

Geoheritage and paleobioheritage of Pakistan; Museums, national and global geoparks-a media for researcher and public education

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Abstract

The Pakistan is lucky to have vast spatially and temporally well exposed Geodiverse heritage like Gondwanan, Laurasian and Tethyan blocks. Tectonically three major tectonic elements like Convergence of Asian continental plate (Indo-Pakistan continental plate convergence), subduction (subduction of Arabian plate in Balochistan basin a part of Tethys, subduction of Tethys in Kohistan) and Chaman-Nal Transform fault boundary, major divergent zone located off shore in the sea. Pakistan has different types of igneous, metamorphic and sedimentary rocks. Sedimentary rocks with many sedimentary and tectonic structures, diverse topography like sea coast in the south, plain areas in the central east, some world class peaks more than 29000 feet above sea level such as K2, Nanga Parbat, Tirich Mir, many mountainous peaks surrounded by pleasant and heaven valleys in the north and west, many localities of Precambrian to recent invertebrates, Mesozoic and Cenozoic vertebrates, flora, rich mineral, gemstone, petroleum and other natural resources, variable four seasons (summer, autumn, winter and spring), severe summer in plain while pleasant in mountainous areas, pleasant winter in plain and severe in mountainous areas, many glacier bearing mountains and many rivers like Indus, Jhelum, Zhob, Kech, etc offer unmatched opportunities for research, exploration and development. Paleontological heritage include flora (fossil woods) and fauna (invertebrates and vertebrates). Some most important vertebrate from Pakistan are titanosaurian sauropod and theropod dinosaurs, mesoeucrocodies, walking whale, basal whale (Basilosauridae-king of basal whale), baluchithere-the largest land mammals, large proboscideans, etc. The collections of marine invertebrate fossils dating as old as 540 million years to recent include cephalopods, gastropods, brachiopods, corals, bryozoans, foraminifers, etc. The diverse minerals, rocks and bioheritage are hosted by the Museum of Geological Survey of Pakistan, Quetta and Pakistan Museum of Natural history, Islamabad, etc. But in Pakistan National geoparks are rare while there is no global Geoparks. It is also suggested to increase the National geoparks installations and also some global Geoparks like Vitakri dome (graveyards of dinosaurs just below the K/T boundary), Fort Munro-D.G.Khan section is a unique laboratory and museum (of geology, paleontology, stratigraphy, minerals, gypsum, uranium, clays, quartzite, sandstone, marbles, etc) for researcher, entertainment and knowledge for public. Museum of GSP, Saria Road, Quetta has five remarkable galleries like vertebrates (unique skulls of advanced titanosaurs, snouts of mesoeucrocodies, limb bones, etc), invertebrates, minerals, marbles/construction materials and gemstones. Vitakri Dome in Pakistan is a richest graveyard of Titanosauria (Sauropoda, Dinosauria) in Asia. All these diverse geoheritage demands for protection as large museums, national and global Geoparks, which are source of informations for visitors/researcher and also an innovation for the sustainable development of Pakistan.