

Geopathic Stress: Parameter for the Occurrence of Accidents

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Abstract— In the built environment, energy emitted from the earth at specific locations which is produced due to friction between underground flowing water and earth material is termed as Geopathic Stress. It is type of environmental pollution which is harmful to sustainable development of built environment. Built environment consist of houses, roads, footpath, shops, etc.

Geopathic Stress was detected by using ancient techniques like dowsing. The confirmation of such zones which are Geopathically stressed is done by using modern techniques like NAAV meter (Light Interference Technique). Mumabi- Pune Expressway has witnessed large number of accidents in recent past. In this paper the relation between occurrences of accidents with presence of geopathic stress on road environment of Mumbai- Pune Expressway is established.

Keywords— Geopathic Stress, Expressway, Accidents.

I. INTRODUCTION

Expressways constitute only about 1.7% of the road network but carry about 40% of the total road traffic. Number of vehicles has been growing at an average pace of 10.60% per annum over last five years.

Road environment includes soil, pavement, reaction time of driver, etc. Geopathic stress is the energy emitted from the earth crust affects the road environment. National Highways and Expressways in India have one of the largest road networks in the world (over 3 million km at present). About 65% of freight and 80% passenger traffic is carried by the roads. National highways and Expressways are the veins of the overall development of the country. But on the other hand as the number of highways and Expressways increases, so does the rates of accidents costing people their precious lives. Yeshwantrao Chavan Expressway

and NH-9 are the examples of such roads. Km 79 to km 81 on Yeshwantrao Chavan Expressway has observed many accidents in recent years. Due to geopathic stress zone, the drivers get disturbed since the geopathic stress affects normal functioning of human being. One of the reasons for disturbance may be increased reaction time. Reaction time is the elapsed time between the presentation of sensory stimulus and the subsequent behavioral response. Because of Geopathic Stress soil properties get changed, distress of

pavement occurs which ultimately reduces the designed life of pavement.

An accident is the major problem associated with National highways and Expressways. 30% of the total number of accidents occurred on National highways and Expressways; the cause of those accidents is unknown. Out of these 30% accidents, Geopathic stress might be one of the causes for occurrence of accidents on National highways and Expressways. The reaction time of driver increases in geopathic stress zone as compared to normal zone, because of which accidents occur. It is observed that rate of accident is more on Geopathic stress zone as compared to normal zone.

This study aims at finding relationship between geopathic stress and occurrence of accidents on Expressways and National Highways.

II. LITERATURE REVIEW

The earth is one gigantic magnet and it generates a massive energy field that is constantly fluctuating. Subterranean water is present at specific location which emits energy through fault lines and cavities. Gorden (2005) defined Geopathic Stress as “the energy emitted by the earth at specific location on the surface, which affects the normal human body function.” Dharmadhikari (2011) suggested the use of L-rod dowsing technique and geo-resistivity meter to detect the presence of Geopathic Stress. When current flows through electrodes, the resistivity decreases in Geopathic Stress zone as compared to Non-Geopathic Stress zone but geo-resistivity meter is suitable when the area to be surveyed is large as spacing of electrodes is equal to depth of investigation which is more. Soeder and Hacker (1991) stated that due to friction between geological fault lines and movement of ions in the water, electric fields are created which decreases the immunity of a person lying in that zone. Kharat (2000) studied effect of Geopathic Stress on reaction time of driver. He specially designed the instrument SRTM (Simple Reaction Time Meter) to know the reaction time of drivers. “Continuous signals from our brain control our body and enable it to function correctly all the time. Concentrated Geopathic Stress blot out these signals so strongly that the flow of information to cells, glands and organs is more or less stopped and reaction time of driver increases” and

because of this increase in reaction time of driver accidents occurs. Sorate (2013) concluded the change in geotechnical properties of soil in Geopathic Stress zone as compared to Non-Geopathic Stress zone. Voids ratio in Geopathic Stress zone is increased by about 51% as compared to Non-Geopathic Stress zone, so proper compaction in Geopathic Stress zone is to be done while constructing road. Dharmadhikari (2011) concluded the effect of Geopathic Stress on body voltage and skin resistance. As we go in Geopathic Stress zone our body voltage increases and skin resistance decreases and intensity of it varies according to age. National highways and Expressways are designed with accuracy using high quality materials. It is observed that distress of pavement occurred on National highways and Expressways very early to designed life of pavement. Chafekar (2013) studied the co-relation between Geopathic Stress and deterioration of pavement. Identification of Geopathic Stress zone has been done using L-rods. Magnetometer is also used to determine existing Geopathic stress along the alignment of road on MDR. Sorate (2014) hinted that presence of Geopathic Stress affects various parts of built environment such as human, animals, soil, pavement, vegetation, etc. Poddar and Rana (2014) observed that the life span of machinery which is continuously working in Geopathic Stress zone get reduced as compared to normal zone. Geopathic Stress also disturbs the normal functioning of human body. So literature review reveals that Geopathic Stress must be a part of preliminary survey of any construction.

III. AIM AND OBJECTIVE

The basic aim and objective of this study is to find out the relation between Geopathic stress and accidents occurring on National highways and Expressways.

IV. METHODOLOGY

- Selection of expressway and collection of accidental data by MSRDC (Maharashtra state road Development Corporation).
- Detection of Geopathic stress by using L-rods and confirmation of it by using NAAV meter.
- Study of Effect of Geopathic Stress on various parts of built environment like soil, pavement.
- Establishment of relation between occurrences of accident with presence of geopathic stress zone.

V. EXPERIMENTAL INVESTIGATION

Selection of Expressway and collection of accidental data: Expressways are designed with very high accuracy considering all environmental aspects. Even though pavement is constructed with geometric design, accidents occurs frequently, the cause of which is unknown. Accidental data of expressway was collected from MSRDC (Maharashtra state road Development Corporation) is as follows;

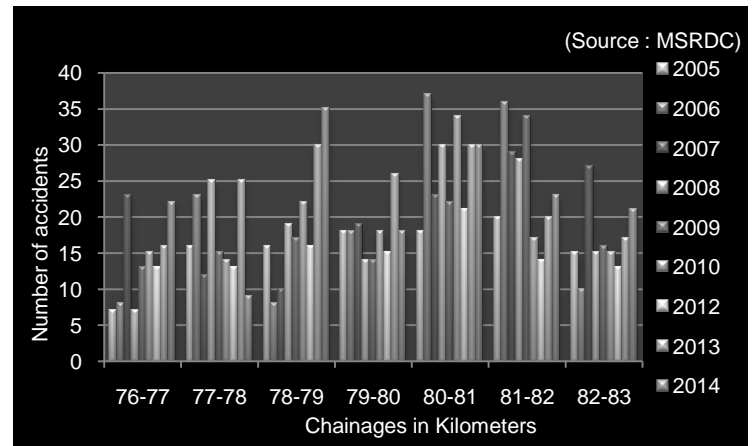


Fig Graph Chainage Vs Number of accidents

From the above data, it is observed that the rate of accident is more in the chainage 79 km to 81 km, Hence this chainage is selected for further studies.

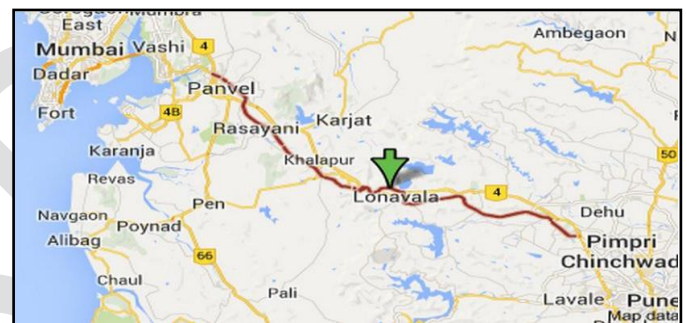


Fig Route of Yeshwantrao Chavan Expressway (Source: Internet)

Detection of Geopathic Stress:-

The identification of Geopathic Stress zone is done by using L-rod Dowsing and confirmation of it is done by using NAAV meter.

L-rod dowsing: It is the most ancient technique used for detection of Geopathic Stress. L-rods are made up of copper metal having dimensions in the ratio 4:1 (H:V), which deflects in Geopathic Stress zone. In this technique pair of L-rods is held one in each hand inclined 5 degree downwards with respect to horizontal. If person travels with L-rods in Geopathic Stress zone, the rods get deflected inward or outward, hence Geopathic Stress zones are identified.



Fig L-Rod for Dowsing

- *NAAV meter (Light Interference Technique):-*
It is the modern technique used to detect Geopathic Stress zone. NAAV meter is invented by Dr. Dharmadhikari. The length of NAAV meter is about 6 ft. Dharmadhikari enclosed laser and selenium photocell at the two ends of the wooden box and measured the current in selenium photocell.

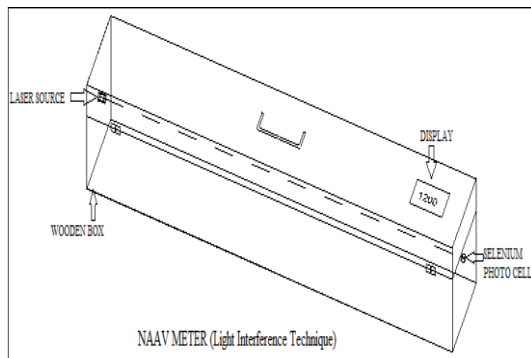


Fig NAAV Meter

It is observed that on a Geopathic stress location the current decreases sharply and then remains constant, This may be due to less photons reaching the detector, which indicates that there is some interaction due to Geopathic Stress. Various readings are taken by keeping that instrument parallel and perpendicular to detect the flow direction of Geopathic Stress. When sudden drop in reading occurs at a certain point we get Geopathic Stress zone on that point. If L-rod deflects and NAAV meter does not show any change in reading if kept parallel and perpendicular to road, then at that spot the NAAV meter should be rotated about 30° each completing one rotation. Change in reading of NAAV meter at particular angle shows direction of Geopathic stress line. When NAAV meter setup is rotated in 360°, the current appears to be sinusoidal which may be attributed to the vertical emission of Geopathic Stress & not distributed in all possible directions.

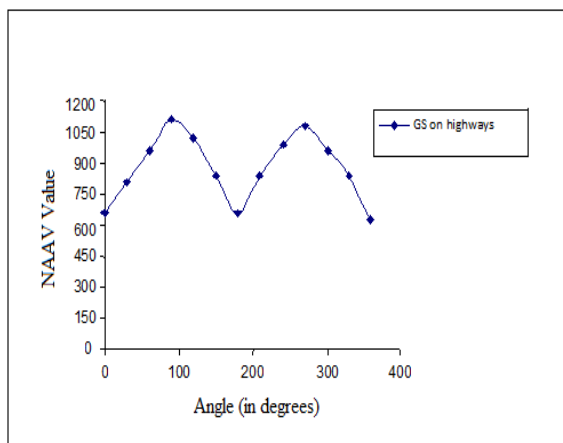


Fig Graph of angle in degrees Vs NAAV Value

It is observed that at non-GS location the current remains constant. For the GS location the current sharply decreases

and after eight minutes increases and further remains constant.

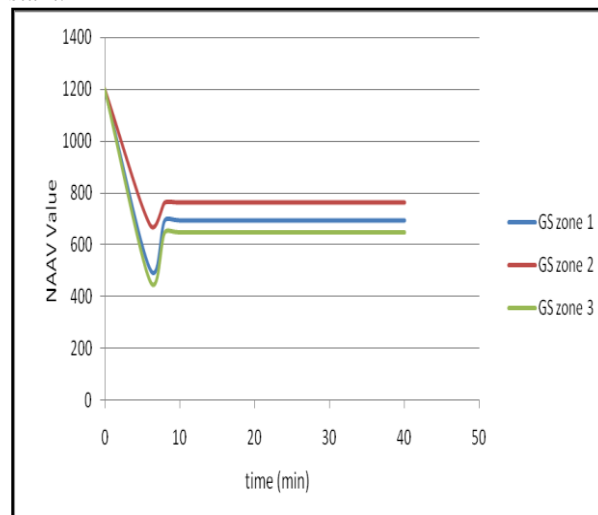


Fig Graph time Vs NAAV Value

Effect of Geopathic Stress:-

Geopathic Stress not only affects the human body but also built environment which includes geotechnical properties of soil, pavement distress, etc. Effects of identified Geopathic Stress on Expressway are mentioned below.

Human body:-

It is observed that there is increase in reaction time of driver in Geopathic Stress zone as compared to the non Geopathic Stress zone. Reaction time of driver is measured by using SRTM (simple reaction time meter). Increase in reaction time of driver causes accidents. There is increase in blood pressure, heart rate in Geopathic Stress zone.

Soil Properties:-

It is observed that after experimental investigation done on Expressway, there is change in geotechnical properties of soil in Geopathic Stress zone as compared to normal zone. Moisture content, specific gravity, liquid limit and density of soil increases whereas plastic limit decreases in Geopathic Stress zone. Voids ratio gets increased as moisture content increases in Geopathic Stress zone, so proper compaction of soil is to be done.

Increase in compactive effort has much less effect in the case of cohesion less soil than that of cohesive soil. If cohesion less soil is present in Geopathic Stress zone there are chances of failure of pavement. So much importance is given for cohesion less soil which is present in Geopathic Stress zone.

Pavement distress:-

Expressways are constructed in precise manner considering all environmental aspects. Besides being such accuracy cracks occurred on pavement. By using NAAV meter and L-rod it is observed that maximum of the cracks occurred on Geopathic Stress zone only.

VI. CONCLUSIONS



Fig Pavement distress on Expressway

Establishment of relation between occurrences of accident with presence of Geopathic Stress:-

From the accidental data it has been observed that chainage km 76 to km 83 carry maximum number of accidents. As per the literature 30% of such accident cause is unknown^[5]. By using NAAV meter reading and L-rod dowsing Geopathic Stress zones for chainage km 76 to km 83 are identified. By doing comparative study it has been observed that maximum number of accidents occur on Geopathic Stress zone.

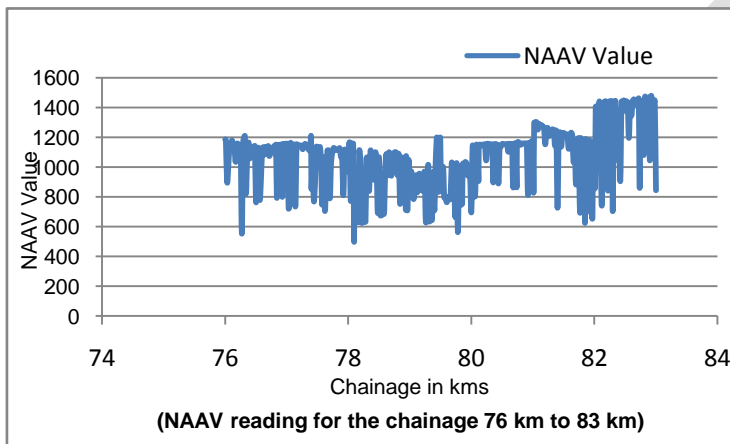


Fig Graph Chainage Vs NAAV Value

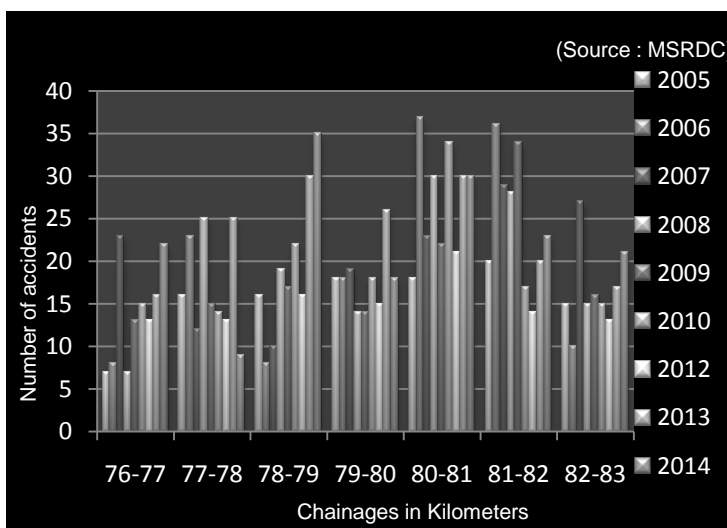


Fig Graph Chainage Vs Number of accidents

From the above graphs of Chainage Vs NAAV value and Chainage Vs Number of accidents, we can conclude that where there is drop in NAAV reading the rate of accident is more.

Drop in NAAV reading indicates the presence of Geopathic Stress zone and hence there is relationship between presence of Geopathic Stress zone and occurrence of accident.

REFERENCES

- [1]. Kharat, A.G. (2000), "Theoretical and Empirical Investigations on Built Environment", Ph.D thesis. Relator: Pune University, India.
- [2]. Agrawal, V.K. (2004), "The invisible forces and our health", In Proc. International conference, Vastu Panorama 2004, Feb, Indore, India, pp 1 – 5.
- [3]. Dharmadhikari, N., Kharat, A.G. and Pimplikar, S. (2010), "A Study of Geopathic Stress using light interface techniques", Research Communications – Current Science, Vol. 98, No 5, PP 695-697.
- [4]. Dharmadhikari, N., A.P. Rao, and Pimplikar, S. (2011), "Effect of Geopathic Stress on human heart rate and blood pressure", Indian Journal of Science and Technology, Vol. 3, No 1, PP 54-57.
- [5]. Pimplikar S.S (2011), "Empirical and Theoretical Investigations of accidents on expressways and national highways", Ph.D thesis. Relator: Pune University, India.
- [6]. Dharmadhikari, N., Kharat, A.G. and Pimplikar, S. (2010), "A Study of Geopathic Stress using light interface techniques", Research Communications – Current Science, Vol. 98, No 5, PP 695-697.
- [7]. Hacker, G.W, Geopathic stress zones and their influence on the human organism, Proceedings of the Druskininkai congress on 'Earth's Fields and Their Influence on Human Beings' 2008; pp 8-17.
- [8]. Hacker GW (2005) "Biomedical Evidence of Influence of Geopathic Zones on the Human Body": In: Scientifically Traceable Effects and Ways of Harmonization, Forsch Komplementarmed Klass Naturheilkd Karger. pp: 315-327.
- [9]. Dharmadhikari, N., D.C.Meshram, S.D.Kulkarni, Kharat, A.G., Sorate, R.R. and Pimplikar, S.S., (2011), "Use of Dowsing and Geo-Resistivity meter For Detection of Geopathic Stress Zone", International Journal of Modern Engineering Research (IJMER), Vol.1, Issue.2, pp-609-614.
- [10]. Chafekar, B.H., Jarad, G.P., Pimplikar, S.S., Dharmadhikari, N.P., Kharat, A.G., Sorate, R.R., "Effect of Geopathic Stress on Pavement Distresses", IOSR Journal of Mechanical & Civil Engineering (IOSR-JMCE) PP: 01-08.
- [11]. Sorate, R.R., Kharat, A.G., Dharmadhikari, N.P. and Suneeta Bhagwat, "Effect of Geopathic Stress Zone on Soil Properties", Elixir Geoscience 54C (2013) 12365-12367.
- [12]. Sorate, R.R., Kharat, A.G., Dharmadhikari, N.P., Pimplikar, S.S., Girish Narang, Dheeraj Deshmukh, Sunita Bhagwat and Snehal Sorate, "Geopathic Stress Aspect for Sustainable Development of Built Environment", International Journal of Scientific and Research Publications, Volume 2, Issue 12, December 2012.