

## Organization profile

Bassam Alfeeli\*

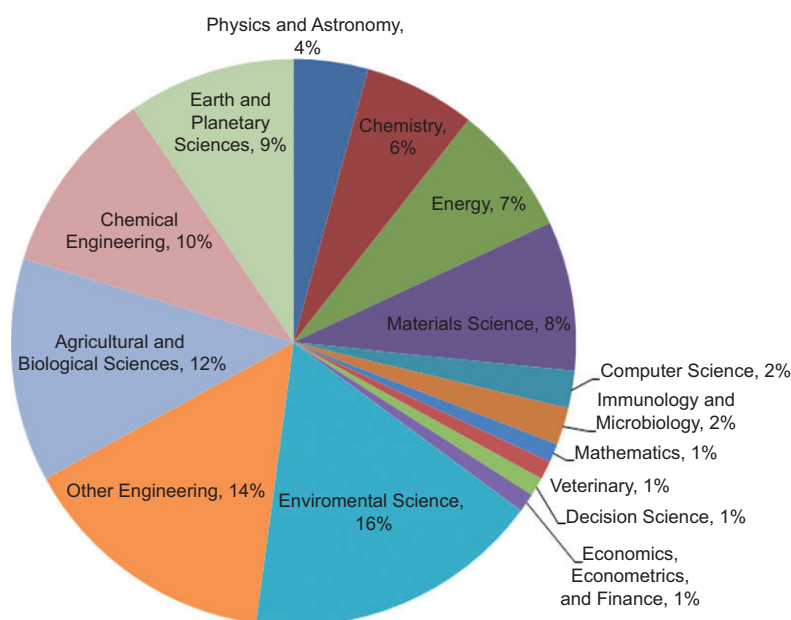
# Kuwait Institute for Scientific Research

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The Kuwait Institute for Scientific Research (KISR) is an autonomous public institute under the authority of Council of Ministers of the State of Kuwait. Its Board of Trustees is chaired by a Minister delegated by the Council of Ministers. In recent years, the Minister of Education and Higher Education has served in this capacity. KISR's mission is to conduct scientific and applied research with the emphasis on industry, energy, natural resources, food resources and major elements related to the national economy in order to serve the economic and technical development of Kuwait and to provide consultation to the government in areas including scientific fields and national scientific research policies.

KISR was established in 1967 by the Arabian Oil Company (Japan) in fulfillment of an oil concession

agreement with the Government of Kuwait. The agreement states that KISR shall carry out applied scientific research in the fields of petroleum and fisheries. In 1973, the Kuwait government assumed direct responsibility of KISR and specified its mission to carry out applied scientific research especially regarding issues related to industry, energy, agriculture, and the national economy. KISR continued to expand in the areas of food, water, and environment studies and grow horizontally to incorporate almost all elements of the natural sciences. Moreover, KISR was entrusted with undertaking research and scientific and technological consultations, for both governmental and private sectors in Kuwait, the Gulf region and the Arab world, and encouraged collaboration with international institutes. Some examples of research projects include microsatellite identification and characterization in peanut, processes for spent catalyst handling and utilization, coke formation on catalysts during the hydroprocessing of heavy oils, bioremediation of oil-contaminated soil, multi-effect distillation plants, holographic interferometry of anodic dissolution of metals in aqueous solution,



Main Subject Areas of Research at KISR

rapid and simple method for determination of cholesterol in processed food, and house dust as a source of human exposure to polybrominated diphenyl ethers in Kuwait.

## KISR's Nanotechnology and Advanced Materials Center

KISR's Nanotechnology and Advanced Materials Center (KNAMC) was established in 2009 with \$50 million government initiative to support R&D development in Kuwait. KNAMC research focus areas include renewable energy systems (photovoltaic, fuel cell, and hydrogen storage), construction materials (high performance concrete), surface protection coating materials (corrosion and erosion resistant, self-cleaning, and antibacterial), catalyst materials (oil production and refining), water purification and desalination, and chemical and physical sensing technologies. KNAMC is planned to be operational by 2015 and will house state-of-the-art 360 m<sup>2</sup> clean

room facility equipped fabrication and characterization tools, materials synthesis laboratory, modeling and simulation laboratory, and chemical and physical properties characterization facilities.

KNAMC objectives include designing, synthesizing and developing new nanostructured materials, incorporating new fundamental knowledge on nanoscience and nanotechnology with the national needs into devices and products, enhancing young researchers' skills and capabilities in nanoscience and nanotechnology, and foster the transfer of new technologies into real products for commercial and public benefits. Some examples of research projects include fabrication of high hydrogen storage nanocomposite powders, development of nanosensors for food packaging applications, fabrication of nanoparticles from local sand for cement performance enhancement, merging micro- and nano- technologies for gas chromatography systems development, nanocomposite for wear resistant coating applications, and modeling and simulation of catalytically enhanced nanocrystalline metal hydrides for hydrogen storage applications.

