Search & Rescue and First Aid. They also realized that proper volunteer management by the Disaster Management Team and Committee leaders to focus more on highly damaged part of community residing area will be a subsequent but



Community of Ward No. 22, Dhanbad shows their rescue exercise to the Collector, Dhanbad, Mrs.(Dr.) Beela Rajesh

Source: <http://data.undp.org.in/stories/DecNewsletter.pdf>

immediate affair, for which the maps generated through earlier mapping exercises followed by a quick reconnaissance will be used by the community leaders of Sriram Nagar to operationalise the search and rescue activity in the residing area of vulnerable group or individuals. Learning all above points from the lessons of 1<sup>st</sup> mock drill, the community of Sriram Nagar played their 2<sup>nd</sup> mock exercise on 21<sup>st</sup> January 2006. Such a massive preparedness by the community of Sriram Nagar had initiated just from the spark of community level risk assessment exercise. At last as a part of 3<sup>rd</sup> mock exercise, the community showed their confidence of preparedness before Dhannbad District Magistrate on 23<sup>rd</sup> September 2006. Community of Sriram Nagar, Dhanbad's such preparedness presented before the Dhanbad District Magistrate was also covered in UN News letter, the details of which may more be read by visiting <http://data.undp.org.in/stories/DecNewsletter.pdf>.

With Thanks From:

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