



Measurement of radon concentration in dwellings from the affected landslide area of Mamit town, Mizoram, India

P. C. Rohmingliana¹, L. Vanchhawng¹, R. K. Thapa¹, M. Lalthansangi², Lalrintluangi², Laltlanchhungi², Lalremruati Hmar², Lalnunthara², B. K. Sahoo³, Y. S. Mayya³ and B. Zoliana^{4*}

¹ Department of Physics, Mizoram University, Aizawl 796 004, India

² Department of Botany, Govt. Zirtiri Residential Science College, Aizawl 796 001, India

³ RPAD, Bhabha Atomic Research Centre (BARC), Mumbai 400 094, India

⁴ Department of Physics, Govt. Zirtiri Residential Science College, Aizawl 796 001, India

Received 13 August 2012 | Accepted 25 September 2012

ABSTRACT

Radon concentration in dwellings in Mamit town area has been observed for about two years from May 2009 to February 2011. Seasonal variations of these radon concentration levels were observed for a year and after which landslide took place in a part of Mamit town and indoor radon concentration levels were also measured in landslide affected area. Pre- and post-landslide radon data are compiled and compared. For this, indoor radon concentration measurement, a time integrated method was employed by using a solid state nuclear track detector (SSNTD) type (LR-115films) kept in a twin cup dosimeter. It was found that the radon concentration level during pre-landslide was more than that of the post-landslide level. This behaviour is similar to the changes of concentrations in soil-gas radon which is associated with the earthquake activities as observed in Garhwal Himalayas. The radon content in the soil gas measured using RAD7 even after the landslide phenomena was found to be not so high.

Key words: Indoor radon concentration; landslide; RAD7; soil gas; SSNTD.

INTRODUCTION

Radon is a radioactive gas which is produced from Ra²²⁴ and more than 50% of the natural radiation is contributed by radon and thoron (collectively called radon), and their progenies.¹ The amount of radon concentration in the soil is determined by the amount

of parent nucleus present in the bedrock and soil materials. Radon being a gas can migrate by mechanism of diffusion and convection through pore spaces in the soil, fractures in the rocks and along with weak zones² such as shear, faults, thrust, etc. Radon is continually formed in soil and is released to air. Subsequent decay products are formed in the air. The amount of radon exhaled from the soil to the surrounding atmosphere is influenced by radon emanating power in the materials, per-

Corresponding author: Zoliana

Phone: +91-9436140347

E-mail: bzoliana@rediffmail.com