Developing an (environmental) research culture in Qatar:
Structure, Examples and Challenges

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Abstract
Qatar National Vision Strategy 2030 is one of the main strategic plans that envision the State of Qatar as a knowledge base economy. In this framework, Qatar Foundation opened the gates of Education City more than 10 years ago and today it hosts branch campuses of 6 of the most recognized institutions in the US, a science and technology park with active presence of all major oil & gas companies and a growing number of research institutes like the Qatar Energy and Environment Research Institute. More than 150 Mio USD are awarded every year to new research projects while the total 2013-14 capital spending for education is estimated around 18bn USD (28% of total allocation) with Qatar Foundation to hold the leading role.

On the other hand, most of the country's structures as well as the "research culture" are either new or under development. As a result, research activities are facing significant challenges as for example the study of local air quality and especially PM. Official data estimate greater than 200 $\mu g.m^{-3}$ annual average PM levels and health authorities are reporting an increase to air pollution related health effects. Although there is very little information on past research activities, a significant number of studies, surprisingly, has been initiated the past year and even more are currently in design. In this context, some details will be presented on a number of topics that are currently under investigation. Thus, the discussion with the participants will be initiated in order to get fruitful feedback and explore collaboration opportunities. Some of the topics that will be addressed are:

- Qatari Birth Cohort: Primary Prevention Program of Risk Factors for Reproductive Health, Pregnancy and Child Health- A "crossomics" study: Development of monitoring and modelling tools
- Emission models for fugitive and non-exhaust PM and the lack of a PM emission inventory for MEA – Construction and road-tunnel studies
- Downwind optimization of industrial emissions and the chemical mixture methodologies for industrial cities
- Improvement of emergency response tools using Physiological Based ToxicoKinetic Models and inverse modelling of CFD based dispersion models

Short Bio &
Dr. Konstantinos Kakosimos received his PhD on the simulation of toxic gases dispersion from the Chemical Engineering Dept. of Aristotle University of Thessaloniki in 2009. He worked as postdoctoral research fellow/assistant in the same university and as visiting researcher in a number of institutes like the National Environmental Research Institute, Denmark and the National Properties Laboratory, UK. In parallel, he served also as a Design Engineer and Environmental Consultant for a number of private firms (Hellenic Petroleum, Titan Cement Company SA, Hellenic Gold, HYETOS GP etc). In October 2012 he has been appointed Assistant Professor of Chemical Engineering in Texas A&M University at Qatar and currently he is also affiliated with the Mary Kay O'Connor Process Safety Center extension in Qatar. He has co-authored 3 books (among which "Fires, explosions, and toxic gas dispersions: Effects calculation and risk analysis" published by CRC Press) and more than 17 papers in international peer-reviewed journals. Dr. Kakosimos main research activities are

focused on fluid dynamics, transport and fate of pollutants and hazardous materials, air quality, risk analysis and effects estimation, emergency response modelling, solar thermo and chemical processes.

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