LIST OF FIGURES

2.1 Simplified geological map of Aravalli-Delhi orogenic belt.
3.1 A comparison of REE analysis by ICP-AES (at J.N.U., New Delhi) and by isotope dilution method (at SUNY, Stony Brook, U. S. A.).
4.1 Geological map of Delhi area showing sampling locations of quartzites.
4.2 A-CNK-K diagram showing plots of Delhi quartzite sample. Palaeoweathering CIA of representative samples are shown with their numbers.
4.3 REE patterns of Delhi quartzites.
4.4 REE patterns of Delhi quartzites.
4.5 Average REE abundance of representative Delhi quartzites compared with REE patterns of Upper continental crust (UCC) and Post Archean Australian shales (PAAS).
5.1 Geological map of Delhi area showing sampling locations of weathering rinds.
5.2 XRD diffractogram of weathered of weathered quartzites. d (Å) values of minerals are shown with the names. Decrease in peak of kaolinite in outer rinds (U4, H3, S4) and their increase in lower rinds (U3, H2, S3). Shows their downward transport.
5.3 A-CN-K diagram showing weathering trends of quartzite rind samples.
5.4 A-CN-K-FM diagram showing weathering trends of quartzite rind samples.
5.5 Reaction mechanism of iron with quartz surfaces: Quartz reacts with ferrous iron in ground water to form a hydrous ferrous iron/silica surface layer, 2. Layer break down under oxidising conditions to a goethite precursor, 3. Silica is released to solution .
5.6 REE patterns of Sohna weathering rinds.
5.7 REE patterns of weathering rinds of Sohna.
5.8 REE patterns of weathering rinds of J. N. University.
5.9 REE patterns of weathering rinds of Surajkund.

6.1 Geological map of Delhi area showing sampling locations of altered pegmatites and quartzites.

6.2 X-ray diffractogram of hydrothermally altered samples of Pegmatite. d values (Å) are shown with the mineral names.

6.3 IR graph of clay rich altered samples, K, and S represent kaolinite and sericite respectively.

6.4 Stability of K-feldspar, muscovite and kaolinite in the K/H versus temperature diagram.

6.5 REE patterns of clay and sands of alteration zones of Mohabtabad.

6.6 REE patterns of clay and sands of alteration zones of Mohabtabad Chouki.

6.7 (A) Heat flow over northern India.
(B) Electrical conductivity over Indian sub-continent

7.1 Geological map of Delhi area showing sampling locations of sediments.

7.2 Plots of sediment texture in triangular diagram (according to USDA).

7.3 X-ray diffractogram of sediments from three sampling points on Delhi ridge. d values (Å) are shown with name of the minerals.

7.4 X-ray diffractogram of untreated, glycolated and heat treated clay fractions (.002 mm) of sediments. C, G and H correspond to untreated, glycolated and heated samples respectively.

7.5 IR graph of clay fractions of the two representative samples of sediments.

7.6 Comparison diagram of Delhi ridge sediments with the upper continental crust.

7.7 (A) A-CNK-K diagram showing plot of average Delhi ridge sediments (DRS).
(B) A-CNK-FM diagram showing plots of DRS.

7.8 REE patterns of Delhi ridge sediments.

7.9 A comparison between UCC, Loess and average shales.

8.1 Simplified geo-environmental model of the Delhi region.