Géosciences pour une Terre durable
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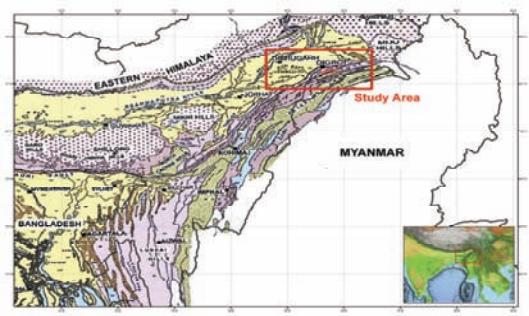
We leave no stone unturned
MECL

Oil shale exploration in the Assam-Arakam Basin

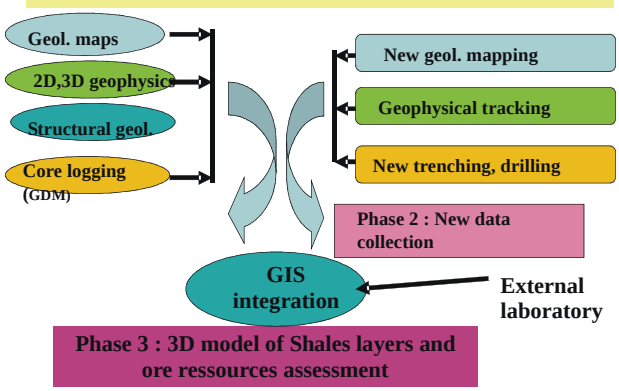
Investing for the future energy needs of India : the Oil shale project : a DGH supported action to assess the syncrude potential in NE Assam
Indeed, to meet its future energy demand, India faces several challenges . A major one is to discover alternative unconventional energy resources. Oil shales, particularly extensive in the Oligocene Assam coal bearing basins are one of the most promising target.

3 blocks , totalling 255Km² located on the South-Eastern bank of the Bramaputhra alluvial plain and enclosing numerous coal occurrences have been selected for the first assessment .



Section of CIL Tikak open pit view towards West

Oil Shale Assam : a BRGM-MECL project
Work breakdown system : BRGM

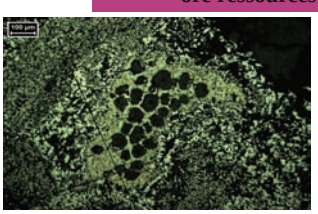


Phase 3 : 3D model of Shales layers and ore ressources assessment

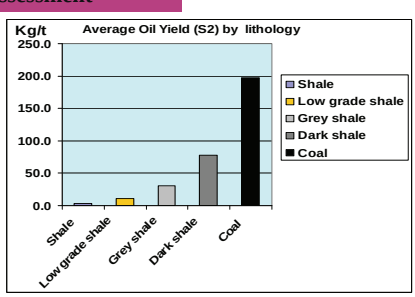
The Oligocene Barail group fluviatile sequence is very similar to the present day Ganga delta with braided channels and mangrove marshy areas. In this palaeographic context, bituminous coal was deposited (4 to 9 seams are known). Several sedimentary cycle are exposed in the coal open pits : starting with conglomerate, sandstone, then folllowed by claystone, oil shale and terminating with coals. Several oil gas reservoirs have been delineated in structural traps of the Tipam-Tikak Parbat formations.

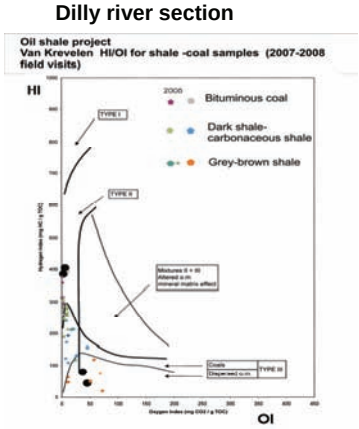
Core drilling MBOS-4 Assam

Geological Logging of the Dilly river section



Wood cells epigenized by pyrite in bituminous coal indicate a continental origin of a part of the OM





HI/OI diagram after Rock Eval analysis

High syncrude potential

The grey to dark shales have variable amount of organic carbon (5 to 20%) and a relative PP of 25 to 78 kg/t for the darkest facies. Their hydrogen index (HI) increases from 178 to 294 with increasing TOC and conversely, their OI decreases from 14 to 6 (average). Vitrinite reflectance measurements indicate average R_0 index between 0.56 and 0.65% that indicate their low maturity and high oil potential, a fact confirmed by the low Tmax (435-418°C Rock Eval 6). The dark shales and brown shale are dispersed in the lower part of the diagram and overlap the type II and type III kerogen field corresponding to altered organic matter mixed from dual origin paralic coal and marine littoral algae organic matter (Cameroon Logbada Cretaceous type).

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