OOZING OF WATER IN WELLS AND AGRICULTURAL FIELDS OF CERTAIN VILLAGES IN RANGA REDDY AND MAHABUBNAGAR DISTRICTS, ANDHRA PRADESH by V Raghu, D V J Sastry and K Mruthyunjaya Reddy Jour Geol Soc India, v 67, no 2, pp 151-158

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I have read with interest the above short communication and appreciate the efforts of the authors in summarising the opinion of a number of workers in the field and for giving their own conclusions on the reasons for the observed oozing of water in wells and agricultural fields of Ranga Reddy and Mahabubnagar Districts I have worked in the areas cited by the authors for over a decade and the so-called oozing in agricultural fields is quite common It would be more appropriate to refer it as seepage and not as springs or oozing water in agricultural lands At Devanor and at Mukundapur the seepage is historical and was also observed during September to December 2005 It may have continued up to January 2006 These facts should have been ascertained by the authors before attributing the seepage to earthquake of 26th Dec 2004 The seepage of the kind noticed in these two villages is very very common and can be also noticed in many other areas (villages) and that there is no need to invoke "*sudden opening of fractures due to an earthquake*" The authors can revisit the area (during September to December or January for few years) to confirm these facts and they also need to record the statement of elders of the villages to know the history of seepages not only in these villages but elsewhere also

As I have suggested earlier (Prasad and Pradeep Raj, 2005) we need to clearly distinguish between the phenomena as seen

1 Near the focus and the epicentre of earthquake where earthquake is felt and ground actually undergoes permanent physical changes like dilation/compression/ rupture leading to observed changes in the water levels/ water turning turbid
2 Away from the epicentre the rocks react but the change is quite temporary and the quake is not felt (physically) As the earthquake wave crosses a point, which happens everywhere in the world (after a quake), a seismograph can pick it up and sometimes it can be recorded in a piezometer (hydroseisem) As the waves cross the piezometer, compression of the ground will cause a rise and dilation of the ground will cause a fall in water level and ultimately after the wave has passed away ground returns to its original state and so does the water level (it returns back to where it was) These pulsating changes of water level can be recorded if the piezometer is equipped to record the changes every few minutes or better still every few seconds (Prasad and Pradeep Raj, 2004, Montgomery and Manga, 2003, and Esposito et al 2001)
3 A clear explanation giving reasons for the time lag between earthquake on Dec 26, 2004 and reported water level changes from Jan 13, 2005 onwards, should be given
4 While not ruling out the effects of earthquakes on water levels, it would be significant contribution if the reports like this are based on sustained and through investigations and not on what is said during seminars or workshops
5 A good digital recorder in a piezometer with a resolution of 1 to 2 seconds and relative accuracy of 1/2 to 1/10 mm should have been in place by now These measuring devices would have gone a long way in understanding the hydrologic responses in the area due to earthquakes
6 I would like to mention that USGS has taken a serious note of my plea that on behalf of entire community interested in hydroseisems, they should take the water level record every 2 seconds Dr David Nelms of USGS (*pers commn*) has informed me that they have now set the recording resolution of the well in Christiansburg, Virginia to 5 minutes and are testing equipment to set the recording at 2 second interval

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We appreciate the interest shown by Dr Pradeep Raj, Ground Water Department, Hyderabad on our short communication As per our knowledge there is no historical information on oozing of water in agricultural fields at Devanur and Mukundapur We are of the opinion that this is a unique phenomenon not only in parts of Ranga Reddy and Mahabubnagar Districts but also in the Districts of

Adilabad, Nalgonda, Medak, Chittoor etc. The villagers started adoring these water pits by breaking coconuts and applying vermilion. All these features were widely covered in the press and electronic media. Historic evidence if any would have been quoted then itself. Some of the news items published in local Telugu and English dailies were collected by us.

The papers from the organizations namely CGWB, NGRI, GSI, SGWD presented in the "Workshop on recent rise in groundwater levels in certain areas in Nalgonda, Ranga Reddy and Mahabubnagar districts" during February 2005 at Hyderabad organized by the Rural Water Supply Wing, Panchayati Raj Department, Govt. of A.P. which are quoted as references are in the possession of the authors. No organization mentioned the historical record of such incidents in those drought prone areas. The seepage of water was observed only after 26th December 2004 tsunami. This is not the only view of the authors but also of those in GSI, Rural Water Supply (RWS) wing, Panchayati Raj Department, Govt. of A.P. When the Earth's axis itself underwent a shift and decreasing the length of the day by 2.68 microseconds after the earthquake (*The Hindu* dt. 24.1.2005, p.20) there is every possibility that such strange occurrences might be a result of the mega thrust. However, the authors are not competent enough to discuss the piezometric studies.

The authors have investigated the effect of earthquakes in water level changes in their studies on Killari Earthquake 1993 and the recent tsunami in coastal districts of Andhra Pradesh. As mentioned in our short communication it is only a "preliminary scientific investigation" and "a deeper scientific analysis from all angles could reveal the underlying cause for the phenomenon". Seminars/workshops serve as a platform for exchange of several scientific methodologies and pave way for advancement of research. Techniques adopted in scientific studies may vary but validity ought not be authenticated solely based on USGS. Impartial critical acclaim always enhances the quest for truth.

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NOTES

THE AGRICULTURAL REVOLUTION AND ITS IMPACT ON QUALITY OF LIFE

"One of the most fundamental developments in the history of our species and one having among the most profound impacts on landscapes and the people occupying them – was the domestication of plants and animals. In addition to altering landscapes around the globe from the terminal Pleistocene and early Holocene, the shift from foraging to farming resulted in negative and multiple consequences for human health. Study of human skeletal remains from archaeological contexts shows that the introduction of grains and other cultigens and the increase in their dietary focus resulted in a decline in health and alterations in activity and lifestyle. Although agriculture provided the economic basis for the rise of states and development of civilizations, the change in diet and acquisition of food resulted in a decline in quality of life for most human populations in the last 10,000 years." — CLARK SPENCER LARSEN

Source: Quaternary International http:tinyurl.com/o8udt; ccnet 40.06 – 6 March 2006)