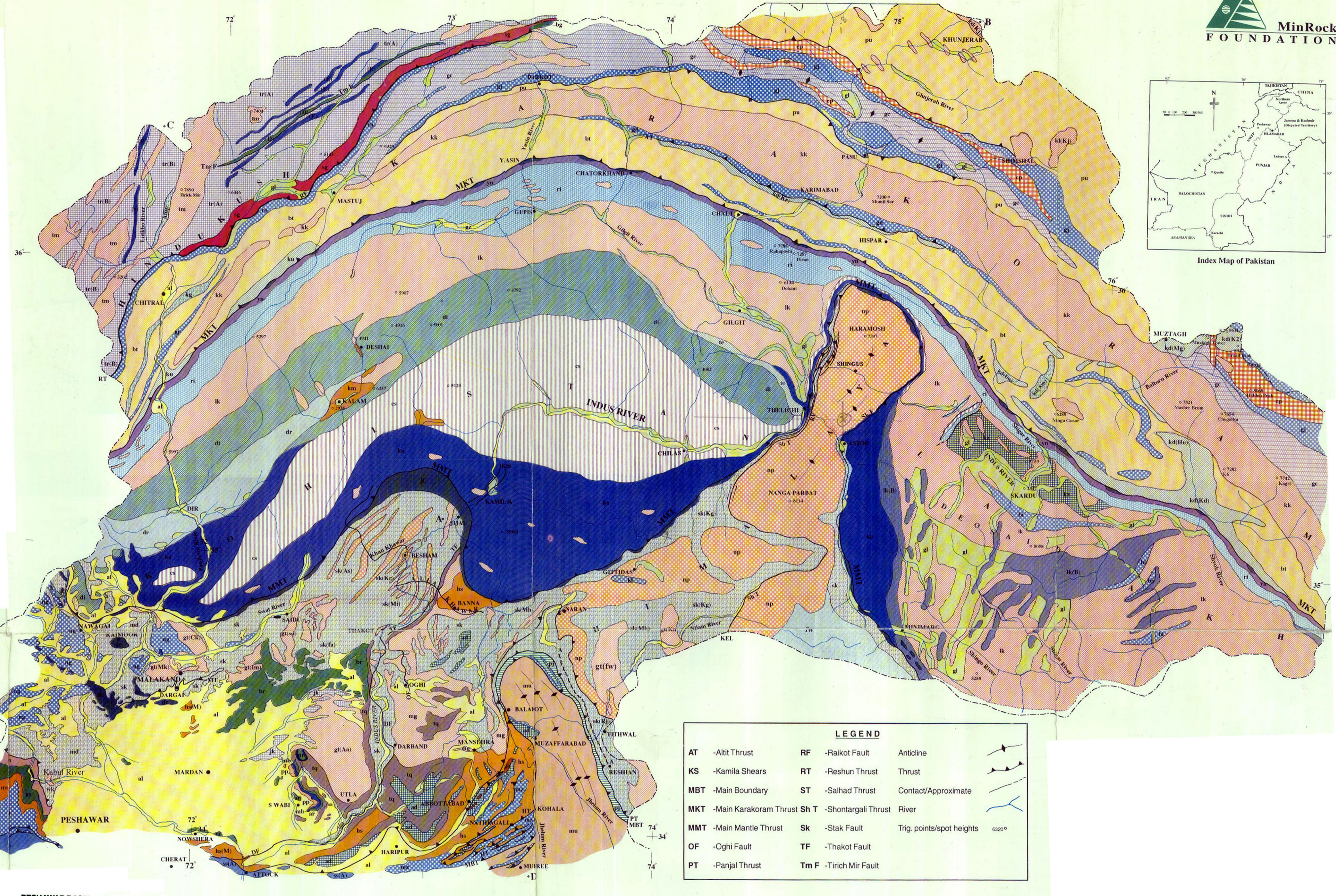


Period	Himalaya	Karakoram	Hindukush	Kohistan	Khyber	Peshawar Basin
HOLOCENE	Glacial Till & Moraine	Glacial Till & Moraine	Glacial Till & Moraine	Alluvial	Alluvial	Alluvial
PLEISTOCENE	Glacial Till & Moraine	Glacial Till & Moraine	Glacial Till & Moraine	Alluvial	Alluvial	Alluvial
PLIOCENE	Muree Fm	Muree Fm	Muree Fm	Alluvial	Alluvial	Alluvial
MIOCENE	Muree Fm	Muree Fm	Muree Fm	Alluvial	Alluvial	Alluvial
OLIGOCENE	Muree Fm	Muree Fm	Muree Fm	Alluvial	Alluvial	Alluvial
Eocene	Muree Fm	Muree Fm	Muree Fm	Alluvial	Alluvial	Alluvial
PALEOCENE	Muree Fm	Muree Fm	Muree Fm	Alluvial	Alluvial	Alluvial
CRETACEOUS	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith
JURASSIC	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith
TRIASSIC	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith
PERMIAN	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith
CARBONIFEROUS	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith
DEVONIAN	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith
SILURIAN	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith
ORDOVICIAN	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith
CAMBRIAN	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith
LATE	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith
MIDDLE	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith
EARLY	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith	Asal Karakoram Batholith

EXPLANATORY NOTE

Symbol	Description
AT	-Altir Thrust
KS	-Kamila Shears
MBT	-Main Boundary
MKT	-Main Karakoram Thrust
MMT	-Main Mantle Thrust
OF	-Oghil Fault
PT	-Panjal Thrust
RF	-Raikot Fault
RT	-Reshun Thrust
ST	-Salhad Thrust
Sh T	-Shontargal Thrust
SK	-Stak Fault
TF	-Thakot Fault
Tm F	-Tirich Mir Fault



LEGEND

AT	-Altir Thrust	RF	-Raikot Fault	Anticline
KS	-Kamila Shears	RT	-Reshun Thrust	Thrust
MBT	-Main Boundary	ST	-Salhad Thrust	Contact/Approximate
MKT	-Main Karakoram Thrust	Sh T	-Shontargal Thrust	River
MMT	-Main Mantle Thrust	SK	-Stak Fault	Trig. points/spot heights
OF	-Oghil Fault	TF	-Thakot Fault	6320°
PT	-Panjal Thrust	Tm F	-Tirich Mir Fault	

A BRIEF INTRODUCTION OF THE AREA

The northern collisional belt in Pakistan hosts three mighty mountain ranges of the world namely Himalaya, Karakoram and Hindukush. This belt contains the largest concentration of mountains on earth with elevations ranging from over 4,000 m along its southern periphery to over 8,000 m along its northern fringe. There are more than twenty peaks with over 7,500 m elevations, nine of these have elevations over 7,900 m and include, K2 (8,611 m), four Gasherbrum peaks, Broad Peak, Nanga Parbat (8,126 m) and Tirich Mir (7,690 m). Most glaciated part of the world, after Arctic and Antarctica, is the Karakoram, where over 22 percent of the surface area is covered by ice. Some of its prominent glaciers are Baflo, Hispar, Baltoro, Gasherbrum, Chogo Lungma, Siachen and Baltora, which span over 350 sq km of the surface area. A single suture, namely the Indus-Zangbo has buckled the Indo-Pakistan Plate with Eurasia. But west of Ladakh, this suture is bifurcated into two, the northern one is called the Main Karakoram Thrust (MKT) and the southern the Main Mantle Thrust (MMT). The former accident is timed between 100-75 Ma which is responsible for the closure of Paleo-Tethys spread between converging Kohistan and Eurasia. The latter occurred around 55-50 Ma and caused annihilation of Neo-Tethys trapped between Kohistan and Indo-Pakistan Plate. Thus in the northern collisional belt there is no direct contact between the Indo-Pakistan Plate and Eurasia.

An island arc, called Kohistan on the western side of the Nanga Parbat-Haramosh syntaxis and Ladakh on its eastern side is juxtaposed between the above mentioned two sutures. This arc was created by intraoceanic subduction ahead of northward migrating Indo-Pakistan plate. This arc exposes a wide variety of rocks and the major lithologies are as follows:

- Intracarc volcanic and sub-volcanic granitoid and gabbro-noritic with quartz diorite, and dacite and andesite.
- Thrust bedded to massive dolomitic limestone, dolomite, marble and calcareous quartzites with thin beds of argillaceous limestone.
- Dominantly argillaceous with interbedded chertiferous limestone, siliceous siltstone and argillaceous quartzite; fossiliferous; Late Silurian.
- Thrust bedded calcareous quartzites with interbedded argillaceous siltstone and argillaceous quartzite; fossiliferous; Early-Middle Ordovician.
- Thrust bedded to massive dolomitic limestone (dominant) along with interbedded argillaceous siltstone and argillaceous quartzite; comparable with the Abbotsford Fm; unfossiliferous; Cambrian.
- Unfossiliferous.

Over 300 km long and 40 km wide isopititic body of granulite facies metamorphosed to gabbro-noritic with quartz diorite, troctolite, orthosthite, pyroxene, diorite and peridotite; An extensive belt of Amphibolite (metavolcanics) with a variety of plutonic rocks consisting of gabbros, diorites, tonalites, granites along with several siliceous and calcareous metasediments. Besides, the arc exposes several isolated bodies of metasediments especially the Yasin Group forming the back-arc apron is the largest and mainly constitutes detrital sediments which were deposited in intra-arc basin and consists of siltstone, turbidites, volcanics and volcanoclastics, limestone and basal conglomerate.

The presence of the Main Central Thrust (MCT), one of the prominent megathrusts of the Himalaya in the northern collisional belt in Pakistan, remained a controversial issue for the last many years. By the earlier workers, the Main Boundary Thrust was considered to demarcate the subsurface trace of the MCT between Simla and Kashmir whereas the Panjal Thrust was considered to mark its extension to the northwest up to the northern tip of the Hazara-Kashmir syntaxis. Recent discovery of a deep level thrust of megathrust level, namely the Shontargal Thrust (SHT) located near Kili in the Niam valley in Kashmir has resolved this issue. The tectono-stratigraphic network of this thrust is akin to the MCT as it appears in the western Himalaya. From Niam valley this thrust extends towards north and north-northwest, following the western limb of the Nanga Parbat-Haramosh syntaxis and ultimately its surficial trace is lost underneath the Haramosh glaciers and its western flank. The change in the tectonic style of Shontargal Thrust (MCT) in the NW Himalayan tectonic domain is because of its involvement in the syntaxial tectonics of Nanga Parbat - Haramosh locus.

TECTONOSTRATIGRAPHIC DOMAINS OF NORTHERN COLLISIONAL BELTS IN PAKISTAN

by  
 R. A. Khan Tahirkheli  
 (1996)

