The Myth of Running Out of Oil in the Middle East

*Robert Kuchinski, Weatherford Oil / President of American Association of Petroleum Geologist (Middle East)*

It is a well-known fact that the Arabian Plate has been blessed with an enormous endowment of oil and gas. This relatively small plate which occupies less than 4% of the earth’s land surface contains over 50% of the world’s known oil reserves, and over 40% of the natural gas reserves. (Bp’s 2012 statistical review of the world energy) The richness in natural hydrocarbon occurrence in the Middle East can be attributed to many favorable geological factors. From a geographical perspective, it’s position in the North facing of the Gondwana margin, allowed the deposition of prolific cycles of reservoir, seal and rich source rocks. Large areas of the continental passive margin of the different phases of the Tethys ocean were covered by extensive reservoirs, seals and source rocks. Extremely rich oil prone extensive source rocks blanketed the passive margins during the Paleozoic and Mesozoic times. The position around the equator during the Proterozoic yielded excellent carbonate reservoirs, and exceedingly high organic richness. The trap formation in broad gentle structures, preserved these resources, and has provided benefit for both ancient cultures of the Middle East, and today’s modern global industrial societies.

Knowledge and use of Hydrocarbons in Middle East date back to 4000 years ago. In these times asphalt, oil, and gas seeps from underground hydrocarbon were used by many ancient civilizations for lighting via oil lamps, and for fuel for heating & cooking (when mixed with camel dung). The “Eternal fire” at Baba Gurgur, Iraq, has burned for over 4000 years and is one of many spiritual sites in the Middle East that has been used for worship over the millennia.

In recent years the large scale development of the oil and gas reserves have transformed many Middle East countries from emerging to far reaching global industrial economies. Petroleum Geology has played a key role in this transformation up to now, and will play an increasingly more important role in the future as the Middle East countries strive for the highest recovery rates in the world. Achieving these high recovery rates requires a higher understanding of the subsurface and an even greater role for Petroleum Geology. In fact, this role has caused the Middle East to become the global center of excellence for Petroleum Geology.

There are a number of factors that have caused the emergence of the Middle East to be a Petroleum Geology powerhouse, but four key pillars will support the growth and advancement of Petroleum Geology.

- As mentioned above, the Middle East has the largest oil and gas fields in the world. These fields will continue to produce well into the future and will benefit from the latest technical innovation to ensure maximum recovery.
• The Middle East has outstanding sedimentary geology and a complete geologic column. Much of this column is exposed in surface outcrops which are mostly free of feature-covering vegetation.

• The Middle East has extremely prolific carbonate reservoirs. These difficult-to-understand reservoirs have provided, and will continue to provide the rest of the world with marvelous opportunities for learning.

• The transition of many Middle East countries to knowledge-based economies has seen an extensive investment into post-secondary education. New Universities in the Middle East bring new facilities to grow the instruction of Petroleum Geology.

The advancement of Petroleum geology will continue to bring prosperity to humanity around the world. The Middle East is well positioned to lead this advancement in the coming years and decades ahead.