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Hydro-Geochemical Evaluation & Upper Stage Gravels and Related Palaeolithic Sites of Bhima River in India

Kharche Sudam Sonaji

Research Scholar, CMJ University, Shillong, Meghalaya, India

Abstract – ***The study in India, is chosen to talk over the surface water nature of Bhima River on watering system and human health, where the agribusiness is the principle vocation of country individuals and the surface water is the principle hotspot for watering system and drinking. Surface water gathered throughout premonsoon for two months from three inspecting focuses in the territory were examined for pH, Total Dissolved Solids, Total Hardness, Calcium, Magnesium, Chloride, Nitrate, Sulphate, DO, BOD, Alkalinity, Sodium, Potassium and Fluoride. The compound associations in Piper's chart and Gibb's outline prescribe that the surface water for the most part have a place with carbonate hardness (optional alkalinity) and non-carbonate hardness (essential saltiness) and are regulated by Rock predominance, individually, because of the impact of semi-parched, tender slant, more stupendous water-rock communication and anthropogenic exercises. US saltiness Laboratory and % Na+ utilized for assessing the water value for watering system propose that the lion's share of the examining purposes of surface water are direct for watering system in premonsoon. The aforementioned conditions are brought on because of filtering of salts from the overlying materials by invasion energize waters. An administration arrangement is an absolute necessity for reasonable improvement of the range.***

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INTRODUCTION

The aforementioned stores, ordinarily implied as the 'Upper stageGravels', vary from the extensively known implementiferous rock in two noteworthy ways. In regardless, they are dependably uncovered asthin lacquers blanket on a normal a zone of 3 to 4 square kilometres. More essential, unlike the implementiferous rock which are only limited to the channels, they are arranged at rises rauging from 6 to 30 m. above the stream quaint little inns outside the achieve of the present-day surge levels.

The credit for distinguishing the dissimilar character of the aforementioned rock stores rightly fits in with Foote. Throughout his land tours in the South Maratha nation, he carried to light their event at numerous places along the Krishna, Malaprabha, Ghataprabha and Bhima streams (Foote 1876, 237-40). The destinations on the Krishna and Bhima waterways were later mulled over in part and mapped by Mukherjee (1944, 40-1) and Krishna Murthy (1941, 72-3). Foote (1895, 180-3) moreover recorded an !arge number of events along the right bank of the Tungabhadra stream, every last one of them arranged in the Bellary area. The range accordingly secured by the aforementioned stores embodies the locale of Bellary, Bijapur, Raichur and Gulbarga, which together with a couple of others constitute what is prominently regarded as the North Karnatak. Foote looked for to demonstrate the source of the rock by assuming the being of rode boundaries along the waterway courses.

He further contended, yet reluctantly, that they were structured in pretrappean times (1876, 169). The present study is limited to the stores uncovered in a little extend of region of the more extensive zone named above, viz. the Shorapur Doab of the Gulbarga region. A perfectly easy investigation of the stores was made by the journalist throughout the years 1966-68 as a part of his all out take a shot at the ancient stays of the zone (Paddayya 1968). This work uncovered the presence of workshops of the Middle Stone Age industry at a percentage of the rock occurences. With a perspective to comprehension all the more nearly the association subsequently made known of the rock with the Stone Age societies, the author undertook further field-work throughout the first a large part of 1969. The study exhibited thus is therefore dependent upon the information gathered over a time of threeyears. The summations managed by this study as to the cause and time period characterized by the rock stores contrast rather drastically from those of Foote and different specialists: they are colluvial (or parallel), what's more not alluvial, creations, and originate before the channel-entry point of streams which, on archaeological grounds, could be securely alloted to the Middle Pleistocene.

The waste is essentially to the east and south-east. The Krishna and the Bhima, both climbing in the Western Ghats, are the major waterways of the region; truth be told the mouth-molded layout of the Doab is inferred from the courses of the aforementioned waterways. Both of them display an

experienced phase of improvement and their courses are described by winds. They are recharged by a nurober of tributary streams impressively transient in character, and the aforementioned recent constitute the inward seepage arrangement of the range. The nullahs named after the villages of Hunsgi, Kollur, Madarkal and Kothapalli are around the more unmistakable of the aforementioned streams. Some of them take inception in the slope aggregations and plateaux of the western and nothern edges of the range and wind their route into the major streams. The waste all in all is dendritic in character.

Surface water is utilized for local, streamlined, water supply and watering system everywhere on the planet. In the final few decades, there has been an enormous expand in the interest for natural water because of quick development of inhabitant total and the quickened pace of industrialization. Human health is antagonized by the majority of the horticultural advancement exercises especially in connection to over the top provision of manures. As per World Health Organization (WHO), about 80% of every last one of the the maladies in homo sapiens are initiated by water. Even though any natural effect could be either gainful or unfavorable to the earth. In natural investigation, effects are generally thought about just to be of unfavorable sort initiated by our developmental exercises. Effects could be usually arranged as essential, auxiliary or tertiary. Essential effects are those created straight by venture inputs for example misfortune of backwoods, or modifying of a waterway administration because of the development of a dam and so on. As being what is indicated essential effects could be ascribeed straightforwardly to an activity movement. They are typically straightforward to measure. Auxiliary effects are those created by activity yields for example water stream regulation and channelization. In different expressions, they are by implication credited to the undertaking movement. In the event that one of the undertaking yields is accesability of watering system water, optional effects could be more horrible than essential effects and sadly, regularly more challenging to foresee and measure. Auxiliary sways in turn might accelerate tertiary sways. It ought to be noted that the refinement between essential, auxiliary and tertiary effects could frequently be subjective. Different sorts of water identified exercises can create valuable or unfriendly affects on nature's turf, water channelization, surge land modification and updates in area utilize designs. Lately consistent development in contamination, quick industrialization and going hand in hand with innovations including waste transfer has jeopardized the precise being of human race. Finally the rate of freedom of woodlands with the end goal of diverse land uses is far higher than the techniques that are brought about for afforestation. Right around the distinctive sorts of contamination, water contamination is one of the major reasons, which makes massive open health risks. Surface water value is as significant as the amount.

THE LOCALES

The locales could be favorably separated into two aggregations: a) heightened Ievel rock events legitimate and b) implementiferous waterway bunk destinations with stores holding material determined from the towering Ievel rock.

Towering Ievel rock : The runs of the aforementioned rock happen in the pans of both the Krishna and Bhima streams. There are in every one of the 20 locales. Firstly, the spreads on the Krishna stream. Basing on their connection to the waterway courses, they might once more be separated into two classifications. The predominant assembly of events falsehood near the waterway bank. Every last one of them are on the left bank of the waterway. Foote (1876, 239) implies two more spreads. The other gathering of spreads are arranged at separations changing from 3 to 11 km. far from the waterway.

There are just three spreads on the Bhima stream. Somewhat on account of the overburdening of the stores with dark cotton soil and to some degree owing to the auxiliary dispersal of the material resulting upon development, rain movement and different elements of unsettling influence, it is fairly demanding to verify the areal degree of the spreads in exact terms. As could be perused from the guide, there does, in any case, appears tobe important variety in this respect moreover. Almost a large part of the nurober of spreads measure between 1 to 3 square kilometres and the rest between 4 to 6 square kilometres.

With a perspective to contemplating the rock in the setting and likewise to comprehension its association with other surficial stores, examination was made of however many vertical areas as could reasonably be expected. The segments along the two essential waterways turned out to be of no assistance, since at none of the destinations the rock really tauch the banks. The ones uncovered inland by erosional gorges, notwithstanding, yielded equitably sufficient information.

From the prior depiction it is clear that the aforementioned elevated Ievel rock happen as slender areal sheets blanket respectably !arge plots of ground. While a portion of the spreads untruth near the Krishna and Bhima streams, some happen inland a few kilometres far from the stream courses. The stores rest on a uneven deck of stone-gneiss, which structures a generally-checked terrace climbing to statures extending from 6 to 25m. above waterway Ievel. The chasm segments uncover that the rock scarcely surpass a large part of a-metre in thickness. At last, we might take note of the blanket up of the stores with a proportionately meager layer made up of dark cotton soil.

Waterway mattress destinations : The stratigraphical position of the aforementioned locales is very

comparative to that of the implementiferous destinations known from different parts of the nation. In spite of the fact that arranged in the vicinity of the towering level rock events, they vary from the last while they are implementiferous and unchangingly kept to the present channels of the Krishna and Bhima streams and their tributary streams. The stores happening at the aforementioned locales hold, if in modest dimension, shake material determined optionally from the heightened level rock and accordingly outfit a profitable piece of information to the time period characterized by the recent stores.

The basal stratum comprised of pebbly aggregate with intermittent cobbles measuring up to !5 cm. in measure. Texturally and lithologically, it is similar to the one discovered at the Bhima Bridge site. It measures about I m. above waterway couch. Sand and sediment, and calcium carbonate structured the framework and establishing materials separately. The rock units incorporated chalcedonic types of silica (70%), stone-gneiss (15%), quartz (5%), chert (5%), and Trap, shale, limestone and quartzite (5%). The chalcedonic stones were sub-adjusted to decently-adjusted, along these lines testifying to a long-separation transportation of the material.

This characteristic, brought together with the presence of Trap, limestone and shale, proposes that the rock was supplied to the Krishna by the Bhima waterway, which empties an extensive range shaped of both the Deccan Trap and sedimentary rock establishments. The aggregate was unconformably overlain by 2-1/2 m. thick store of yellow tan residue. The same store was discovered to happen in patches further upstream up to the Krishna-Bhima intercection. It demonstrated intercalations of kankar and additionally displayed unique indications of cross-sheets. It was topped by a large part of a-metre thick store of dark tan sediment, however it ought to be sharp out that the intersection between the two sediments is not extremely clear.

DIAGRAMMATIC MANIFESTATION OF GEOCHEMICAL DATA

Flute player Diagram: Further the outcomes of compound nature of the aforementioned waters have been plotted in a trilinear graph, as proposed by flute player. In this outline just the relative dimension of rule cations and anions as far as rate epm (proportionate for every millions) have been plotted. The precious stone formed field in this chart has been separated evenly into two equivalent triangles. The compound information of the example focuses, succumb to the subdivisions of 5,6 & 9, showing the optional alkalinity, optional saltiness and not a single person cation – anion match at examining focus (upstream), optional alkalinity and nobody cation – anion combine at inspecting focus (close village) and auxiliary alkalinity and not a single person cation – anion combine at inspecting focus (downstream).

Gibb's Diagram: Gibb‟s outlines, speaking for the degrees of/ (Na+ + Ca_2+) and Cl-/ (Cl-+ HCO_3) as a capacity of TDS, are broadly utilized to evaluate the utilitarian wellsprings of disintegrated compound constituents, for example precipitation predominance, rock predominance and dissipation predominance. The substance information of surface water specimens of the region are plotted in Gibb‟s outlines. The circulation of specimen focuses, as indicated as a bunch. It is watched that the major part of the study zone, surface water defilement is regulated chiefly by the rock sorts as the vast majority of the examples fall under rock -strength class in all testing focuses.

Chadha's Diagram: Chadha‟s outlines are indicated in. For surface water specimens of upstream, close Village and downstream. This is a some what altered form of Piper‟s graph. In the Chadha‟s chart the contrast in milliequivalent rate between antacid earth‟s (calcium in addition to magnesium) and soluble base metals (sodium in addition to potassium) communicated as rate responding qualities is plotted on the X-pivot and the distinction in milliequivalent rate between feeble acidic anions (carbonate in addition to bicarbonate) and solid acidic anions (chloride in addition to sulphate) is plotted on the Y-pivot. The milliequivalent rate contrasts between soluble earths and soluble base metals and between feeble acidic anions and solid acidic anions might plot in one of the four plausible sub-fields of the proposed chart. In the Chadha‟s chart, the square or rectangle field depicts the on the whole character of the water. The graph could be utilized to study different hydro synthetic methods, for example base cation trade, bond contamination, intermingling of characteristic waters, sulphate diminishment, saline water and other identified hydro substance issues. In the present study, the surface water examples are overwhelmed by two fields.

CONCLUSION

The use of archaeological cultures as indexfossils for dating Quarternary geological deposits is now an accepted procedure the world over, and our

assignment of the upper stage gravels to pre-Middle Stone Age times is but one example of this method.

Notwithstanding the fact that it is by and large geological in scope, the present work holds out a useful lesson to the workers engaged in prehistoric archaeology, and this applies in particular in the case of countries like India where the cultural assemblages far too often come from a purely secondary context.

The Stone Age studies should not be confined merely, as has been the case hitherto, to the finding of riverborne sediments and the construction of stratigraphical sequences based on them. This vertical approach is of exceedingly limited value, because the deposits containing artefactual material are usually derived from long distances and as such hardly go farther than indicating the chronological position of one Stone Age culture in relation to that of another. Hence, it is of paramount importance to take into consideration the geomorphic processes operating overland and the deposits resulting from them. By virtue of the localized nature of their derivation, these laterally formed deposits, unlike the ones laid down by through-flowing streams, greatly facilitate the job of locating the much-awaited primary or camping sites of the Stone Age communities. Further, they also contribute in a large measure towards the reconstruction of environmental settings of the cultures.

After the careful study of evaluation interpretation and discussions of the numerical data the conclusions were made. Water is hard in all the sampling points. The concentration of nitrate and fluoride in the area is well within the permissible limit. In the trilinear Flute player diagram, the chemical data of the sampling points as shown fall in the secondary alkaline, secondary saline and no one cation anion pair, indicating that alkalis (Na+ and K+) are dominating the chemical character of surface water. On the basis of the Gibb‟s diagram, surface water samples fall under rock dominance class and on the basis of the Chadha‟s diagram, the surface water samples are temporarily hard. On the basis of the US Salinity Laboratory diagram, the surface water samples are of moderate quality for irrigation. Na% is within the limit of 60% and hence suitable for irrigation in the study area. From the geochemical classification of water, it is evident that, all the samples are quite suitable for Irrigation.

REFERENCES

- Shivashranappa et al., (2012), Study on the physico-chemical characteristics of groundwater of Bidar city and its industrial area, IJABT, Vol. No.3, Issue No.1, 2

- Nirdosh Patil, et al., (2010), “Study on the Physico-Chemical characteristics of ground water of Gulbarga City (Karnataka)” International Journal of Applied Biology & Pharmaceutical Technology, 1(2), Aug-Oct, 519

- Agarwal D.K et al, (1976), “Physico-chemical Characters of the Ganges at Varanasi”, Indian Journal of Environmental Health, 18, 201-206

- APHA (American Public Health Association), (2003), Standard methods for examination of water and wastewater specifications, Washington DC, 6, 19th edition.

- WHO (World Health Organization), (1993), Guidelines for drinking water quality, 2nd Edition, 1, 188.

- Bureau of Indian Standards, (1993), (IS 10500:1991), Edition 2.1

- N.Subba Rao, (2006), Seasonal Variation of Groundwater Quality in a part of Guntur District, Andhra Pradesh, India.

- Piper AM, (1944), a graphic procedure in the geochemical interpretation of water analyses, Am Geophy Union Trans 25: 914 – 923.

- Gibb‟s R.J (1970). Mechanisms controlling world water chemistry. Science 17: 1088 – 1090.

- Chadha‟s D.K (1999). A proposed new diagram for geochemical classification of natural waters and interpretation of chemical data.

- US Salinity Laboratory staff (1954). Diagnosis and improvement of saline and alkali soils. US Department of Agricultural Hand Book 60, Washington.

- Rajaguru, S. N. and Pa p pu, R. S., 1971. Environments as Reflected in the Alluvial Deposits of Chiriki-Nevasa, Dt. Ahmednagar, Journal of the University of Poona (Science and Tedmology Section), no. 40, 115-21.

- Sankalia, H.D., 1969. Early Man in India, Journal of the Asiatic Society of Bombay, vols. 41-42 (1966-67), 173-81.

- Thornbury, William, D., 1954. Principles of Geomorphology, Wiley International Edition, New York and London.

- Vredenburg, G., 1906. Pleistocene Movements as indicated by Irregularities of gradient of the Narmada and other Rivers in the Indian Peninsula, Records of the Geological Survey of India, vol. XXXIII, pt. 1, 33-46.