LA 5EME EDITION DU CONGRES INTERNATIONAL DES ETUDES SUR L'EAU ET L'ENVIRONNEMENT (CI3E)

Du 09 au 11 Mars 2023
Al-Hoceima, Maroc

"Energy: From Oil Shock to War in Ukraine; Water between climate change and geopolitical conflicts''

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Abstract

Energy plays a fundamental role in shaping the human condition and is the key to socio-economic progress. Development of human society has been marked all along history by the ways humans have controlled energy stores and flows that are part of nature. Not surprisingly, the relevance of energy in the international scenario rises constantly and the many interconnections with environment and society are more and more clear. The way most of the energy currently produced and utilized is unsustainable and threatens the environment on both local and global scales. The lack of access to electricity, heat and cook and the reliance on traditional biomass as main source of energy hinder the out of poverty for many people in developing African countries.

The need to increase access to clean, efficient, affordable and reliable modern energy services for balancing the economic, social and environmental dimensions of sustainable choices is nowadays worldwide recognized. Affordable energy services are key elements of economic development and eradication of extreme poverty as called in the United Nations Millennium Development Goals (MDGs). Building enterprises and creating new jobs, improving health and education, and providing basic needs such as food and water in an economical and sustainable manner require a balance energy mix that is suited to the economic, social, and resource conditions of individual countries and regions.

Energy access has a cost and the initial expenditure on connections or better technologies can be high. There is a large funding gap in providing energy access for the poor which has not been properly addressed by existing financial mechanisms and institutions. Existing policy framework and national energy policies often do not respond to the needs and capacities of the poor. All these issues present a number of critical challenges that will remain well beyond 2025 and whose solution requires a comprehensive, balanced and phased approach which takes into account aspects related to technology, financing and investment as well as policy and institutions.

The current context of the war in Ukraine has caused a worldwide panic in the gas and oil market. This caused the price of fossil fuels to soar. In addition, global warming and the alarming report of the IPCC (International Group of Experts on Climate) has imposed rules for limiting greenhouse gases by energy-intensive countries. The use of renewable energies has thus become the inevitable alternative for the majority of countries in the world. Thus, several countries have varied their energy mix to overcome these financial and environmental problems.

Climate change has caused severe droughts and water scarcity in many parts of the world, and devastating floods in others. Access to drinking water and the critical shortage of irrigation water have driven people to migrate to countries where the crisis is less pronounced.

The present lecture will focus on sustainable implementation models as part of new and integrated approach to global resources management (water, energy, food…). In particular the consortium will address main interlinked topics related to the role of energy in sustainable growth:

- Which technology need will be promoted and are appropriate to the low and middle economies?
- Which business model may contribute to the development of new inclusive energy market?
- Which policies and institutions are needed to support new energy systems and promote production and consumption patterns that would foster sustainable energy access?

We are going to spread the share of renewable energies in the Moroccan energy mix and focus the intervention on the potential of bioenergy from biomass, biogas stored in putrescible organic matter (Old landfills, sludge from STEPs, household waste and agri-food, 3rd and 4th generation biofuel, green hydrogen and organic hydrogen, etc.

Keywords:

Clean and renewable energy, Bioenergy, Climate Change Impacts, Fossil Hydrocarbons, Energy Mix, Soaring oil prices, Social, economic and environmental balance, Low and middle income countries, Morocco

Biography

Professor Mohamed TAHIRI is currently **Full professor of chemistry**, chemical risks, composite materials, electroplating techniques, **environmental account, water and environmental engineering, biomass and biogas**; **Climate change**, **innovation and sustainable entrepreneurship**. Since January 2010, he has held the **Innovation and TTO Chai**r at Hassan II University in Casablanca. As part of his TEMPUS-supported role, Mohamed TAHIRI received extensive training in Europe on innovation, technology transfer, intellectual property rights and innovation management. He coordinated the **Erasmus + Yabda** project (www.yabda-project.eu) and represented the University in the other Tempus projects OSMOSE, BUCUM and Erasmus + INSITE, SALEEM. In his faculty, he holds a **Bachelor's degree in sanitation management** in urban and rural areas. He's **an International Expert In Bioenergy, Water and Environment Engineering with UNIDO –Vien** –Austria Since 2012 and with **Environment Park, Torino – Italy since 2007.** It conducts R&D in **partnership with various industries**. He is part of the national network of experts in environmental economics with whom he has carried out an economic evaluation of the damage and inefficiencies caused to the environment. He has been **awarded:** Hassan II Prize for the **Environment in 2009**, AFP **Washington Prize 2012**, **University-Business Competitiveness Prize 2014**, **InnovTex first Prices2019 and 2021**.

Professor Mohamed TAHIRI has provided **several technical training** and workshops in several **African countries** (Chad, Ivory Coast, Burkina Faso, Gabon, DRC, Tunisia, Egypt, Algeria … Professor is now the **holder of 4 research & development projects funded** by different organizations (MESRSI, MCINTND, IRESEN, LYDEC). He holds 5 invention patents. He has published more than **40 general and research articles**, organized international meetings and conferences in Morocco (PRIDE Morocco 2007: International Conference on Renewable Energies and Water Technologies in partnership with the Chamber of Commerce and Navigation of Almeria Spain; MENA Symposium on Environmental Analysis and Economic Valuation, Marrakech 2009). Professor Mohamed TAHIRI has **widely consulted in the fields of applied chemistry, environmental accounting, eco-efficiency and eco-management, chemical risks, environmental engineering and climate change; treatment of domestic and industrial wastewater, biogas and biomass;** …etc. He led the research team on the organoleptic properties of raw water deserving of Grand Casablanca. Pr. TAHIRI has been a senior consultant for multinational and national companies, particularly in water treatment technologies, electroplating processes, applied chemistry, recycling and waste recovery, detergency, sustainable entrepreneurship and innovation, sustainable development, etc.