



 **KISR**
معهد الكويت للأبحاث العلمية
KUWAIT INSTITUTE FOR SCIENTIFIC RESEARCH

KISR – KUWAIT

Covid-19 Response Report

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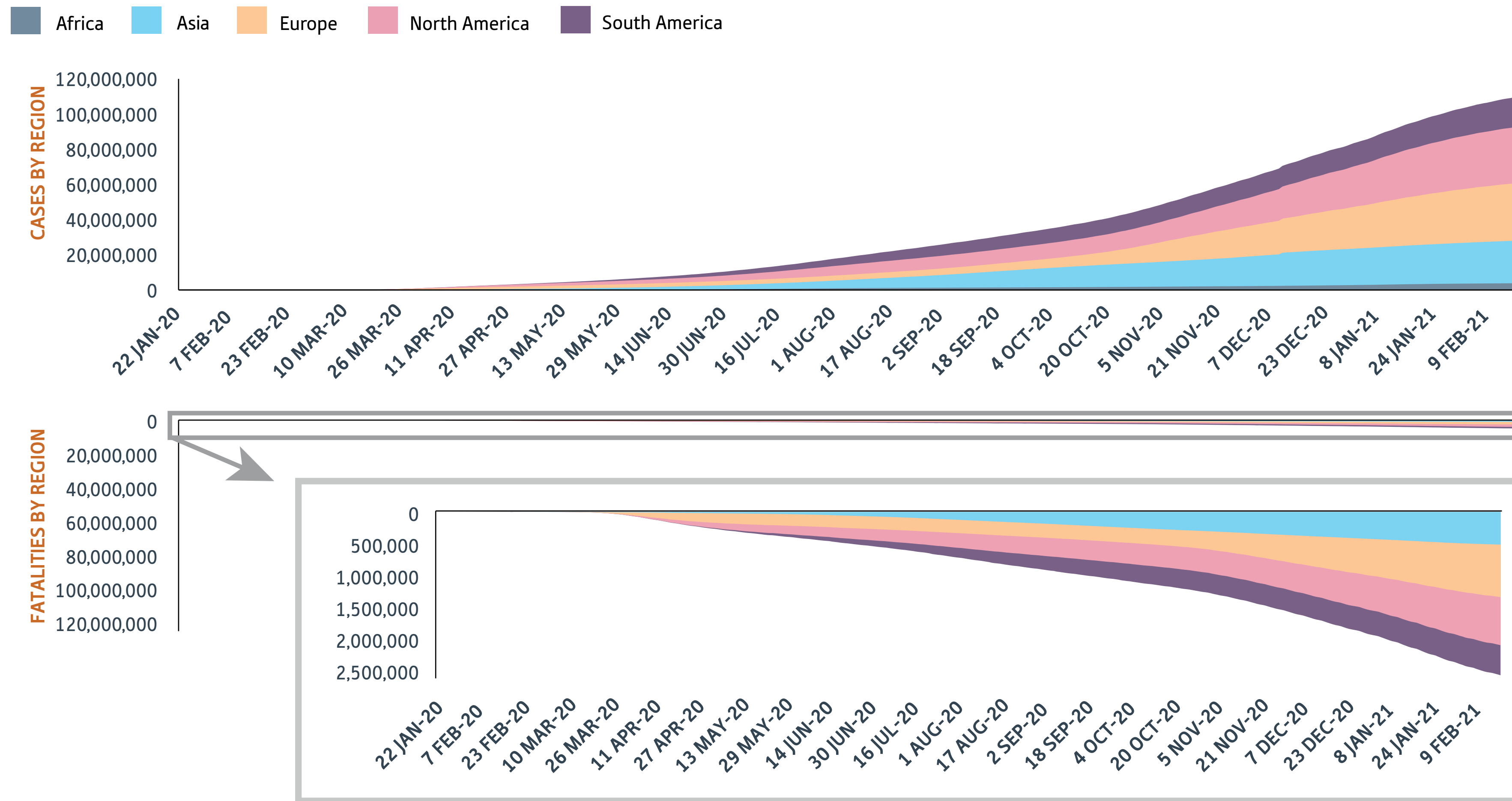
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As Covid-19 spread rapidly around the world, it posed unprecedented challenges for policymakers and innovators

Covid-19 cases and fatalities by region*



International challenge

Originating in China, Covid-19 rapidly spread around the world in early 2020. As such, governments, business leaders and citizens were required to adapt to constantly evolving socio-economic conditions and respond to unforeseen challenges. By early April more than half of the global population was under partial or total lockdown as governments tried to limit opportunities for transmission by restricting movement. While this contributed to the global economic slowdown, it also stimulated activity in research and development as scientists and innovators attempted to devise solutions to the many financial, health and social challenges posed by the pandemic.

Resilience

Could Kuwait's economy withstand a sudden global crisis?

Had Kuwait invested in a resilient health care system prior to the outbreak?

Did Kuwait have a productive scientific research ecosystem?

Response

Did policymakers take effective measures to curb transmission?

Was Kuwait able to implement successful testing and vaccination campaigns?

How did KISR support the national response to the pandemic?

Recovery

Can Kuwait's economy recover in 2021?

To what extent has the pandemic accelerated digitalisation trends in the country?

How can innovative solutions address development challenges in Kuwait?

Reinvention

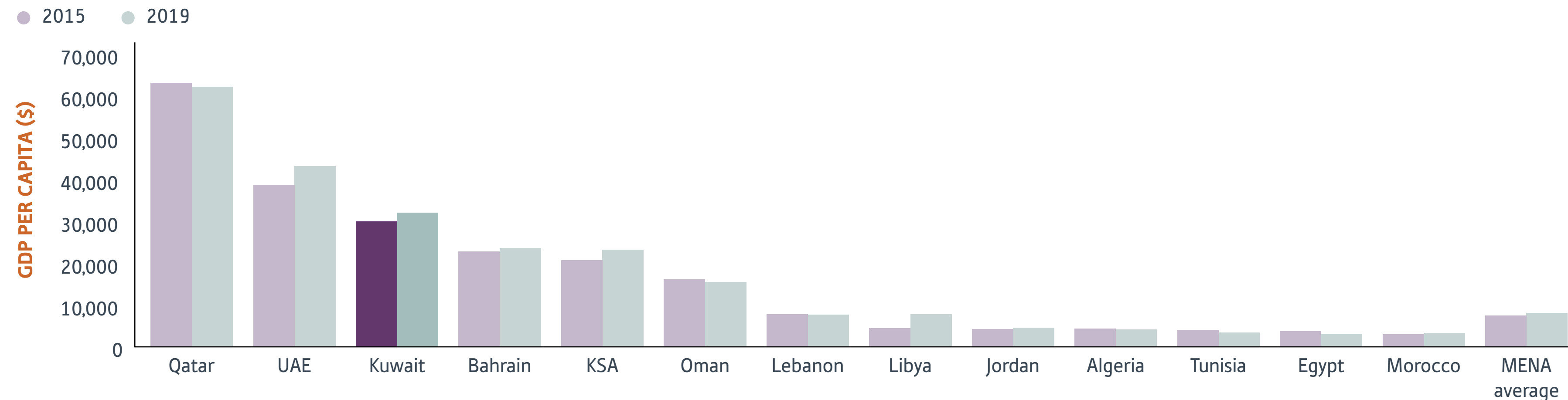
Is a new culture of research and innovation being fostered within Kuwait?

What is being done to enhance long-term food security?

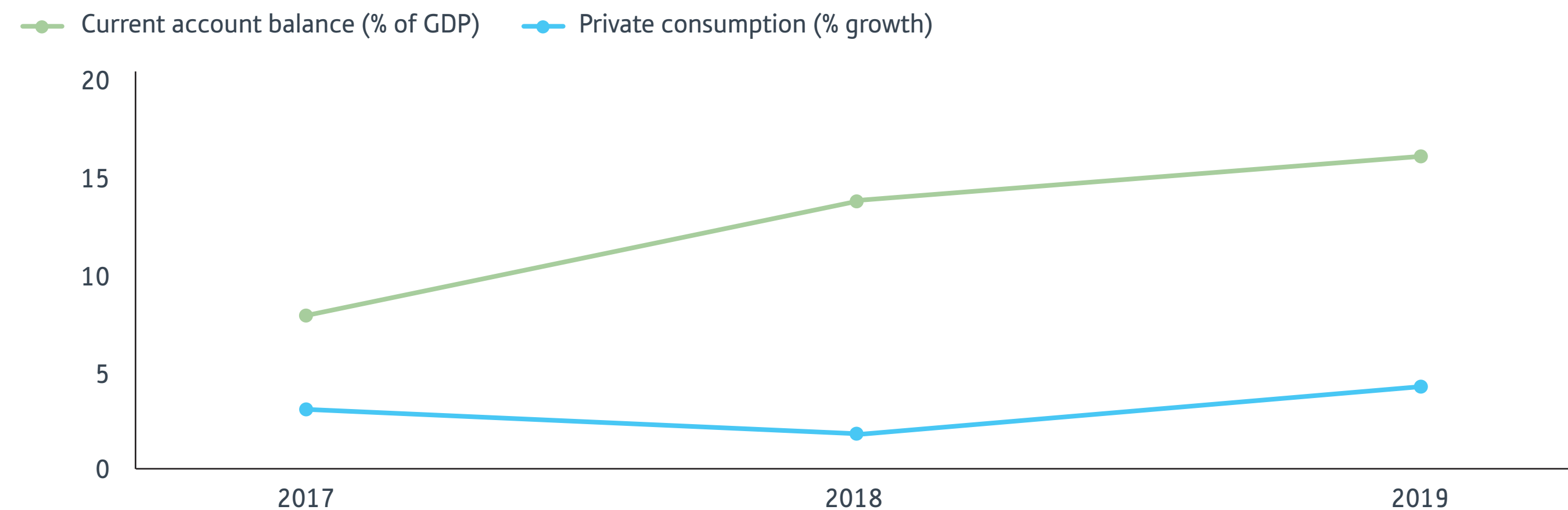
Can Kuwait meet global targets in research and development?

Strong economic fundamentals helped Kuwait absorb the sudden shock of the pandemic

Kuwait's GDP per capita is among the highest in the Arab world



Private consumption was growing while the current account balance remained strong pre-pandemic



Joint highest GCC credit rating before the pandemic

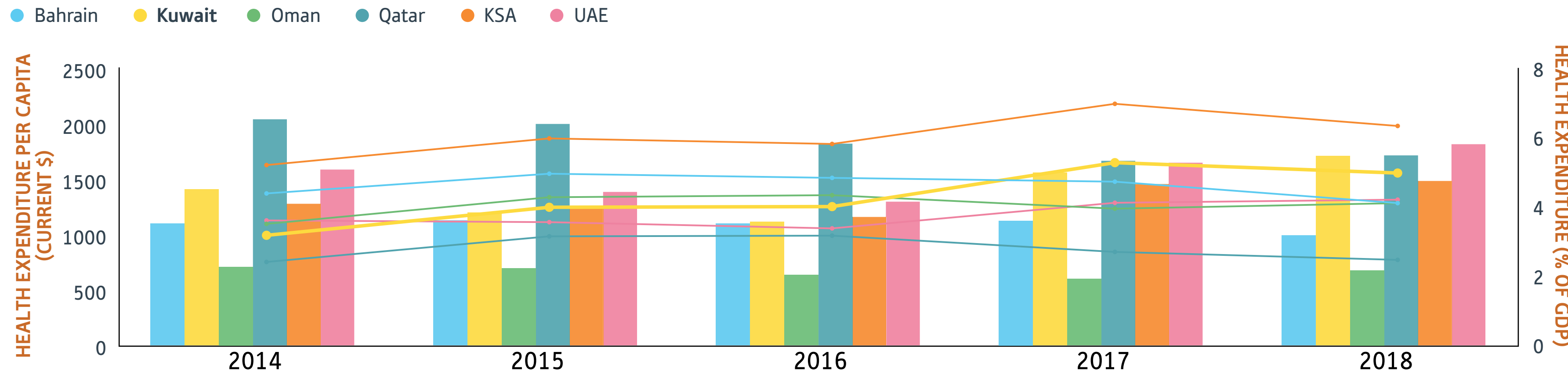
Country	Sovereign credit rating (Fitch), February 2020
Kuwait	AA
UAE	AA
Qatar	AA-
KSA	A
Oman	BB+
Bahrain	BB-

Solid foundations

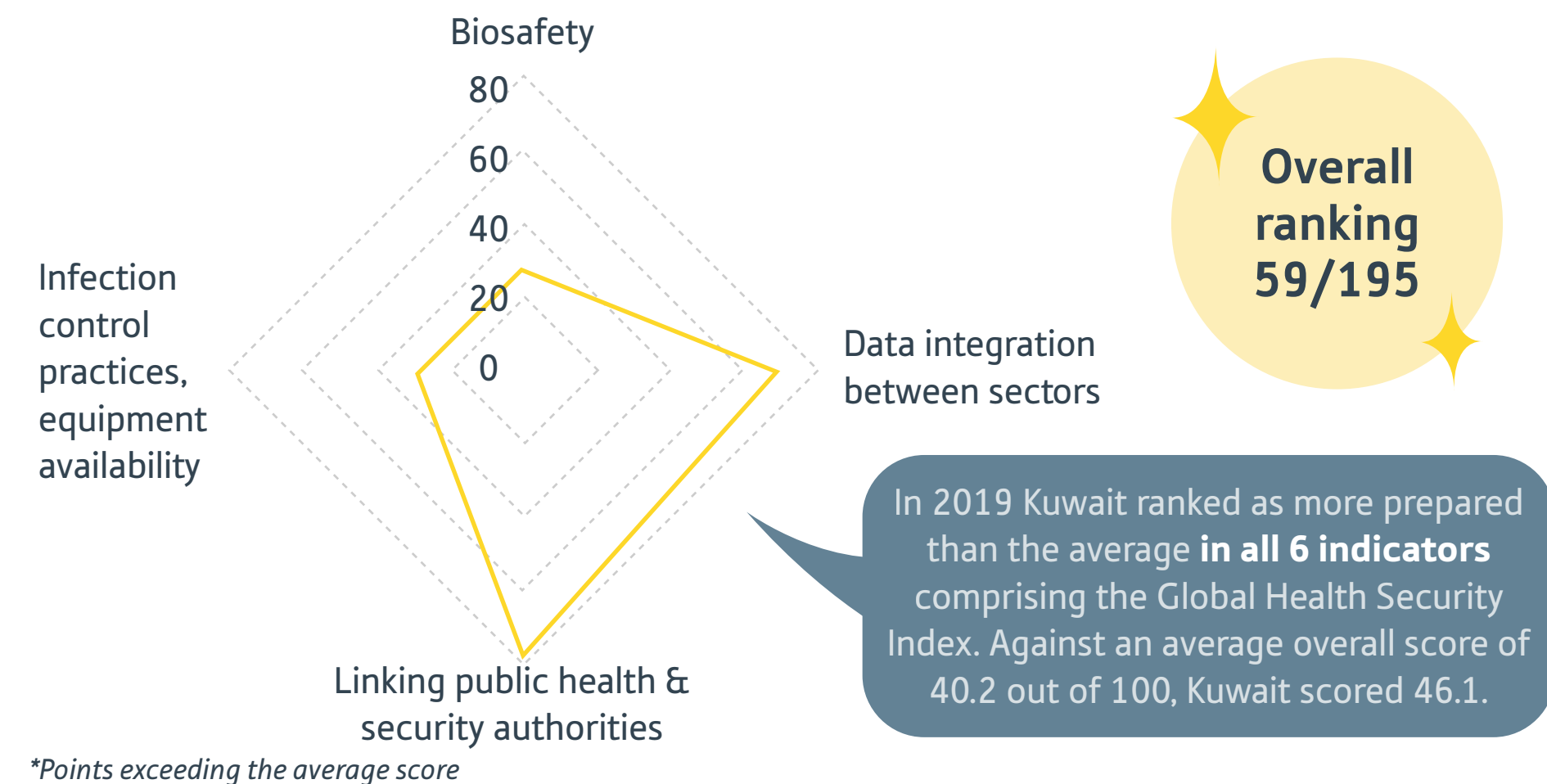
While no country could escape the negative effects of the Covid-19 pandemic, Kuwait's sound macroeconomic fundamentals allowed it to withstand some of the most severe challenges presented by the crisis. The country entered the pandemic with the third-highest GDP per capita in the Arab world, giving residents a cushion against some of the hardships to follow. The current account balance was strongly positive at the start of 2020, and Kuwait retained a high sovereign credit rating and one of the world's largest sovereign wealth funds. At the same time, solid consumption growth prior to the outbreak points to a diversifying and prosperous economy.

Sustained investment in health care and favourable demographics boosted medical resilience

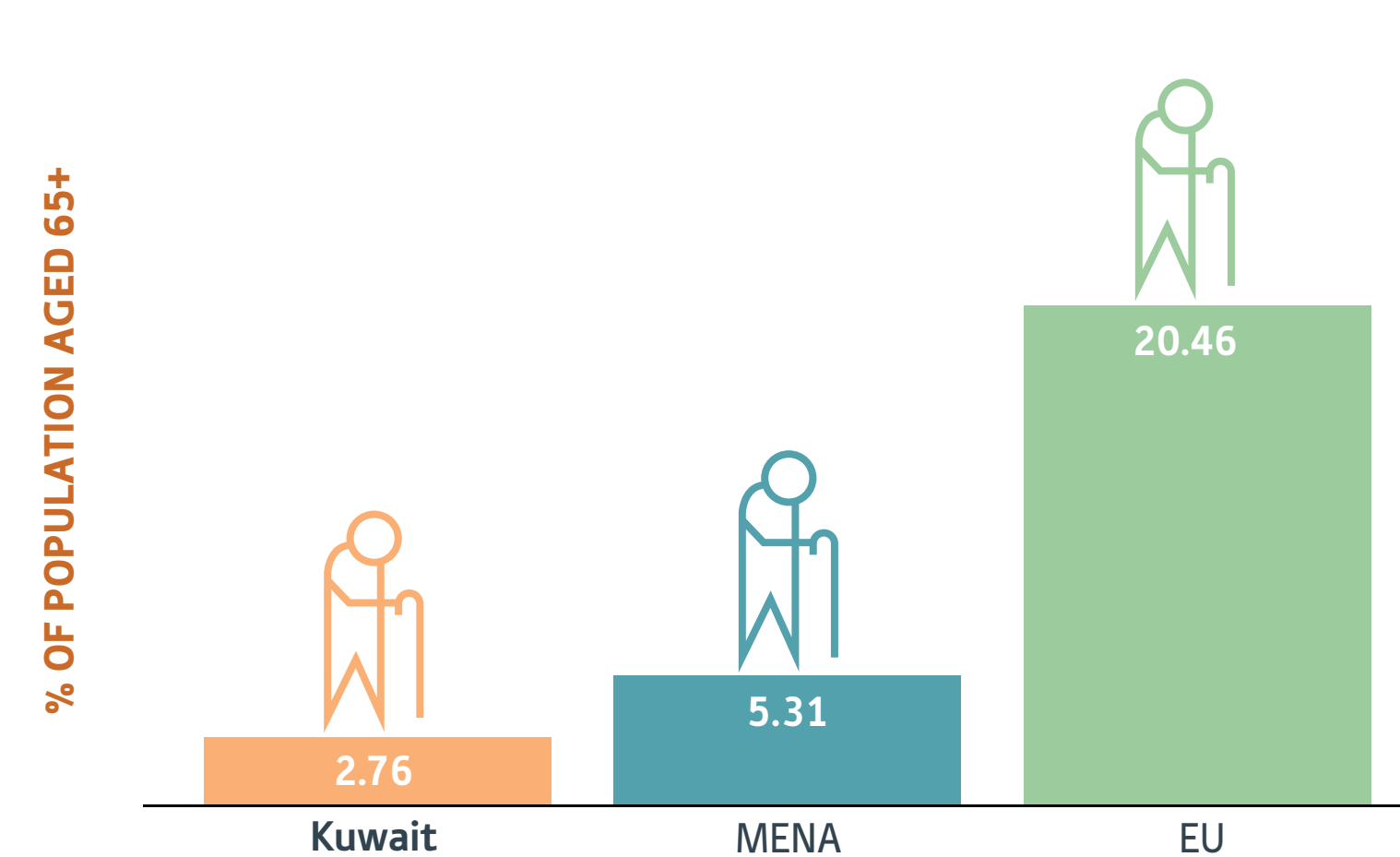
Health expenditure in Kuwait is high relative to the region



Kuwait's performance in the 2019 Global Health Security Index*



Kuwait's youthful population gave it natural resilience



Healthy position

In the years leading up to the pandemic, Kuwait had invested significantly in its health care system at a rate that was proportionally higher than most of its peers in the GCC. As a result, the country already had advanced medical infrastructure in place to help it effectively deal with the crisis. Notably, Kuwait scored highly on a number of key indicators in the Global Health Security Index 2019 related to how a country copes with an unexpected threat – particularly in the areas of data integration and coordination among public authorities. In addition, it had a relatively small proportion of its population in the high-risk category of 65 years and older.

CASE STUDY: Kuwait Institute for Scientific Research (KISR) forms a key part of the national innovation ecosystem

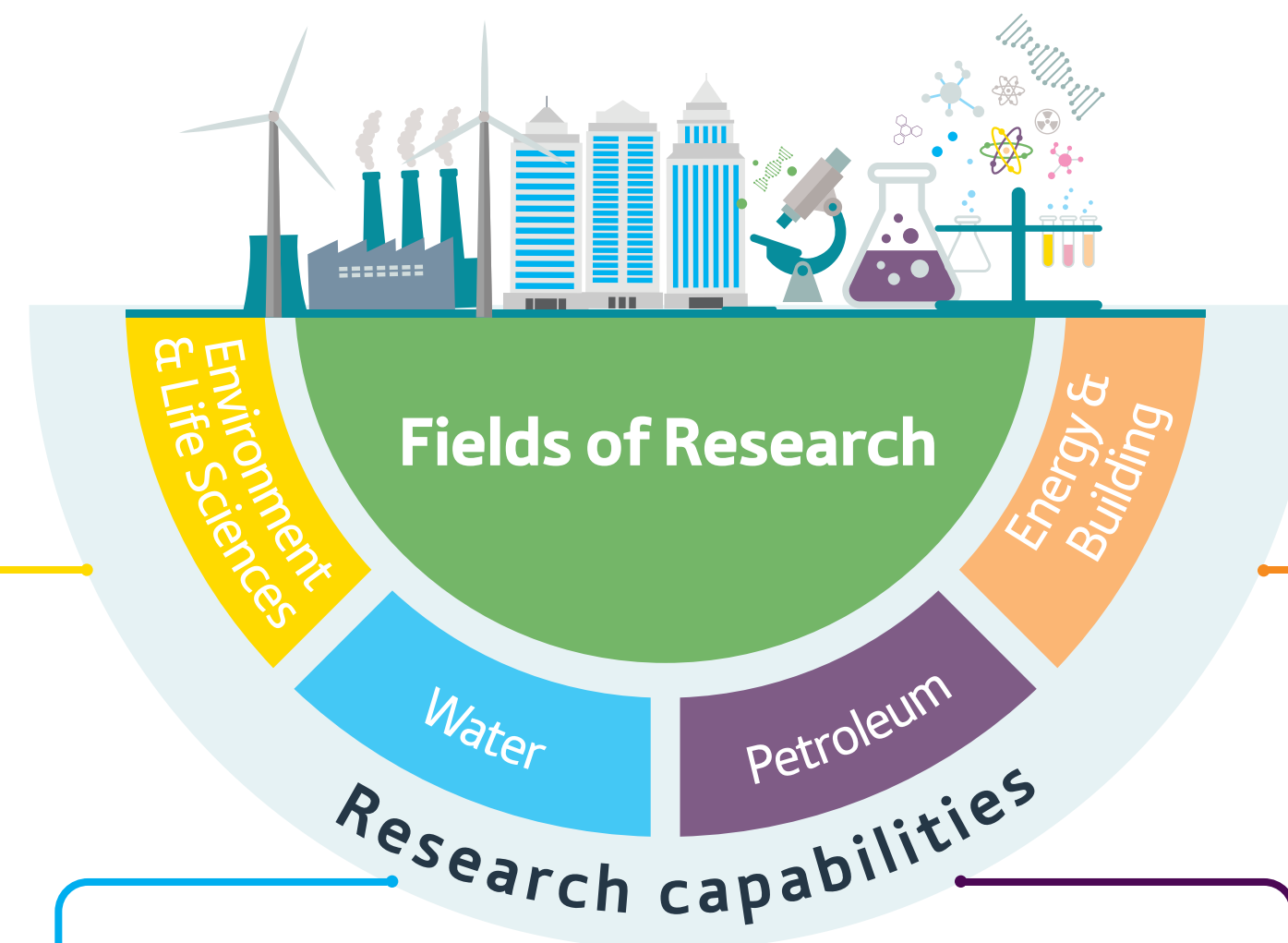
Overview

KISR is a national institute of multidisciplinary scientific research established in 1967 by Amiri decree. The institute's main research areas are petroleum, life sciences, water and energy. KISR leads or collaborates with international partners on research projects to develop, deploy and optimise the best science, technology, knowledge and innovation for public and private sector clients in Kuwait, as well as in other countries facing similar challenges and opportunities.

Focus areas align with national priorities

Mandate

KISR's main objective is to address Kuwait's national challenges through innovative applied science and technologies for sustainable development



Life Sciences Research Centre

Aims: Develop sustainable food production strategies for the agriculture and fish industries; manage the risks of environmental pollution and population; and restore the country's damaged ecosystem while preserving its natural resources

Programmes

- Coastal management
- Biotechnology
- Desert agriculture and ecosystems
- Food and nutrition
- Aquaculture
- Environmental pollution and climate
- Management of marine resources

Water Centre

Aims: Address some of Kuwait's most crucial challenges in water resource management and develop innovative desalination technologies

Programmes

- Wastewater treatment and reclamation technologies
- Thermal desalination technologies
- Water resources development
- Innovative desalination technologies

Energy & Building

Aims: Support the process for the transition to advanced and diversified sustainable energy generation; address issues related to construction materials and new infrastructure

Programmes

- Energy efficiency technologies
- Construction and building materials
- Nanotechnology – advanced materials
- Renewable energy technology
- Sustainability and reliability of infrastructure

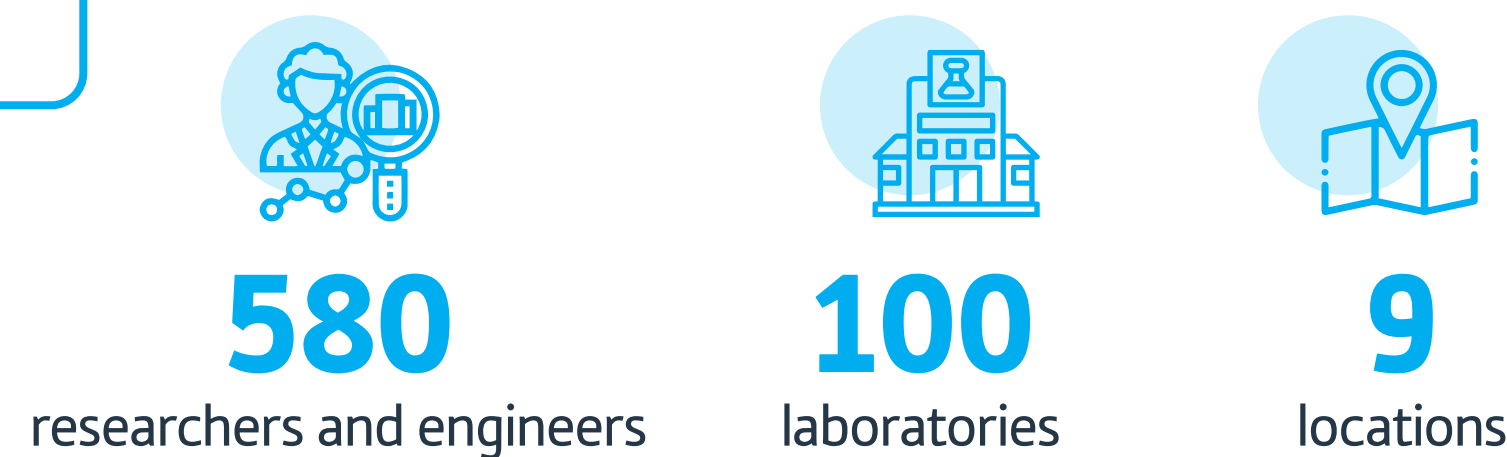
Petroleum Centre

Aims: Enhance oil recovery technology, reservoir characterisation, petroleum chemistry, reactor engineering and materials science through international partnerships

Programmes

- Corrosion assessment and mitigation technology
- Optimisation of petroleum refinery processes
- Refining capacity expansion and flexibility
- Improved oil recovery
- Polymeric products enhancement and customisation

KISR in Figures



Resilience

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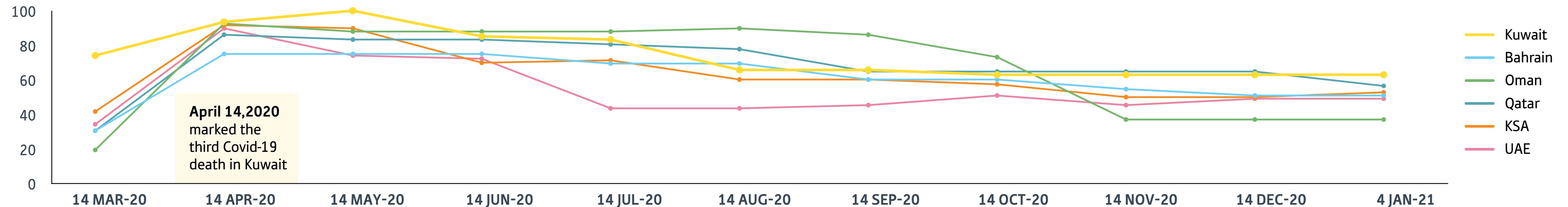
Is a new culture of research and innovation being fostered within Kuwait?

What is being done to enhance long-term food security?

Can Kuwait meet global targets in research and development?

Kuwait acted quickly to limit the spread of Covid-19 within its borders

Kuwait maintained vigilance according to the Oxford Covid-19 Government Response Tracker*



*OxCGRT systematically collects information on several different common policy responses that governments have taken during the pandemic on 18 indicators such as school closures and travel restrictions

Timeline of pandemic mitigation measures in Kuwait

- MARCH 10** – Educational institutions told to close, public gatherings banned, non-essential work in government institutions halted and curfew introduced
- MARCH 16** – Government increases the budget for state agencies by KD500m to address the challenges of Covid-19; Central Bank of Kuwait (CBK) cuts rates on monetary policy instruments by 100 basis points
- MARCH 24** – Kuwait Banking Association directs banks to delay client loan payments for six months

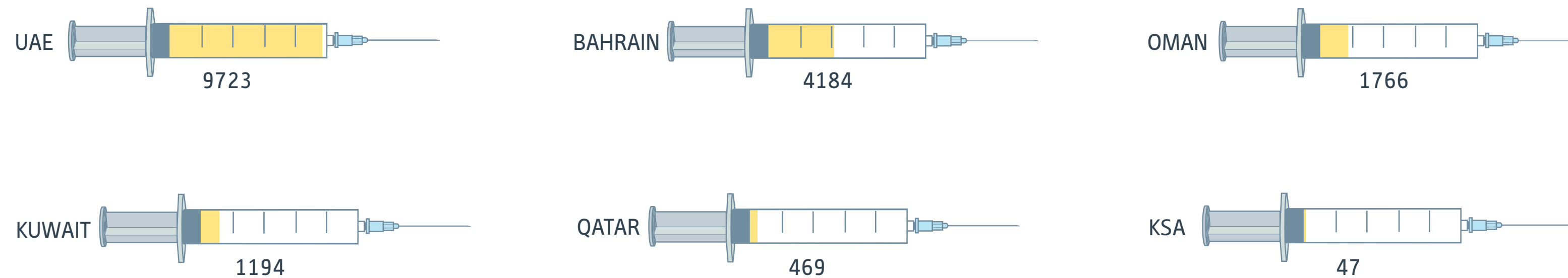
- MARCH 31** – Cabinet implements the postponement of private company social security contributions for six months, sets out long-term loans to SMEs, co-financed by the SME fund and banks, and pledges to support the incomes of nationals
- APRIL 2** – CBK reduces SME risk weight from 75% to 25% to enable greater financing by banks
- MAY 28** – Five-phase reopening plan announced
- MAY 31** – Curfew reduced to 12 hours
- JUNE 30** – Curfew reduced to nine hours, non-essential businesses permitted to reopen, 30% of employees allowed to return to work

- JULY 28** – Curfew reduced to six hours, reopening of hotels allowed
- AUGUST 1** – Commercial flights resume at no greater than 30% capacity
- AUGUST 31** – Curfew lifted, some social events and gatherings permitted with social-distancing measures in place
- OCTOBER 7** – Kuwait's National Assembly passes bill to support local banks in financing the needs of customers affected by the pandemic
- JANUARY 25** – Government postpones the second phase of resuming commercial flights indefinitely and opts to keep airport capacity at 30% of pre-pandemic levels

Kuwait expanded its testing and vaccination capacities in response to rising infections

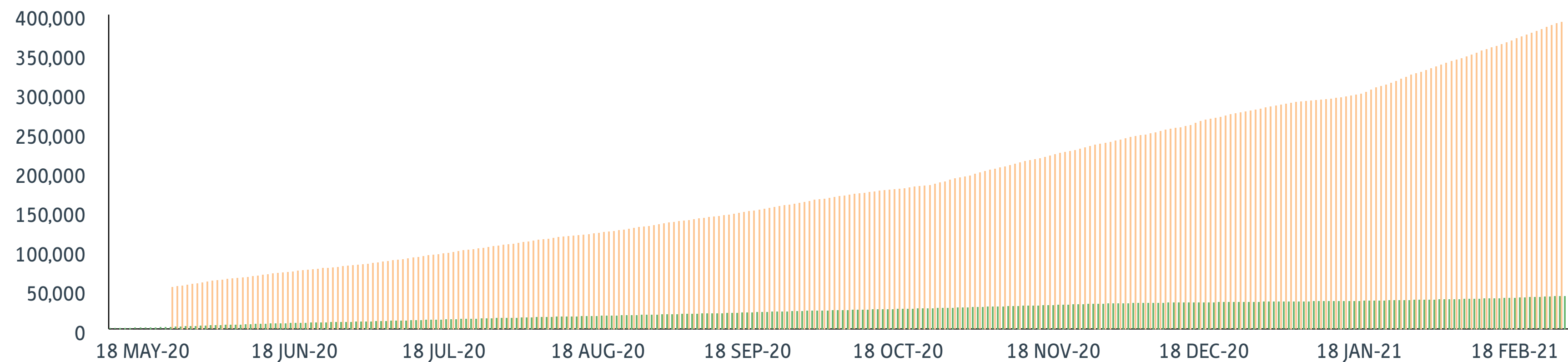
Vaccines administered in GCC countries as of February 15, 2021

● Doses administered (per 1m population)



Kuwait accelerated testing as cases began to proliferate

● Total confirmed cases (per 1m population) ● Tests (per 1m population)



Recovery shoots

In response to its rising national caseload, Kuwait quickly scaled up testing capacity in an effort to isolate infections and reduce the spread of the virus. On December 27, 2020 the country launched its vaccination programme, starting with health workers and high-risk populations, followed by the rest of citizens who wished to be vaccinated. Policymakers projected in February 2021 that the entire population of around 850,000 could be vaccinated by May of that year if global supplies remained available. Kuwait is deploying the Pfizer-BioNTech vaccine and the Oxford-AstraZeneca jab, the latter of which is expected to be available in larger quantities.

CASE STUDY: KISR's close monitoring and clear policies ensured the safety of its employees in the workplace

Worksite preparation in June 2020 for employees returning to work

- Awareness campaign
- Safety signs for the implementation of basic infection prevention rules
- Hand-held infrared thermometers
- Wrist temperature measurement stations
- Employees requested to fill out an online questionnaire developed by the QHSWED on their current health status and any condition they have that might increase their risk of infection
- Surgical, non-medical and N95 masks purchased for employees
- A tracking system to inform the QHSWED when an employee is entitled to another pack of 50 masks
- Sanitiser gels and solutions purchased, and a three-month stock maintained
- Sprayer and ultraviolet light cold fog machines, and specialised disinfection concentrated solution purchased for the routine and emergency disinfection of workplace surfaces
- Covid-19 infection tracking system and contact cases set up



Short-term actions

- A team of QHSWED employees was instructed to monitor compliance to the prevention policies and regulations daily
- A circular was issued that empowered the QHSWED to report violations to the personnel department for further action in line with the disciplinary code
- 24-hour operation of an emergency safety number for information on policy violations, as well as Covid-19 infected contact cases and general guidance
- A special team of employees was set up to disinfect the working areas of Covid-19-infected employees



Long-term actions

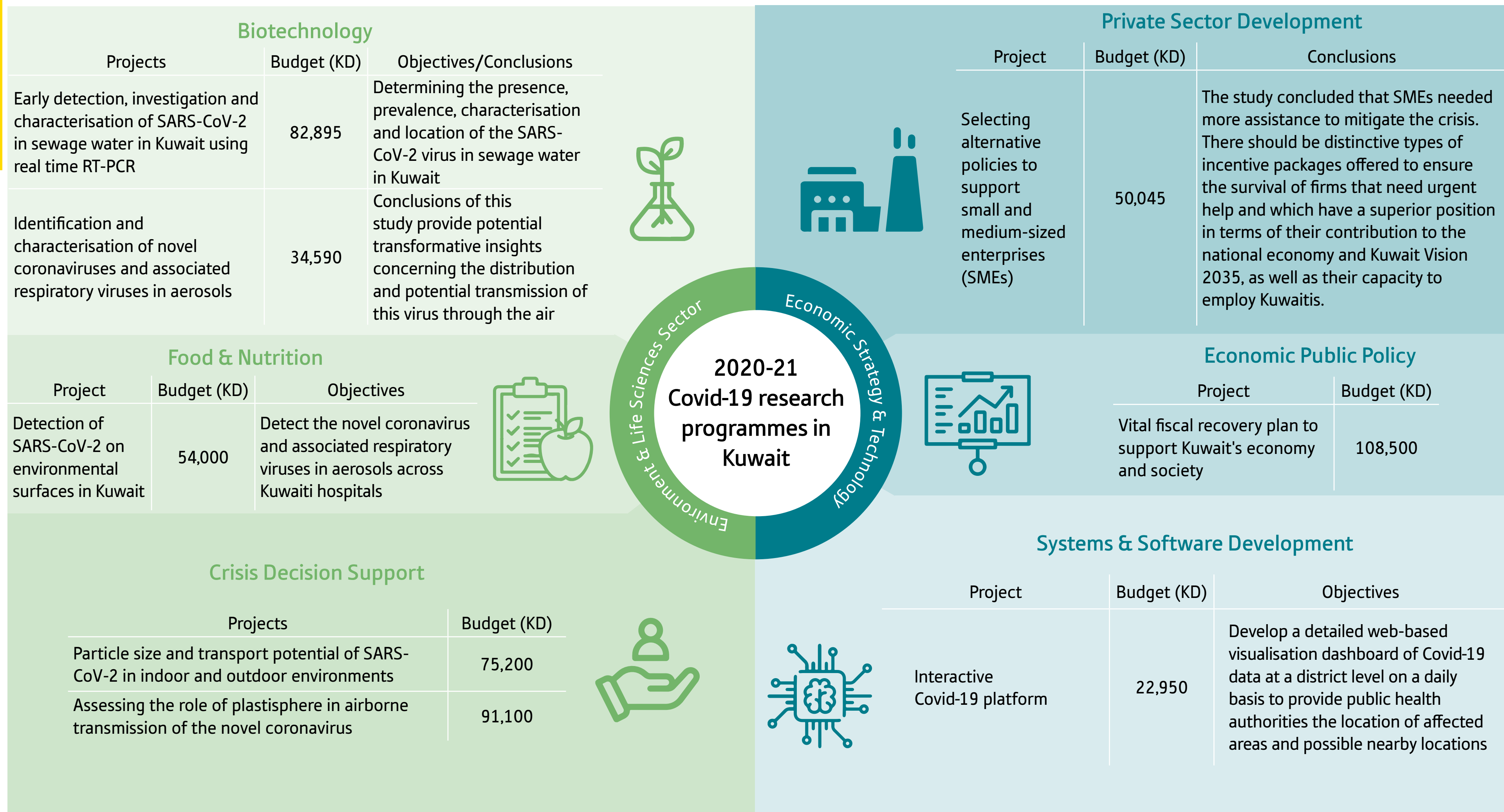
- The QHSWED set up ongoing compliance and effectiveness monitoring activity based on direct observations and the Covid-19 contact cases tracking system
- Data was analysed to identify weak spots in the overall system, and if any changes in policies and control systems were needed
- Based on an analysis of the first three months of monitoring data, the QHSWED submitted to top management a set of policies to be implemented that would ensure the safety of KISR employees while maintaining business continuity, in line with national and international guidelines
- The QHSWED will continue to monitor data and track efficacy monthly, as well as identify and implement any required revisions



Safe return

Government offices and public institutions, including KISR, were closed in February 2020 to slow the spread of the virus and keep the daily infections rate within the limits of the health care system. KISR acquired personal protective equipment identified by their Quality, Health Safety and Work Environment Department (QHSWED) for employees and contractors so they could carry out vital activities within the institution even during a total lockdown. The QHSWED started discussing the requirements for a safe return to work in the first week of May 2020, which included identifying infection-prevention policies that were to be included in the KISR Return to Normalcy Plan.

CASE STUDY: KISR oversees various research projects focused on pandemic-related challenges



Research response

KISR responded to the pandemic by participating in public awareness programmes and offering its technical know-how and research and development expertise. The institute established a task force to oversee its flagship multidisciplinary project tackling pandemic-related challenges in economics, living environment, public health and pollution through innovation. The task force called for proposals, developed evaluation criteria and recommended selected projects to KISR management. Upon initial approval of projects and project leaders, KISR provided support to accelerate the preparation of the proposal document and ensure projects met the guidelines of KISR's 9th Strategic Plan, before aiding researchers with their projects.

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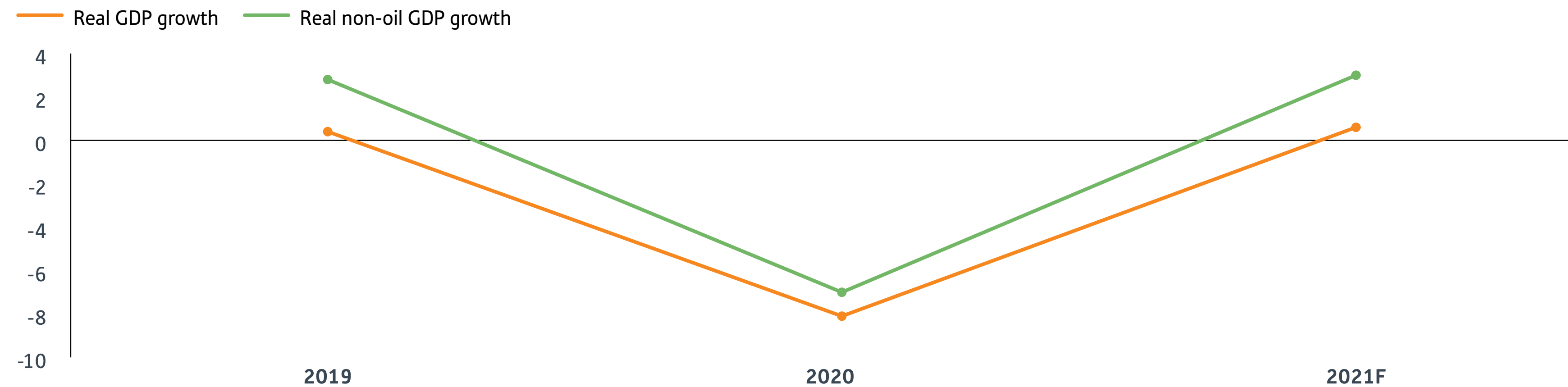
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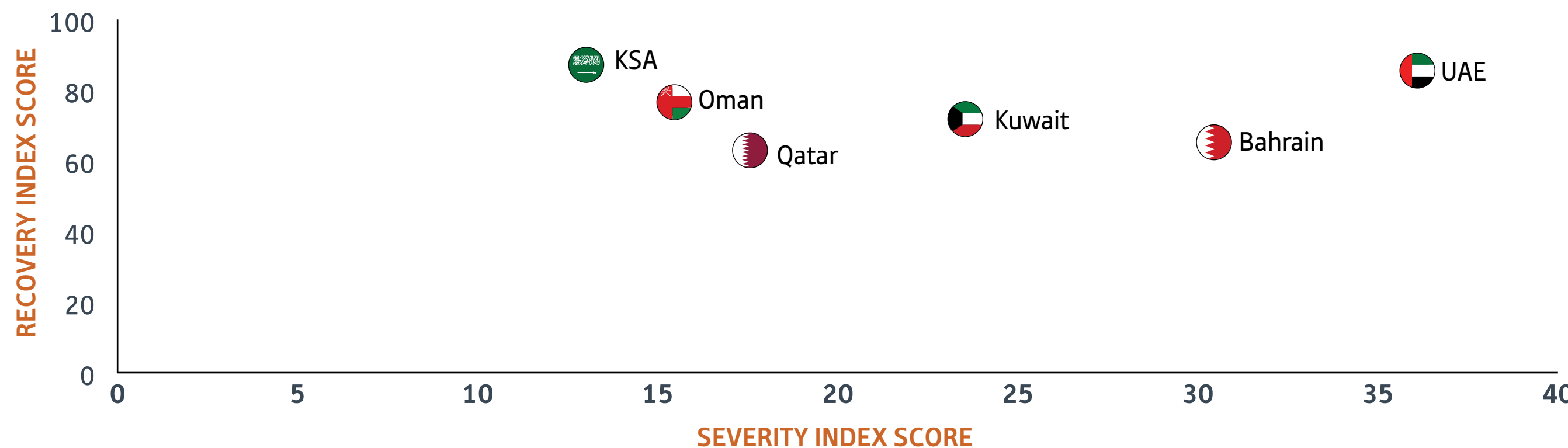
Can Kuwait meet global targets in research and development?

Kuwait is expected to return to pre-pandemic growth levels in 2021, aided by non-oil expansion

Non-oil growth to outpace overall economic growth in 2021



Kuwait outperforms world average in the Global Covid-19 Index*



56th
Kuwait's ranking out of 180 countries

Road to recovery

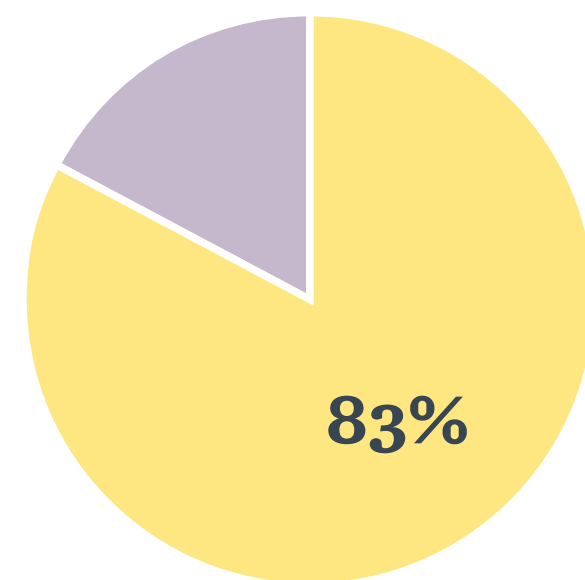
Badly affected in 2020 by the drop in oil prices and demand as a result of the pandemic, Kuwait's efforts to diversify the economy and nurture the growth of non-oil sectors should support a tentative recovery in 2021. Although inflation is expected to rise from 1% in 2020 to 2.3% in 2021, the acceleration of the national vaccination programme – with all citizens expected to be inoculated by September – should help to support private consumption growth. Meanwhile, although crisis-mitigation measures and the oil slump will likely weigh on the fiscal deficit, Kuwait's deep sovereign wealth – including the reinforced Future Generations Fund – should ensure stability.

*Developed by PEMANDU Associates in collaboration with Malaysia's Ministry of Science, Technology and Innovation, and with inputs and qualified endorsement by the WHO, the GCI is driven by big data. The index scores 180 countries/WHO member states on how well they are coping with the Covid-19 pandemic. Data sample was taken on February 16, 2021.

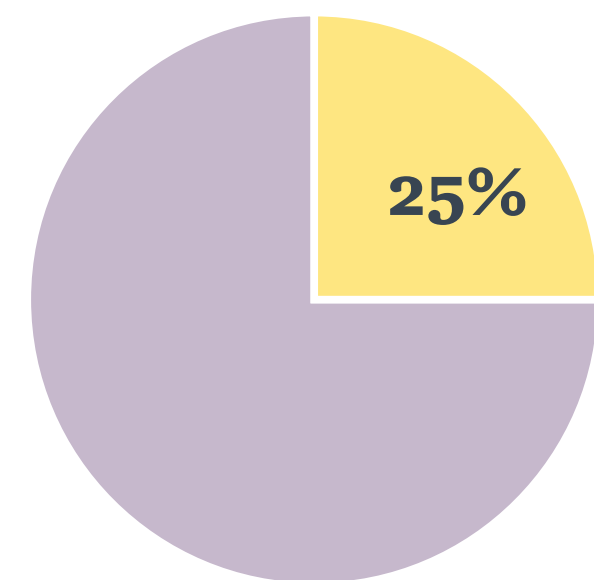
Covid-19 accelerated online shopping and remote-working capabilities

Which digital transformation measures has your company implemented as a result of Covid-19?

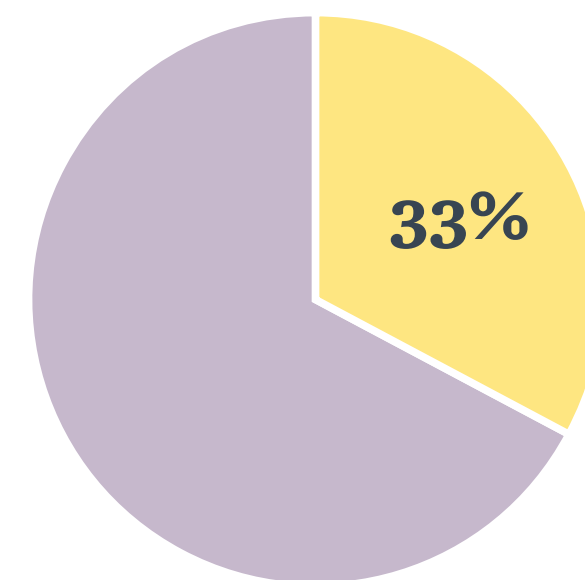
Yes No



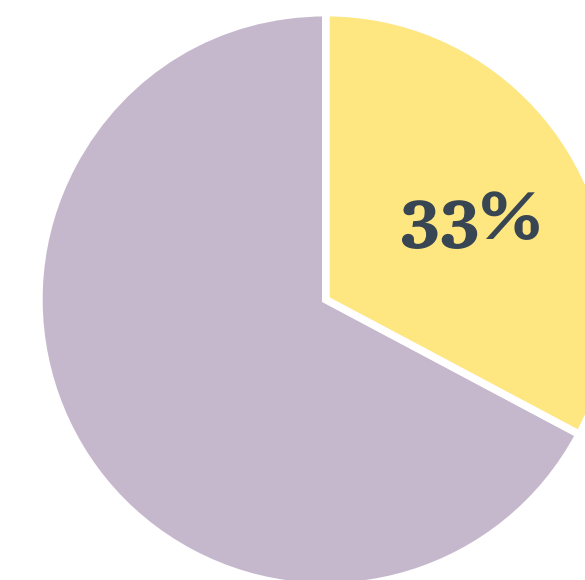
REMOTE WORKING/ MEETINGS



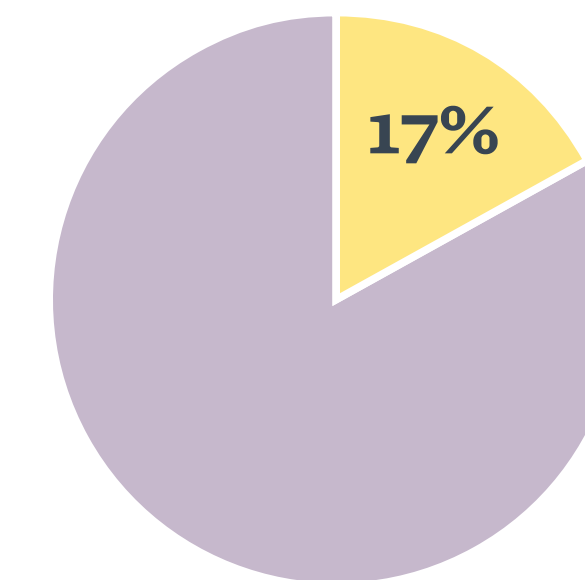
INVESTMENT IN AUTOMATION SOFTWARE/HARDWARE



USE OF CLOUD-BASED TECHNOLOGY

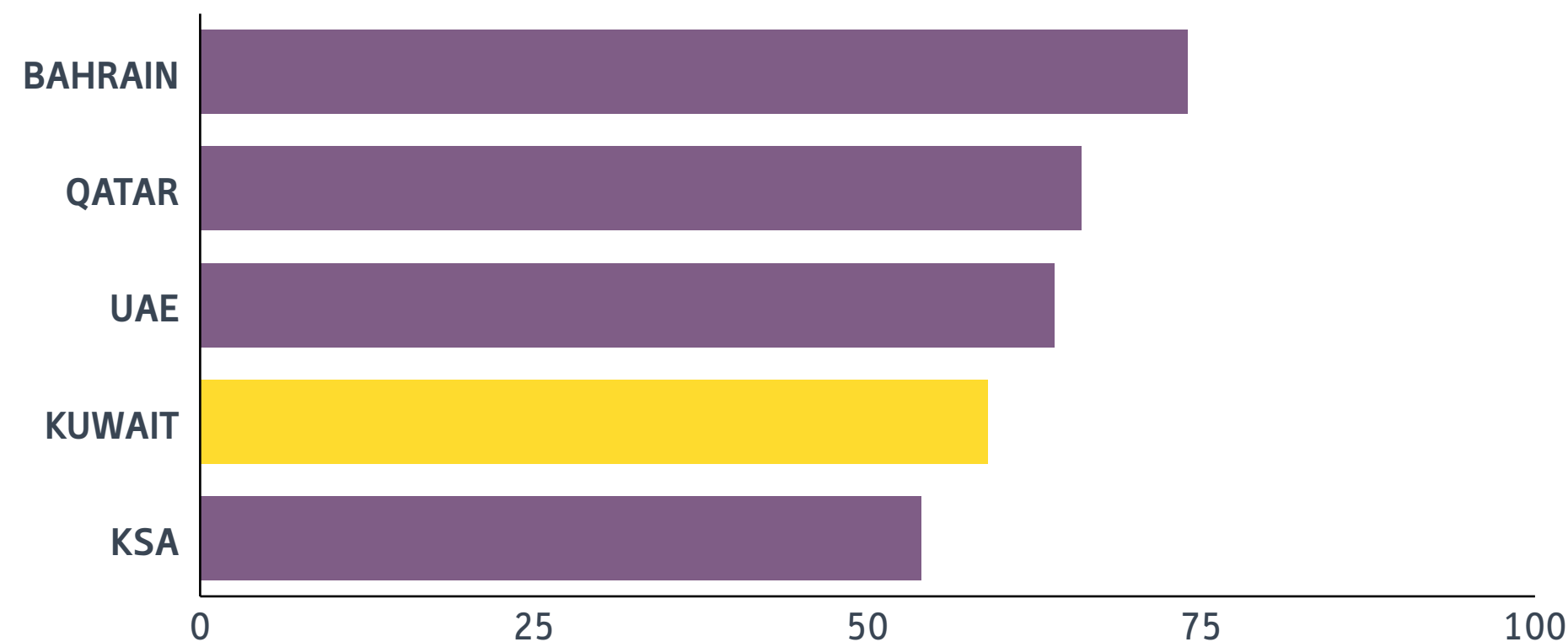


DIGITALISATION OF REVENUE CHANNELS/SERVICES



ADOPTION OF CONTACTLESS TECHNOLOGY

Digital payments as the preferred payment method for online purchases, October 2020 (% of population)



53%

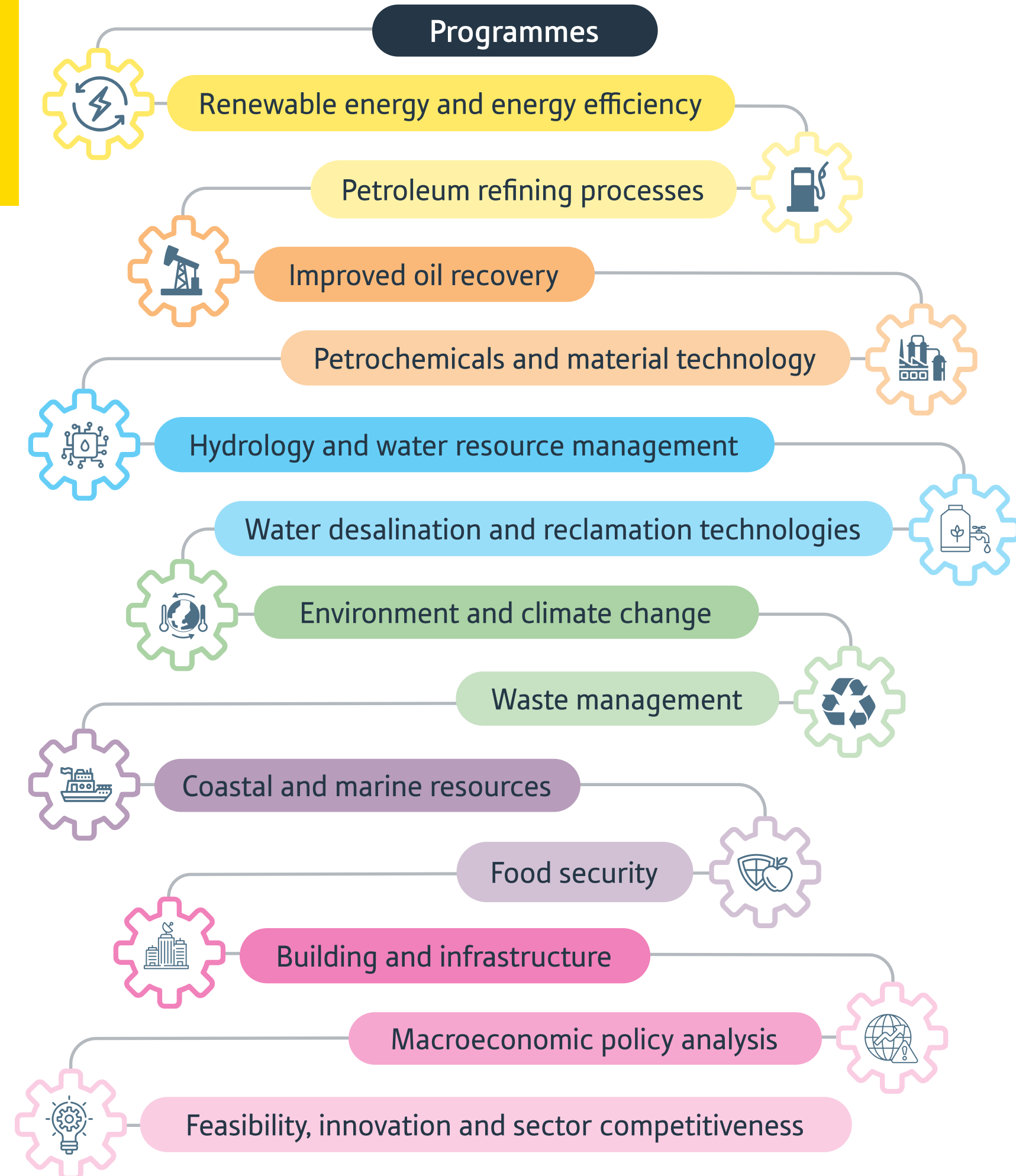
of consumers in the Middle East increased their use of smartphones for shopping online during the pandemic, and 92% are likely to maintain their current increased use

System shift

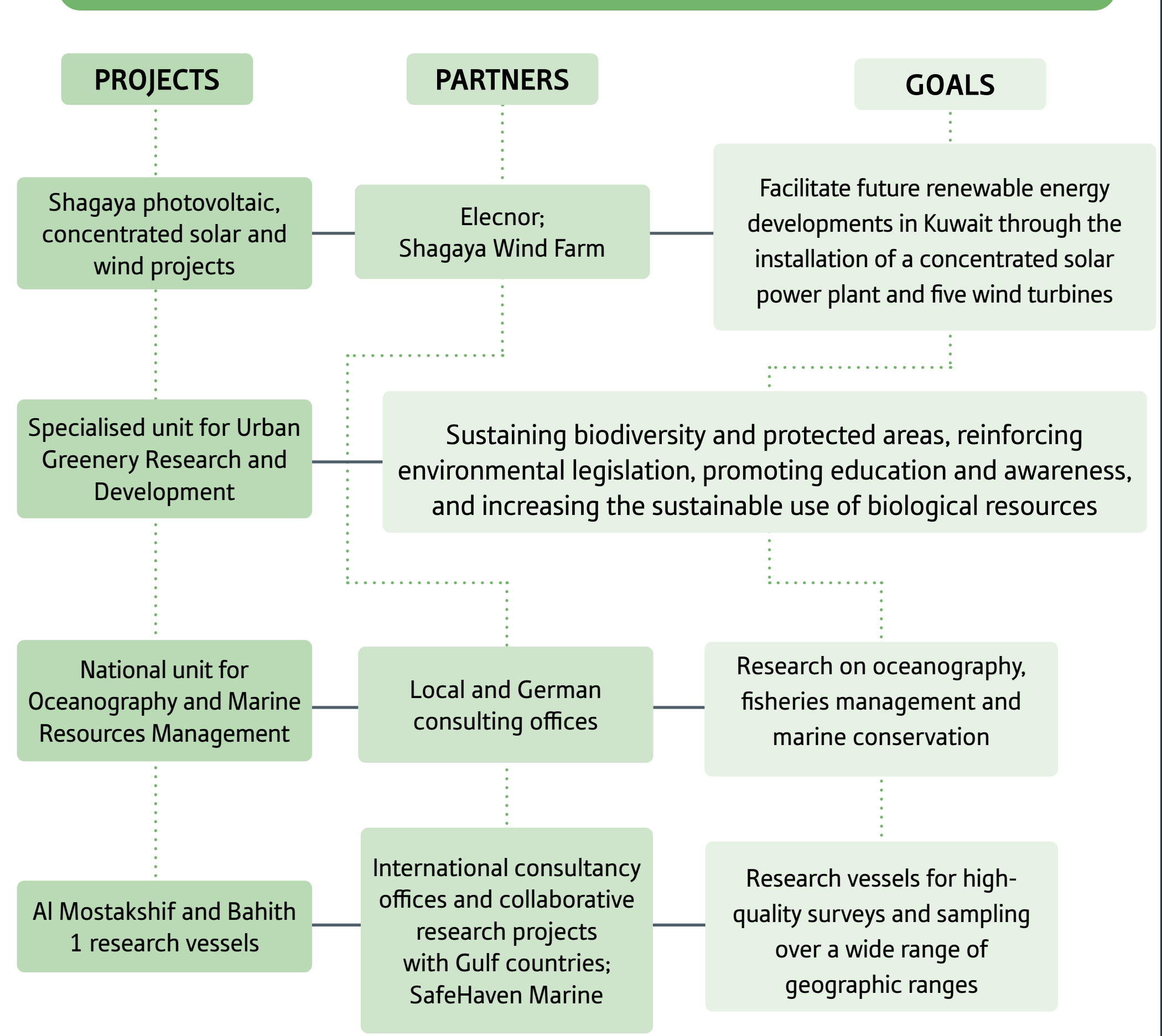
The penetration of digital payments has been accelerated by the crisis as consumers increasingly use e-commerce platforms. PwC's Covid-19 Pulse survey from May 2020 found that 53% of Middle East respondents had increased their use of smartphones for shopping in response to the pandemic. In addition, 39% of Middle East respondents had increased their shopping via PC, and 31% had increased the use of tablets for purchases. In the business ecosystem, firms adopted digital capabilities to ensure business continuity. In OBG's Gulf Covid-19 CEO Survey, which was conducted in July 2020, 83% of respondents based in Kuwait said that their firm had implemented remote work.

CASE STUDY: Public-private collaboration provides a blueprint for tackling challenges through innovation

Kuwait National Development Plan 2020-25



KISR's Public-Private Partnerships 2019-22



Sustainability champion

The principle of sustainability is now firmly woven into the fabric of Kuwait's national vision and related strategies for economic development. As the national scientific institute, KISR has thrown the weight of its research expertise behind the country's development goals.

With Kuwait looking to recover from the negative effects of the pandemic and craft a more sustainable future, KISR is playing a key partnership role in a number of projects in 2021 and 2022 related to renewable energy generation and the conservation of natural resources with the aim of developing innovative domestic solutions to national challenges.

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Recovery

Kuwait's increasingly diversified economy should return to pre-pandemic growth levels in 2021

The uptake of digital solutions boomed amid the disruption, boding well for long-term competitiveness

Public-private partnerships are generating innovative solutions to Kuwait's development challenges

Reinvention

Is a new culture of research and innovation being fostered within Kuwait?

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Can Kuwait meet global targets in research and development?

CASE STUDY: KISR aims to spur research, foster innovation and drive national economic diversification

Kuwait Vision 2035: New Kuwait

Kuwait's long-term development plan, Kuwait Vision 2035, is a comprehensive national development plan published in 2017 that places economic diversification at the forefront of the government's objectives



Kuwait 2035 Vision aims to transform the country into a centre for financial services and trade both regionally and internationally, while also becoming more attractive to investors



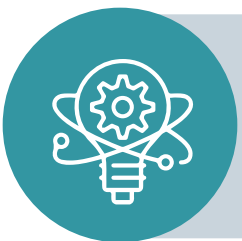
The private sector is vital to achieving this, and the country is actively pursuing partnerships and privatisation, improvements to the business environment and increased foreign direct investment to harness knowledge from abroad



Kuwait's third development plan, which covers the period from 2021/20 to 2025/26, emphasises private sector growth and economic diversification – two areas that are key to creating desirable new job opportunities



Science, technology and innovation are being prioritised in order to reach the goals of Kuwait Vision 2035



KISR Strategic Plan 2020-25

Lead and partner internationally to develop and deploy modern scientific, technological and innovative measures for Kuwait's public and private sectors

Strengthen the ability to acquire up-to-date scientific, technological and innovative skills in order to address challenges in energy, the environment, hydrocarbons production, water resources, food, infrastructure and economic diversification

Bring all administrative and research processes into a standardised digital environment

Establish partnerships with the private sector for the commercialisation of KISR products and services

Create an enabling environment for scientists to excel in science, technology and innovation, and encourage young Kuwaiti scientists to join KISR

Addressing challenges

By continuing efforts to diversify the economy and reduce its dependence on oil revenue, Kuwait is adding momentum to several large infrastructure development projects and encouraging greater levels of private sector participation and investment. The country, under its Kuwait Vision 2035 development strategy, has been increasingly drawing on science and technology to fuel innovation and drive the knowledge economy forwards. KISR's primary goal is to conduct research and development in order to contribute to the country's social and economic development. As such, science, technology and innovation are all being prioritised to reach the development goals outlined in Kuwait Vision 2035.

CASE STUDY: How KISR is tackling the food security challenge underlined by the pandemic

KISR's Food Security Programme aims to harness the power of scientific research to meet the country's food sustainability goals



Multidisciplinary approach

KISR is using a multidisciplinary approach in order to meet Kuwait's challenges across multiple strategic sectors that align with national development priorities. One such area is food security – where vulnerabilities across the GCC region were exposed by the disruption to global supply chains that occurred as a result of the Covid-19 pandemic. Kuwait has been at the forefront of regional efforts to enhance food security, and KISR has a key role to play in developing integrated domestic solutions that could potentially be scaled out beyond the country's borders. In particular, agri-tech solutions to tackle water scarcity offer high growth potential in the arid GCC region.

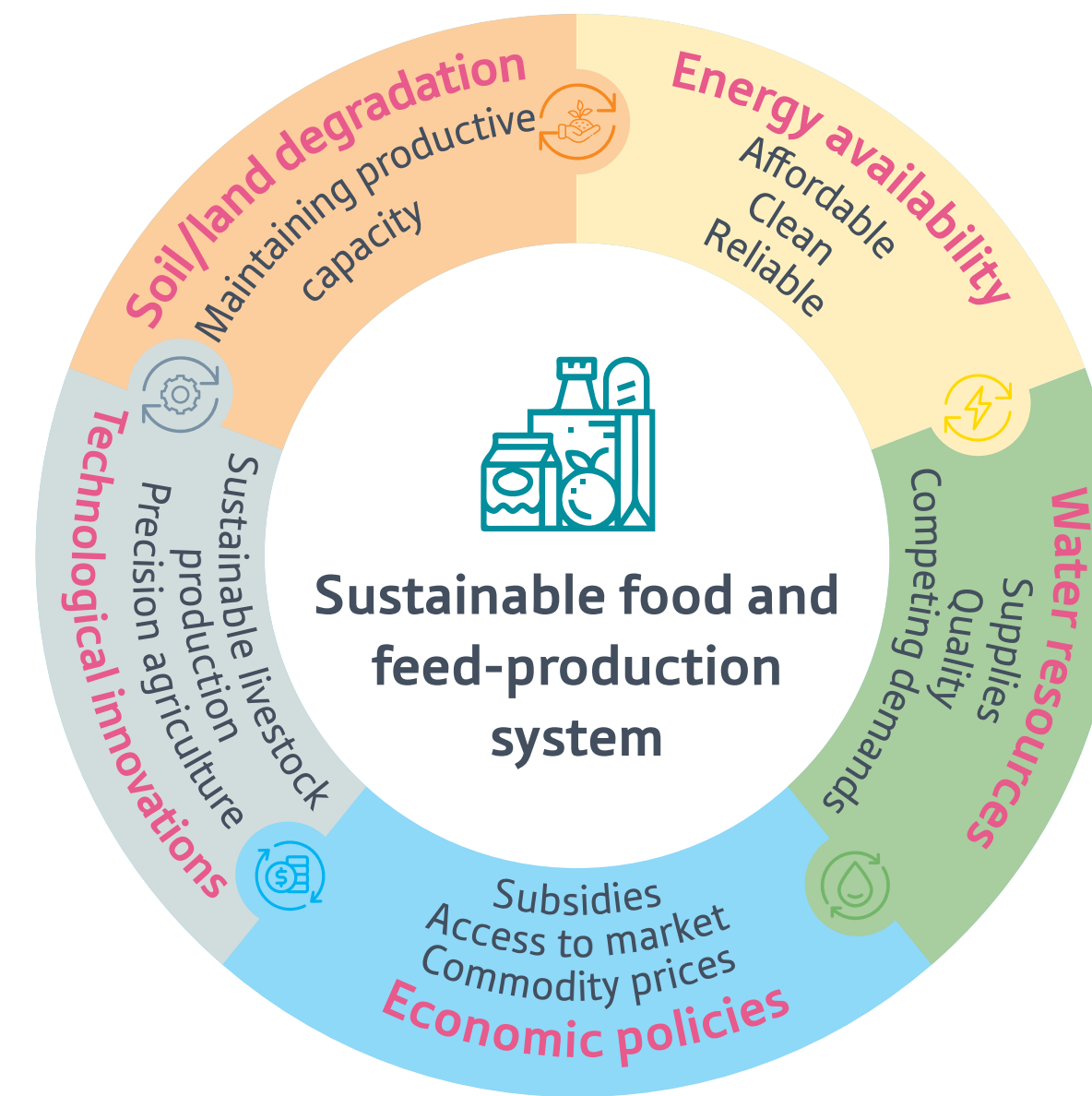
CHALLENGE

Improve food security by sustainably increasing local food production through the development and adaptation of existing international practices, reducing waste, shifting diets and improving nutrition

The Covid-19 pandemic highlighted vulnerabilities in global supply chains and underlined the importance of arid countries like Kuwait developing their own food production capacity

KISR SOLUTION AREAS

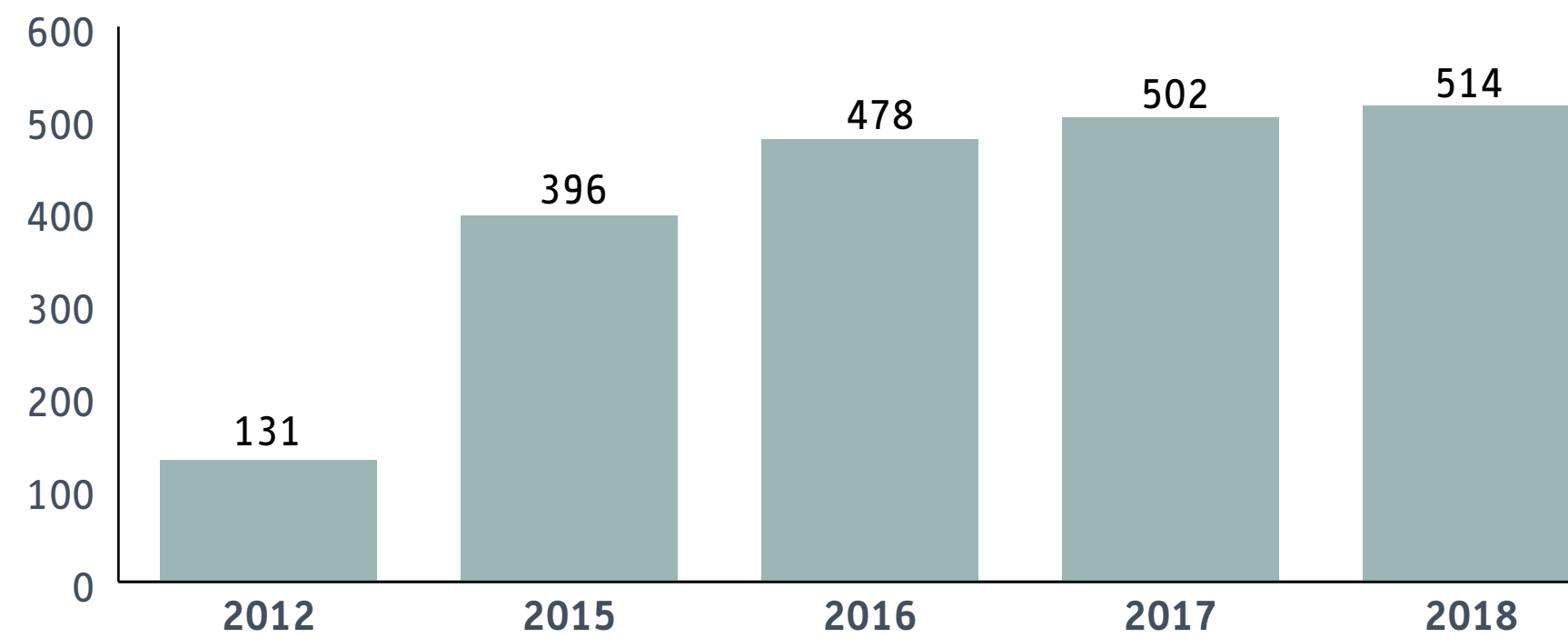
- | | | | |
|--|-------------------------------------|--|--------------------|
| | Climate-smart precision agriculture | | Reduced food waste |
| | Sustainable livestock production | | Healthy diets |
| | Improved food security | | Biotechnology |



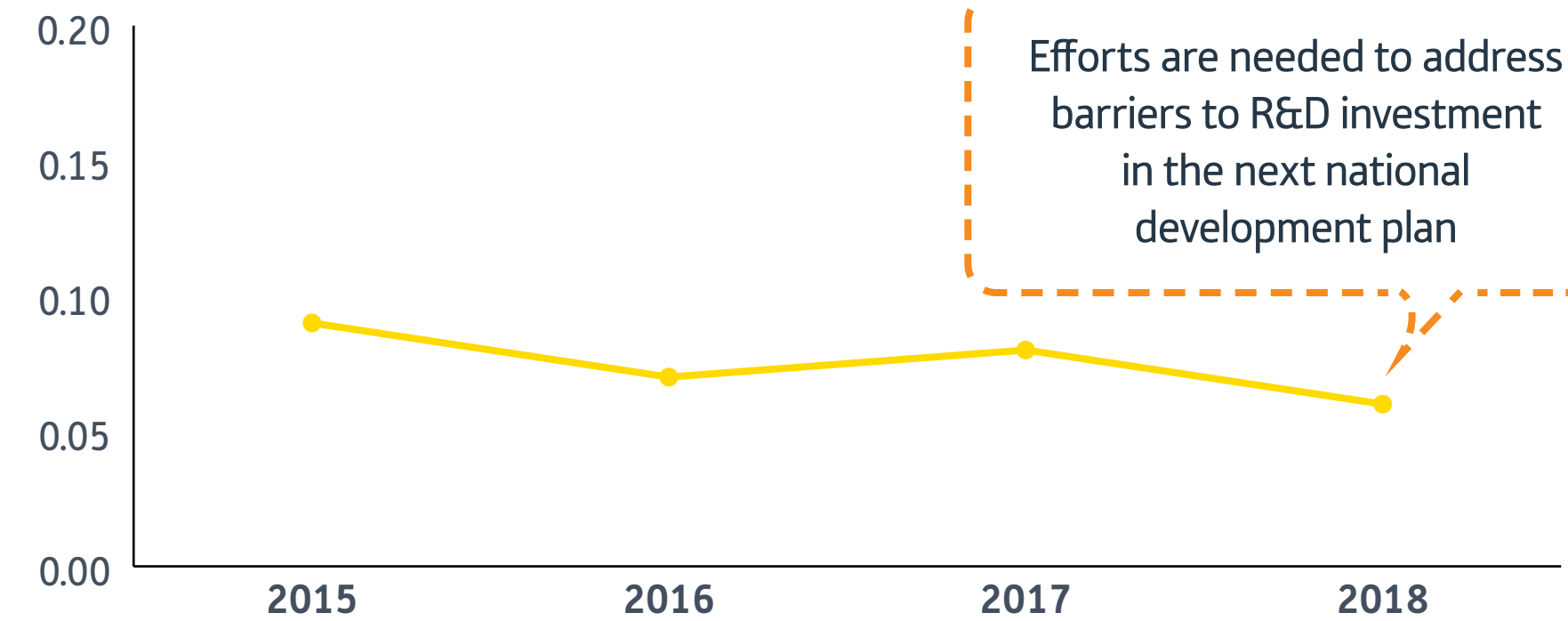
What role can R&D play in creating a more sustainable future?

R&D expenditure has room for growth in Kuwait

Researchers in Kuwait (per 1m people)



R&D expenditure (% of GDP)



Knowledge economy

Under the Kuwait Vision 2035 development strategy, the country has been increasingly drawing on science and technology to fuel innovation and facilitate socio-economic development. Boosting the volume of private and public research and development remains critical to diversifying the economy away from hydrocarbons and towards knowledge-based activities. Gulf economies have traditionally spent less on research and development as a percentage of GDP than the OECD average of 2.5% – Kuwait, for example, spent less than 0.1% in 2018 – however, new strategic partnerships between local institutions and international scientific organisations bode well for Kuwait’s medium- to long-term goals.

UN Sustainable Development Goal (SDG) 9: Build resilient infrastructure, promote sustainable industrialisation and foster innovation

Under the UN SDGs, countries have pledged to ramp up R&D spending through 2030

Global spending on R&D has reached \$1.7trn

10 countries currently account for 80% of R&D

KISR will be key to Kuwait’s efforts to achieve the UN SDGs thanks to its emphasis on resource management and environmental research projects

Global aspirations

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KISR and other key stakeholders are fostering a new culture of research and innovation in support of national goals

National food production is being scaled up through locally developed technological solutions

Kuwait's long-term research and development strategy has a strong focus on sustainability in line with the UN Sustainable Development Goals

6 Key Takeaways

1

Kuwait entered the pandemic in a relatively strong position thanks to high GDP per capita, a deep sovereign wealth fund and the region's best sovereign credit rating. In addition, sustained investment in the health care system meant the country was able to withstand the sudden strain on medical resources reasonably well.

2

Policymakers enacted a coordinated and effective response to the pandemic, with a rapid scaling-up of testing capacity, followed by the swift approval and rollout of the vaccination programme. At the same time, a broad range of fiscal and monetary measures was enacted to cushion the impact on businesses and households.

3

Although still mainly reliant on oil, Kuwait's increasingly diversified economy should recover to pre-pandemic growth in 2021, fuelled by an uptick in non-hydrocarbons industries and improving consumer sentiment, with the majority of the population to be vaccinated by mid-year.

4

The disruptive nature of the pandemic has accelerated the digital transformation process in the corporate sector, which bodes well for the long-term competitiveness of the economy. Meanwhile, consumers have grown increasingly accustomed to digital payments and e-commerce, generating new growth opportunities for dynamic companies that are open to new ways of interacting.

5

As Kuwait looks to kick-start its recovery from Covid-19, science, research and innovation will play an increasingly important role in the next phase of the country's development. Efforts to diversify the economy away from oil dependence and generate new growth engines will be accelerated, with public-private collaboration central to achieving these objectives.

6

When the pandemic subsides, familiar challenges will return to the fore in the form of water scarcity, food security, job creation, environmental degradation and resource utilisation. Kuwait can increasingly rely on a strong research and innovation ecosystem, underpinned by KISR and other key stakeholders, to develop effective domestic solutions to national challenges.

