

# **3 Science, Technology and Innovation Governance**

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This chapter presents the structure and mechanisms of governance of the STI system in Kuwait. Following a short summary of some general principles regarding effective STI governance structures, this Chapter presents a general overview of the Kuwaiti political and policy systems and discusses successively the three main levels of an STI governance structure: STI strategy and coordination; STI policy formulation and funding; and STI policy implementation.

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In any country, the political system, the structure of government and the way governance is exercised affect how science, technology and innovation (STI) policy is made, implemented and, as a result, its performance.

### 3.1. Main characteristics of effective science, technology and innovation governance structures

Governance is key to the way all organisations work, whether they be ministries, schools, companies or universities. Governance refers to the set of largely publicly defined institutional arrangements, incentive structures, rules, etc., that determine how the various public and private actors engaged in socio-economic development interact in allocating and managing resources devoted to different policy fields. Governance therefore focuses on the interactions between the various actors that together determine priorities, strategies, activities and outcomes. Governance is as much on the processes of strategy and policy formulation and implementation, as on the content. Although there is no one best way to govern STI and good practices stemming from OECD countries cannot all be directly adapted to Gulf countries, some general principles can be used as a reference framework.<sup>1</sup>

**Strategic orientation:** Originating from the highest level of the governance structure, most OECD countries (33 of 35 OECD countries recently surveyed) have clear mid- to long-term STI strategies (Borowiecki and Paunov, 2018). These strategic frameworks are essential to provide consistency and directionality in a national system of innovation. Two key parameters of these national STI strategies are their scope and objectives:

- **Scope:** These national, overarching, strategic frameworks should not be fragmented or focused on a single component of the system; for example, only considering research without taking into account the demand-side and framework conditions for innovation. Such linear approaches have revealed an inability to cope with current complex and rapidly evolving STI issues.
- **Directions:** These strategies should provide clear objectives and ensure a wide consensus around them. These orientations guide higher education, research and/or innovation activities so that they contribute effectively to the type of economic and social development the country seeks. The broad directions set in these strategies are often supported by quantified targets, such as the overall level of R&D spending, business expenditure on R&D, the number of PhD graduates, the number of highly cited research publications, patents, researchers and others. National STI strategies also often include thematic priorities such as sector, technological areas or, increasingly, major societal challenges like ageing, health, environment, and smart transport and cities (in 30 out of 33 cases in the above-mentioned survey).

However, governance is not a simple matter of top-down “steering”, in which an all-knowing principal sets agents to work to achieve centrally generated goals. Governance involves competition, consensus-building, networking and negotiating decisions in arenas in which multiple actors are involved. It therefore entails finding a balance between having too much stakeholder consultation that can drive decision making to a halt and having too little consultation that would likely lead crucial stakeholders to resist.

In turn, these strategic orientations should be embodied in action plans with an account of the measures and financial resources that will be mobilised to reach the strategic objectives in a defined time frame and with ambitious, yet realistic, objectives, whose attainment can be described or measured in advance, so that it is clear “what success looks like”.

**Strategic policy intelligence:** Strategic policy intelligence is the capacity to produce and analyse the information government needs to take “good” policy decisions. It comprises statistical data, studies, and the results of policy monitoring and evaluation. Strategies and priority-setting initiatives, as well as policy formulation and implementation, need to build on evidence originating from the results of past and ongoing

activities (via monitoring, evaluation, foresight and technology assessment, etc.), trustworthy external or internal policy research, and on consultations with experts and multiple stakeholders (from implementers to various groups within civil society at large) to guarantee their buy-in. This requires sufficient resources both in terms of competences (increasingly those related to the intensive use of digital technologies and data) and funds.

**Horizontal and vertical co-ordination:** Since STI activities cut across many sectors and policy areas, the strategic framework should cover the policy objectives and interventions of various ministries and agencies in order to ensure their overall consistency towards common broad objectives. Specific institutions, such as high-level research and innovation councils, committees, interdepartmental platforms, and other formal or informal means of decision making and dialogue are frequently used to allow co-ordination within and across disciplinary, sectoral and policy silos, as well as across levels of government (national, regional and local).

**Funding:** Sufficient and predictable financial resources and appropriate incentives for good performance and accountability are necessary to support the achievement of overall goals and priorities. Mid-term predictability of resource levels is a key precondition for those planning research and innovation activities. This is especially true for research activities where long time horizons and the accumulation of knowledge often make sustained investment important to achieve real progress. International experience shows that strategies without resources commensurate with their ambitions have only limited influence.

## 3.2. General overview of the Kuwaiti political and innovation policy systems

### 3.2.1. Kuwait's political system

Kuwait's political system is an unusual mixture of absolute monarchy and democracy. Even before Kuwait City was built in the early 18th century, Kuwait was a fishing and trading nation. The Al Sabah family was the most powerful among the early settlers, and the Sheiks – i.e. the chiefs or leaders – of the family were eventually elected by the other leading families and the merchants to rule and organise the defence of the city. In 1756, Sheik Sabah Bin Jaber, who formed the Sabah dynasty, became the first Sheik to be formally established and charged with diplomacy on behalf of Kuwait (Casey, 2007). The Al Sabah family has been the royal family ever since with, especially in the early times, strong power exerted by the merchant families who generated the country's income. The exploitation of oil in the 1950s strengthened the role of the royal family, while the other early settlers and merchant families have continued to have considerable informal influence (Casey, 2007).

Following Kuwait's independence in 1961, the elite gathered in a constitutional assembly and Kuwait's Constitution was written into law by the Amir Sheikh Abdullah III Al-Salim Al-Sabah in 1962. It established the Amir as the absolute monarch who appoints the government, which has to contain at least one elected member of parliament but otherwise mainly comprises members of various branches of the Al-Sabah family and the other influential families.

The current cabinet comprises ministers with different levels of government experience. The prime minister and his four deputies (responsible respectively for defence, foreign affairs, interior and cabinet affairs) have been in government for periods of up to seven years. The other eight ministers were appointed in 2017 and the remaining minister in 2016. Since December 2017, the son of the Amir is deputy prime minister and Minister for Defence. Five members of the government are members of the royal family. In general, a position in a minister's cabinet is seen as a political reward, allowing the royal family to weigh among the leading families, the city-dwellers, Bedouin and Shias and various political affiliations.

Both Kuwaiti men and (since 2005) women aged 21 or over can vote in parliamentary elections. Parliament comprises up to 50 parliamentarians – 10 from each of the 5 districts – elected to serve 4-year terms.

Government ministers also sit as *ex officio* members of parliament. Kuwaiti law does not recognise political parties and parliamentarians stand as independents. In practice, however, there are five political blocs,<sup>2</sup> i.e. ad hoc voting alliances formed once parliamentarians are elected, which de facto function as informal political parties. Because of these five blocs and a majority of independent parliamentarians, it is hard to achieve a decisive majority in parliament, giving a potential advantage to one of the blocs formed by up to 16 members of the government (hence about one-third of members of parliament) that sit *ex officio* as parliamentarians and are naturally aligned with government policy (Bertelsmann Foundation, 2018).

Nonetheless, the parliament does have some distinct power. First of all, the Constitution guarantees the right for the parliament to approve or disapprove the appointment of an Amir. Also, ministers have to present annually their programmes – as well as the individual laws needed to enact them – to parliament, which can question what the government proposes. It has the right to question any minister (including the prime minister) on matters of policy. It can also dismiss a minister, based on a majority vote among the elected members of parliament.<sup>3</sup> Parliamentary votes of no-confidence can and have led to impeachments, resignations and even the dissolution of the cabinet.<sup>4</sup>

Since its reinstatement after the Iraqi invasion, parliament has become increasingly important, exercising more and more often its chief power, i.e. its power to block government proposals. In 1992, the first election after the Iraq War was won by opposition groups, which together won 31 seats with an 85% turnout. More generally speaking, the 1990s were characterised by growing parliamentary pressure for reform and greater devolution of power from the Amir to the parliament. Later, in 2011, a corruption scandal led to the resignation of the Prime Minister Sheikh Nasser al-Mohammed al-Sabah and the 2012 election produced a landslide victory for mainly tribal and Islamist factions. However, the Supreme Court overturned the election result and reinstated the 2009 pro-government parliament. The ruling family changed the electoral rules in October 2012, two months ahead of the new elections. This triggered political debates and significant protests, as it was interpreted by some as a strategy to weaken the opposition (Freedom House, 2019). As a result, many opposition groups boycotted the 2012 election, leading to a low turnout, but members friendly to the government achieved a majority (Directorate-General for External Policies, 2013). Since then, while the government bloc has just retained control, the parliament as a whole has become even more unstable and fragmented. The parliament was repeatedly dissolved in the period 2012-13, both by the Amir and the Constitutional Court. In the 2016 election, in which opposition members of parliament (in particular the Salafist bloc and the Muslim Brotherhood) took 24 of the 50 seats, smaller tribes took a greater proportion of the tribal vote so that tribal representation became fragmented.

While none of the international political system ranking or rating methods are without flaws, they all converge to describe a Kuwaiti governance system that is sometimes lagging behind that of its regional neighbours. Not only are Kuwait's indicators of governance well below the levels reached by OECD and, sometimes, Middle East and North African or other Gulf Cooperation Council (GCC) countries, but the situation seems to have stagnated or even deteriorated significantly in the past ten years. This holds true for the World Bank Governance Indicators,<sup>5</sup> the "Freedom in the World" aggregate score,<sup>6</sup> as well as the Bertelsmann Foundation Governance Index and political Transformation Index.<sup>7</sup> Table 3.1 and Table 3.2 provide Kuwait's scores and ranking of the Bertelsmann Foundation and Freedom in the World indices.

**Table 3.1. Bertelsmann Foundation Governance Index and political Transformation Index**

	Current level (2018)	Oldest level (2008)	Highest level during the period
<i>Governance</i> (overall index)	4.4/10	3.94/10	4.38/10 (2012)
Steering capability	4.3/10	3.7/10	4.3/10 (2010-18)
Resource efficiency	4.3/10	4.0/10	4.7/10 (2016)
Consensus-building	4.5/10	4.0/10	4.8/10 (2010 and 2012)
International co-operation	7/10	6.3/10	7.0/10 (2014 and 2018)

<i>Political transformation</i> (overall index)	4.5/10	4.08/10	4.95 (2012)
Stateness	7.3/10	7/10	8 (2010 and 2012)
Political participation	3.8/10	4.3/10	4.8 (2010)
Rule of law	4.5/10	4.5/10	5.3 (2012 and 2014)
Stability of democratic institutions	3.0/10	2.0/10	3.0 (2012 and 2018)
Political and social integration	4.0/10	2.7/10	4.0 (2010, 2012, 2018)

Source: Bertelsmann Foundation, (2018[74]), BTI 2018 Country Report: Kuwait, [https://www.ecoi.net/en/file/local/1427395/488311\\_en.pdf](https://www.ecoi.net/en/file/local/1427395/488311_en.pdf).

**Table 3.2. Freedom in the World Political Rights Index and Civil Rights Index**

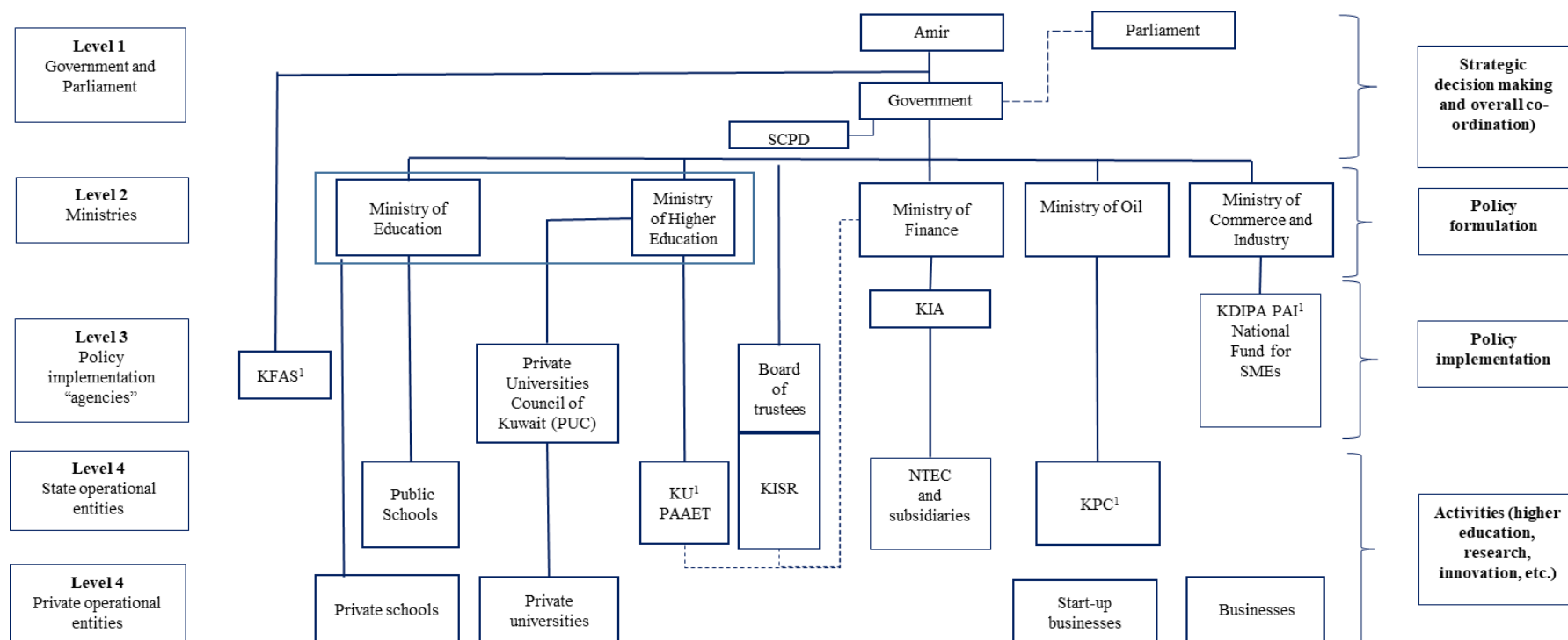
	Current level (2018)	Oldest level (2008)	Highest level during the period
<i>Political rights</i> (overall index)	5/10	4	5/10 (2012-18)
Electoral process	2/12	4	
Political pluralism and participation	7/16	9	
Functioning of government	4/12	6	
<i>Civil liberties</i> (overall index)	5/10	0	5/10 (2012-18)
Freedom of expression and belief	6/16	9	
Associational and organisational rights	4/12	6	
Rule of law	7/16	7	
Personal autonomy and individual rights	6/16	5	

Source: Freedom in the World (2019), Freedom in the World Subcategory Scores (database), <https://freedomhouse.org/report/freedom-world-aggregate-and-subcategory-scores>.

### 3.2.2. The Kuwaiti system of innovation

Figure 3.1 shows the broader set of structures through which the research and innovation system is governed in Kuwait.<sup>8</sup> Different categories of actors intervene at different levels and serve different primary functions, from the provision of strategic orientations at the top level (Level 1) to the implementation of higher education, research and innovation activities by public and private performers at the bottom of the system (Level 4). The influence of the top level on actual activities depends not only on the quality and relevance of the strategic process (strategic intelligence, stakeholder consultations, etc.), but also on the effectiveness of the intermediate levels that transform overarching priorities into policy (Level 2) and implement policies (Level 3).

Figure 3.1. Governance of the Kuwaiti research and innovation system



1. The governing body is chaired by a government minister, or in the case of the Kuwait Foundation for the Advancement of Sciences by the Amir.

Notes: This diagram covers major actors, but is not exhaustive. The dotted lines represent financial flows with implications in terms of governance. For instance, the Kuwait Institute for Scientific Research, Kuwait University, and the Public Authority for Applied Education and Training receive their funding directly from the Ministry of Finance, not from the Ministry of Higher Education. Given the focus of this report on research and innovation, other important parts of the national governance structure have been omitted.

This organisational chart reveals some distinct characteristics of the governance of the Kuwaiti research and innovation system. Starting from the top, there is no high-level strategic or advisory council in charge of the orientation and holistic co-ordination of the STI area and there is no dedicated ministry of research or ministry of innovation.

In 2019, the Kuwait Foundation for the Advancement of Sciences (KFAS) commissioned a consortium of consulting companies to perform a 12-month study into the “redesigning and restructuring of the government of Kuwait”. The role of the government in Kuwait is described as mainly a set of loosely connected bodies providing operational services rather than an entity setting priorities, developing regulations and undertaking the monitoring of the impact of these activities (KFAS, 2019a).

### 3.3. Strategic orientation and overall co-ordination of science, technology and innovation

The provision of strategic orientation to guide research and innovation activities involves both top-down and bottom-up dynamics. Although the results of the deliberation on and selection of the priorities are formalised and conveyed by the highest level of policy making, it is a diffuse process that embeds the knowledge and preferences of multiple actors, from politicians and policy makers to experts and citizens.

#### 3.3.1. The main organisations providing STI strategic directions

His Highness the Amir, the centre-of-government institutions, i.e. the prime minister and the cabinet, and the Supreme Council for Planning and Development (SCPD) are the main actors that set high-level priorities and objectives for the whole economy.

##### *Centre-of-government institutions*

In Kuwait, the highest and most “permanent” authority, in the research and innovation policy field as in all others, is His Highness the Amir. The Amir provides the vision that underpins Kuwait’s long-term development. Although the Amir can be independent of the government he appoints, in particular by issuing decrees or establishing organisations (such as KFAS), most policy initiatives are taken by the cabinet, which meets in plenum for half a day per month and is chaired by the prime minister. However, the prime minister remains “first among equals” in the government – co-ordinating and leading rather than exercising a more presidential role as seen, for example, in Finland and the United Kingdom. He fulfils his constitutional mandate of policy co-ordination across the government mainly through weekly cabinet meetings.

##### *High-level strategic and advisory bodies*

In most OECD countries (Box 3.1), overarching STI priorities are set by high-level research and innovation councils or committees.<sup>9</sup> Although they differ in their mandate, scope, enforcement power and composition, these permanent bodies outside of ministries and agencies all have explicit mandates to engage in one or several of the following activities: provide policy advice or oversee policy evaluation; co-ordinate policy areas relative to public research; set policy priorities; and/or engage in joint policy planning regarding higher education institutions’ (HEI) and public research institutes’ (PRI) policies. In order to avoid conflicts of interest, funding is generally not part of the mandate of such bodies.

### Box 3.1. National science, technology and innovation strategies: Results of an OECD survey and of an international benchmarking

#### OECD database on STI governance

A new OECD policy database provides a systematic comparison of the governance of public research policy across 35 OECD countries from 2005 to 2017 (Borowiecki and Paunov, 2018).

National science, technology and innovation (STI) strategies or plans are in place in most countries (33 of 35, or 94%) and the bulk of them address and give more prominence to major societal challenges (31 of 33 countries, or 94%). Key themes include sustainable growth, health and efficient transportation systems. STI strategies and plans also define specific scientific research, technologies or economic fields of national priority (30 of 33 countries, 90%). In 29 of 33 countries (88%), STI strategies address specific subnational priorities for specific federal states or regions, reflecting for EU member states' and partner countries' Smart Specialisation strategies.

National STI strategies often include quantifiable targets in order to assess whether policies have met their objectives or not. In 25 of 30 countries (83%), national STI strategies include such quantitative targets. Fourteen out of 25 countries (or 56%) with quantitative targets list R&D spending targets. Other targets include increasing funding for doctoral students, job placements of researchers and PhDs in industry, or increased funding from participation in international programmes. In Ireland and Japan, the national STI strategy sets quantitative benchmarks for knowledge transfer between universities and industry, including raising the private funding of university research, the amount of collaborative research funds received from industry and the number of license agreements on university patents.

Strategies also generally identify specific scientific research, technologies or economic fields (30 of 33), mentioning energy and energy technologies, health and life sciences, information and communication technologies (ICT), nanotechnology and advanced materials.

As revealed in several OECD Innovation Policy Reviews, the main limitation of these strategies lies in their implementation. If not followed by concrete action plans and/or governance mechanisms to co-ordinate policy actions, national STI strategies tend to remain mere communication documents, with limited impact. Another issue concerns their multiplicity and fragmentation: some countries have several STI strategies, originating from different parts of the national system (often the ministry of research and the ministry of economy or industry), which results in confusion and conflicting signals sent to STI stakeholders.

#### Vinnova international benchmark of STI councils

- A benchmarking of STI councils commissioned by Vinnova identified some good practices:
- The chairing by the prime minister and the presence of ministers is generally positively associated with a council's ability to ensure co-ordination and communication between the different sectors.
- Their ability to affect innovation policy as a whole is limited when their scope is not system-wide and/or there are parallel bodies acting in their sphere.
- The policy elaboration, co-ordination and advising roles of councils must not get entangled in resource allocation or budgeting, as this might undermine their neutrality and independence and generate strong opposition from ministries.
- STI councils' decisions should be based on wide and transparent consultations, as well as thorough analyses. If possible, these analyses should not be carried out by only one ministry. Most councils have analytical resources (a secretariat and a budget for analyses).



- Councils' form and processes should be robust against changes of government by being sufficiently flexible to accommodate some change priorities while maintaining continuity of strategic intelligence and advice.
- Councils should make their mark quickly, both as “thought leaders” in policy making and through successful intervention. This also implies good communication and dissemination of reports.
- Realistic expectations should drive the design of STI councils' mandates. Councils cannot be tasked with addressing all national needs for innovation policy, i.e. provide relevant advice, oversee policy implementation, direct or guide investments, evaluate policy, encourage experimentation and learning, and mobilise stakeholders.

Sources: Borowiecki, M. and C. Paunov (2018), “How is research policy across the OECD organised?: Insights from a new policy database”, <https://doi.org/10.1787/235c9806-en>; Schwaag Serger, S., E. Wise and E. Arnold (2015), National Research and Innovation Councils as an Instrument of Innovation Governance: Characteristics and Challenges, [https://www.vinnova.se/contentassets/4da13cc174a448d1a3f0b816c6b74366/va\\_15\\_07t.pdf](https://www.vinnova.se/contentassets/4da13cc174a448d1a3f0b816c6b74366/va_15_07t.pdf).

Debates around the creation of a high-level council or committee specifically in charge of the strategic orientation and overall co-ordination of research and innovation have been going on for more than a decade in Kuwait, to no avail. The 2006 report by the Kuwait Research Review Panel (KRRP, also known as the “Blue Ribbon” panel) recommended the creation of a well-endowed and capable Kuwait Science, Technology and Innovation Council (KSTIC) (KRRP, 2007). Although it was subsequently included in the Mid-Range Development Plan 2010-2015, this recommendation was not implemented. The debate on the creation of a high-level STI Council was revived in 2016 when it was presented to the Human and Community Development Committee of the Council of Ministers. This last attempt was again unsuccessful, as the creation of a council was deemed too costly by the Ministry of Finance. The proposed council was therefore downgraded to the status of committee, a less costly (with no permanent staff), but also less powerful, policy body type in Kuwait. The Kuwait Institute for Scientific Research (KISR) delivered a new proposal for the establishment of a National Committee for Science, Technology and Innovation in 2017. Following negotiations involving several policy actors, the Ministry of Finance opposed the creation of the committee, invoking again budgetary constraints. In 2019, KFAS made a proposal to create a National Research Committee. To date, neither a council nor a committee has been appointed.

The history of the attempts to create a high-level STI body in Kuwait is presented in Box 3.2.

### **Box 3.2. The long and yet unsuccessful history of a national high-level science, technology and innovation body in Kuwait**

The Kuwait Research Review Panel (KRRP) was the first to officially recommend the creation of a national council for science, technology and innovation in 2007. This so-called Kuwait Science, Technology and Innovation Council (KSTIC) should report to the office of the prime minister, have its own secretariat and be able to undertake studies. It was also important that it have enough political weight and influence to be able to “control allocation of resources allocated to the advancement of science, technology and innovation in the country”.

The responsibilities of the proposed KSTIC were to be similar to those of a science ministry, but operating outside the government:

- creation of a detailed and common science, technology and innovation (STI) vision based in part on the panel's recommendations, but also supported by additional, more in-depth studies
- establishment on the basis of the above vision a co-ordinated strategic national R&D agenda and specific plans for its implementation
- development of plans and strategies for strengthening Kuwait's STI capacity and providing appropriate support to the institutions that can best implement these plans
- development of policies relative to some aspects of the conduct of STI in Kuwait (e.g. policies pertaining to the ownership of publicly funded research)
- development of methods for enhancing STI funding and absorptive capacity
- co-ordination as appropriate and monitoring and assessment of the work of the country's STI institutions
- implementation of a framework for promoting commercialisation activities on the part of the nation's STI institutions and in other ways facilitating the application of the products of R&D activities in industry.

The KRRP proposed an implementation process leading to the creation of the KSTIC.

The Kuwait Institute for Scientific Research (KISR) submitted an analysis of the national research and innovation system to the KRRP and recommended the creation of a policy council involving central ministers (including the prime minister), the heads of KISR, Kuwait University, the Kuwait Foundation for the Advancement of Sciences, the Public Authority for Applied Education and Training, and the Chamber of Commerce, as well as six technical specialists. This proposal did not find favour with the government.

Building upon these studies, the creation of the KSTIC was officially approved in 2010 and was included in the 2010-2015 Kuwait Mid-Range Development Plan: "Establishing a supreme council for science, technology and innovation based on the formulation of a long-term national policy and strategic planning" (SCPD, 2010). KISR also proposed a decree and several meetings were held to discuss it. However, it did not materialise, despite numerous interactions between all the concerned authorities.

This proposal reappeared in 2016, when it was presented to the Human and Community Development Committee of the Council of Ministers, this time as a "national committee for science, technology and innovation" instead of a council, in order to alleviate the financial burden. The former decree was amended and again circulated in the administration in order to agree on the terms of the revised decree. Following numerous interactions, the Ministry of Finance finally rejected the proposal in April 2018, again on the basis of financial considerations.

Sources: KRRP (2007), Report of the Kuwait Research Review Panel; Al-Awadhi, N. and Y. Al-Sultan (2007), National Policy for Science, Technology and Innovation of the State of Kuwait; KFAS (KFAS, 2019), Project: Establishment of a National Council for Science, Technology and Innovation, KFAS; (SCPD, 2010).

There are several examples of development trajectory deemed successful where a powerful government body has played an important role in providing strategic orientation and co-ordinating the various actors of their respective eco-system. This government body can be a ministry – such as the former Ministry of International Trade and Industry in Japan (Johnson, 1982) – or an advisory council, as in Malaysia, Singapore or Chinese Taipei (Box 3.3).

### Box 3.3. High-level bodies in charge of science, technology and innovation strategy and overall co-ordination in Malaysia

The Investment Committee for Public Funds in Malaysia is the committee responsible for co-ordinating publicly funded research, development and commercialisation projects in the framework of the Malaysian five-year national planning process. It is composed of 15 representatives of all science, technology and innovation (STI)-related ministries as well as technical experts in STI areas.

The establishment of the Investment Committee for Public Funds aims at:

- Ensuring effective and efficient use of public funds in the planning and execution of research, development and commercialisation by fund managers at ministries and government agencies.
- Ensuring adherence to sectoral focus in line with the national priority areas and the National Science and Research Council.
- Facilitating collaboration, streamlining and minimising duplication of projects/programmes between ministries and agencies. For instance, in 2014, during the review of development projects worth MYR 1.2 billion (Malaysian Ringgit), the Investment Committee for Public Funds claimed to have streamlined 26 applications, resulting in savings of MYR 432 million, which were then allocated to other research applications.
- Disseminating information on R&D activities and schemes (i.e. manages the 1Dana database of all R&D funding opportunities).

The National Innovation Agency of Malaysia and the National Science and Research Council jointly take charge of the Secretariat of the Investment Committee for Public Funds.

The Investment Committee for Public Funds will be complemented by a Research Management Agency as recommended in the 2016 *OECD Review of Innovation Policy in Malaysia*.

Sources: OECD (2016a), *OECD Reviews of Innovation Policy: Malaysia 2016*, <https://doi.org/10.1787/9789264255340-en>; Zakri, A. (2019), "Centralised R&D agency vital to spur innovation", <https://www.nst.com.my/opinion/columnists/2019/09/522169/centralised-rd-agency-vital-spur-innovation>

#### *National planning authorities*

The Planning Council was the first authority created in 1962 as an independent development and planning body and mandated with developing social and economic policies and overseeing their implementation. It was replaced by the Ministry of Planning in 1976 and the Supreme Council for Planning and Development (SCPD) in 2004. The SCPD is the high-level planning authority in charge of providing overall strategic orientation and co-ordination to achieve the Amir's vision. Apart from the cabinet, it is the only instance in the governance of Kuwait that is positioned to co-ordinate strategy and policy across the Kuwaiti society.

Its mandate covers a wide range of functions, from the development and monitoring of overarching national development plans to the definition of implementation policies and the holistic promotion of the knowledge economy:<sup>10</sup>

- tracking the execution and implementation of the Quality Management System (QMS)'s requirements by setting up a special committee;

- considering matters of local culture and norms when conducting its own business, locally, regionally and internally; monitoring and reviewing information periodically and taking appropriate decisions;
- defining the long-, medium- and short-term strategic development directions in line with the related insights of the state;
- conducting forecasting of Kuwait's ranking on global competitiveness indicators;
- developing and monitoring the implementation of related public policies;
- promoting a knowledge economy across public institutions and providing advisory support to national development planning processes.

The SCPD has a high formal status: it is chaired by the prime minister or his delegate (currently the first deputy prime minister and Minister of Defence) and has a wide-ranging composition, with ministers coming from all policy fields related to economic development in a broad sense.<sup>11</sup> A number of qualified members with expertise, including representatives of the private sector and civil society organisations, also have a seat on the SCPD. A decree for their appointment is issued for a four-year term, with the possibility for renewal.

The council is also, according to available information, supported by a specific monitoring and performance evaluation committee that evaluates implementation and advises on any changes needed to the ongoing Mid-Range Development Plan (MRDP).

It has a dedicated secretariat (the General Secretariat of the Supreme Council for Planning and Development, GSSCPD) staffed with civil service members that prepare the business of the council and monitor its implementation. The GSSCPD has lacked the capacity to support the council in all its missions, which involves not only its upstream role of developing the plans and co-ordinating their execution but also, once the plan is ongoing, the monitoring of thousands of projects covering all policy fields. The GSSCPD was assessed in 2011 as “*largely understaffed, ill-equipped, undertrained and overworked*” by the Korea Development Institute (KDI, 2011). This issue was addressed in co-operation in the context of a three-year project with the United Nations Development Programme (UNDP), which has led to the strengthening of the secretariat staff and an improvement of its tools and processes (UNDP, 2011). Following this project, an institutional and capacity assessment of the GSSCPD was performed in 2015. Several issues were identified related to capacity gaps on human resource data management and workforce planning, as well as other needs on staff skills/qualifications audit, management training and staff well-being. Against this backdrop, a new project was launched in order to develop the capacities of the GSSCPD and key government agencies (including notably the Central Statistical Bureau) in the development and planning, co-ordination and monitoring of the MRDP 2015-20 (UNDP, 2015). Another UNDP project saw to the establishment of a new centre under the GSSCPD to strengthen its analytical capacity (the Kuwait Public Policy Centre [KPPC], see Section 2.3.3). The internal team at the KPPC is composed of 5 employees, strengthened by 15 international consultants through the partnership with the UNDP, mainly to develop the next MRDP which will come into force in 2020.

### **3.3.2. The main strategic frameworks guiding STI activities**

There is no national STI strategy in Kuwait. STI priorities are included in overarching national developments, primarily in the five-year MRDPs.

#### *Kuwait's long-term vision*

In 2007, the Amir launched a long-term vision for Kuwait called “Kuwait Vision 2035”, covering the period 2010-35 (GSSCPD, 2007) It sets the objective of a future Kuwait diversifying away from oil by becoming a regional financial centre and a regional trading and logistics hub and providing access to the north end of the Gulf. This vision has underpinned the overarching and mid-term strategies developed since then.

*Main statement of the Amir's Vision 2035:*

*[To] transform Kuwait into a financial and trade centre, attractive to investors, where the private sector leads the economy, creating competition and promoting production efficiency, under the umbrella of enabling government institutions, which accentuates values, safeguards social identity, and achieves human resource development as well as balanced development, providing adequate infrastructure, advanced legislation and an inspiring business environment.*

While this is not uncommon in the region, Kuwait was among the first Gulf countries to set such a longer term and overarching vision to serve as the foundation of national strategies and plans: the United Arab Emirates launched its vision in 2010 (UAE Vision 2021), Qatar in 2008 (National Vision 2030) and Saudi Arabia in 2016 (Saudi Vision 2030).<sup>12</sup>

A series of external studies before and after the launch of the Amir's vision largely built on the main strategic thrust of the "Kuwait Vision 2035".

McKinsey's report *Kuwait 2020* (McKinsey & Company, 2007) revolved around two overall goals:

1. Kuwait will become a niche regional financial centre focused on wealth management and capital markets. This will be supported by a strong world-class domestic financial sector that serves the financial needs of its population and attracts leading regional and international players.
2. Kuwait will also become the leading regional hub for northbound trade flows while at the same time ensuring the trade needs of Kuwait itself. Kuwait will excel in providing a large and growing number of national and international logistics companies with top-notch infrastructure, a supportive regulatory environment and a qualified workforce.

To achieve these objectives, the report proposed several initiatives to improve framework conditions for the overall economy (e.g. reduce red tape, make land available and upgrade the education system) and to strengthen the two newly prioritised sectors: financial and trade and logistics.

The report *Vision Kuwait 2035* commissioned by Tony Blair's newly established consultancy mirrored McKinsey's approach in recommending the same two "pillars" of finance and trade.<sup>13</sup>

These reports appear to have influenced the first post-2000 MRDP which covered 2010/11-2014/15 (SCPD, 2009). It included initiatives to strengthen financial services and logistics, alongside other parts of the non-oil economy.

The SCPD also carried out a study to derive strategic objectives from the Amir's vision "*to serve as a platform for future development plans*" (SCPD, 2010). This study was based on interviews with high-level Kuwaiti decision makers (ministers, deputy ministers, members of parliament, representatives of non-governmental organisations, etc.). It revealed strong endorsement of the overall goal to transform Kuwait into a financial and commercial hub, with some variations on the scope of the "hub" (e.g. whether it should also include services). Six main strategic goals to realise the vision were identified:

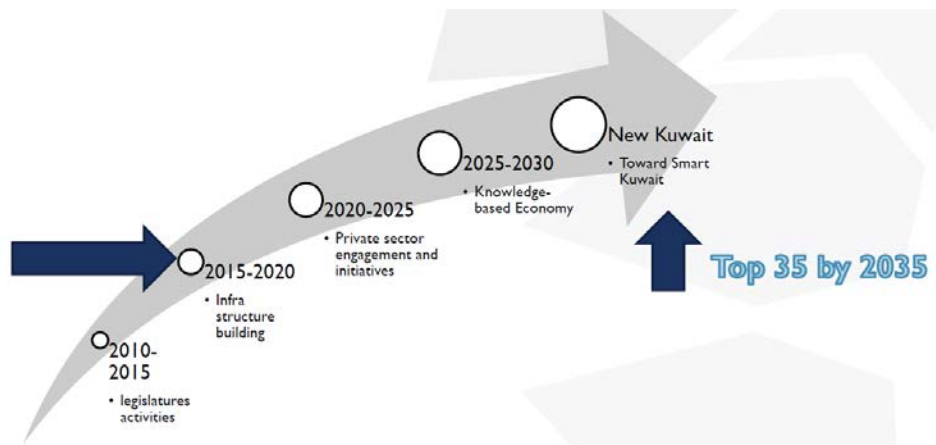
1. high growth and diversified gross domestic product (GDP)
2. a strong private sector leading the economy
3. supportive government for the private sector
4. increased job and human development opportunities for Kuwaitis
5. strong governments
6. humane society and good governance.

Under these goals, 49 strategic objectives were identified. Although some are indirectly related to research and innovation (such as "Improve the competitiveness of the private sector"), none of them explicitly relate to or mention these policy areas.

### The New Kuwait Plan

Since 2010, the New Kuwait Plan serves as a long-term plan to guide strategies and policies towards the achievement of the Amir’s vision. It is implemented through the MRDPs, which are designed as the five year strategic frameworks to achieve the New Kuwait Plan’s objectives for 2035 and follow a gradualist approach: the 2015-20 plan is dedicated to the development of infrastructure and building, followed by five-year plans focused on private sector engagement and initiatives (2020-25) and, finally, on the support to the development of a knowledge economy (2025-30) (Figure 3.2).

**Figure 3.2. Roadmap for achieving the Vision 2035 via the successive mid-range plans**



Source: (Mahdi, 2018).

The New Kuwait Plan is organised around five strategic directions and seven strategic pillars (areas of focus for investment and improvement). Each pillar has a number of strategic programmes and projects (see Table 3.3). Most research and innovation-related projects are included in Pillar 2 “Sustainable Diversified Economy”.

The objectives of the New Kuwait Development Plan are provided in Table 3.3. Those objectives also relate to the KDIPA mandate, in particular as pertaining to foreign direct investment.

**Table 3.3. Objectives of the New Kuwait Development Plan, overall and by strategic pillar**

Strategic pillars (% of total budget)	Objectives	Overall short- to medium-term objectives
Pillar 1: Public administration (0.2%)	Reform administrative and bureaucratic practices to reinforce transparency, accountability and efficiency in the government.	Position Kuwait as a global hub for the petrochemical industry. Increase direct foreign investment by 300% and attract more than KWD 400 million to information technology, services and renewable energy in the short to medium term.
Pillar 2: Economy (44.4%)	Develop a prosperous and diversified economy to reduce the country's dependency on oil export revenues.	Develop the country's tourism sector to generate additional revenue streams and create a new job market. Continue investment in infrastructure projects, and further develop the country's transportation and power sectors by building on the recent success in independent water and power project and public-private partnership projects.
Pillar 3: Infrastructure (20.4%)	Develop and modernise the national infrastructure to improve the quality of life for all citizens.	Build on the recent momentum in urban development and housing with the introduction of a new master plan, developments and cities.
Pillar 4: Living environment (14.5%)	Ensure the availability of living accommodation through environmentally sound resources and tactics.	Introduce social and economic empowerment programmes and care targeting youth, women, small and medium-sized enterprises, and the elderly.
Pillar 5: Healthcare (8.1%)	Improve service quality and develop national capabilities in the public healthcare system at a reasonable cost.	Build on the country's globally leading humanitarian record regionally and globally.
Pillar 6: Human capital (12.3%)	Reform the education system to better prepare youth to become competitive and productive members of the workforce.	
Pillar 7: Global position (0.1%)	Enhance Kuwait's regional and global presence in spheres such as diplomacy, trade, culture and philanthropy.	

Notes: Budget figures are based on the project data presented on the New Kuwait Plan website as of 13 February 2019. These figures are evolving as projects are completed and new projects are initiated. It should therefore be considered as a snapshot of the project portfolio in March 2019.

Source: New Kuwait Plan website: [www.newkuwait.gov.kw](http://www.newkuwait.gov.kw).

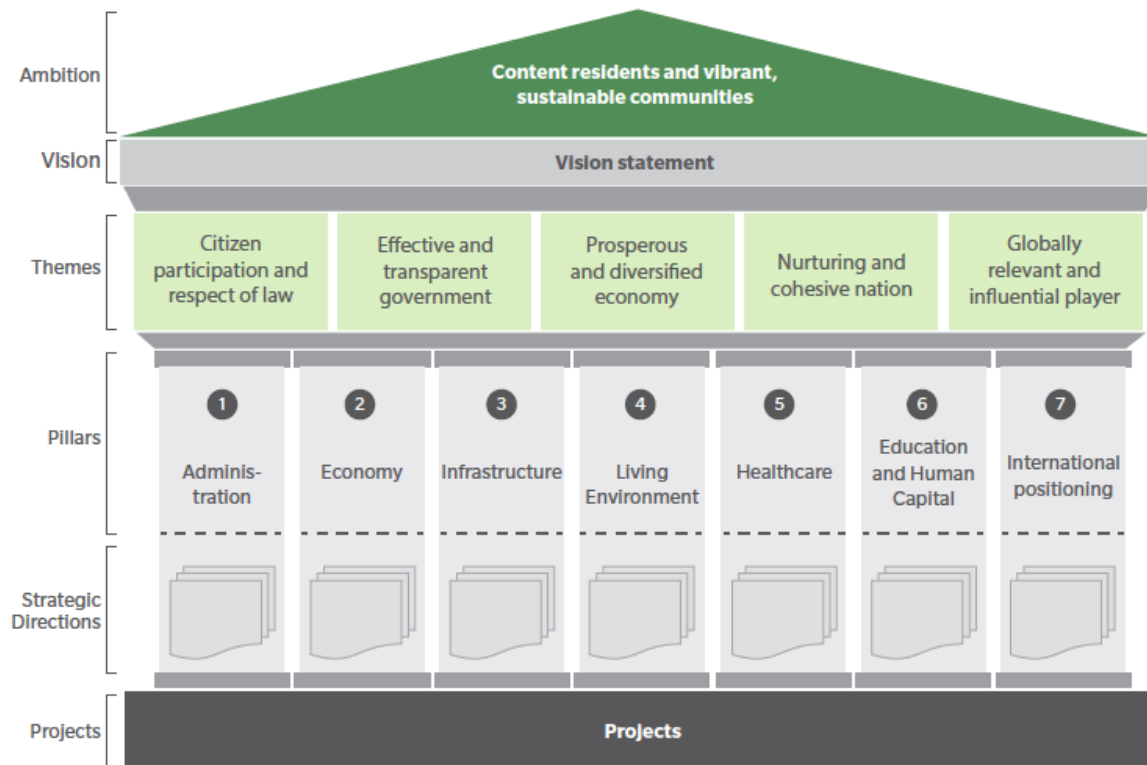
The New Kuwait Plan also includes a common monitoring framework to assess the progress towards the achievement of the objectives.

### *The five-year national development plans*

While the SCPD's predecessors had led national strategic planning since the late 1960s,<sup>14</sup> the Iraqi invasion put a halt to development planning after the third plan, which covered the period 1985/86-1989/90. Following a two-year transitional plan (1992/93-1994/95), the cycle of five-year development plans was reactivated starting from the 1995/96-1999/2000 plan. The Mid-Range Development Plan covering 2010/11-2014/15 was the first plan embedded in the New Kuwait 2035 Vision.

The current MRDP covers the period 2015/16-2019/20. Like the previous one, it starts from the Vision 2035's overall objective and translates into five themes and seven "pillars" (Figure 3.3). The five themes are meant to be used as "*guiding ambitions for all development plans at an entity level and the seven pillars (...) as means to arrive at the mid-term and long-term targets*" (SCPD, 2015).

Figure 3.3. Themes and pillars of the Mid-Range Development Plan 2015/16-2019/20



Source: SCPD (2015), Kuwait Mid-Range Development Plan, 2015/2016-2019/2020.

The new MRDP 2020-25 revolves around 8 objectives: closely aligned with the New Kuwait Plan pillars:<sup>15</sup>

1. Unlock the Northern hub potential
2. Foster a dynamic private sector
3. Equip the people with the skills and incentives for future growth
4. Develop a transparent and synergistic government
5. Build a connected and integrated infrastructure
6. Build a liveable and harmonious environment
7. Improve our health and well-being
8. Contribute to the global community

The design of the MRDPs mixes a bottom-up and top-down policy approach. The strategic orientation, coordination and monitoring framework is provided by a central, high level entity, while the concrete projects to implement these orientations are proposed by the entities (such as ministries) in charge of the different policy fields.

Progress is monitored via 20 specially constructed indices, each using as sub-indicators Kuwait's performance in a number of published rankings and indices. Responsibility for each project is allocated to a specific organisation and legislative changes needed to implement the plan are identified.

In practice, the MRDP serves as a strategic framework, embedding relevant projects implemented by different ministerial entities. These entities are invited each year to submit projects to the SCPD, which



co-ordinates a multi-stage selection process lasting about seven months and involving various committees (notably the SCPD Evaluation Committee, the Supreme Council Committee and the Council of Ministers), the Ministry of Finance as well as the parliament, which approves the budget. Once selected, the projects are officially part of the MRDP and, as such, are monitored continuously by the GSSCPD, using key performance indicators. The results of this monitoring are made available on the New Kuwait dedicated electronic platform.<sup>16</sup>

Some of them, considered as being of higher importance to the realisation of the overall mission, are followed by a Vision Realisation Committee, which is tasked proactively to support projects on the basis of needs.

The national development projects under the MRDPs are funded and implemented by the respective responsible ministries. There is no central SCPD budget that directly funds initiatives, nor any dedicated multi-year MRDP budget. The main incentive for ministries to go through this process is therefore to have their projects acknowledged as priorities, easing negotiation with the Ministry of Finance, which allocates funding to individual ministries. In parallel, ministries also launch other projects which are deemed less relevant to the current strategic plan.

### *Kuwait's national development plans and the knowledge economy*

None of the MRDP includes research and/or innovation as one of the pillars or main objectives. The latest MRDP 2020-2025 gathers most of the relevant objective under the theme 2 'Foster a dynamic private sector', which encompasses the objectives 'Create an integrated ecosystem for technology, innovation, and knowledge', 'Expand the private sector's role in SME incubation, funding and upscaling' and Develop new priority sectors for the economy. It is too early to analyse the projects that will be initiated under these objectives. Such analysis can only be performed on the basis of the two last plans, covering the periods 2010/11-2014/15 and 2015/16-2019/20.

The 2010/11-2014/15 MRDP (SCPD, 2009) included some projects directly relevant to research and innovation activities (Box 3.4), including an increase of R&D expenditures (up to 1% of GDP, starting from an estimated baseline of 0.2% in 2007-08), the creation of excellence centres and support to the development of KFAS and KISR. The legislative requirements of the plan also included an ordinance for establishing a high-level STI body, the Supreme Council for Science, Technology and Innovation. As can be seen from the categorisation of these initiatives, none of them relates directly to supporting innovation activities, such as measures to support the upgrade of innovation capabilities in business companies.

### Box 3.4. Research and innovation-related initiatives in the Kuwait Mid-Range Development Plan 2010/11-2014/15

The third goal of the Mid-Range Development Plan related to human and social development included the objective of supporting research activities that contribute to all “development sectors”. Several initiatives were planned to achieve this objective:

#### Strategy and funding

1. Establishing a Supreme Council for Science, Technology and Innovation based on the formulation of a long-term national policy and strategic planning.
2. Increasing attention to and use of scientific research as one of the pillars of social and knowledge development.
3. Increasing financial support for research and development activities in the public sector.

#### Support to knowledge exchange

1. Strengthening the relationship between scientific research institutions and production and services sectors in the public and private sectors.
2. Fostering recruitment and marketing of scientific research output in the production and services sectors in the public sector.
3. Promoting international scientific co-operation of national research and educational institutions, and advanced scientific research centres abroad.
4. Deepening and strengthening the dissemination of constructive scientific culture and scientific practices and the development of innovation in society.
5. Strengthening channels of co-operation and effective partnerships between research institutions.

#### Support to research activities

1. Establish centres of excellence for research at the state level in the areas of national development priority.
2. Establish specialised units in the Kuwait Institute for Scientific Research (KISR) to support co-operation with the private sector and the production and services sectors.
3. Support the development efforts of KISR.
4. Support the development of the Kuwait Foundation for the Advancement of Sciences.
5. Develop Kuwait University’s research efforts through pivotal projects.

Note: The categorisation of initiatives is from the OECD.

Source: SCPD (2009), Mid-Range Development Plan 2010/11-2014/15.

A first pool of 124 projects<sup>17</sup> under the current MRDP were presented in the SCPD document (SCPD, 2015). While most of these projects relate to the development of all types of infrastructure (e.g. extension of the Kuwait airport, navigation channel in ports, electricity and water production, housing land, hospitals, etc.), some projects are also directly relevant to STI (Table 3.4).

**Table 3.4. Main science, technology and innovation projects conducted under the Kuwait Mid-Range Development Plan 2015/16-2019/20**

Project label and owner	Project's main objectives
<b>Sabah Al-Salem university project, Kuwait University</b>	Increase the capacity of educational facilities at Kuwait University through building six environmentally, socially and economically sustainable colleges.
<b>Promotion and development of infrastructure for scientific research at Kuwait University, Kuwait University</b>	Increase the budget for scientific research and development in education and research institutions in both the public and private sectors.
<b>Determine the work of disciplines offered by private universities and colleges' market needs, General Secretariat of the Council of Private Universities</b>	Match disciplines offered by private universities with labour market needs to raise the attractiveness of private university graduates.
<b>Support research and development activity in private universities, General Secretariat of the Council of Private Universities</b>	Organise domestic scholarships in private universities.
<b>Establishment and operation of power generation plants (Abdaliyah), Kuwait Authority for Partnership Projects</b>	Establish a new integrated solar combined cycle – support to the shift to renewable solar energy.
<b>Establishment of the Petroleum Research Centre, Kuwait Petroleum Corporation</b>	Develop the capacities and expertise needed to implement scientific research programmes.
<b>Support co-operation between the research and development, production and service sectors of the private sector and state institutions, Kuwait Institute for Scientific Research</b>	Develop an effective mechanism to link scientific research outputs with development priorities.
<b>Technological Centre for Intellectual Property, Ministry of Commerce and Industry</b>	Ensure the proper use and protection of intellectual property by increasing the number of intellectual property controls and inspection campaigns.
<b>Design and construction of the power plant from renewable sources facilities (with a capacity of 75-100 MW), Kuwait Institute for Scientific Research</b>	Increase sustainable electricity production.
<b>Study and evaluation of the implementation of a pilot specialised research station to develop advanced technology for water desalination and renewable energy, Kuwait Institute for Scientific Research</b>	Support the co-operation of scientific research institutions locally, regionally and globally.

Source: SCPD (2015), Kuwait Mid-Range Development Plan 2015/16-2019/20.

The set of projects presented in the initial document were ongoing or soon to be launched at the time of the drafting the MRDP. The list of projects evolves each year following the completion of former projects and the addition of those selected as part of the annual process managed by the GSSCPD (see supra). For instance, 164 projects were featured in the annual plan for 2017/18.

The New Kuwait website provides a platform to monitor the pool of projects currently being implemented as part of the ongoing MRDP. Based on these data, the OECD was able to estimate the effort put into STI initiatives in 2019: 11% of the KWD 27 billion (EUR 79 billion) budgeted for projects currently implemented under the seven pillars relate to projects supporting STI activities in a broad sense (accounting for about EUR 9 billion).<sup>18</sup> While the pillar aiming to establish a sustainable diversified economy currently accounts for over 44% of the total budget (Table 3.5), the formal “knowledge economy” programme (a sub-set of projects) represents only 0.2% of the total budget and 0.5% of this pillar.

The six projects under the “knowledge economy” programme are presented in Table 3.5. Most of these multi-year projects relate to the construction of new applied research centres in key areas (agriculture, marine, urban development) within KISR.

**Table 3.5. Ongoing projects under the “knowledge economy” programme under the New Kuwait Development Plan**

Name of the project (total cost)	Project objectives
Research and development centres for the private sector  (KWD 48.5 million)	Develop and support knowledge management capacities for employment in the private sector. Improve the private sector's technological capabilities to strengthen its role in economic development and in achieving Kuwait's Vision.  Set up nine specialised research units to support scientific research activities at the institute.
Establishment of specialised marine management research facilities and resources  (KWD 6.3 million)	Monitor variables of marine and coastal environment, forecast impacts and find solutions. Develop integrated management systems of the marine and coastal environment and optimum utilisation of its resources.  Build and equip one building and research laboratories on an area of 3 000 square metres and increase the area of mooring dock.  Increase economic return of the fisheries; protect biodiversity and a healthy marine environment.
Construction of specialised integrated and advanced agricultural systems projects to promote sustainable agricultural production  (KWD 1.3 million)	Increase the productivity of the agriculture sector.  Provide technological infrastructure to support sustainable agricultural production. Establish four specialised agro-system facilities, including an integrated modular field agricultural research station.
Design and construction project of specialised desert development research facilities and urban development  (KWD 6.3 million)	Develop techniques and systems for the development and management of desert resources.  Construction of a building and facilities for botanicals research on a 4 000 m <sup>2</sup> area.  Provide an infrastructure to support sustainable development programmes.  Set up a single specialised R&D unit for desert development and urban development to include one R&D building (area of 1 000 m <sup>2</sup> ) and field facilities for desert wildlife development (area of 100 000 m <sup>2</sup> ).
Design and construction project of special-purpose facilities for the development and testing of intensive production techniques of desert seeds and plants  (KWD 0.4 million)	Train national manpower on local botanical environment, out-of-natural-habitat conservation and plant production.  Produce, store and supply a permanent source of original seed to support development projects and environmental remediation activities according to Kuwait's Compensation Commission programme recommendations.  Establish a specialised unit to develop techniques for the multiplication of seeds and plants and support future research and development activities on plants' habitats and the conservation of biological diversity.
Sustainable Economic Farm project using latest technologies  (KWD 3.5 million)	Build three protected units with 6 000 m <sup>2</sup> solar panels with a high level control of humidity, heat and lighting.  Build six ponds for sustainable aquaculture purposes using 3 000 m <sup>2</sup> solar panels.  Build a recycling unit using agricultural waste.  Design and build a model farm for sustainable economic agricultural production using modern technologies for different types of sustainable agricultural and livestock production, and renewable and alternative energy use, treated water and integrated pests.  Use of raw materials for the manufacture of fodder.  Decide on specific types of agricultural production systems according to the farming items.

Source: GSSCPD (2019), *New Kuwait Online Monitoring Platform* (database), [www.newkuwait.gov.kw/r6.aspx?category=6](http://www.newkuwait.gov.kw/r6.aspx?category=6).

Of particular interest is the project to construct nine specialised research units in order to strengthen research and innovation capabilities in business companies. This project will end in 2021 and has a budget of KWD 48.5 million (about USD 160 million). This is almost unprecedented in Kuwait as there is little public-private collaborative R&D despite KISR's efforts to engage with the private sector, due to the self-reinforcing factors of a modest private sector and a lack of interest from the public administration and research community to engage with businesses. The development of an endogenous industrial innovation capacity component seems more prominent in Saudi Arabia's five-year national science, technology and innovation plans (Box 3.5).

### Box 3.5. Strategic framework for science, technology and innovation in Saudi Arabia

Like Kuwait, Saudi Arabia's science, technology and innovation (STI) efforts are underpinned by the overall national objective to shift the country towards a knowledge-based economy and diversify its economy, as formalised in 2016 in the "Vision 2030" of H.E. King Salman bin Abdulaziz Al Saud. The implementation of projects to achieve Vision 2030 is planned according to mid-terms plans called the Vision realisation programmes, such as the five-year national transformation programmes. Most of the projects falling under these plans are directly financed by the Public Investment Fund, which is the Saudi sovereign wealth fund. While there is no specific Vision realisation programme dedicated to STI, Saudi Arabia has developed a dedicated national STI planning framework since 2010. It consists of five-year national science, technology, and innovation plans (NPST or Maarifah in Arabic) with different objective levels of the relative performance of the Saudi system of innovation. Following the first plan (2010-15), which aimed to establish the national STI infrastructure, the second (2015-20) and third plans (2020-25) aimed to make Saudi Arabia a leading STI country both in the Gulf region and in Asia. At the end of the fourth plan in 2030, Saudi Arabia will have become a knowledge-based economy on par with leading advanced economies. Since the establishment of Vision 2030, the second national STI plan has been restructured in order to contribute to its realisation.

The plan aims to increase R&D intensity to 2% of GDP by 2030 (it was 0.8% in 2017) and targets specific strategic areas such as water technologies, biotechnology, advanced materials, nanotechnology, information technology, electronics, communication or oil.

The development and co-ordination of the plans fall under the responsibility of King Abdulaziz City for Science and Technology and its implementation is decentralised among 17 ministries, 10 universities, and 13 national agencies and commissions. Since its launch in 2010, it has financed over 1 852 STI projects, accounting for over SAR 3.2 billion (Saudi riyal) (about EUR 0.85 billion), of which 23% went to medical research programmes and about 8% to environmental technologies.

The plan includes not only thematic programmes, for instance dedicated to strengthening STI capacity in priority areas or STI human resources, but also activities to build the national system of innovation. The first plan had notably programmes aiming at improving the legal (the STI Laws Programme, dealing for instance with intellectual property laws), institutional (the STI Organisational Structure Programme that established science and technology units in universities and research institutes) and funding (the Diversification of STI Funding Sources Programme) environment. The Diversification of STI Funding Sources Programme aimed at establishing a fund for technology development, designing self-funding policies for R&D centres and creating financial products to fund STI activities.

It is remarkable that from the start the NPST had as a prime objective to develop an endogenous industrial innovation capacity ("localisation"). This is apparent not only in the formal objectives of the plan, but also concretely in funded projects such as: The Programme of Industrial Innovation Centres; The Product Development Programme to Establish Local Suppliers; Localisation and Transfer of Mining Technology and Advanced Materials; Localisation and Transfer of Health Technology; Localisation and Transfer of Water Technology; The Programme to Raise the Manufacturing Capacity of Small and Medium-Sized Enterprises.

Sources: KACST website: <https://www.kacst.edu.sa/eng/stip/Pages/AboutStip.aspx>; UK Science & Innovation Network (2018), *UK Science & Innovation Network Country Snapshot: Kingdom of Saudi Arabia*, [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/766269/KSA\\_Snapshot-Nov2018.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/766269/KSA_Snapshot-Nov2018.pdf).

### *STI strategy*

Kuwait has no research and/or innovation strategy, nor any dedicated document that would provide some direction and guidance to the STI community in Kuwait.

Given the absence of other major research performers until about 2000, KISR's strategy has become the *de facto* research strategy for Kuwait during this period. While its early focus was on (upstream) oil due to its initial funding by the Japan Oil Company, its strategy has evolved over time to match obvious national needs – oil, energy (especially electricity), water and food production via agriculture and fisheries. Environment and economic analysis were added later on.

#### **3.3.3. STI strategic policy intelligence**

Kuwait has no strongly established practice of strategic policy intelligence and lacks the knowledge infrastructure and political culture to support the policy development process. The grounding of policy decisions in evidence has therefore varied widely across ministries and over time.

However, in a non-systematic way and sometimes on their own initiative due to little buy-in from government officials, some institutions do provide strategic policy intelligence:

- Four research centres provide strategic intelligence to the SCPD: the KPPC, the National Centre for Development Research, the National Knowledge Economy Centre, and the National Observatory of Sustainable Development and Future Studies. The KPPC is expected to become the platform for the planning, monitoring and evaluation of evidence-based public policies implemented in relation to the Vision 2035. It has already provided significant inputs into the MRDP 2020-2025 (Box 3.6).
- Drawing on its continuous interactions with public and private research and innovation actors, KFAS provides inputs into the government's policy-making. It participates formally or informally in policy debates, produces concept notes and commissions studies in key macroeconomic or sectoral issues usually labelled as "special projects". This was the case, for instance, in 2017 when KFAS and the KPPC jointly commissioned a study to the London School of Economics that aimed to support reforms in health policy (LSE, 2017). This OECD Review of Innovation Policy itself, financed by KFAS, also belongs to this type of initiative. KFAS' Innovation and Enterprise Directorate also finances studies to help understand the opportunities and challenges in specific sectors, such as Fintech.
- KDIPA commissions studies and surveys that contribute to a better understanding of knowledge-based development. It for instance contracted to KISR the "Project Study on Improving Kuwait Global Competitiveness: Engine of transformation to Knowledge and Innovation-based Economy" to be completed in 2020. It included the development of a portal for analysis of Kuwait position in 10 key international indices and cross border direct flows, two innovation surveys conducted in 2016 and 2019 (supply and demand sides), Kuwait investment relations map, and a dashboard for follow up and monitoring of progress of implementation of the detailed prioritised innovation roadmap. The results of the project will be transferred to the GSSCPD to strengthen the MRDP development process.
- KISR Techno-Economics Division conducts economic studies that feed into the institute's strategy and activities, but also in policy making as part of its role in advising the government on STI matters.
- The National Advisory Services Company advises the government on technical aspects, for instance prior to making a significant or strategic procurement of a new technology (e.g. new lightning system or camera system).

### Box 3.6. The contribution of the Kuwait Public Policy Centre (KPPC) to the Mid-Range Development Plan

The KPPC was established in 2016 with support from the UNDP as a specialised evidence-based policy development centre to support the development of the MRDPs, hence contributing to the achievement of Kuwait's "Vision 2035". Consultants have been allocated to each pillar of the MRDP and an elaborated workflow has been established to inform the development of the upcoming MRDP 2020-2025 across the pillars:

1. Analysis of existing policies, identification of gaps and challenges;
2. Development of research agenda and priority areas for each policy area;
3. Activation of MOUs and collaborations with international and local institutions (University of Ottawa's Centre on Governance, Issam Faris Institute at the American University of Beirut, KFAS, KU, etc.);
4. Development of white policy paper for each policy area with strategic roadmap for the sector and policy options and consultation with national stakeholders (through roundtable discussions, face-to-face interviews, surveys, focus group consultations, etc.); KPPC has produced more than 18 reports to provide GSSCPD with policy recommendations.
5. Presentation of policy recommendations to the SCPD members to be included in the MRDP.

The Centre also aims to be instrumental for monitoring the implementation of the MRDP and providing inputs into sectorial strategies. According to the SCPD, this method contrasts with the previous planning period, when the process for developing the MRDP was decentralised and hindered by communication problems between the different bodies.

The support to the MRDP development and policy implementation also benefits from a KPPC unit dedicated to applying the latest findings in behavioural science and economics into public policy (the Kuwait Policy Appraisal Lab). A customised five-year macroeconomic model was also developed to support the mid-term forecasts that serve as the economic foundations of the five year plans.

While the co-operation between the SCPD and the UNDP reinforces the national staff with international consultants located on site for several years and provides tools for supporting strategic planning, the issue of the sustainability of the KPPC was raised during interviews. Dedicated capacity building mechanisms (e.g. training workshops and on-job-training activities) are in place to transfer knowledge and skills to the 11 national staff.

Source: KPPC (2020a), Annual report, Kuwait Public Policy Centre, General Secretariat of the Supreme Council for Planning and Development; KPPC (2020b), Kuwait Public Policy Centre (KPPC) - Supporting the New Kuwait Vision 2035, Kuwait Public Policy Centre, General Secretariat of the Supreme Council for Planning and Development.

The lack of structuring of the strategic intelligence infrastructure and its loose linkages to the government means that there is generally little available information on the respective activities of these few active actors, which translates into various overlaps and inefficiencies.

The statistical basis for STI policy making is very poor. Due to the absence of any R&D or innovation survey until 2019, key indicators such as business expenditure for R&D, government expenditure on R&D (GERD) or higher education expenditure on R&D (and hence the GERD and the many indicators based on it, such as the R&D intensity) are simply missing or incomplete (and thus misleading). As previously mentioned, a first combined national R&D and Innovation Survey was undertaken in the framework of this



OECD review, under the umbrella of KFAS and the KCSB. No data on government STI-related budgets are available either.

This paucity of data on both the source and execution of financial resources in the STI area makes it difficult to monitor the efforts of the different actors over time, relate them with observed results and compare Kuwait with its peers. As shown in many developing countries – and on fewer occasions in advanced countries – the lack of an infrastructure to properly measure STI is a major obstacle to crafting effective strategies and policies. In the past, KFAS has made the case for improving the STI statistical system, but with little success so far.

The administrative databases are also very rudimentary. Partly due to the absence of a corporate tax, there is, for instance, no complete and regularly updated business company register. A reliable business register is the backbone of a comprehensive, high-quality database, which in turn is fundamental for sound evidence-based policy advice (OECD, 2010). Similarly, the fact that there is little public support to private companies results in the absence of a database of scheme beneficiaries. This is a major hurdle when it comes to conducting surveys, and prevents Kuwait from benefiting from any big data opportunities to shed light on the functioning of the national STI system and the effectiveness of policies and reforms (OECD, 2018).

Evaluation is also essential to enhance the effectiveness and efficiency of policies to foster innovation, promote growth and deliver social welfare. The evaluation culture in Kuwait is underdeveloped and only a few evaluations have been conducted in the STI area, most often commissioned by the evaluated institutions themselves, for their own purposes and agenda. Against this backdrop, KISR was evaluated in 1999, and KFAS initiated several evaluations of all or part of its programmes and affiliated institutions.

### 3.4. Science, technology and innovation policy formulation and funding

Based on the strategic framework provided at the top level of the system, the ministries devise the appropriate means of intervention and level of funding needed to fulfil the overall objectives in their respective policy remit. Since research and innovation are cross-cutting policy issues, this policy formulation process requires a fair amount of horizontal co-ordination among different “sectoral” ministries. In many countries, some authorities directly in charge of research and/or innovation policy issues (depending on their scope and the division of labour between them) have not only direct responsibility to deal with research and/or innovation intermediaries and implementers (universities, research and innovation centres/labs, agencies, etc.), but also act as a “catalyst” and “pilot” across policy silos. They are also advocates for research and innovation within the government.

One specific key feature of the Kuwaiti system is that there is no dedicated ministry of research and/or innovation (neither is there a state secretary/deputy minister in charge of these policy areas within another ministry).

#### 3.4.1. Policy formulation

Kuwait has never had a clear STI policy, but given the small size of the STI system and the absence of dedicated STI policy actors, the plans and actions of a few prominent implementing institutions in different areas – Kuwait University (KU) for basic research and in particular KISR for applied research and development – have *de facto* served as policy makers in these areas. However, this situation has severe limitations.

Given that KU’s strategy is mainly generated from the bottom up, its strategic framework hardly provides the backbone of a research policy. Due to the strength of department heads *vis-à-vis* the strategic management of the university and the lack of strategic management capabilities in general, this is not

uncommon in other universities around the world. However, a growing number of them have in recent years increased their efforts to prioritise their activities and improve the profiling of their activities.

As KISR is the main research performer in Kuwait, it has not only a significant direct influence on the overall pattern of government-funded research, but also a strong social network. Almost anyone working elsewhere in the government sector in a job related to science and technology is likely to be a former KISR employee. This is neither surprising nor unusual – alumni of SINTEF (KISR’s equivalent in Norway) have enjoyed a similar position in the past, though the growth of the rest of the research sector (and especially of university research) has reduced the policy influence of its network over time. Such a strong social network is useful because it provides cohesiveness, but it can also be problematic as the “mental model” of the institute risks dominating policy and producing lock-in to existing priorities. It can also lead to allocating resources to the established organisation, even when there is a need for development and capacity-building elsewhere in the research and innovation system.

In the past, KISR was formally given the task of advising government on STI policy, but this advice seems to have addressed little beyond its own internal activities. KISR has repeatedly attempted to exercise leadership in STI policy formulation. In 2007, it launched a preliminary STI policy document, anticipating that it formally would be given responsibility for STI policy (Al-Awadhi and Al-Sultan, 2007). These repeated efforts had only mixed results, not least because of the conflicts of interest of such a dual role of policy prescriber and beneficiary.

Around the same time, in 2006, His Highness the Amir tasked a high-level panel – the KRRP – with an inquiry into how the national research and innovation system should be run. The members of the panel were leading members of Kuwait’s scientific class and a number of eminent foreigners. Jorma Routti, who had been head of the European Commission’s Directorate-General for Research and earlier head of SITRA (the Finnish Innovation Fund) and a member of Finland’s Science and Technology Policy Council (these days called the Research and Innovation Council)<sup>19</sup> appears to have been of particular influence.

The KRRP produced a report the following year which gave a detailed and highly critical account of the performance of Kuwait’s research system (KRRP, 2007). It said Kuwait’s research system lacked scientific culture, had too few resources and weak institutions, was poorly managed, and lacked sufficient international links or links with the industry. In summary, the recommendations of the KRRP were to:

- Increase public spending in R&D to 2% of GDP;
- Establish and fund a national policy and high-level governing body – the Kuwait Science, Technology, and Innovation Council (KSTIC) – to provide the leadership and co-ordination for the development and implementation of a national research agenda;
- Reform and restructure KISR to include a more focused vision and qualified and experienced leadership;
- Build Kuwait centres of excellence in technologies? which are deemed critical to Kuwait’s future and include petroleum and petrochemicals, water and renewable energy focused on solar power. These centres must be strongly linked to international centres of excellence through alliances and partnerships;
- Strengthen the STI system and culture throughout Kuwait.

The panel also recommended that the KSTIC establish and implement an integrated and national STI policy, called the Kuwait Science, Technology and Innovation Policy. This policy should have included the following elements:

- significantly enhanced funding of R&D and other STI activities and the targeting of that funding to areas of greatest strategic significance to the country;
- identification and implementation of methods and strategies for increasing industry participation in STI activities and the benefits of STI investments;

- identification and implementation of methods and strategies for enhancing co-ordination of STI activities at both the national and international levels.

Neither the KSTIC nor the Kuwait Science, Technology and Innovation Policy were established, despite repeated calls (Box 3.7).

### Box 3.7. Extracts from repeated calls for a dedicated innovation policy in Kuwait

The debate on the development and implementation of a dedicated innovation policy has been going on for years. There have been repeated calls for it, originating from different contexts and communities.

2003: *Formulating a national policy for science and technology would ensure the activation of their developmental role, through effective contribution of R&D institutions in providing consulting support for the state, based on the realisation of the importance of applying the proper scientific rules to achieve success of developmental plans and projects in Kuwait.* (Kuwait National Development Plan 1999-2003, cited in Al-Awadhi and Al-Sultan, 2007).

2007: *In Kuwait, the policy and decision makers, with the consonance of the legislative authority and support of different sectors of society, have attributed great efforts in establishing, supporting and reinforcing scientific and research institutions to support other activities in society; aiming to develop the society and to achieve the goals of the state's endeavours for establishing an effective modern society. Nevertheless, these activities and endeavours may not induce impacts in the ideal form, except in the presence of a declared policy of science and technology and innovation contributing in steering the gear of those institutions to contribute in the comprehensive national development, in reinforcing the cultural, socio-economic development, and in nurturing the knowledge society and human development.* (Al-Awadhi and Al-Sultan, 2007)

2007: *First and foremost, the panel's vision for the STI sector is one that is focused and aligned with the nation's greatest needs and most significant opportunities. In the panel's view, this alignment must derive from the creation of a national STI policy.* (KRRP, 2007)

2015: *It is documented in the report that many of the important elements of an innovation system are in place in Kuwait, but that the linking or connectivity between the elements of the system often seem to be too weak. To improve this requires partly the introduction of an integrated and coherent STI policy and partly the formation of a national innovation system.* (Asheim, 2015)

2018: *A broader innovation policy, in addition to the current ongoing R&D capacity development activities in key national organisations focusing on and identifying the priority innovation sectors, will be a realistic way to achieve a successful diversified specialisation.* (Al-Mahmood, 2018)

2017: *As a result of limited co-operation and co-ordination between the various components of Kuwait's STI system as well as absence of a formal process for national overall and detailed priority setting, Kuwait's STI system is still inadequately engaged in issues related to the country's main source of wealth.* (Bizri, 2018)

Sources: Bizri, O. (Bizri, 2018), Science, Technology, Innovation, and Development in the Arab Countries; Al-Awadhi, N. and Y. Al-Sultan (2007), National Policy for Science, Technology and Innovation of the State of Kuwait; Al-Mahmood, M. (2018), A Research Agenda for the Economy of Kuwait; Asheim, B.T. (2015), An Innovation Driven Economic Diversification Strategy for Kuwait, <https://www.e-marmore.com/MarMore/media/Policy-Reg/An-Innovation-driven-Economic-Diversification-Strategy-for-Kuwait-Executive-Summary.pdf>; KRRP (2007), Report of the Kuwait Research Review Panel.

### 3.4.2. STI policy funding

The main channels for allocating funds to STI activities are:

- Institutional funding provided to universities and research institutes for doing research, KISR and KU accounting for the bulk of these funds.
- KFAS supports higher education, research and innovation projects via different funding instruments and affiliated research and knowledge-transfer institutions. The bulk of this funding is allocated to KISR. Only a negligible portion of private R&D expenditures are supported by the state. To give an indication, the budget of the three programmes of KFAS' Innovation and Enterprise Directorate was KWD 2.9 million in 2017.
- Specific line ministries' projects which in their respective fields support the development and demonstration of innovative technologies and services, for instance in the area of water desalination and renewable technologies. As mentioned above, the bulk of this research is executed by KISR (and therefore accounted for in KISR's budget).

However, despite the small size of the system and the number of funding streams, properly assessing the amounts of government funding is challenging. There is no centralised or aggregated budget dedicated to STI, nor an STI budget in the different line ministries either. Neither are there robust ex post consolidated expenditure statistics in line with international norms.

As discussed in Chapter 2, the bottom-up recollection of the relevant expenditure of main R&D performing sectors points to an R&D intensity of 0.33-0.37%<sup>20</sup> of GDP with the following allocation by sector of performance: 0.19% by government, below 0.1% for the private sector and below 0.01% by other sectors. The main channels of government funding of this amount of expenditure are as follows

- Institutional funding provided to universities and research institutes for doing research, KISR, KU, PAEET and Dasman Diabetes Institute accounting for the bulk of these funds.
- KFAS' support for higher education, research and innovation projects in public and, to a lower extent, private institutions.
- Specific line ministries' projects within and outside the MRDP. These are very limited and for the most part are allocated to KISR.

Using the same sources of data mobilised in Chapter 2 to estimate the amount of R&D expenditures, but this time only considering the portion funded by government sources, one can estimate the amounts represented by the main channels of government funding at about KWD 96.5 million in 2017, hence accounting for about 0.27% of GDP.<sup>21</sup>

## 3.5. Science, technology and innovation policy implementation

### 3.5.1. The implementation of Kuwait's national development plans

The implementation of the MRDPs has encountered significant challenges, at least in recent years. Most of the initiatives planned under the 2010/11-2014/15 MRDP were not implemented or only partially implemented. As previously mentioned, the intended creation of the national STI council and the increase in the government's financial support to STI activities did not materialise. The consultants hired to monitor the implementation of the plan concluded that this was poorly implemented, not least because the required resources were often not made available (EXCPR, n.d.). The SCDP also concluded in the following MRDP (SCPD, 2015) that the implementation of the 2010/11-2014/15 MRDP had been below expectations and pointed to several difficulties:

- the link between Vision objectives and policies was not clearly defined;

- policies used were often vague or presented multiple ideas;
- key performance indicators did not exhaustively measure the plan's objectives;
- projects that were operational or not directly related to the vision were included in the plan;
- the "strategic projects" section was not based on clearly defined criteria;
- legislative requirements did not link to specific projects or goals.

The National Assembly's Financial and Economic Affairs Committee, which also reviewed in 2014 the obstacles faced in implementing the MRDP, pointed to the poor implementation of projects, partly due to policy paralysis and operational sluggishness (Asheim, 2015).

However, Bertelsmann's transparency report for Kuwait in 2014 attributed the poor performance of the MRDP to the political turmoil of the period, during which it became hard for the royal family to push its proposals through parliament. According to the report, the government became increasingly compelled to consider the interests of various groups, which hindered its ability to perform long-term prioritisation (Bertelsmann Foundation, 2015).

Beside the MRDP projects themselves, there are few projects focusing mechanisms in the system to align activities to the national development plans beyond a few channels for the implementation of national priorities in higher education and research organisations' work plans:

- KU develops and regularly updates national priorities to guide its activities, for instance, for the allocation of internal funding to research activities. These national priorities are developed by the institution itself, somewhat in a bottom-up way by the solicitation of the different parts of the university, but allegedly taking into account the overarching national priorities enshrined in the ongoing MRDP.
- KISR's five-year plans are developed on the basis of the MRDPs.
- KFAS also announces the national priorities in its call for proposal and uses them to assess the relevance of projects. It generally strives to align its activities with the broad national priorities.

The lack of interministerial co-ordination previously highlighted is also a factor hindering the implementation of the MRDPs, as it results in overlap, duplication and repetition of tasks. Several key infrastructure projects under the current MRDP have been delayed or postponed (KFAS, 2019b). The recent resignation of the government was in part related to delays in a major infrastructure project planned under the MRDP (Al Shurafa and Al Sherbini, 2019).

More generally, the implementation of STI policy is significantly hindered by the lack of government awareness, interest and capabilities relevant to STI activities. Many examples of projects delayed, misunderstood or simply rejected by government bodies were collected during interviews. The high level of bureaucracy and the lack of operational autonomy of STI actors is also a major impediment that gets in the way of policy implementation. Although it is difficult to provide hard evidence, managers of research institutions and researchers themselves were unanimous in claiming that the budgeting and auditing rules they have to comply with do not allow them to perform their activities adequately.

### **3.5.2. The role of STI agencies**

No agency is tasked with the implementation of research and/or innovation activities in Kuwait. Some functions of both are partly addressed by different institutions, notably KFAS, but these do not cover the whole range of responsibilities usually covered.

Although their scope and status vary among countries, the term "agencies" generally refer to semi-autonomous organisations that programme, select and fund research and/or innovation activities. Many OECD and non-OECD countries have put in place such agencies and these organisations are now well-established pillars in these countries' national systems of innovation, as is the case, for instance, in

Norway or the United Kingdom (Box 3.8). Extensive literature has documented this process of “agencification”, i.e. the delegation of policy implementation authority to specific government bodies in an increasing number of countries, across different policy fields. The main rationale for establishing these intermediate organisations lies in the separation of policy orientation, which remains in the hand of committees, central government and line ministries (the “principals”) and the implementation of policies by agencies that maintain strong and proximity-based relationships with the universities, research institutes and private firms. The “governed autonomy” of agencies *vis-à-vis* their principals and their “embeddedness” in the network of actors that implement higher education, research and innovation activities are what distinguish agencies from other state actors:

### **Box 3.8. Research and innovation ministries and agencies: Results of an OECD survey and a NESTA international comparative study**

#### **Research and higher education policy bodies – OECD database on STI governance**

A new OECD policy database provides a systematic comparison of the governance of public research policy across 35 OECD countries from 2005 to 2017

Almost all OECD countries have set up dedicated institutions to take charge of science, technology and innovation (STI) policies, in particular with regards to defining priorities for higher education institutions (HEIs) and public research institutes (PRIs), however with different features. National governance settings differ notably with regards to the type of institutions (council/committee, ministry, agencies), their coverage (research, knowledge transfer, business innovation), level of government (federal, national, regional) and their functions in the policy cycle (strategic orientation, co-ordination implementation, evaluation). While in 8 of 34 countries (24%), a council or committee is in charge of setting key policy priorities for HEIs’ and PRIs’ policy, this responsibility is in all other 26 countries (76%) within the purview of national ministries (a single one or more than one). Most commonly, the scope of these ministries covers the fields of education/higher education, research and/or innovation.

Agencies (under different names such as councils or foundations) decide on allocations of project-based funding for HEIs in 31 (or 89%) of 35 OECD countries, while in most countries, ministries provide institutional funding (32 of 35 for HEIs, 27 of 34 for PRIs), under different forms and modalities. Ten countries created agencies to allocate project-based funding between 2005 and 2016, such as the National Research Agency (ANR; created in 2006) in France, the Innovation Fund Denmark (IFD; created in 2014) or the Spanish Agency of Research (AEI; created in 2015). Ministries of Education, Research and/or Innovation continue to allocate project-based funding in Greece, Italy, Japan and New Zealand.

Funding arrangements differ. While in 12 of 31 OECD countries where agencies provide project-based funding, there is a single agency, the remaining 19 have more than one agency. These agencies are specialised in specific research fields (e.g. in Australia and Canada) or cover separately basic research, applied research and/or innovation tasks. From 2007 to 2017, several countries, including Denmark and Estonia, reduced the number of funding agencies, in some cases to simplify funding applications (creating a “one-stop shop”), to increase efficiency and in others to reduce the fragmentation of funding.

#### **Innovation agencies – NESTA study**

**In 2016, the UK organisation NESTA** performed a comparative study of ten different innovation agencies pertaining to different types of innovation systems. The main results are summarised below.

While research agencies have among their core functions the provision of competitive project funding following some common basic functioning rules, the variety of innovation agencies is far greater, in their structure, scope and instrument portfolio. There is no single model for a successful innovation agency (not even the hardly replicable “DARPA model”), each of them being adapted to the pursued objectives (their role) and the characteristics of the national system they are embedded in.

The study identifies the main roles of innovation agencies: the market and system fixers seek to address generic (i.e. non-sector specific) impediments to business innovation and R&D investment in markets and networks, mainly through the provision of competitive funding. Industry builders have a more transformative role, by creating and developing new opportunities for growth (new sectors/technologies). Mission drivers aim to induce innovations that tackle societal and economic challenges, often in specific sectors such as defence, health, energy and the environment.

Like their counterparts in the research policy field, innovation agencies operate with considerable autonomy in most cases. As innovation moves higher up the political agenda, they cannot be entirely separated from political processes and are influenced by – agencies shorter term and changing – political priorities. Their level of autonomy also depends of the type of agency: the “industry builders” tend to be more closely linked to the government’s priorities and industrial strategies.

The functions they perform to support innovation can be categorised into four main types: 1) direct financial assistance (e.g. grants or loans, but also R&D tax credits in some cases); 2) non-financial assistance for businesses (e.g. advisory or matchmaking services); 3) support for intermediaries (e.g. incubators and accelerators); and 4) linkages and institution-building activities (e.g. knowledge-transfer programmes, clusters, networks, competence centres, etc.).

The roles performed by innovation agencies should be clear and well-delineated so that they do not pursue too many roles, which might happen as a result of over-ambitious government expectations and sometimes simply by an internal tendency of agencies to expand their prerogatives (“mission creep”). Innovation agencies should be part of different policy levers governments have to support innovation.

Given the complexity and variety of their modes of intervention, but also due to the diversity of the different shapes and forms of innovation, the assessment of the impact of innovation agencies cannot be captured relying uniquely on quantitative indicators. More qualitative assessments are also needed to grasp innovation agencies’ quality of management, ability to take and learn from strategic risks, design and implementation of programmes, etc.

Sources: Borowiecki, M. and C. Paunov (2018), “How is research policy across the OECD organised?: Insights from a new policy database”, <https://doi.org/10.1787/235c9806-en>; Glennie, A. and K. Bound (2016), How Innovation Agencies Work: International Lessons to Inspire and Inform National Strategies, [https://media.nesta.org.uk/documents/how\\_innovation\\_agencies\\_work.pdf](https://media.nesta.org.uk/documents/how_innovation_agencies_work.pdf).

The managerial and operational autonomy of agencies is intended to generate significant efficiency gains and avoid conflicts of interest. However, although agencies operate at arm’s length from their political principals, they receive most of their budgets from one or several ministries in the relevant policy fields and are accountable to them with regards to the achievement of the objectives they have set. Countries have designed different ways to mix and balance structural separation and strategic linkages between the principal(s) and the agency, depending on the context.

Past OECD Innovation Policy Reviews have shown that agencies’ embeddedness in the research and innovation communities has enabled these communities to play an increasing role in policy implementation and in policy formulation and as critical “advisors” for strategic orientation. Agencies are therefore a key component of national systems’ “distributed strategic intelligence”, by exploiting the fact that organisations that work closely with beneficiaries have better insight into research and innovation processes than central

bureaucracies. The agencies provide monitoring and evaluation information, but often also propose new programmes and instruments, based on their closer proximity to users and problems and developments in science and technology.

### 3.5.3. *The role of KFAS in supporting research and innovation*

Beside the limited direct interventions from ministries, the main organisation performing STI policy implementation is KFAS. It was established by Amiri decree in 1976, at the request of leading Kuwaiti business figures who offered to pay 5% of their annual profits to establish a foundation for the advancement of science. This percentage fell over time to the current level of 1% of the profits of Kuwaiti share-holding companies. Foreign-owned companies are not obliged to pay. The decree calling for donations to KFAS has never been ratified by parliament, so it has the slightly uncertain status of a request from the Amir rather than being a legal requirement. Over time, companies have started to regard the 1% levy as a tax rather than a donation. As a result, resentment has grown among the companies, but appears to have lessened since 2008, when KFAS changed its leadership and began to more deliberately design a strategy that included specific efforts to support innovation in business in addition to its broader science-related tasks.

KFAS launched its first strategy in 2012, covering the period 2012-16. The key strategic thrusts (STs) were:

- contribute to the development of a strong advocacy for science, including science education, support the gifted and talented, and help advance scientific culture and the enabling environment in Kuwait (ST1);
- enhance and integrate R&D capacity in and among Kuwaiti scientific institutions to address national priorities (ST2);
- support innovation and assist in developing the required links to commercialisation within a framework for an integrated STI system (ST3);
- catalyse the strengthening of technological and innovative capacity in the private sector (ST4).

The current strategy (2017-21) merged ST3 and ST4 into a single directorate, marking a clearer separation between what KFAS does internally and what it does through its external centres and reflecting the shift of some KFAS research commercialisation activities to SAC (Box 3.9). An important role of KFAS to support research and innovation activities relates to the funding and management of four external centres: the Dasman Diabetes Institute (DDI), the Jaber Al Ahmed Centre for Molecular Imaging and Nuclear Medicine (JAC), the Scientific Centre of Kuwait (TSCK), the Sabah Al Ahmad Centre for Giftedness and Creativity (SAC). In addition, KFAS has launched in 2016 KFAS Academy, in association with KU. Originally known as the Kuwait Virtual University, it is currently in a start-up phase and has so far provided selected university-level courses – especially foundation courses – and professional development. The intention is to become an online university to provide low-cost degree teaching across the Arab-speaking world. Initial course development projects have been placed with universities abroad.<sup>22</sup>

#### Box 3.9. KFAS Strategy (2017-21)

The current KFAS Strategy encompasses the following strategic thrusts:

##### **ST1: Scientific Culture Directorate: Advocating science, education and scientific culture**

- Programme 1: Science and Math Education. Although there have been challenges in engaging the interest of the Ministry of Education in supporting the development of more innovative and attractive ways to teach STEM subjects in schools, KFAS continues to strive to enhance science



and math curricula, in cooperation with the Ministry of Education. KFAS also supports some informal educational initiatives.

- Programme 2: Engagement in Science and Technology. KFAS supports financially and technically Science, technology and innovation (STI) initiatives, as well as science competitions, seminars and trainings, and science festivals and fairs. This programme focused on enhancing the role of STI within the society, by contributing to the capacity building of local civil society organisations through events and providing funding to support capacity-building initiatives with other local entities, such as the the Gulf University for Science and Technology's Centre for Teaching, Learning and Research.
- Programme 3: Publicising and Disseminating Science and Technology. Supporting national non-governmental organisations and social media influencers in science communications. KFAS support for instance publications for children and adults that are focused on science, math, and innovation.

### **ST2: Research Directorate**

- Programme 1: Research Grants. Providing small, principal investigator-initiated research projects typically oriented to a single investigator and support staff.
- Programme 2: Research Capacity Building, focusing on early-career funding and grants to help career development, as well as capacity building workshops, conferences, etc.
- Programme 3: Flagship Research and Technology Transfer Projects (mega R&D and technology transfer) on themes defined by KFAS in consultation with stakeholders.
- Collaborative Research Unit, supporting international collaborations in research with renowned international research and academic institutions, as well as centres of excellence, such as with the University of California, Berkeley or Paris' Sciences Po.

### **ST3: Innovation and Enterprise Directorate: Strengthening capacity for innovation in business and of individuals**

- Programme 1: Enterprise Knowledge Enhancement. Commissioning targeted sectoral studies and sponsoring STI events to promote awareness and reduce barriers to innovation and development in the private sector.
- Programme 2: Learning and Human Development for Enterprises. Creating and funding training programmes for employees, managers and human resource personnel to increase their ability to recognise the value of STI, assimilate it and apply it to commercial ends.
- Programme 3: Enterprise Support and Transfer of Technology. Supporting the development of innovations in firms both via R&D and through technology transfer projects.
- Office of International Programs. Develops and maintains relationships with a handful of leading international universities with a view to helping Kuwaiti researchers undertake scientific visits and develop collaborative research.

### **Special Projects and Initiatives Office**

The Special Projects Initiatives Office manages three categories of project:

- Projects that are aligned with KFAS' mission but are not part of the scope of the programmes under the strategy thrust area.
- Projects that are not aligned with KFAS' mission, but are within its broad mandate, which includes social solidarity in Kuwait.
- Other projects that are beneficial to society but are not within KFAS' broad mandate. Formerly, this category took up a large proportion of KFAS' available budget, but it has been managed

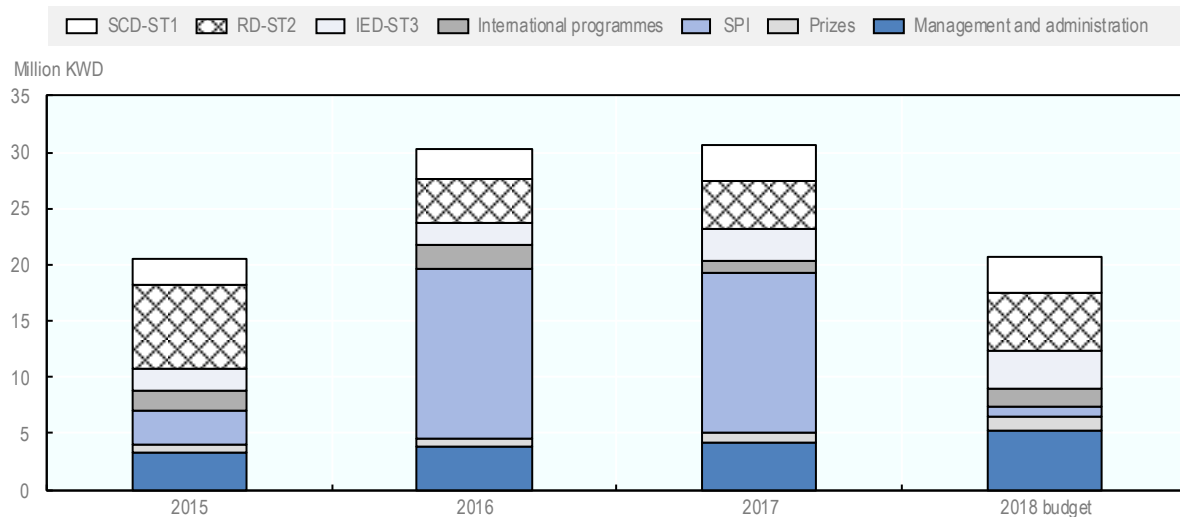
down via increased management insistence on working within the mandate as a foundation for the advancement of science.

The Prizes Office oversees competitions and awards the Kuwait Prize (for research achievement within the international Arab community), the Scientific Production Prize to reward publication by early- and mid-career researchers, the Kuwait e-Content Award for production of social media, the Al-Sumait Prize for development initiatives or scientific research promoting development in Africa. The office also administers the Al Nouri Prize for the best doctoral dissertation awarded by universities in Arab countries, on behalf of the Al-Nouri Philanthropic Trust.

Source: KFAS (2016), KFAS High-level Strategic Plan 2017-2021.

Figure 3.4 shows recent programmatic expenditures by KFAS. It shows that the funds dedicated to support research decreased significantly between 2015 and 2016 while the two other programmes (supporting respectively scientific culture and business innovation) expanded. The Special Projects and Initiatives (SPI) account for a major part of KFAS' budget and account for the bulk of its budget increase. These initiatives target Kuwait's national priorities. These projects are within KFAS' mandate, but are not a part of the scope of the existing core programmes. The list of SPI initiatives for 2015-17 reveals a very diverse set of activities, ranging from strategic studies (e.g. a study of the reform of Kuwait's administration "compatible with the Vision of the State of Kuwait 2035" to several small actions to fund the international mobility of students and researchers, as well as several workshops and events) (KFAS, 2018).

**Figure 3.4. Breakdown of KFAS' expenditure, 2015-18, by strategic thrust**



Source: Data supplied by KFAS.

KFAS' activities to support research activities (ST2) and business innovation (ST3) are analysed respectively in Chapters 3 and 4.

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## Notes

<sup>1</sup> These principles (in this chapter and subsequent chapter) are mainly based on the OECD STI knowledge base, as synthesised in the OECD Innovation Strategy (OECD, 2010) and *The Innovation Imperative* (OECD, 2015) and on the results of more than 30 OECD Reviews of Innovation Policy (<https://www.oecd.org/sti/inno/oecd-reviews-of-innovation-policy.htm>).

<sup>2</sup> Namely, the National Democratic Alliance, the Popular Action Bloc, the Hadas (Muslim Brotherhood), the National Islamic Alliance, and the Justice and Peace Alliance.

<sup>3</sup> In this case, the *ex officio* members do not have a vote.

<sup>4</sup> This has happened, for instance, in November 2019 when Kuwait Prime Minister Sheikh Jaber Mubarak had to submit the resignation of his government to the Amir in order to avoid a possible vote of no-confidence by the parliament (Gulf News, 2019).

<sup>5</sup> The World Bank Governance Indicators provide aggregate and individual indicators for 215 countries and territories over the period 1996-2014, for 6 dimensions of governance (World Bank, 2019).

<sup>6</sup> Freedom in the World is an annual comparative assessment of political rights and civil liberties that covers 195 countries and 15 related and disputed territories. See: <https://freedomhouse.org/report/freedom-world-aggregate-and-subcategory-scores>.

<sup>7</sup> The Bertelsmann Governance Index and political Transformation Index cover respectively four and five dimensions, each of them constructed of several indicators (Bertelsmann Foundation, 2018).

<sup>8</sup> This section only provides a rapid overview of the different levels of the system. Strategic orientation, policy formulation and implementation are discussed in more depth in the subsequent sections.

<sup>9</sup> Confusion arises at times regarding the denomination “research and innovation councils”. These co-ordination and advisory bodies are not to be mistaken with research agencies or national science foundations, which have a mandate for funding, according to policy guidelines provided by national strategies or policies. Such agencies are sometimes called research councils (for example, this was the case in the United Kingdom between 2002 and 2018). In this review, the term “research agency” is used for such funding bodies.

<sup>10</sup> <http://scpd.gov.kw/Default.aspx>.

<sup>11</sup> The deputy prime minister and Minister of Foreign Affairs, the deputy prime minister and Minister of State for Cabinet Affairs, the Minister of State for Housing Affairs and Minister of State for Development Affairs, the Minister of Oil and Minister of Electricity and Water, the Minister of Finance, the Minister of Health, the Minister of Public Works and Minister of State for Municipal Affairs, the Minister of Education and Higher Education, the Minister of Social Affairs and Labour, the Minister of Information, the Governor of the Central Bank.

<sup>12</sup> See the respective websites: UAE Vision 2021: <https://www.vision2021.ae/en>; Saudi Vision 2030: <https://vision2030.gov.sa/en>; Qatar National Vision 2030: <https://www.gco.gov.qa/en/about-qatar/national-vision2030>.

<sup>13</sup> This report is not publicly available. The OECD review team was not able to consult this report.

<sup>14</sup> The first five-year development plan covered the period 1967/68-1971/72.

<sup>15</sup> Information provided by SCPD.

<sup>16</sup> See: [www.newkuwait.gov.kw](http://www.newkuwait.gov.kw).

<sup>17</sup> Seventeen vision-related tactical projects, 19 enablers and 88 vision-related operational projects.

<sup>18</sup> This estimate was done based on ongoing projects in February 2019, as available on the New Kuwait platform: [www.newkuwait.gov.kw](http://www.newkuwait.gov.kw).

<sup>19</sup> See: <https://valtioneuvosto.fi/en/research-and-innovation-council>.

<sup>20</sup> Official statistics for R&D expenditure do not exist. Preliminary figure obtained by consolidation of data from Kuwaiti sources. Includes a very preliminary figure from KNPC, which is awaiting confirmation/revision

<sup>21</sup> This amount of government funding built upon the data presented in the Chapter 2, excluding non-governmental external funding (hence excluding, for instance, funding from foreign sources and domestic companies such as the Kuwait Oil Company) and business expenditures not financed by government (hence keeping the amounts of the grants provided by KFAS to companies).

<sup>22</sup> <https://www.kfasacademy.com/>.



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