

Defining Zagros Structural Domains in the Kurdistan Region of Northern Iraq

Graham Banks, PhD

WesternZagros Resources Ltd

The Kurdistan region of northern Iraq is attracting much attention from the oil and gas industry. With potential resource estimates of 40 BBO and 60 TCF of gas (U.S. Geological Survey, 2000), relatively little exploration, favourable PSCs, and relative stability and security compared with the rest of Iraq, the region has much potential to be a significant global energy player. Numerous wildcat wells have been drilled over the last three years and significant results, new plays and discoveries are now being announced monthly. More than 100 major anticlines remain undrilled and play concepts like ‘fault-bound trap’ and ‘stratigraphic trap’ are yet to receive much consideration.

The region is dominated by the currently active Zagros and Taurus mountain belts and their currently inverting foreland basins. Yet few advances in defining, mapping or understanding fold-thrust-fracture relationships have been published to date. Some Iraq structural geology tenets still need to be brought into the Plate Tectonic era.

There are currently four published structural domains for the Zagros mountain belt of northern Iraq. However their definitions are subjective, vague and highly misleading from a New Ventures perspective. For example the “Low Folded Zone” refers to a tectonic region dominated by long thrusts at surface. A region displaying multiple detachment zones, sheath folding, repeated basement fault reactivation and a protracted history of extensional then contractional tectonics is anything but the currently named, “Simple Folded Zone”. More objective classifications, that better describe the deformation through direct observation, are required for the Iraqi Zagros.

Innovative remote imagery techniques and recent fieldwork have resulted in defining five, rather than four, Zagros structural domains. They have been objectively and appropriately defined and named, based upon styles of deformation observed on public domain geological data. This new Zagros domain classification permits the New Ventures explorationist a clearer understanding of the Zagros regions and hydrocarbon prospectivity. It also permits prediction of variations in structural deformation, trap types and operational difficulties that could be encountered before going in-country.