



**DEPARTMENT OF GEOGRAPHY
GOVERNMENT DEGREE COLLEGE KULGAM**

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Tour Report

The Department of Geography organized a field tour for B.Sc/B.A 6th Semester students to Kokernag-Sinthan Top on **20th October 2021**. The area from Kokernag to Sinthan Top lies in the eastern section of Pir Panjal with an elevation ranging from 1638-4800 meters amsl with spectacular Sinthan Pass (3784m) providing a physical entry between two contrasting regions. To start with, the students got a chance to grasp the sight of the Kokernag spring, unconfined aquifer, which offer sources of clean water and are of recreational, ecological and cultural value, and also provide an opportunity for students to evaluate water quality as their discharge integrates, both spatially and temporally, water from large parts of an aquifer. Springs typify the progress from groundwater to surface water and are a direct demonstration of the state of groundwater in the aquifers that supply them. Geologically, the students were familiarized with concept of aquifers and the state of rock characteristics that permit the ground water flow that can be economically harvested. Also, the investigation of springs can disclose the vulnerability of an area to a probable alteration to its groundwater resources.



Furthermore, the students got a chance to observe geomorphological and ecological diversity of the visited area. The subject tour explicitly aimed to highlight landslides as the most appalling hazard in the fragile mountainous environment of Jammu & Kashmir and the only connecting road from Kokernag supply line and means of tourist inflow. Therefore a disruption caused by landslides is a huge threat to the economy and human life. The in-charge teachers namely **Dr. Jahangeer Afzal, Dr. Aadil M. Nanda** and others assisted the students to identify the most landslide-hazard prone areas along Daksum-Sinthan Top road. In addition to this, identification of hotspots on and around the NH-244 belt were also mapped to help the student to improve on many fronts which are vital not only for the local community but to the whole region as well.



The landslides have occurred throughout the earth's history which played a vital role in shaping the present landscape. *The man's ingenuity has transformed the landscape for their needs and through prowess of technological breakthrough to increase their comfort and prosperity.* This quest of modifying delicate landscapes disturbed the equilibria and inadvertently changed the nature of landslides from an extremely significant physical process to a malicious hazard. In this field trip the students were made to understand the conditioning factors which significantly determine the landslide occurrences. These include slope angle, lithology, rainfall/precipitation, landuse/land cover, soil type/depth, distance to road, distance to faults, distance to rivers/streams,

altitude, aspect, drainage density, lineament density and geomorphology. The students were shown outcrops/exposed rock structures that are prone to mass movements and largely control angle of response which is a determining factor in triggering landslides or any type of movement downslope. The students comprehensively understood the connection between landslides, and rainfall and earthquakes as emerging triggering factors in similar mountainous environments particularly the Himalayas.



Since the visited place lies in the alpine mountainous zone of the Himalayas, the response to prevailing climatic conditions is well exhibited by vegetation of the area. The moist climatic regime support evergreen coniferous forests of temperate origin. To comprehend the role of aspect, students were asked to keenly observe the *adret and ubac* sides of mountain ranges so that they could comprehend how location specific factors contribute to development of micro-climates which, in turn, interact with other physical attributes to cause unique ecological zones. The role of slope was also demonstrated to the students by showing them J-shaped conifers that result due to steepness the slopes. The role of small streams and the resultant drainage pattern facilitated students in understanding hydrological regimes at water-shed level.

The concepts such as drainage basin, water divide, levees, piedmonts, gorges, stream ordering, pot holes, river meandering, waterfalls, and so on were comprehensively demonstrated to the students through practical investigation. By observing such processes directly it helped them to conceptualize things in a better way and with long lasting imprints. To make the field trip a memorable one, we encouraged some students to enjoy Angling as a recreational activity. This helped students in the realization of river as a significant natural resource. It was followed by collection of rock samples which were identified as sedimentary, igneous & metamorphic rocks.



Population growth, urbanization and unplanned application of agrochemicals and discharge of untreated sewage water into surface and subsurface water are leading to a sharp rise in global demand for water for drinking, sanitation, agriculture and environmental protection. Furthermore, springs are disappearing at an alarming rate, and most of that loss goes largely unrecognized and our valley gifted with thousands of freshwater springs is no longer an exception to this trend. Students were made curious about many contemporary issues that have direct bearings on the aquifer quality and quantity of water resources in sensitive ecological zones such as Himalayas. While travelling back home, we also showed them the importance of Bringi watershed in the development of agriculture and other allied activities in the lower catchment of the affluent. The negative impacts of human activities were also highlighted which led to many disasters in the recent past in the form of 2014 flood, decrease in river flow, channel shift, water borne diseases etc.

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