CONCLUSION

The main conclusion of the author's study are :

[1] The Khadir Formation as a whole represent a typical fan-delta sequence.

[2] The subaerial component of fan-delta of Khadir Island presumably an alluvial fan, rather than a braided stream or braid plain because the mega clasts in the Khadir Formation appear to have deposited on account of debris flow.

[3] The Khadir fan-delta developed during Middle Jurassic time [Bathonian-Callovian-Oxfordian].

[4] It developed under relatively humid condition and sedimentation was mostly controlled by tectonic.

[5] Specific environments of fan-delta system of Khadir Island are recognized as alluvial fan; fan-delta front slope; mid-fan-delta and lower fan-delta, which correspond to eight members and ten [10] lithofacies and their association.

[6] Ten [10] lithofacies have been identified and termed according to the first-order classification given by J. Mount [1985] for texturally mixed siliciclastic-carbonate sediments.

[7] The Khadir fan-delta can be quoted as a good example of coarse-grained fluvial dominated system prograding into a shallow-marine basin whose subaerial portion does not differ from clastic alluvial fans found in humid settings in terms of morphology and depositional processes; the transitional and subaqueous zone show number of unique and diagnostic features that can be summarized as below :

[A] Various types of clasts of alluvial fan such as granite, granodiorite, syenite, trachyte etc. in polymictic breccio-conglomerate deposits at Chhariya Bet suggest different extrabasinal source terrain and possibly from the Precambrian basement. Moreover large size of unorganized clasts, their angularity and clast-supported nature represents nearby source terrain and their deposition from high-density debris flow.

[B] The ungradded, unstratified conglomeratic clasts are interpreted to represent deposition from non cohesive sediment flows, transition between sandy flows and density modified grain flows.

[C] Composition of source terrain is reflected in the mixed sediments of Khadir Island by presence of extrabasinal different types of clasts, moderate to high influx of igneous and metamorphic quartz with some plagioclase and minor amount of mica as the detrital constituents deposited during the sedimentation in the marine carbonate sediments.

[D] Subarkosic Micritic Sandstone, Shelly Sandy Limestone,

Cross-bedded Micritic Sandstone, Sandy Intraformational Conglomeratic Limestone etc. facies represent deposition in channel margin in areas of transitional [delta front slope] and subaqueous [mid-fan-delta and lower-fan-delta] of its submarine fan setting. The likely processes include debris flow, turbidity current, localized slumps and slides and shallow marine depositional environments.

[E] The juxta position of widely differing facies association suggest that the channels were shifting position rapidly where as the mere orderly arrangement of facies association perhaps resulted from mere gradual migration across fan surfaces.

[8] Factors that control sediment distribution and channel morphology as visualized by the author are channel gradient, transported particle size, continuity or discontinuity in sediment supply and available, current agencies and hydrodynamic conditions.

[9] The texturally mixed siliciclastic-carbonate sediments of Khadir Island [excluding Chhariya Bet] were formed by combination of processes both of punctuated and source mixing.

[10] The local variation in tectonics, slope morphology and sediment supply over basin marin must have resulted a control hybrid mixed sedimentation of siliciclastic-carbonate material, containing elements of both the terrestrial and marine being added to the depositional system.

[11] Facies associations suggest that fan-delta prograded into the basin from the adjacent highlands and discharged very coarse sediments on to a submarine slope. Sediments deposited on the delta-front slope have frequently remobilized and moved down slope as slumps, debris flow and turbidity currents as the case with the fan-delta submarine fan deposition of Wagwater Formation, E-C Jamaica proposed by Wescott and Ethridge [1983].

[12] Large average grain-size and the small amounts of fine-grained material in most of the facies distribution reflect deposition in environments within predominantly high energy conditions. Small scale alternations of coarse and somewhat fine-grained beds indicates minor fluctuations in energy levels.

[13] The sand grains produced by erosion of a tectonic uplifted fault-zone, source area situated to the N and NE of the presently located Khadir Island were supplied to the main depositional basin from the Bathonian-Callovian to Oxfordian time.

[14] The author has investigated in detail 66 ichnogenera and 83 ichnospecies.

[15] The distribution of trace fossils and their association in different member indicate five ichnofacies and eight ichnocoenoses namely [1] **Glossifungites**, [2] **Skolithos**, [3] **Cruziana**, [4] **Zoophycos** and [5] **Nereites** ichnofacies, and [1] **Skolithos**, [2] **Ophiomorpha**, [3] **Rhizocorallium**, [4] **Phycodes**, [5] **Bergaueria**, [6] **Planolites**,

[7] **Chondrites** and [8] **Gyrochorte** ichnocoenoses respectively.

[16] Variations in ichnologic assemblages reflect the complexity and the combinations of environmental parameters that affected the distribution of trace making organisms.

[17] The integration of independent sedimentological, ichnological and compositional analyses provides a sound framework for interpreting the sedimentary response to depositional environment in Khadir Island.

[18] The existence of more or less E-W trending fault near escarpment face of Khadir Island, much affected the northern portion and caused tilting which again marked almost complete closure in the further progradation or sedimentation in the basin.