

Kuwait Institute for Scientific Research An Overview

Outline

- **KISR History/Mandate/Statue**
- **Organizational Structure**
- **Over View 6th Strategic Research Plan 05-10**
- **Capabilities**
 - Infrastructure & Research Facilities
 - Human Resources
- **Examples of Key Scientific Achievements**
- **International Collaboration**
- **KISR Transformation**
 - KISR Master Plan
 - KISR 2030 Strategy
 - KISR ICT project.
 - Leadership development

KISR History

- 1967: First established in as part of agreement with Arabian Oil Company
- 1973: Became a government agency
- 1981: Decree No. 28 stressed that the KISR is an independent public institute. The decree specified that **the mission of the Institute is to conduct applied scientific research related to national industry, energy, natural resources, and food resources**, and to **provide consultation to the government**, including the scientific research policy for the country.



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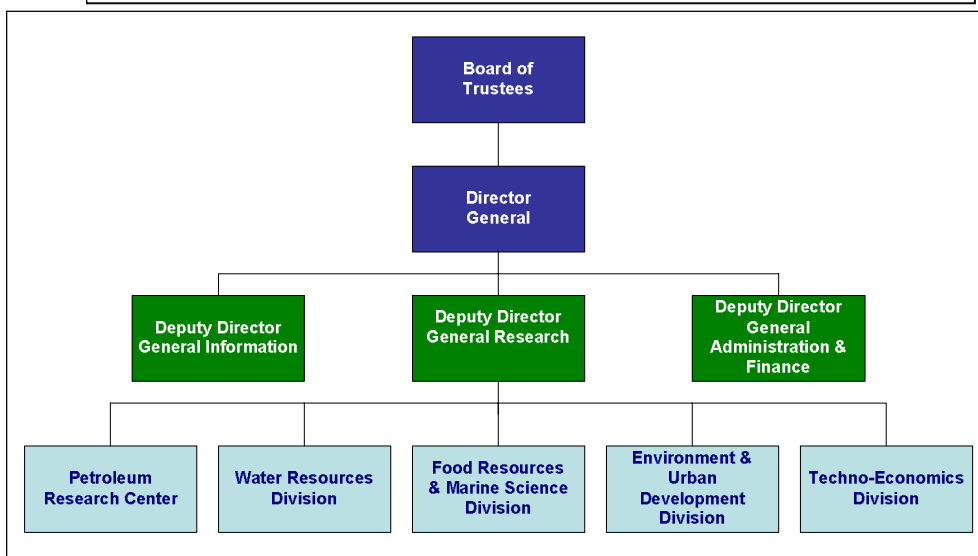
KISR MANDATE

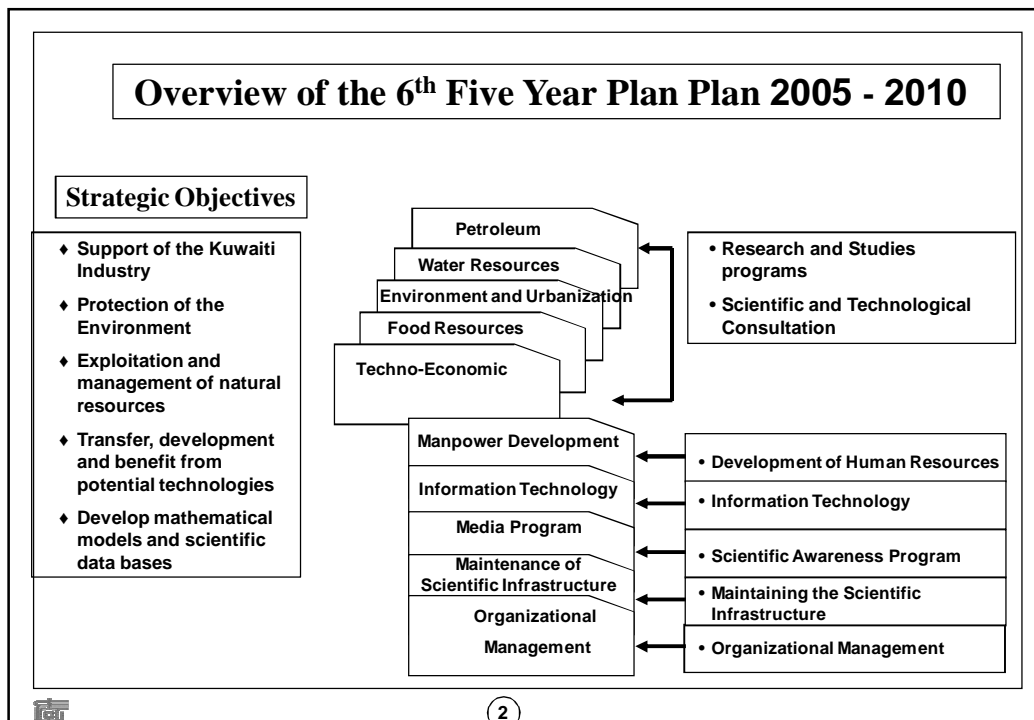
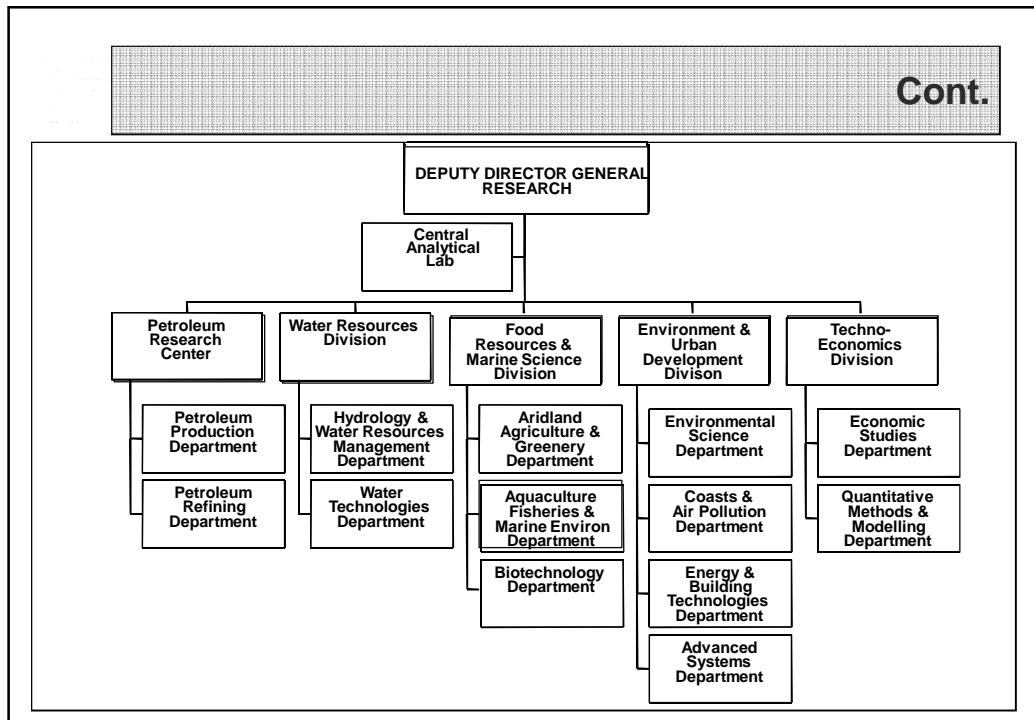
- **Conduct scientific research and studies related to:**
 - national industry,
 - conservation of the environment,
 - natural resources,
 - water and energy resources, and
 - agricultural practices
- **Encourage Kuwaitis to practice scientific research and develop research spirit among the youth**
- **Conduct research services and scientific & technical consultation to public and private institutions, including advising on scientific research policy**
- **Strengthen relationship and conduct joint research activities with institutions of higher education in Kuwait and other countries, and exchange information**
- **Participate in diversifying the sources of national economy through industrial investment in the research output and direct it to serve the socio-economic development of the country**
- **The Institute can also conduct studies to serve the objectives of development in the Gulf Area and the Arab World.**

KISR Statue

- ❖ KISR is a public institute having an independent identity supervised by a Minister assigned by the Ministerial Council and managed by a Director General
- ❖ KISR is governed by a Board of Trustees chaired by the assigned Minister and consisting of key decision-making representatives from:
 - Kuwait University
 - Ministry of Planning
 - Ministry of Oil
 - Ministry of Public Works
 - Ministry of Electricity and Water
 - Ministry of Trade and Industry
 - Ministry of Finance
 - Ministry of Education
 - Ministry of Public Health
 - The Industrial Bank of Kuwait
 - Kuwait Foundation for the Advancement of Sciences
 - KISR Director General (Secretary of the Board)
 - A member having experience in scientific research

KISR Organizational Structure -2006





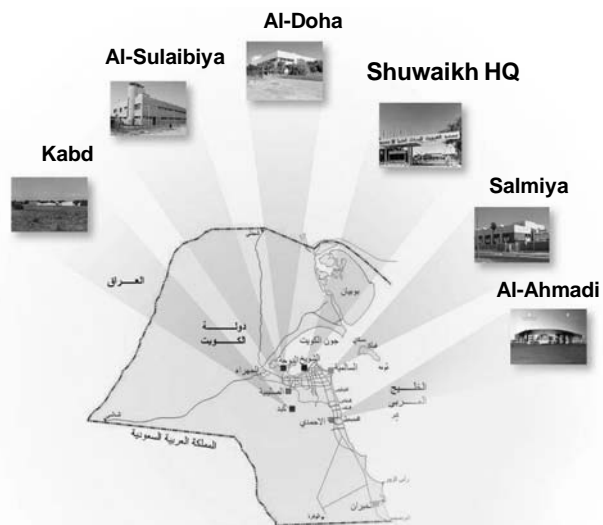
Capabilities and Resources

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KISR's Headquarter & Satellites

Shuwaikh: KISR's Headquarters and Main Research Facilities

- **Salmiyah: Fisheries and Marine Research**
- **Al-Doha: Water Desalination Research**
- **Sulaybia: Wastewater Treatment**
- **Kabd: Agriculture Research Station**
- **Al-Ahmadi: Petroleum Research and Studies Center**



Technical and Scientific Infrastructure

- ❖ Over 70 specialized research labs are maintained updated
- ❖ Semi-commercial pilot plants for petroleum refining, water, and biotechnology
- ❖ National Technical Centers
 - Seismic Activities Monitoring Station
 - Radioactivity Monitoring System (IAEA)
 - Remote Sensing Lab – Satellite Imaging
 - Climatology Center
 - Central Analytical Lab
- ❖ Support Facilities
 - Training Center
 - National Scientific and Technical Information Center
 - Computer Center

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Biotechnology and Food Facilities

- Genetic engineering laboratories (plants, microbial and animals).
- Soil Bioremediation laboratories (Microbial isolation and soil characterization).
- Pilot plant fermentation and down-stream processing.
- Tissue culture laboratory.
- Food technology laboratories (chemistry, biochemistry & microbial labs., bakery & sensory evaluation facilities).



Mariculture & Fisheries Facilities

Mariculture & Fisheries Facilities

- Fish brood stock facilities
- Nutrition and pathology laboratories.
- Fin fish hatcheries.
- Shrimp Biology Laboratory.
- Live food production laboratory and chemostat.
- Marine Biology and Oceanography Laboratories.
- Fish Ageing Laboratory.



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Aridland Agriculture & Greenery Facilities

Aridland Agriculture & Greenery Facilities

- Animal and plant physiology laboratories.
- Animal feed analysis and nutrition laboratories.
- Soil chemistry and physics laboratories.
- Seed preparation and storage laboratory.
- Plant propagation laboratory.
- Herbarium of native plants of Kuwait

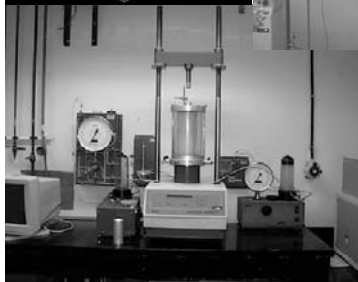
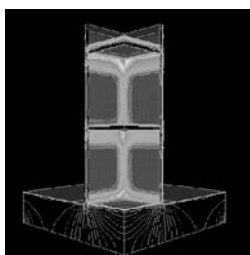


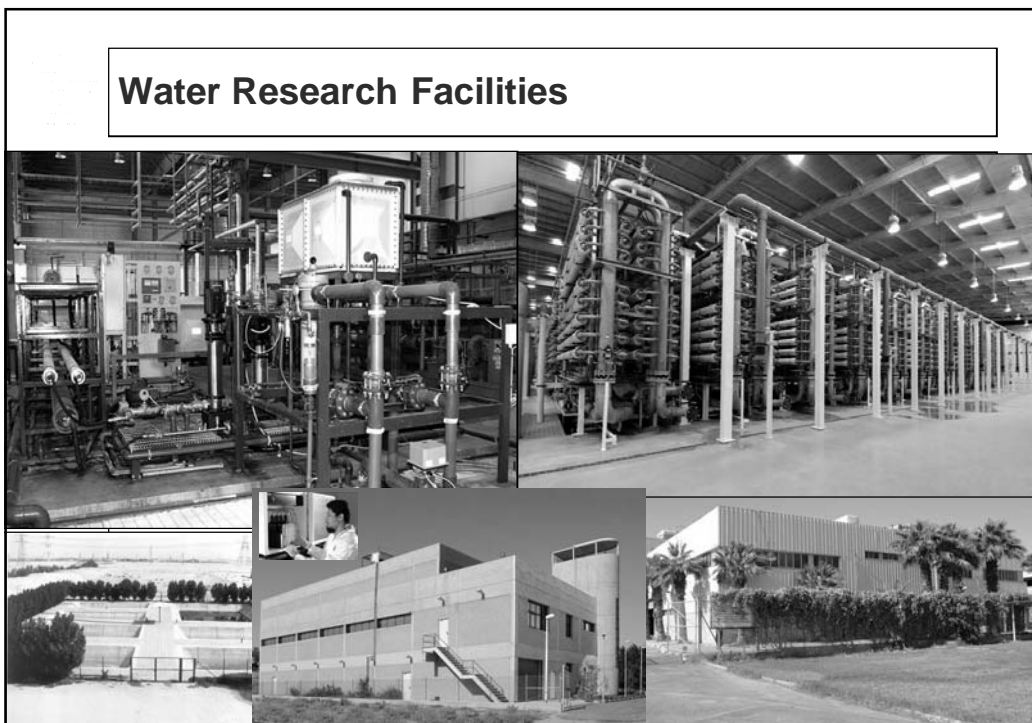
Agricultural & Fisheries Field Stations

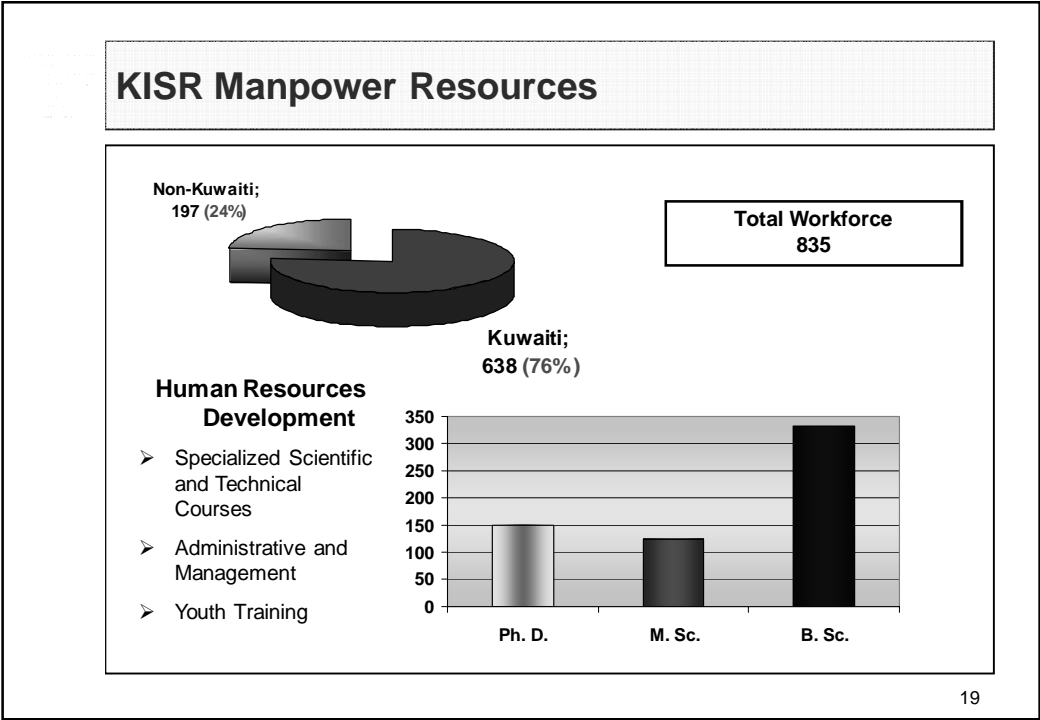
- **Sulaibiya Field Research Station** for livestock, poultry and desert ecology research located at Kabd (south west of Kuwait city).
- **Al-Khiran Field Station** for fisheries and aquaculture research located in the south east of Kuwait along the coast of Al-Khiran area.
- **The Waterfront for Urban Demonstration Garden** greenery and beautification research located in Al-Salmiya along the Gulf road.



Environmental Research Facilities







Highlights of Selected Key Accomplishments

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Support for Oil Production

- Transferring technology of oil well water injection and technically supervised its implementation since 1995

(Increasing the recovery factor by 10-15% for Greater Burgan, Sabriyah, and Wafra Oil Fields)



- Initiation development of technologies for CO₂ sequestration and injection in oil wells (To enhance oil recovery)



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Fish & Shrimps Catch Seasons

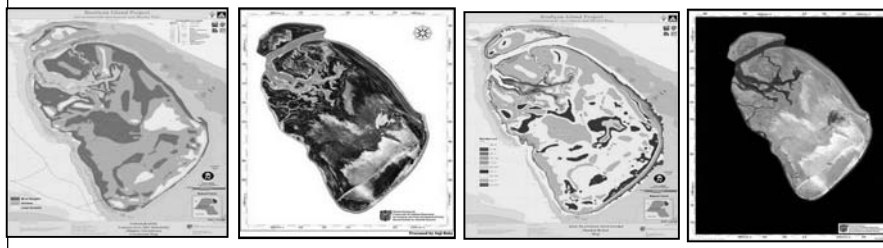
- Based on KISR's research, the seasons for fishing were established to conserve fish and shrimp resources



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Environmental Assessment of Boubyan Island

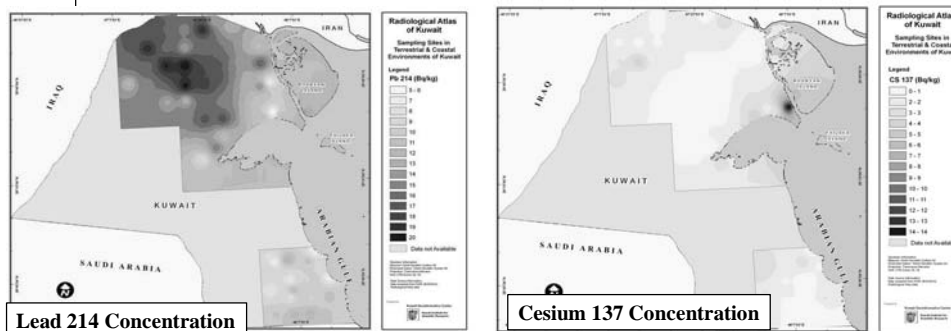
- KISR completed the environmental assessment of Boubyan Island including the development of a master plan for the site and the assessment of soil, vegetation, and wild life



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Monitoring of Radioactive Radiation

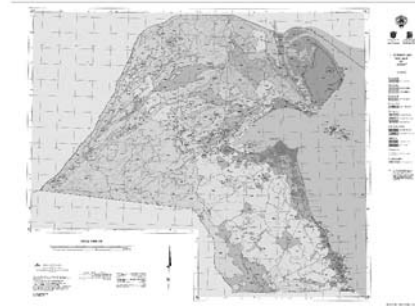
- Establishment and supervision of nuclear radiation monitoring station for IAEA in compliance with the Atomic Weapons Non-Proliferation Agreement



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Soil Survey for the State of Kuwait

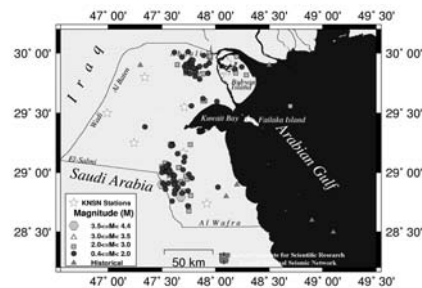
- **Survey and Classification of Soil in the State of Kuwait, including the determination of its quality, potential usage, and detailed maps to serve the needs of different sectors**



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Seismic Activities

- **Establishment and operation of the National Seismic Activity Monitoring Center**



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Agreements with International Organizations

- The World Bank
- United Nations Development Program-UN
- Arab Planning Institute - Arab League
- National Institute for Water, Egypt
- Schlumberger International, Global
- Shimizu Corporation, Japan
- Lawrence Berkley Labs, USA
- Sikorsky International, USA
- US Geological Survey, USA
- Austrian Research Institute, Austria
- Delft Hydraulics, The Netherlands
- Yokohama National University, Japan
- UNEP/ROWA, United Nations
- University of Miami, USA
- Technology and Scientific Research Organization, Iran
- Western Australian Department of Fisheries, Australia
- Fish Research Organization, Iran
- ICARDA, UN
- The Department of Agriculture, USA
- Berucia University, Italy
- National Academy of Science, Ukrania
- University of California, Berkley, USA
- Advanced Molecular Design System, Germany
- Arabian Oil Company, Japan
- Japan Petroleum Institute, Japan
- Technology Research Center, Japan National Oil Corporation, Japan
- Japan Energy Corporation, Japan
- Technical Petroleum Services, USA
- Japan Cooperation Center, Petroleum
- Procatalyse, France
- GKSS, Germany
- Geographica Information System, Russia
- The Inventions Center, Russia
- Institute Francais du Petrole, France

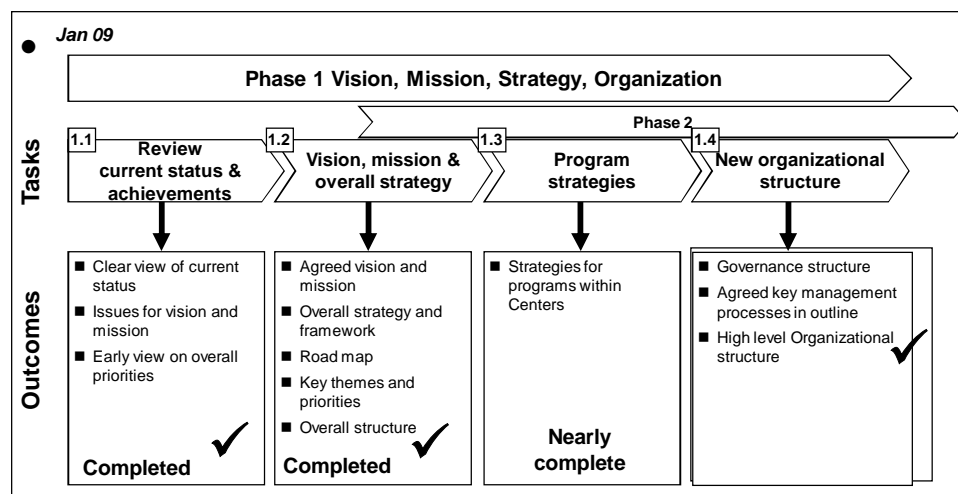
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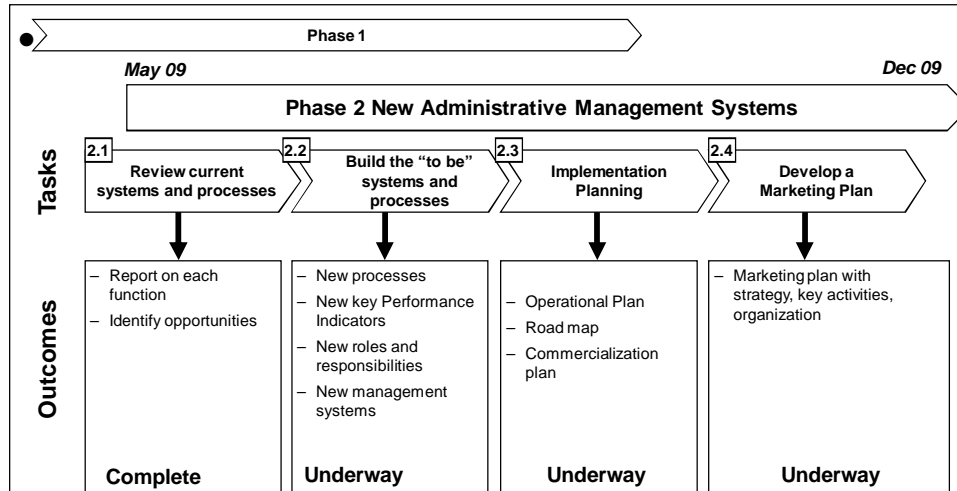
KISR Transformation

- KISR master plan.
- KISR 2030 Strategy.
- KISR ICT project.
- Branding KISR.
- Leadership development program.

Phase 1 of the Transformation Project is now virtually complete

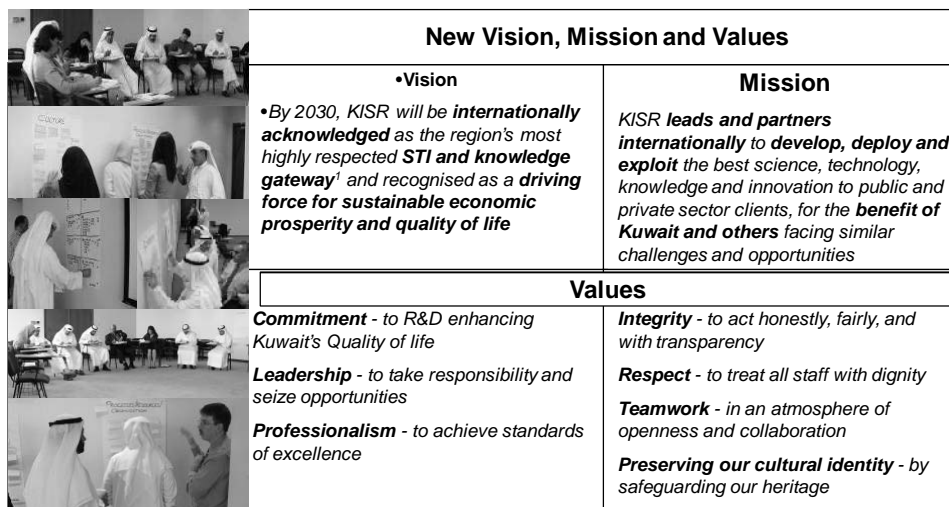


Phase 2 is well advanced, on schedule to be complete by year end



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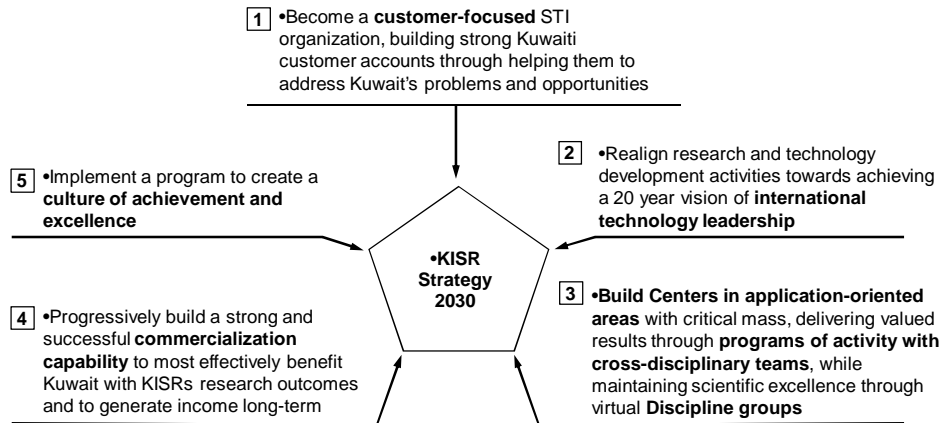
KISR's new vision and mission set a dynamic course for technology leadership in a 20 year timeframe



1. "Gateway": Focal point for the region

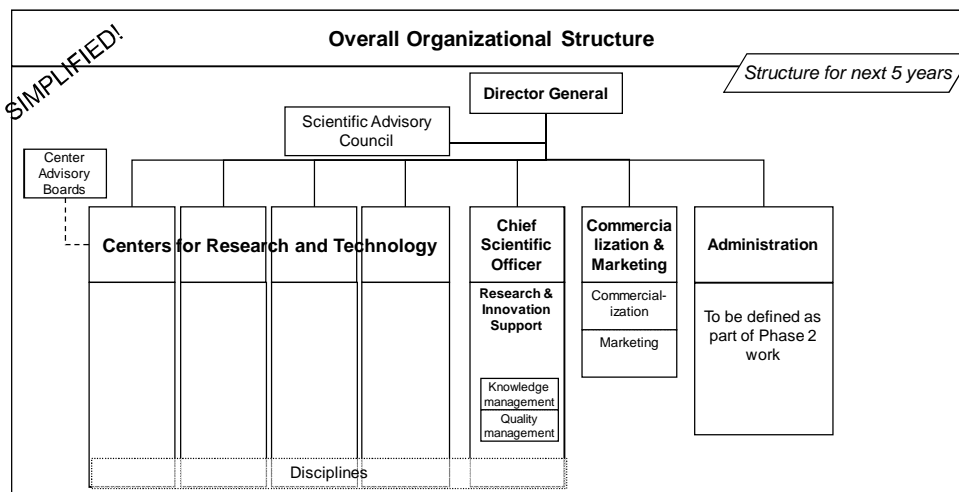
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KISR strategy is built on customer focus, technology leadership, application-oriented Centers delivering programs of activities, successful commercialization and a culture of achievement



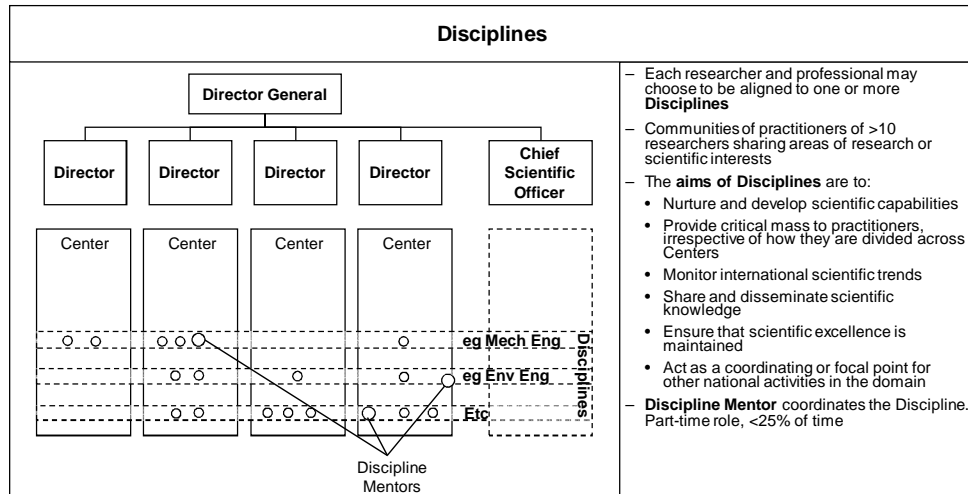
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The new model is based on service delivery through Programs, hosted within Centers, with cross-cutting Disciplines



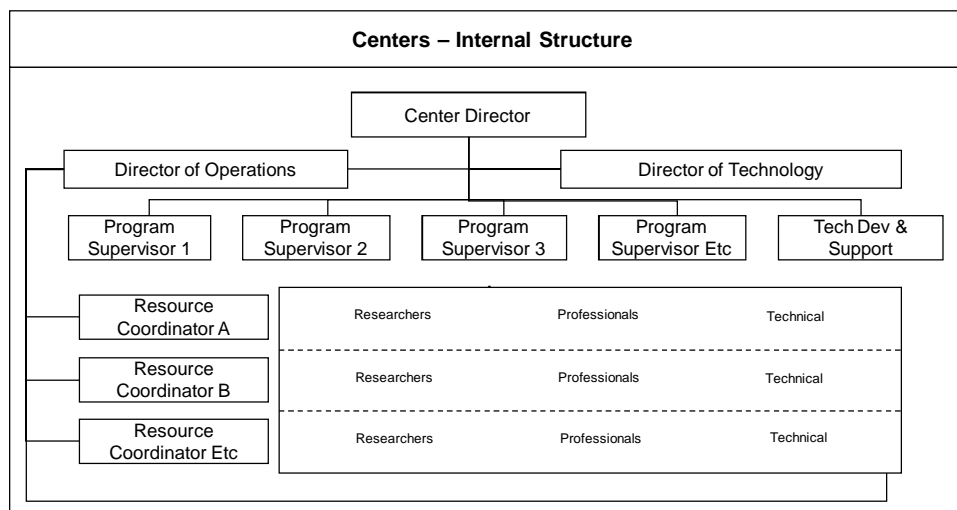
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Discipline communities normally stretch across more than one Center, and are intended to nurture and develop scientific excellence



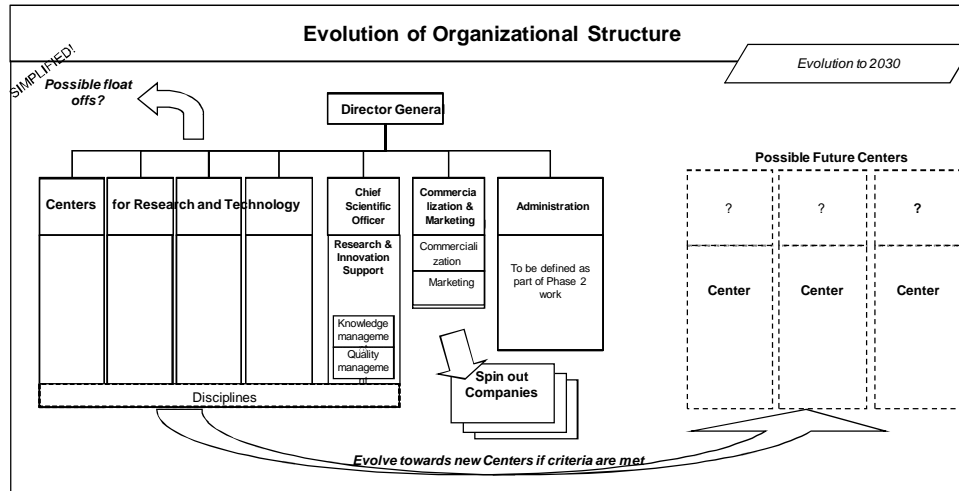
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Research Centers have a matrix structure, with the strongest axis being the Program Supervisor. They are directed by a client-facing Center Director with up to two supporting directors



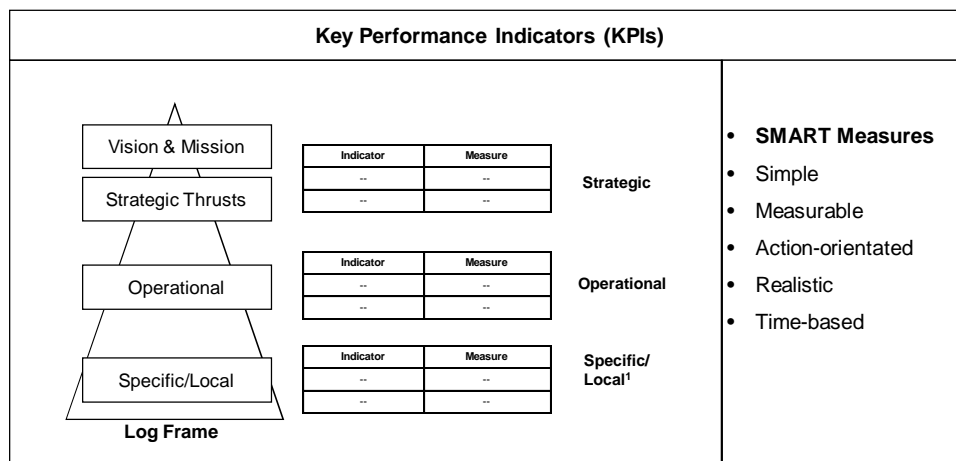
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The structure is directed at growth and evolution, incubating new Centers and Spinout companies to meet Kuwait's developing needs



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KISR should develop a consistent framework of Key Performance Indicators using SMART measures



¹ Note: This level also includes process efficiency and effectiveness indicators

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At the top level, we recommend five KPIs which are aimed at measuring Impacts

| Key Performance Indicators (KPIs) | | | | |
|---|---------------------------------------|--------------------------|--|--|
| <p>Log Frame</p> | Top Level | | | |
| | Strategic Thrust | Indicator | Measure | Source |
| | 1 Customer focus | Customer feedback | Customer survey overall satisfaction score ¹ | Use client feedback data (questionnaire) |
| | 2 International technology leadership | International Reputation | Reputation survey, level of recognition in technology leadership | Annual survey of perceptions of KISR |
| | 3 Build Centers | Scale | Total value of projects implemented by Centers | Data from Finance system |
| | 4 Successful commercialization | Commercial income | Income generated through commercialization (KD) | Data from Finance system |
| | 5 Culture of achievement | Internal staff feedback | Culture survey overall improvement score | Use tailored culture survey questionnaire tool |
| <ul style="list-style-type: none"> Top level performance measures are aimed at measuring "Impacts" Measurable through survey and/or analysis of routine data There are a number of alternatives for additional components to be added (see notes) Measures will change as programmes develop (eg 5 yearly review) | | | | |

1 Note: Could be a composite measure that also includes eg % growth of client-funded income

2 Note: Could also incorporate other external ranking sources, eg THES

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We propose 18 performance measures at the Operational level, to be monitored by Center as well as for KISR as a whole (1 of 2)

| Key Performance Indicators (KPIs) | | | | | | |
|-----------------------------------|---------------------------------------|-------------------------|--|---------------------------|---|--------------------------------|
| <p>Log Frame</p> | Strategic Thrust | Key Elements | Indicator | Relevant Process | Measure | Source |
| | 1 Customer focus | 1 Service Delivery | 1 Proposal development time | E2 Develop proposal | Average duration from initiation to submission (days) | Project proposal tracking data |
| | | | 2 On-time project delivery | E3 Manage project | % of projects completed within original target schedule | Project database |
| | | | 3 Project quality | E3 Manage project | Customer survey average project quality score | Client feedback data |
| | 2 International technology leadership | 1 Scientific excellence | 1 Publications | E4 Complete/ Transfer etc | Lead publications/researcher or Total publications/researcher | Publication records |
| | | | 2 International scientific collaboration | E4 Complete/ Transfer etc | Number of jointly-published papers with international partners | Publication records |
| | | 2 Internationalization | 1 International customer base | E4 Complete/ Transfer etc | Total value of projects delivered to non-Kuwaiti customers | Project database |
| | | | 2 International partnerships | E4 Complete/ Transfer etc | Number of significant active partnerships with international science providers ¹ | Partnership agreement data |
| | | 3 Education and skills | 1 Graduate secondment | S4 Human Resources | Number of PhD and Post-Doc students working at KISR | HR data |
| | | | | | | |

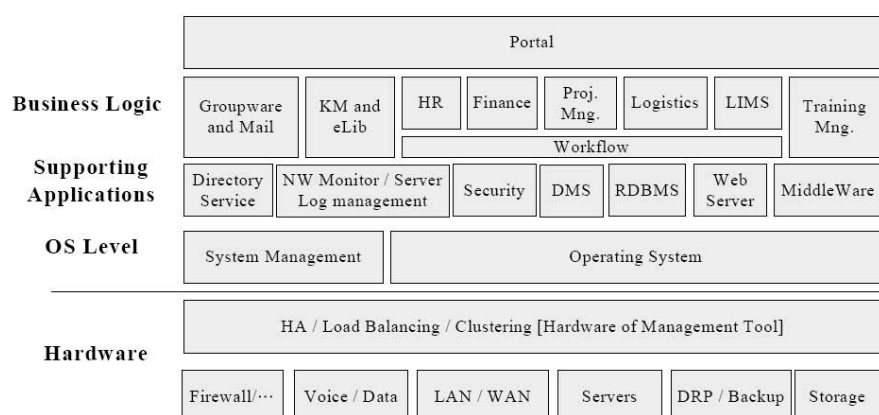
1 Note: Possible additional measure could be: Total value of projects with international collaboration

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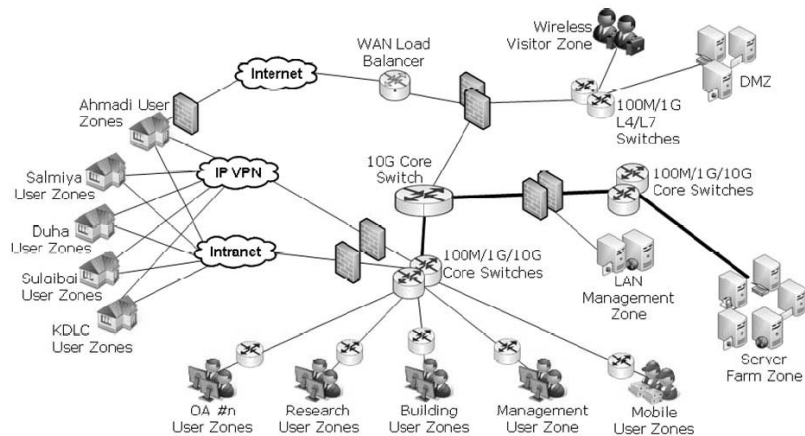
KISR ICT Project Objectives

- Align ICT with KISR new vision and strategy
- Mainstream ICT as a tool in research development programs and institute strategies
- Enable access for all, everywhere ,anytime
- Enable establishing of an ICT industry for Kuwait

KISR ICT Project

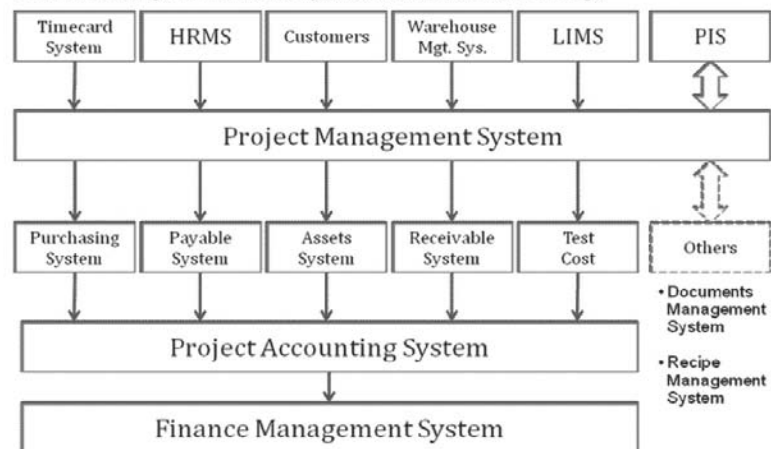


KISR ICT Project



KISR ICT Project

PMS will be integrated with other systems as shown in the followings:



KISR Transformation

- KISR master plan.
- KISR 2030 Strategy.
- KISR ICT project.
- **Branding KISR.**
- **Leadership development program.**

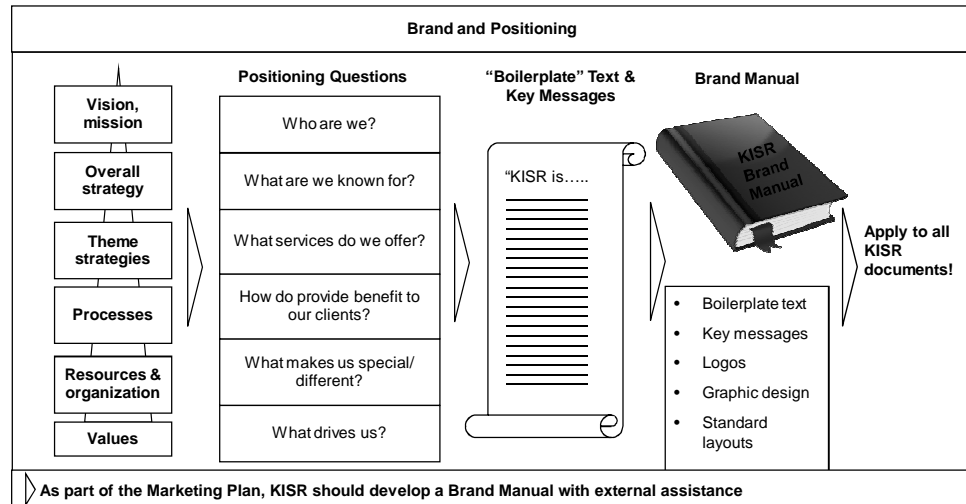
Branding KISR

- To develop KISR Brand & Corporate Identity Manual.
- Implement the brand
 - Workshops
 - Rollout of new brand manual
 - Continuous training
 - Managing KISR Brand

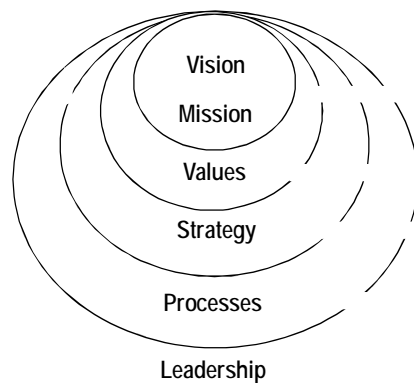


Branding KISR

All marketing communications should be aligned with a set of "boilerplate" messages and consistent use of formats, graphics and layouts – for all KISR's documents and deliverables!



Leadership Development



Creating an Exciting Future

Institutionalizing a new Culture

Solving National Challenges

Providing Directions

Developing staff

Leadership Development

Progress made in leadership development and a new selection process

Project Management Training

- 40 Emerging Leaders
- Ambassador to Clients
- Coach to staff
- Steward of KISR's assets
- Team Player with Colleagues

Support Staff Training

- 20 support management
- Guiding principles
- Self assessments
- Customer feedback
- Mission alignment
- Change management
- Improvement opportunities

Manager Selection

- Recruiting plan
- New selection process
- Rigorous application guidelines
- Standing evaluation committee
- Standardized evaluation guidelines

Leadership Development

Future efforts are planned for organizational leadership and proposal development

Leading the R&D Centers

- Oct workshops planned
- 60 staff to be trained in 2009
- 140 staff to be trained in 2010
- Understanding the strategy
- Organizational Roles & Responsibilities
- Performance management, KPIs
- Change management

Developing proposals

- Dec workshops planned
- 60 staff to be trained in 2009
- 140 staff to be trained in 2010
- Concept note as a strategic document
- Proposal as a sales document
- Execution plan as a management document

Institutionalizing execution

- Guidelines being developed for KISR concept notes, proposals, and execution plans
- Model proposals to be written and reviewed in each R&D Center
- Revised proposals to be used as the "Gold Standard" for the Centers
- Manual to be written for future reference and training