# Micro-level Drought Preparedness - Adakkal 2009

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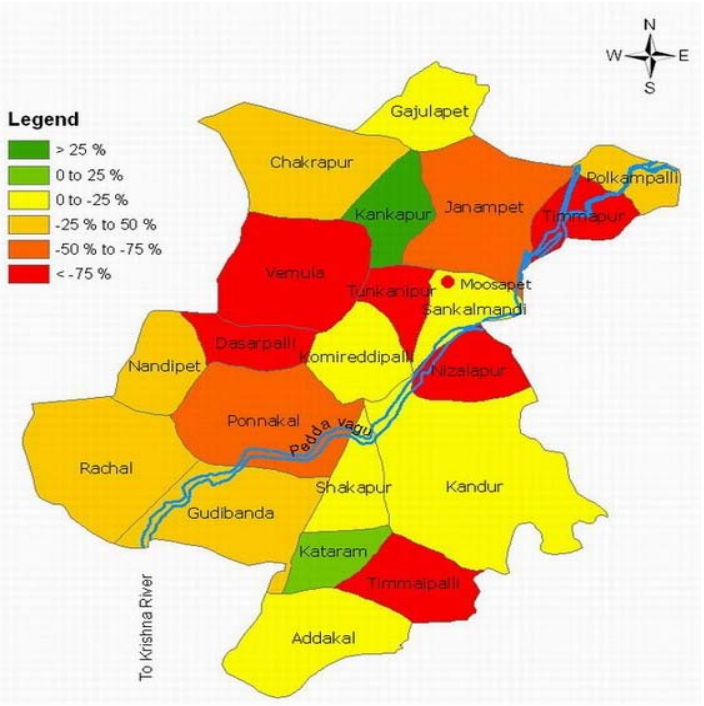
MahabubNagar area in South Central India is known as a highly drought-prone region. Located just under 90 km from the city of Hyderabad (Population: 5 millions) is Addakal, a cluster of 21 villages with an estimated population of 52000 people. This area experienced a severe drought in 2002 and a somewhat less severe one in 2005. On both these occasions, people and cattle moved out of the area because livelihoods could simply not be sustained. In 2002, nearly every household on an average had one member leaving the area to find work or food or both.

The principal cultivation season here is the June-October "monsoon" period. The months of June-July in the year 2009 had rainfall that was just under 10 percent of normal and the larger region experienced the driest June-July period in about 80 years. Yet, the out-migration was significantly less.

ICRISAT, in partnership with a community-based all-women micro-credit organization, the Adarsha Mahila Samaikhya (AMS), developed a blend of techniques to help the AMS and the rural communities to anticipate how vulnerable their villages would be to drought in a season. At its core, the surface water available is estimated using remote-sensing image available commercially and from public sources such as the NOAA. The water requirements in every one of the 21 villages are calculated with field surveys. The short fall, met almost entirely from rainfall is carefully estimated. The seasonal meteorological predictions made available globally (for example, the IRI, Columbia University, or nationally, from the India Met Department) are used along with local data to develop a local forecast using simple numerical models. These are then combined to formulate scenarios that give anticipated severity of drought in each village. This is presented in the form of color-coded maps, with red and amber indicating distress and yellow indicating minor stresses and green for subsistence-as-usual.




Volunteers affiliated to the AMS have been trained by ICRISAT in interpreting the color-codes. They manage village-level information centers each equipped with a PC and mobile-phone based connectivity to the Internet. The maps are made available to them via the

web, and they store them in the local PC. They are trained in rainfall measurement using an “approved” device (costing about USD 30). These women volunteers in five villages in the cluster regularly upload information using mobile phones to a web site maintained by ICRISAT. The near-real time data is used to adjust the forecast of severity or vulnerability.

The techniques were refined over the years starting 2006. The vulnerability forecasts for the June-October season of 2009 indicated that more than 50 percent of the villages will have difficulty even to source drinking water. The forecasts were made available to at least 15 per cent of the population in each village. Besides the women volunteers, junior experts and research scholars at ICRISAT engaged with interested farmers and others through a two-way video-conferencing arrangement donated by the Government of India.

This has had a positive influence, according to the surveys just completed in November 2009. Balchander Rakela, 38, is a farmer in Rachala village (population 1800). This location was forecast as a highly vulnerable location and the adjusted forecasts gave the same indication. Balchander says that he was able to tide over the severity because he had a good idea of it beforehand. He says that “ICRISAT has provided color maps and gave advice on cultivation of dry crops like groundnut, milliet, sunflower and maize. The color-coded maps provided by ICRISAT scholars proved to be a serious aid”. http://www.youtube.com/watch?v=gnQGyE5AWPA

Rameswaramma, in Nijalapur village works as a volunteer with the AMS, and says “this year we had severe drought but as ICRISAT provided us with color coded maps before start of the season and also advised to plant dry land crops, I switched to millet and maize which saved my income”. http://www.youtube.com/watch?v=lm2IyXeYVXQ

Color-coded maps: Farmers getting to know how vulnerable their village is

The detailed survey of responses of about 600 individuals is under compilation. The first cut analysis reveals that increase in awareness leads to better preparedness for drought impacts. The global experience is that preparedn engaged in scaling this technique up to make it

Google Earth/Maps. The key step is to enable rural communities to share with the global community information on rainfall in the localities. An Open Web GIS solution is also being tried.

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