

GEOLOGY – A Career

Its importance, prospects and uses

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The term 'Geology' is made up of two greek words, 'Geo' meaning the earth; and 'logos' meaning discourse or study. Yes, it is the science of that very earth on which we live, enjoy ourselves with the varieties and utilize its innumerable bestowals. But, we regret to say, that although we are so close to our Mother Earth we seldom heed to know about it that closely. The study of Geology, though is of profound importance, still remains to be a subject of a few students mainly because the general public is not sufficiently aware of the job potentialities and employment opportunities of an earth scientist in India. Even many a person does not know the existence of such a subject.

Let us therefore, at the outset, be acquainted with what actually the subject "Geology" is. Geology is that branch of science which gives us information of the entire earth ; the earth, how it was, and what it is. While studying, both external and internal dimension of the earth are taken into account. And since our earth is a gigantic one, equally wide ranges of topics are to be discussed for complete study of it. Hence the subject of 'Geology' is divided into several branches, i.e., Physical Geology, Mineralogy and Petrology, Historical Geology, Economical Geology, Engineering Geology etc.,

However, in higher studies Geology is divided into three main branches namely,

(i) Applied Geology (ii) Geochemistry (iii) Geophysics

Now, when we have learnt enough 'what Geology is' it will not be out of place to know something about a geologist. The profession of a Geologist is primarily concerned with exploration, discovery and characterization of mineral resources. He is the only person who knows fully well how to use natural energy resources. Geologists also cooperate hand to hand with engineers in a variety of projects including soil conservation, groundwater utilization, multipurpose river valley projects, dam and reservoir site selection, tunneling and highway construction, invention and development of sophisticated techniques and instruments for discovery of hidden minerals. Further more the presence of a Geologist is essentially required for bringing normally in earthquake shaken area. Besides geologists are indispensable in Mining and Petroleum industries.

Hence we see that the field of work of a Geologist is vast and without whose service a country can not dream of any kind of comprehensive development.

Let us Now have a glance upon the various prospects and careers present after the study of Geology. Higher education in Geology is available at a number of universities in India viz – Aligarh, Agra, Banaras, Bombay, Calcutta, Gujrat, Jabalpur, Karnatak, Lucknow, Madras, Patna, Poona, Rajsthan, Roorkee, Saugar, Utkal, Gauhati, Ranchi, etc. Reputed Institutions like I.I.T. Kharagpur, B.H.U., Roorkee Engineering College and Indian School of Mines, Dhanbad offer 5 years integrated courses leading to M.sc in Applied Geology & Exploration Geophysics. Students interested in research

available in both ISM and B.H.U. I.I.T. Kharagpur and ISM Dhanbad also provides courses in Petroleum Engineering, an engineering which is of tremendous demands these days. Moreover I.A.S. and other allied services conduct examination of one paper in Geology.

The demand for personal specialization in earth sciences is increasing with the rapid expansion and development of mining and petroleum industries. Geologists processing M.sc. degree from well recognized institutions are recruited to class I & class II. Gazetted Central services in Geological Survey of India. Besides, they are employed as Geologists, Senior Geologists, Senior Technical Asstt., Jr. Technical Asstt., Sampler, Soil Conservation Officer, Soil Survey Asstt., Junior and Senior Research Associate, Superintendent of Geophysics Scientific Officer etc. Various central government departments like oil and natural gas commission, National Mineral Development Corporation, Hindustan Copper Ltd., Hindustan Zinc Ltd., Hindustan Steel Ltd., National Coal Development Corporation, Central Water and power Commission, Dept. of Atomic Energy, National Geophysical Research Institute, Indian Institute of Geomagnetism, Central Board for Development of Groundwater resources and Mining & Geology Directorates under the various state governments employ Geologists. The Indian Forest service also absorb Geologists.

A large number of private companies who are exploiting mineral deposits by both surface and subsurface methods employ Geologists in their organization.

Finally, it may be mentioned here that the life of a Geologists is not a bed of roses. He has to work hard, much harder than that in any other profession. Personnel qualities necessary for the job of a geologists in capacity to grasp, assimilate and utilize a number of scientific and technical subjects, a good personality, sufficiently adaptable to local resources and conditions. He must be an energetic man with presence of mind, firm determination and good humour, having a sound physique to withstand unfavourable climate condition and rough surroundings. If one possess almost all these the career of Geologist is certainly a rewarding.

EXPANDING HORIZONS OF GEOLOGICAL SCIENCE

(SMART SCIENCE) EDUCATION – FUTURE TRENDS

KEY SECTORS	NOMENCLATURE OF EMERGING DISCIPLINE IN GEOLOGY
i. Universe/Space	(1) Space Geology (2) Planetology (3) Meteorology (4) Geoastronomy (5) Geodesy (6) Geocosmology (7) Geoclimates (8) Satellite Geology (9) Geo Communications (10) Meteorite Studies
ii. Land	(1) Surface Geology (2) Land forms Geology (3) Geotectonics (4) Geodynamics (5) Tourism & Archaeo-Geology (6) Soil Geology (7) Petrology (8) Mineralogy (9) Gemology (10) Resource Geology (11) Agricultural Geology (12) Antarctic Geology
iii. Underground Studies	(1) Mining & Exploration Geology (2) Geophysical Studies (3) Stratigraphy
iv. Water	(1) Geohydrology (2) Water Prospecting (Harvesting) & MGT Practices (3) Irrigations (Drainage) Geology (4) Flood & Cyclone Studies (5) Oceanography-Coastal & Marine (6) Limnology (7) Glaciology
v. Air	(1) Atmospheric Geology (2) Environmental Geology
vi. Processes	(1) Process Geology (2) Geo Systems (3) Isostasy (4) Palaeo-Magnetism (5) Volcanology (6) Seismology (7) Metaffogeny
vii. Resources	(1) Geo Resource Evaluation (2) Conservation Geology
viii. Instrumentation & Techniques (Technology Options)	(1) Geo Techniques (2) Geo Instrumentation (3) Geomechanics (4) GeoEngg. (5) Geomaterials (6) Geotechnology
ix. Biogeology	(1) Palaeo-Biology (2) Biostrigraphy (3) Palaeoenvironmental Geology (4) Palaeontology (5) Evolutionary trends
x. Development	(1) Development Geology (2) Infrastructure Geology (3) Geodesigns (4) Landscape Geology (5) Reclamation Geology (6) Transport (Traffic) Geology (7) Community Geology (Urban & Rural) (8) Plateay Geology (Local area Specific)
xi. Defence / Strategic	(1) Military Geology (2) Surveillance Studies (3) Terrain Geology (4) MAP Studies (5) Highway-Railway / Air Field (Vital Location) Geology
xii. Industry & Commerce	(1) Construction Geology (2) Gemology (3) Mine Products Evaluation (4) Industrial Geology
xiii. Employment (Self)	(1) Geo-Consultancy for Govt. & NGO Sectors (2) Geo-Entrepreneurship
xiv. Documentaion & Dissemination	(1) Documentary Geology (2) Museum (Exhibition) Geology (3) Archival Geology (5) Preservations & Dissemination of Publication (6) TLM(Teaching & Learning Material) Geology
xv. Information Technology & ITES	(1) Information Geology (2) Geological Web Designing (3) Multimedia Geology (4) Geo-Informatics