Fourth Youth Innovators Design Bootcamp 2023

Theme: ***Reinventing Energy and Water Solutions for Sustainable and Inclusive Future***

20– 23 February 2023

Closing date for applications: 20 January 2023

Date: 20-23, February 2023

Venue: Niamey, Niger

Format: Virtual

Background

The United Nations Economic Commission for Africa and its partners are pleased to invite youths from all walks of life to the fourth Bootcamp of the Africa Regional Science, Technology and Innovation Forum. The Bootcamp will focus on emerging technologies and their applications in renewable energy and water solution for Africa. The two fields – energy and water technologies - are selected given that Sustainable Development Goal 6 and Goal 7 are under review in 2023, and their special importance to Africa's development.

The bootcamp is designed to expose youths to the value chains of different advanced renewable energy technologies such as solar, wind, battery and hydrogen. The bootcamp will also enable youths to explore innovation and entrepreneurial opportunities and industrial scale manufacturing and deployment of technological solutions for energy and water in the world. This bootcamp is also intended to enable and engage youths to explore technology, innovations and entrepreneurial opportunities offered by new and emerging technologies to create employment, promote industrial development and improve the overall quality of life.

Overview of Emerging Energy and Water Challenges and Technologies

Almost 600 million people in Africa do not have access to electricity and, those that do, pay also twice more than others in the rest of the world[1]. Overall, Africa's energy mix consists of biomass (about half), fossil fuels (22%), coal (14%) and natural gas (14%), and that energy mix has not changed much in the last three decades[2]. In contrast, biomass accounted for about 10% of total energy of the world in 2000 and 6% in 2018. In addition to powering home, offices and industries, Africa should seeks to participate in development, production and trade in advanced energy solutions that are increasingly powering electric vehicles, drones, mobile devices, bioelectronics and nanodevices as they promise to transform economies.

Africa has abundant natural resources and talent. Most of the mineral resources of interest (e.g. copper, cobalt, lithium, etc) are in Africa and the continent has huge potential for renewable energy: solar capacity (10 TW), hydropower (350 GW), wind power (110 GW), and geothermal energy sources (15 GW). Emerging energy technologies could help unlock this potential and meet the future energy needs of Africa in an efficient and sustainable manner. More importantly, energy underpins most of the advances in other industries.

Further, water is perhaps one of the most critical and abundant resources that sustains life, industry and transportation directly and indirectly. About 71% of the earth's surface is covered by and most (96.5%) of the water is found in Oceans. The remainder of the water is in the lakes, rivers, air, soils etc. An array of human activities is supported by water bodies such as agriculture, transport, sports, fisheries and tourism. Yet water is becoming a very scarce resource in many locations in Africa. Unsafe water is one of the main drivers of the spread of

[1] ECA (2021) Energy Prices in Africa: Transition Towards Clean Energy for Africa's Industrialization, United Nations Economic Commission for Africa.
[2] IRENA (2020) Africa 2030: Roadmap for a Renewable Energy Future. International Renewable Energy Agency

diseases such as cholera, diarrhoea, dysentery, hepatitis A, typhoid, polio etc. COVID-19 has highlighted the importance of access to clean and safe water and sanitation.

For this bootcamp, focus will be placed on innovations and technologies likely to improve access to clean and safe water. Estimates suggest that a billion people may not have access to basic water services by 2030 unless efforts are quadrupled due to rapid industrialization, urbanization, population growth, climate change, poor management and over exploitation, especially of ground water. As such the bootcamp will focus on solutions and business models that address some of these and other challenges.

Some of the emerging water treatment technologies such as nanotech-based adsorbents and membrane filters, automated variable filtration, microbial fuel cells and electro-flocculation and anaerobic digestion technologies may help improve the quality, safety and availability of water[3]. However, several traditional water treatment technologies could be enhanced by incorporation advances in biotech, nanotech and digital to meet desired water safety and quality targets.

Participation:

The bootcamp is open to all youths up to the age of 30 that may or may not be in colleges and universities across Africa. Those in innovation hubs or in employment are also encouraged to submit their applications. Participants might be supported by partners abroad as well as professionals in research centres, innovation hubs, universities and institutes as well as government and business leaders. They will be welcome to serve as talent scouts, mentors, coaches and guest lecturers.

Submission deadline: 20 January 2023.

For more further questions: Mr. Asfaw Yitna at yitna@un.org

[3]For a detailed review see https://www.nepad.org/blog/achieving-water-security-africa-role-of-innovation-and-emerging-technologies#_ftn5