



Kuwait Institute for Scientific Research

Kuwait Institute for Scientific Research (KISR) is a pioneering, national institute of scientific excellence. Established in 1967, KISR's initial role was dedicated to developing three fields of national importance: Petroleum, desert agriculture, and marine biology. Now, KISR has four research centers: the Petroleum Research Center, Energy and Buildings Research Center, Water Research Center, and Environment and Life Sciences Research Center.

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KISR's approach to meeting challenges is distinguished by a culture of openness, a commitment to our clients, and an integrated, cross-disciplinary approach. KISR routinely embarks on strategic partnerships with other regional and international institutes, agencies, and academic bodies, allowing an exchange of knowledge and expertise.

Since its inception, KISR's researchers have conducted numerous projects in various fields. One of the major projects in the field of energy is the Shagaya Renewable Energy Park. This project has set the basis for the future of renewable energy in Kuwait.

Shagaya Renewable Energy Park

KISR has developed the innovative Shagaya Renewable Energy Park, which is expected to host various renewable energy technology capacities of more than 4.0 GW. KISR has set the basis for future renewable energy in Kuwait through the development of Shagaya Phase-1, which consists of 10 MW PV, 10 MW wind, and 50 MW CSP with 10 hours of thermal storage. Phase-1 is fully operational and connected to the national grid. Phases 2 and 3 are expected to be commissioned by 2026 and 2030, respectively, with total installed capacity of 4.0 GW of mixed renewable technologies. These Phases will be developed through public-private partnership schemes.

SCIENCE IN ACTION



R&D's central role in the recovery

The Energy Year talks to Samira A. S. Omar, director-general of the Kuwait Institute for Scientific Research (KISR), and Osamah A. Alsayegh, executive director of KISR's Energy and Building Research Center, about Covid-19's impact on R&D investment and how KISR is helping fight the pandemic. Independent public organisation KISR partners with companies on advances in energy technology.



Samira A. S. OMAR
Director-General
KUWAIT INSTITUTE FOR
SCIENTIFIC RESEARCH

What has been the overall impact of Covid-19 on your operations?

Samira A. S. OMAR: The crisis worldwide and the lockdown have affected the availability of manpower, as have the business and economy of many countries, including Kuwait. There has been increased pressure on the medical sector. We are sorry that we have lost more than 300 people in Kuwait, but we are very pleased that there is a lot of recovery and it is increasing daily.

KISR has been working continuously since the pandemic started in March. The lockdown extended the period of no work until June 30, which is a long period. It has affected our research, implementation of some projects and the use of our laboratories, which are very important in serving the country in finding solutions and providing services for analysis.

During the lockdown, we have had several virtual meetings with the executive directors regularly and made decisions. We responded early to the Kuwait Foundation for the Advancement of Sciences (KFAS) to prepare research proposals in relation to Covid-19. The staff has worked very hard. They proposed 42 research project ideas and 14 of those were submitted to KFAS for funding.

It worked very well for us to continue our R&D in short terms because KFAS requested short-term projects that will provide solutions and support the decision making regarding quick answers and quick actions they should take during the period to avoid drastically affecting the economy, budget and finances. In this situation we continued working on preparing the research and development.

"R&D is important and Covid-19 cannot be solved without science, technology and innovation."

KISR has also been keen to make sure that sensitive research work will continue. For example, we have our laboratories, our tissue culture labs and fisheries, and our products weren't affected – whether plants, animals or other living organisms. We continued supporting these units and continued operations such as feeding and hygiene control.

Have you taken any initiatives to support the government's fight against Covid-19?

SASO: We established an urgent media committee to communicate with the public and to have some outreach communication from our scientists to the media. We have supported the government with about 5,000 containers of desalinated shallow-water wells, which we produce in the Doha area. We have a small plant there which produces 6,000 bottles per hour and we also have a good stock there.

We have put strict measures in place to support the Ministry of Health, Ministry of Interior and National Guard with supplies of water. Likewise, we had to develop a 3D printer to produce 1,000 face shields for the Ministry of Public Health in collaboration with the Society of Engineers in Kuwait. It is an innovative approach; we allow innovation in our workshop to support problem solving.

How has the appetite for R&D changed among the different institutions in Kuwait with the pandemic and the lack of funding?

SASO: I can't say there is a lack of funding yet; we are still in the 2019/2020 budget, so our budget was approved last year and we are spending it on projects that have been approved. But when Covid-19 came, most of the focus was on R&D on Covid-19 health issues, which caused us to postpone the implementation of other projects or project ideas for the next fiscal year, which starts in April and ends in March.

A lot of the projects could not spend money as operations in the government, manpower supply and our contractors



Osamah A. ALSAYEGH
Executive Director
ENERGY AND BUILDING
RESEARCH CENTER

were put on hold. KISR has around 200 projects annually and many are client funded, especially in the oil sector. We had to make some necessary decisions so that we wouldn't affect the business of important governmental organisations, especially in the oil sector. So, we kept some of our staff working remotely on the projects with KOC.

We expect a 20% cut in our budget for the next fiscal year, which is going to affect our recruitment, training, incentives for researchers, facility availability, laboratory operations, business for the institute, marketing and everything else. I have a concern about this as R&D is important and Covid-19 cannot be solved without science, technology and innovation. There is still a lot that we don't know about this virus.

Osamah A. ALSAYEGH: The latest World Bank statistics said that Kuwait spends about 0.2% of its GDP on R&D. KISR as a governmental organisation definitely faces challenges, but we do well despite the pandemic. On a country level, we have to understand that more than 90% of our revenue comes from oil, and renewables still don't affect Kuwait's economy. We have not even reached 1% of electricity generation

from renewable sources, even though our target is 15% by 2030.

Political parties support renewables; however, we have not yet seen legislation to support them. The government has established the Supreme Energy Committee, and KISR as a member has put a clear strategy in place on how to achieve the 15%.

What has KISR been focusing on lately related to the energy industry?

SASO: Our Petroleum Research Center has almost 100 employees that work in collaboration with KPC and its subsidiaries. We are very keen to continue this collaboration and support them as much as possible, especially now in the crisis. Our team is still working in remote areas on the fields and we also provide analysis services to international consultants that we have contracts and agreements with.

We also implement some of our research activities with KOC sponsored by them. In our five-year strategic plan 2020-2025, the emphasis has been on creating petrochemical products to support the business of KOC and

KNPC. We will continue providing services and innovative products for them to improve oil quality and produce petrochemicals. We also collaborate on capacity building such as training programmes.

The strategic plan will shift our institute to the digital world, with a focus on areas such as advanced technology, big data, blockchain and AI. We are not starting from scratch; we already have these units in the science and technology sector. Digitalisation was also submitted to KFAS under Covid-19 to support public health.

What opportunities are there for KISR in the region for collaboration?

SASO: KISR is a member of many regional and international organisations and we are very active in this community. Many times, we convene conferences for them in Kuwait, but we do joint projects as well, as our mission has always been to be recognised as an internationally acceptable R&D institution. So KISR collaborates with many internationally reputable scientific organisations and we have established more than 100 MoUs.

How confident are you that Kuwait will emerge stronger from this crisis?

SASO: Investors are really being harmed now by the virus. Their priorities will change, and I think there will be less contribution towards R&D. For the short term, they will put more effort into their immediate needs. The government's new initiative to control the number of expats in Kuwait may affect businesses. I am worried about it too, as we would like to attract more qualified scientists.

The other issue is the Sustainable Development Goals and the National Strategic Plan, which we still have an obligation to meet. KISR has made a particularly good contribution with the government to initiate projects that support the seven national strategic pillars.

OAA: Covid-19 has proven that information technology, digitisation and biotechnology are dominant forces in these times, and I am sure that most of the research institutes will focus on these in the future. ■