

Sand sculpture by Sudarsan Pattnaik

Cyclone Hudhud - After Action Review

**Community-based Disaster Risk Reduction Program
in Andhra Pradesh**

Background

The Indian state of Andhra Pradesh is very vulnerable to natural disasters, especially cyclones and floods, as it is a coastal region. As a matter of fact, it has the longest coast line on the Eastern coast and an overall second largest coastline of India which is more vulnerable to cyclones as compared to the Western coast. The Indian Red Cross Society in collaboration with the Canadian Red Cross is implementing the Community-based Disaster Risk Reduction (CBDRR) program since 2010 in Andhra Pradesh covering 32 communities spread across 12 districts. The CBDRR program was initiated with the aim of building disaster resilient communities in the program villages. The communities have shown vast improvements in dealing with disasters since the program was initiated.

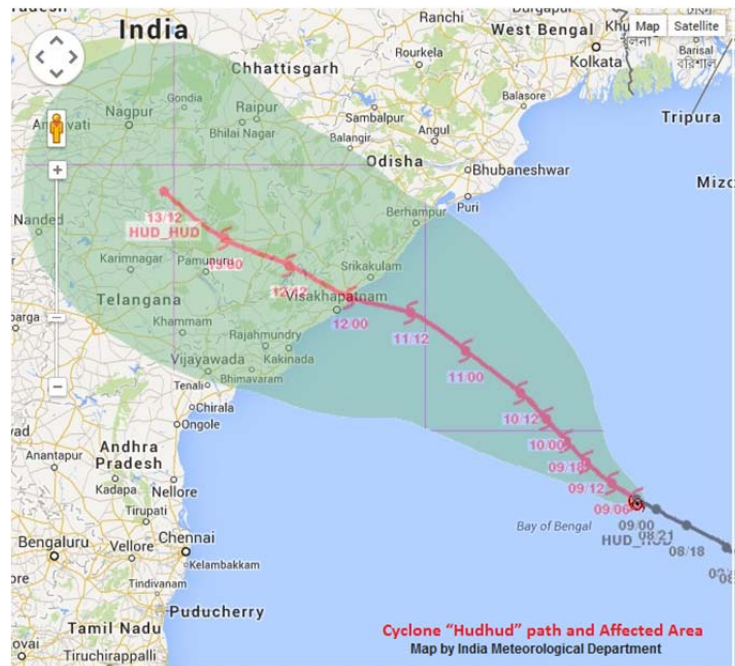
Recently, a severe cyclonic storm, 'Hudhud' caused severe impact in 4 out of the 12 program districts. An After Action Review (AAR) was conducted to gauge the effectiveness and relevance of the CBDRR program in preparedness and response of the program (and non-program) communities towards the cyclone. The AAR was also intended to find out the areas of improvement for the program.

Cyclone Hudhud

A very severe cyclonic storm referred to as Cyclone Hudhud hit the coastal districts of Andhra Pradesh in October 2014. Cyclone Hudhud pounded the coastal districts of Andhra Pradesh and Odisha with heavy rain and winds of almost 200 km/h (124 mph) leaving a trail of devastation especially at Vishakhapatnam, where the cyclone made a landfall. Everybody was evacuated from towns and villages through which the cyclone passed amid massive rain and wind¹.

An alert was sounded in nine out of thirteen districts of Andhra Pradesh where standing crop of paddy, groundnut, sugarcane, pulses and other horticulture crops were yet to be harvested. From the CBDRR program districts, 35,000 people were evacuated in Srikakulam district, 6,000 in Vizianagaram, 50,000 in Visakhapatnam, 50,000 in East Godavari and 5,000 in West Godavari². The local government made adequate arrangements to shift half a million people to shelters. Hudhud crossed the coast of Andhra Pradesh at 11:30 AM IST on 12th October 2014 near Pudimadaka, about 50kms from Visakhapatnam with winds exceeding 185 km/h (115 mph).

Maximum damage was caused in four districts of Andhra Pradesh, namely Srikakulam, Vizianagaram, Visakhapatnam and East Godavari districts, which are also the program districts under CBDRR.



¹ Source: <http://www.hudhud.ap.gov.in/HDRMS/UserInterface/Loginform.aspx>

² Source: Cyclone Hudhud Report from State Branch (AP)

The estimated damage caused by Cyclone Hudhud is at least INR 70,000 crore (US\$11 billion)³, though official assessments are still underway and the estimates may go higher⁴. Until now at least 109 deaths have been confirmed (66 in India and 43 in Nepal).

After Action Review (AAR)

AAR is a simple process used to capture the lessons learned from immediately experienced disasters. The objective is to understand the whats and whys of the program as well as bring out new learnings that can be further incorporated in the ongoing program. Red Cross and its volunteers were actively involved in early warning and search and rescue efforts along with the government after Cyclone Hudhud, which caused massive devastation in Andhra Pradesh. They also extended their expertise in supporting the government's efforts in the non-program villages wherever necessary. An AAR was therefore conducted to assess the impact of these efforts and the overall impact of CBDRR towards building disaster resilient communities, as well as identification of any areas of improvement.

It is important to note that CRC India Delegation, during its regular program discussions with IRCS, has constantly raised the importance of doing AAR after any emergency. As a result, the first AAR under AP CBDRR was conducted in 2013 after a series of three cyclones – Phailin, Helen and Lehar – hit Andhra Pradesh. At that time, the AAR was conducted through small group discussions in specific villages and the key discussion points were brought together in the form of a report. As the AAR was conducted for the first time, every aspect associated with the AAR was rather limited in scope. On the other hand, the AAR in 2014 was a big step forward based on the learnings from last year coupled with the use of advanced technology available for such exercises. This year, for the first time for any IRCS program, a survey was conducted through an online survey platform called FluidSurveys to undertake the AAR. The response to the survey was overwhelming. The District Field Officers interviewed community members (affected by the cyclone and provided relief by Red Cross) in program and non-program villages. The survey was undertaken from 3rd to 15th November 2014, roughly two weeks after the cyclone made a landfall at Vishakhapatnam (i.e. 12th October 2014).



IRCS staff during rescue operation

As compared to the AAR conducted in 2013 after the Cyclones Phailin, Helen and Lehar, the AAR this year was on a much wider scale as it covered double the number of villages and detailed questionnaires were filled up for every interviewee. This year 178 questionnaires were received as compared to last year when we received only 9 responses. By covering such a wide population this year, the AAR was able to gather more data, in turn helping to reach logical conclusions about the disaster resilience of more communities. It is also important to note that conducting the AAR using an online survey system saved a lot of time. It would have, otherwise been a very time consuming process to fill 178 survey questionnaires and then send them through the regular communication channels of IRCS which can take several weeks to reach CRC –

³ Source: <http://www.gofundme.com/hudhudRelief>

⁴ Source: http://www.business-standard.com/article/current-affairs/cyclone-hudhud-damage-estimated-at-rs-8-000-cr-114101301099_1.html

India delegation. Another important aspect to be noted is the capacity building of IRCS state and district branches towards using advanced technology for such exercises in the future.

Sample size Comparison

	AAR after Cyclone Hudhud (2014)			AAR after Cyclones Phailin, Helen and Lehar (2013)		
	Number of Villages	Number of Households	Number of Responses	Number of Villages	Number of Households	Number of Responses
Program Villages	11	7,989	104	4	200-500	4
Non-Program Villages	7	1,831	74	5	200-500	5

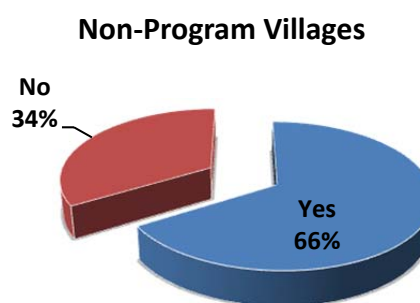
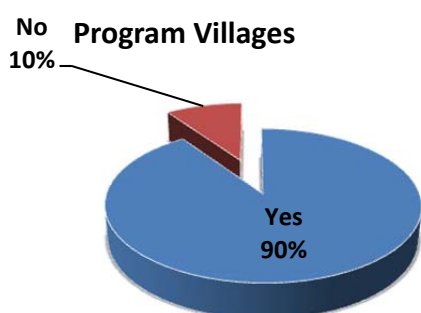
The online survey resulted in a very methodological approach towards the AAR, giving conclusive findings and data analyzed by the survey tool. Since the Red Cross team and its volunteers also provided support in the non-program villages, it was decided to extend this detailed survey to those villages as well. Therefore, it gave a comparative analysis of the impact and effectiveness of the CBDRR program. This comparative analysis was helpful in showcasing the difference in disaster resilience of the program communities versus the non-program communities.

Consolidated Findings

The Red Cross team and volunteers were one of the first responders to the cyclone and were instrumental in sending out alert signals to the villages. They carried out early warnings, helped the government in identifying shelters, evacuation of people and organization of medical camps. It was observed that the local government also used the tools provided under CBDRR to mitigate the impact of the cyclones, such as mega phones, life jackets, stretchers, community kitchen sets, rain coats, axes etc. The work of the Red Cross team and volunteers was much appreciated by the government, which was further corroborated through various newspaper articles published in the local newspapers, praising the contribution of IRCS - AP.

1. Early Warning

Did villages receive a disaster warning alert?

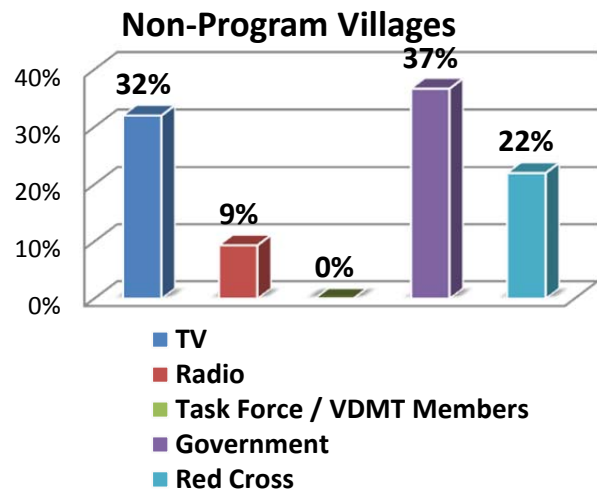
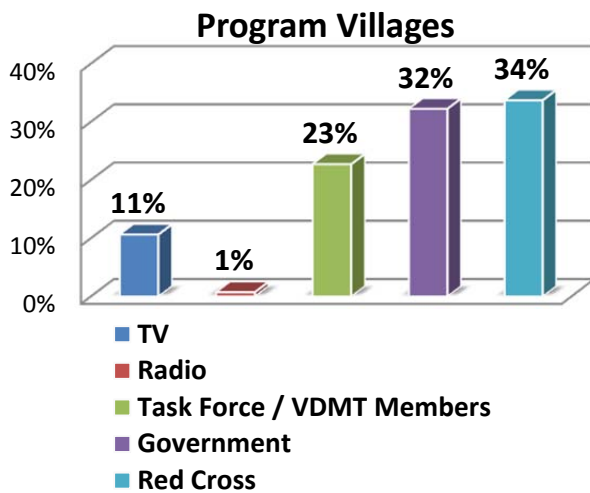


In the AAR, when asked whether they received Early Warning, 90% of the responders from the program villages said that they did, whereas, in the non-program villages, 66% of the responders said that they received the early warning. This shows that the early warning systems of the program villages were much more effective as compared to the non-program villages. As mentioned above, the Red Cross teams and volunteers were one of the first responders to the cyclone and played a key role in disseminating the information to the communities.



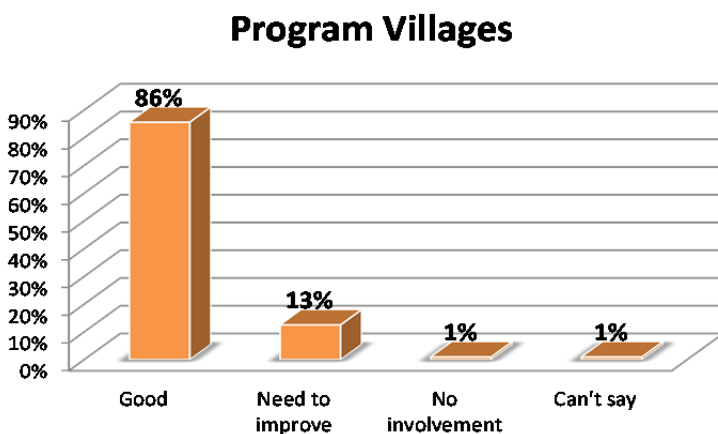
IRCS volunteers during early-warning

How was the warning communicated?



In the program villages most of the Early Warnings about Cyclone Hudhud were communicated by the Red Cross team as well as the Task Force and Village Disaster Management Team (VDMT) members. On the other hand, in the non-program villages, the information was mostly communicated by the government and then via the TV.

How was the performance of the Task Force members after receiving the Early Warning of the disaster?



When asked whether the Early Warning was sufficient or not, 87% of the responders from program villages said that it was as compared to only 4% in the non-program villages. Also 86% of the responders from program villages stated that the performance of the Task Force members was 'good' after they received the Early Warning. This comparison demonstrates how Early

Warning Systems in the program villages are far more efficient and effective than in the non-program villages. Since Early Warning Systems are the beginning point of disaster preparedness and response, it shows that the communities in the program villages are comparatively in a better position to tackle disaster situations.

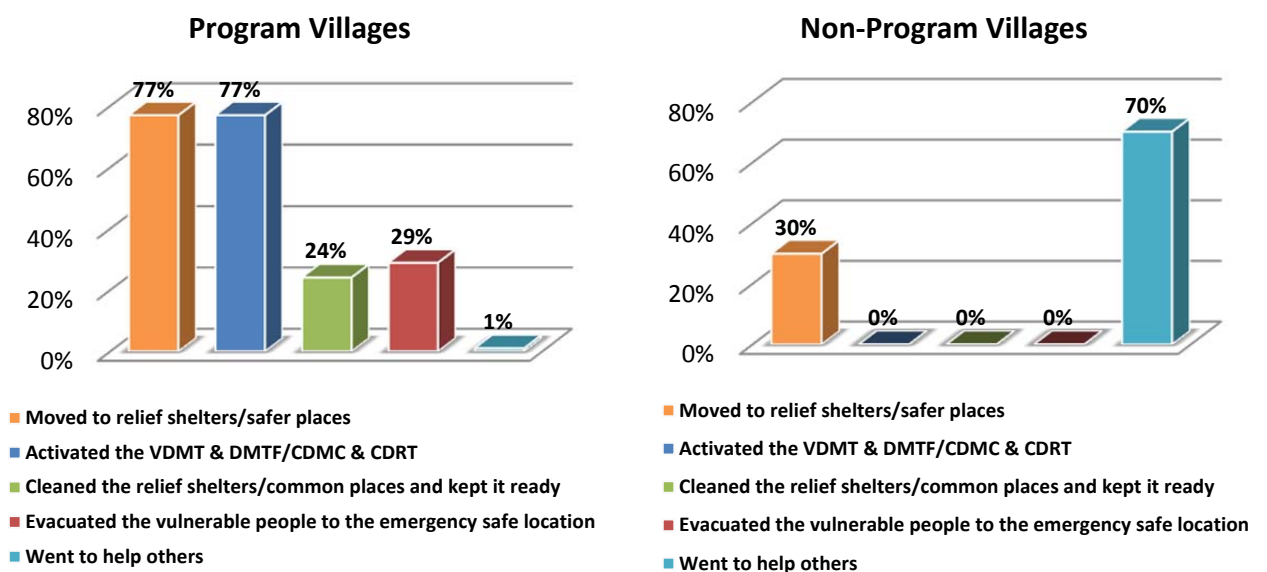
2. Disaster Preparedness

Immediately after Early Warnings are sent out, the next step is to evacuate the people and move them to relief shelters. Communities trained in disaster preparedness are expected to immediately do so and simultaneously activate the committees and task forces set up in advance to manage disaster situations. It was observed that in the program villages, 77% of the people moved to relief shelters and also activated the VDMT, Disaster Management Task Force (DMTF), Community Disaster Management Committee (CDMC) and Community Disaster Response Team (CDRT) soon after the early warning. People cleaned the relief shelters and worked towards disaster preparedness. These Community-based Disaster Risk Reduction Entities (CBDRREs) were very proactive and helped the communities immensely. The survey shows that in non-program villages, a lack of CBDRREs resulted in slower responses to the Early Warning and fewer people moving to the shelters.



Flood diversion wall constructed under CBDRR mitigation activities

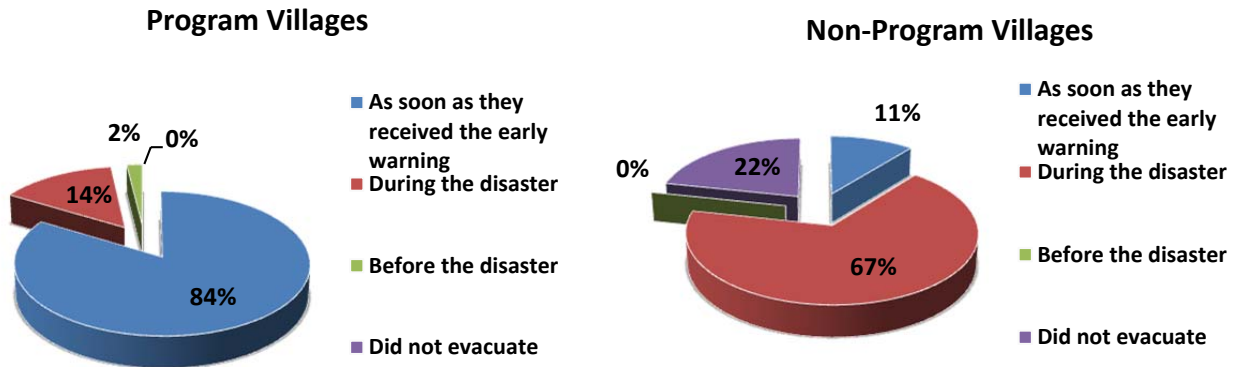
What steps did your community take after receiving the Early Warning?



For example, in Vishakhapatnam (where the cyclone landfall took place), the District Field Officer of Red Cross, Mr. Mahesh went to the villages and facilitated a village meeting to prepare an action plan and

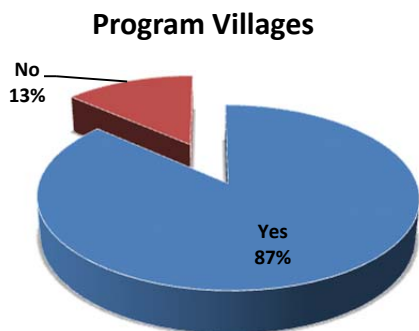
divide responsibilities in preparation of the impending cyclone. The IRCS team organized the relief shelter with the help of the District Branch funds, not waiting for any other organization to do so⁵.

When did people evacuate their houses?



67% of the people in non-program villages evacuated their houses only during the disaster as opposed to only 14% in the program villages. Evacuating the house and moving to a shelter is an important step towards saving as many lives as possible. Evacuation during a disaster can result in a greater loss of lives and the program village community members understood the importance of this. Also 22% of the people in non-program villages did not evacuate their houses at all, thereby risking their lives.

In general, was the community satisfied with the response by VDMT & DMTF/ Task Forces?



The efforts of the Task Forces, VDMT and DMTF were appreciated by the program communities, with 87% of the responders stating that they were satisfied with their performance. This highlights the importance of CBDRREs in mitigating the impact of disasters. The Red Cross team and the volunteers worked before, during and after Cyclone Hudhud to help the communities. For example, the District Branch Chairman at

Vizianagram district personally appreciated the work done by the CBDRREs in the district⁶.

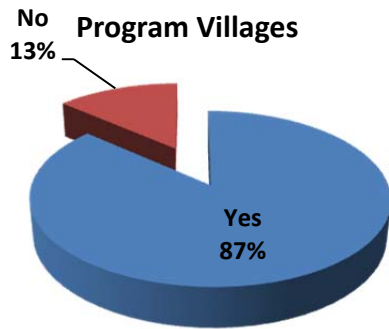
3. Disaster Risk Mitigation

Did the Red Cross program help your community in mitigating the disaster risk?

When asked, whether they were satisfied with the Red Cross program and whether it helped the community in mitigating the impact of Cyclone Hudhud, 87% of the responders from the program villages said that it did.

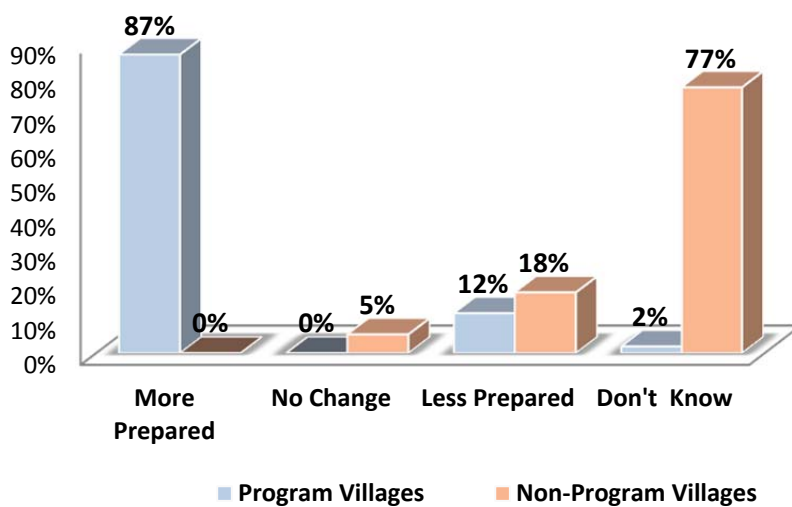
⁵ Source: Cyclone Hudhud Report from State Branch (AP)

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While in non-program villages, the responders mentioned that Red Cross initiatives such as CBDRR were much needed in their communities, highlighting the importance and positive impact of CBDRR in program villages.

4. Overall response to AP-CBDRR program in program villages



When asked whether they had become more or less capable of handling disasters after the CBDRR program, 87% of the responders said that they had become more prepared. On the other hand, most of the community members (77%) from non-program villages were clueless about their capacity to handle the disasters. This showcases the positive impact of CBDRR program in the program

villages and its success in achieving the goal of building disaster resilient communities.

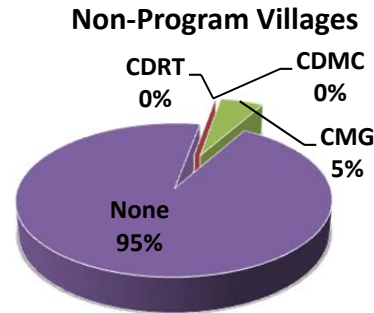
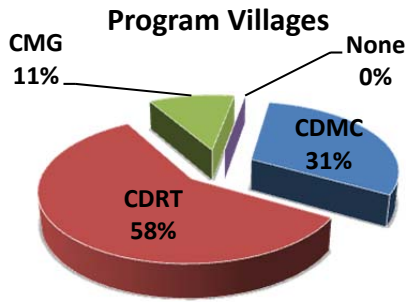
Additional Responses

The program community members mentioned that CBDRR has immensely helped in increasing their knowledge and capacity in responding to disasters. They noted that the task forces and other CBDRREs created under CBDRR were active and coordinated very well before, during and after the cyclone. They also mentioned that they will further try to build upon the initial learnings and would especially make efforts to further improve coordination with the external agencies towards better disaster response.

On the other hand, in non-program villages, the responders mentioned that they needed to gain knowledge and learn new skills towards responding to any emergency. They also highlighted the need for a program in this regard.

Conclusion

The findings from the AAR positively conclude that the CBDRR program has been successful in building disaster resilient communities in the program villages.



Every person in the program villages (included in the survey) was a member of one or the other CDRRE as opposed to only 5% of the community members of non-program villages. One may therefore conclude that the members of the program villages are more proactive, well trained and ready to face disaster situations. The community members and concerned government authorities appreciated the work done by the Red Cross team and volunteers during Cyclone Hudhud and their overall contribution to the community through the AP-CBDRR program.



Local newspaper article praising the work done by Red Cross during Cyclone Hudhud

Summary of CBDRR Response for Cyclone Hudhud

CBDRR staff and volunteers had a major role in responding to the cyclone as part of the activities by various IRCS district branches. CBDRR staff rushed to the program villages and met the Village Panchayat Leader, Village Revenue Officer, Village Secretary and other elders to discuss the disaster preparedness of the village. They called upon the Community Mobilisers and Task Force Team members and prepared phase-wise action plans. These plans were then implemented in the villages, based on the intensity of the cyclone with the support of the Community Contingency Plan available in the communities as a result of CBDRR initiative. The District branch staff also attended Cyclone Preparedness meetings held at the mandal (sub-district) and District Headquarters organized by the Government and shared information about CBDRR and its activities. Post the review meeting, the CBDRR staff went with the Government Mandal Revenue Officer to the most vulnerable villages and identified shelter locations, listed out shelter needs, vulnerable locations and recourses in case of evacuation.

Further, the CBDRR team also conducted Search & Rescue and as part of it, visited each and every house in the village and evacuated the leftover people to the nearest relief center established by the Government. With the support of Community Kitchen Sets provided under the CBDRR program, the community was able to prepare food for the evacuated people without waiting for outside help. Even in extreme conditions CBDRR volunteers were in the field rescuing the held up people, cleaning the debris and clearing the roads to clear access for external help.

Recommendations

AAR is a very effective exercise to check the performance of the program in a real-time emergency situation and should be included in the annual plans. Most importantly, it gives an opportunity to involve and get feedback from beneficiaries and stakeholders. A cost effective technology such as an online survey and data analysis system needs to be considered, so as to save time, conduct comparatively more interviews/discussions and increase the accuracy of data analysis.