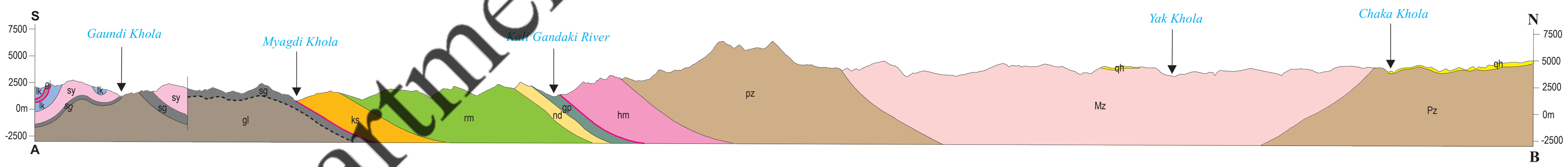
GEOLOGICAL MAP OF GANDAKI PROVINCE, NEPAL

Geological Section Along A–B



LEGEND

GEOLOGY

SURFICIAL DEPOSITS (Quaternary-Recent)

Q — **Quaternary:** Alluvium, boulder, gravel, sand, silt and clay.

SIWALIK GROUP (Middle Miocene-Lower Pleistocene)

US — **Upper Siwalik:** Boulder, cobble, conglomerates with minor yellow, grey mud and silts, sand bands and lenses in the conglomerates.

MS — **Middle Siwalik:** Undifferentiated.

MS_2 — **Upper Middle Siwalik:** Medium to coarse grained sandstones, pebbly sandstones with siltstones and mudstones with relict of hard sandstones. Turtle limb is present in the sandstones.

MS_1 — **Lower Middle Siwalik:** Medium, Fine to medium grained sandstones with interbeds of siltstones and mudstones.Coaly materials and plant fossils are present.

Ls — **Lower Siwalik:** Fine grained sandstones with interbeds of purple or red colored mudstones, shales,siltstones and occasional marl.

SURKHET GROUP (Cretaceous-Oligocene)

su — **Suntar Formation:** Fine to medium granied, greenish grey sandstones and purple shales with intercalations of green splintery shales.

sw — **Swat Formation:** Grey to dark grey carbonaceous crampled shales with bands and lenses of fine grained fossiliferous limestones (Nummulites sp., Assilina sp., etc) and ferruginous quartzites at the base.

MIDLAND GROUP (Upper Precambrian-Late Paleozoic)

Lakharpata Sub-Group

lk (du, rb) — **Lakharpata Formation:** Fine grained grey, pink limestones and dolomitic limestones with thin intercalation of purple and green shales, algal structure with stromatolites are present.

sy — **Syangja Formation:** White to milky white, pale orange, pinkish or purplish calcareous quartzites and quartzitic limestones with dark grey and purple shales, pinkish calcareous quartzitic beds, grey arkosic sandstones, grey and pale green shales.

sg — **Sangram Formation:** Grey to greenish grey carbonaceous splintery shales with thin intercalations of limestones.

gl (ba) — **Galyang Formation:** Dark grey slates finely intercalated with thin grey calcareous slates and sandstones. Dark grey to bluish grey fine grained limestones and dolomitic limestones of various sizes within the slates are common. **Baitadi Carbonates**: grey siliceous dolomites.

Pokhara Sub-Group

gp (cr) — **Ghan Pokhara Formation** : Black to grey carbonaceous slates and greenshales.**Chour Carbonates**: White to grey compact dolomites and dolomitic limestones interbedded with shales beds.

nd — **Naudanda Formation :** Fine to medium grained white quartzites with ripple marks and thin intercalations of green chlorite phyllites.

ks — **Kushma Formation:**Greenish grey, white fine to medium grained at places, ripple marked massive quartzites intercalated with green phyllites. Basic intrusions are abundant.

ul — **Ulleri Formation:** Feldspathic schists with augens of feldspar and quartz, augen gneisses. Intrusions of granite are noted.

Dailekh Sub - Group (Precambrian)

rm — **Ranimatta Formation :** Grey to greenish grey shales shaly phyllites, slates garnetiferous phyllites greyish white quartzites with carbonate beds and amphibolites.

Jaljala Sub-Group (Precambrian)

sb — **Surbang Formation:** Grey to brown crystalline limestones interbedded with calcareous schists calcareous quartzites and biotite-quartz-schists.

sr (bb) — **Siuri Formation :** Granetiferous quartz biotite schists, garneriferous chlorite-quartz schists, muscovite biotite schists, calcareous schists, massive quartzites with rare graphitic schists, instrusions of basic rocks and granites are found. Balbang schist quartz mica schist interbedded with calcareous quartzites and thinly laminated crystalline limestones.

KATHMANDU GROUP (Precambrian-Devonian)

Phulchoki Sub-Group

ti — **Tistung Formation** : Dull green grey coloured phyllities, pink purplish tinted sandstones with sandy limestones, ripple marks, clay cracks, worm tracks are abundant, pebbly beds near base.

Bhimphedi Sub-Group

mr — **Markhu Formation** : Massive coarse to medium grained crystalline marble changing northward to dark fine biotite schists interbedded with impure marbles and quartzites. Stromatolites are found.

HIGHER HIMALAYA

qh — **Plio-Pleistocene to Quaternary**: Mainly fluvial and fluvio torrential sediments with local lacustrine clays and marlstones.

TIBETAN SEDIMENTARY ZONE

mz — **Mesozoic**: Triassic to Lower Cretaceous. Mainly shallow continental plateform sediments with local pro-delta facies in the Early Cretaceous. Sandstones, slates, shales with glauconite. Mainly ammonites and belemnites in Jurassic Limestone.

pz — **Paleozoic**: Cambrian to Permian. Lower part mainly calcareous, middle part pelagic and upper part is rich in detrial sediments. Limestones, sandstones and shales. Early Permian tilloid beds with plant fossils and focal spilitic lava flows.

HIGHER HIMALAYAN CRYSTALLINES

hm — Preambrian high grade metamorphic rocks comprising gneisses, quartzites and marbles. Migmatites and granite geneisses present predominantly in the upper part.

tgr — **Tertiary(Miocene)**:Two mica leucocratic granites with tourmaline.

SYMBOLS: Gr granites. Bt Basic rocks Bt Syenites

PHYSIOGRAPHIC FEATURES

- District Headquarter
- Province Headquarter
- Peaks with Height in Meter (8,848)
- Province Boundary
- International Boundary
- Highway, Feeder Road, Other Road
- Stream , River
- Spot Height in Meter (143)
- Temple,Town,Village

STRUCTURE

- Geological Contact
- Alluvium Boundary
- Thrust (MBT)
- Fault
- Inferred Contact
- Uncontormity
- Anticlinal Axis
- Synclinal Axis
- Overturned
- Overturned Anticline
- Overturned Syncline

ATTITUDE OF BEDDING

- 0°
- 1°-19°
- 20°-39°
- 40°-69°
- 70°-89°
- 90°

MINES

Iron, Quartzite, Talc, Limestone, Red Clay

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Horizontal Datum
Spheroid: .... Everest 1830
Projection : ..... Modified Universal Transverse Mercator
Origin:................ Longitude 84° East, Latitude 0° North
False co-ordinates of origin: .... 500 000m Easting 0m Northing
Scale factor at Central Meridian: 0.9999

Data Sources

This map is compiled from the published "Geological map of Nepal (1:1,000,000)","Geological Map of Western Central and Central Region of Nepal (1:250,000)" by Department of Mines and Geology (DMG) and "Geological Map of Petroleum Exploration Block no. 5 and 6 (1:250,000)" by Petroleum Exploration Promotion Project (PEPP), Nepal.

Topographical Base:
1:25,000 & 1:50,000 Map of GoN, Survey Department, Kathmandu, Nepal