



برنامج قطر الوطني للأمن الغذائي
QATAR NATIONAL FOOD SECURITY PROGRAMME

The Water-Energy-Food Nexus: *A Shared Challenge and Shared Opportunity*



GLOBAL SITUATION

SUPPLY

Climate change

- Ag. yields fall by 10% for each 1°C rise in temperature

Protectionism

- Increased export restrictions

Increasing land and water scarcity

- Cropland per person expected to shrink to 0.07 ha by 2050
- Decreasing water tables⁽¹⁾

High prices of energy

- Oil price \$120/barrel in 2008 ⁽²⁾

DEMAND

Population increase

- ~7 billion today ⁽³⁾, 9 billion in 2050 ⁽⁴⁾

Middle class expansion

- Strong middleclass → consumption

Bio fuel demand

- Increased bio fuel demand contributed to 30% of the increase of cereal prices

(1) Water Resources in Qatar

(2) Oil-price.net

(3) census.gov

(4) UN Projection

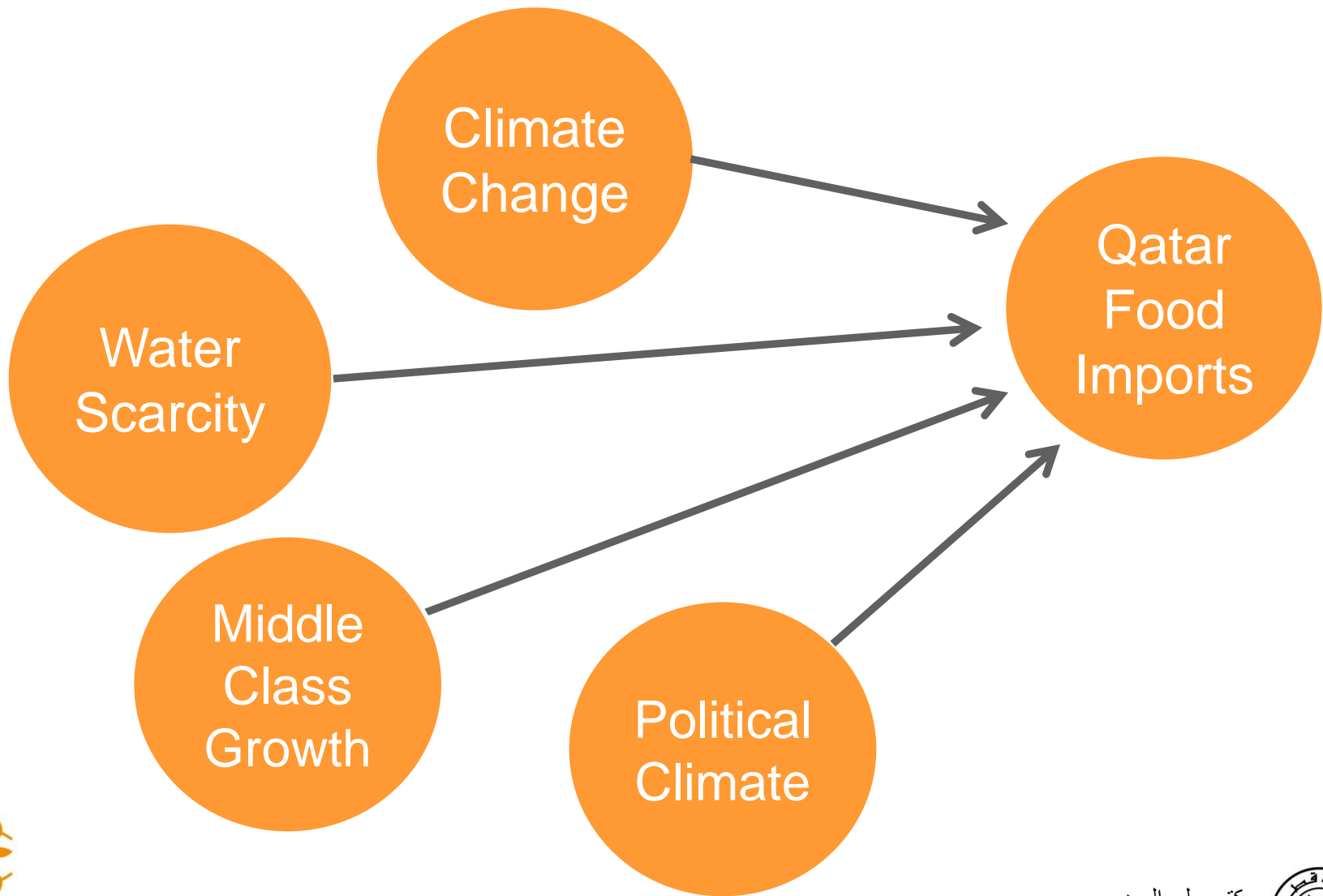


DOMESTIC SITUATION

- **Vulnerability to supply shocks**
 - Qatar is 90% import-dependent
- **Water reserves of just 2 days**
 - Aquifers are under threat of depletion - 220 mcm p/a rate of abstraction as opposed to 56 mcm
- **Only one-tenth of the arable land in Qatar is cultivated**



IMPACTING VARIABLES



RISKS

- **National security threat**
 - Food imports outside the control of State
 - Economic sustenance and growth
- **Water insecurity**
 - Dependency on artificial water generation
- **Volatile food supply**
 - Lack of economies of Scale
 - Surge in demand for biofuel since 2006 caused decline in aggregate production of



QNFSP OBJECTIVES

- **Improve self-sufficiency**

Using a sustainable domestic food production model using environmentally sound technology, and a market stabilization process

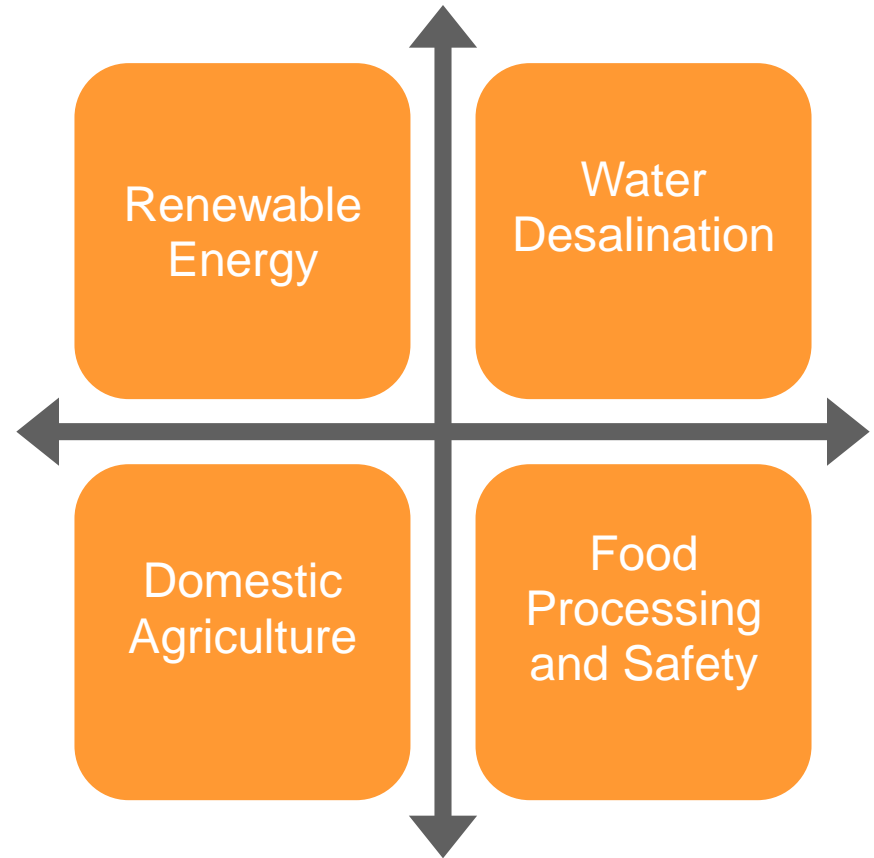
- **Secure external sources of supply**

Via import diversification and intelligent investment strategies within the supply chain

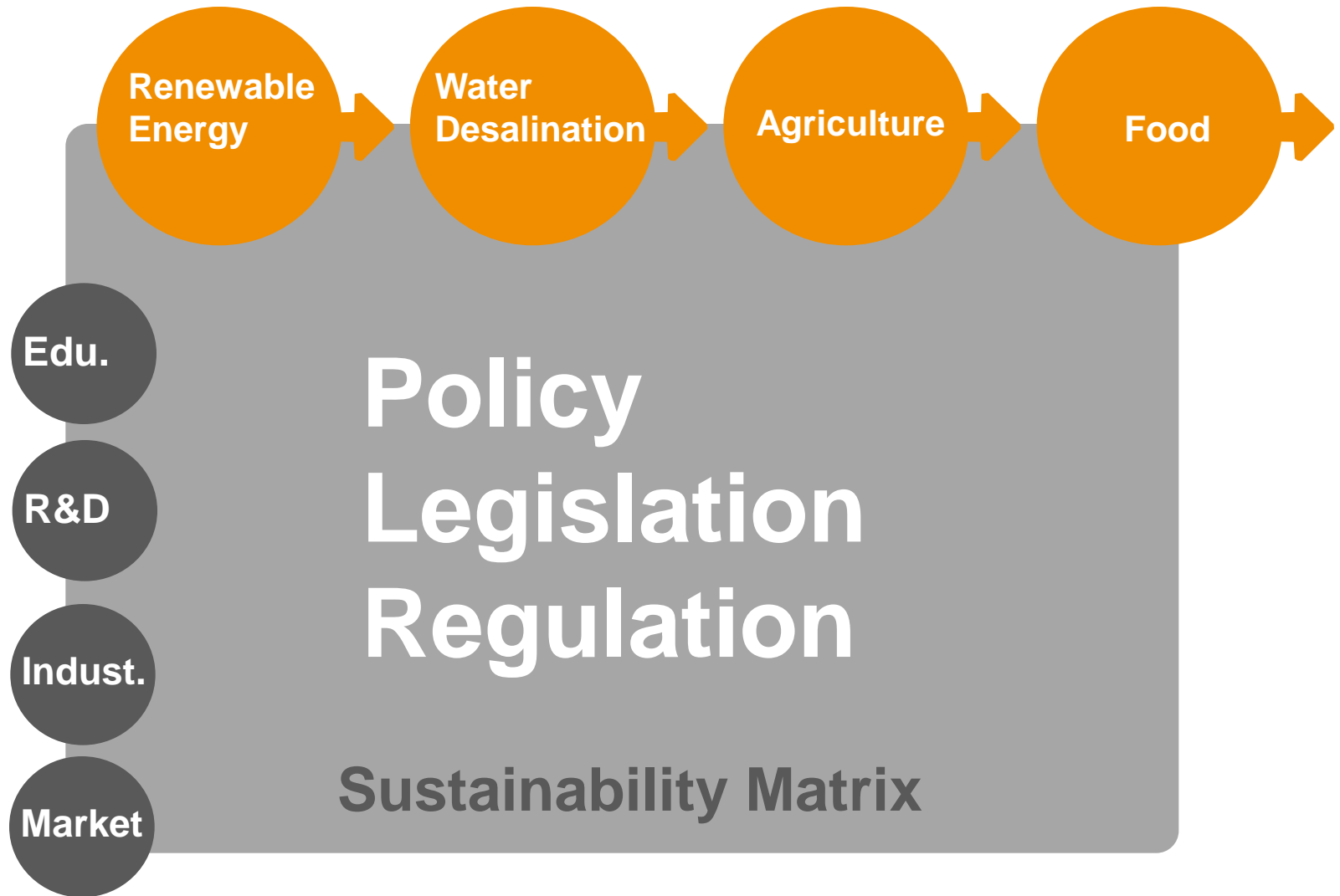


HOW TO ACHIEVE FOOD SECURITY?

By overcoming the natural constraints through innovation and implementation of sustainable infrastructure



SUSTAINABILITY MATRIX



RENEWABLE ENERGY

- **Solar Energy Application**
 - 1800 MGW Industrial scale solar energy plant
 - Smart grid system
- **Benefits**
 - Sustainable energy source
 - Commitment to reduce our Carbon footprint
 - Economic diversification
 - Capacity building in sustainable energy sources
 - Invest in Energy & Water production technologies



WATER DESALINATION

- **Desalination and improved water management**
 - 3.5 m/m Dedicated desalination plant
 - National Integrated water management system ; agricultural; industrial; domestic; landscaping
 - Environment impact management system
- **Benefits**
 - Resource conservation
 - Excess desalinated water recharges groundwater aquifers
 - Excess water to supplement domestic consumption during crisis
 - Capacity building in sustainable water production



AGRICULTURE

- **National agricultural production**
 - Upgrading and developing of new high tech farms
 - Reclamation and cultivation of arable lands
 - Prevent land degradation and maximize yields
 - Harvest control and measurement
- **Benefits**
 - Increased national production
 - Diversified production to meet diversified demand
 - Recourse conservation: **“ZERO EXPORT POLICY”**



FOOD

- **Food Processing Economy**
 - Agro-industrial park
 - Regulation development: “Food Safety” & “Business friendly environment”
 - Access and transportation
 - Markets: “ Regional and Local”
 - Position Qatar as a Food trade hub to off set the disadvantage of lack of economies of scale



- **Supply chain Development**

Develop the ecosystem that is required for jumpstarting a sustainable food economy

- **Strategic Reserve**



EDUCATION

- **Capacity Building for system sustenance**
 - Higher education
 - Vocational training
- **Contribute in exporting indigenous expertise**
 - Knowledge based economy in areas of global need
 - Share and export knowledge and expertise



RESEARCH & DEVELOPMENT

- Renewable Energy
- Desalination and water management technologies
- Agricultural Production
- Food Processing

Basic and
Fundamental
R&D

Applied R&D



HIGH TECH INDUSTRY

- Domesticating high tech industry in Renewable Energy, Water, Agriculture, Food
- Leverage on local & International R&D capacity for innovation and system improvement
- Economic diversification through exporting high tech solutions
- Creation of employment opportunities that are labor efficient



MARKET

- Develop the local demand for local food production
- Protect local production from market distortion
- Develop Qatar as regional hub for international food trade: “**re-export sector**”
- Global government support for market access for Qatar based industries in renewables technology, water technology, agricultural tech & food tech.



LEGISLATION & REGULATION

- **To enable the creation of all QNFSP outcomes**
- **Regulation to:**
 - Improve efficiency : Energy, water, agriculture and food
 - Protect, regulate & support local industries
 - Support R&D activities
 - Food Safety



WHO IS INVOLVED?

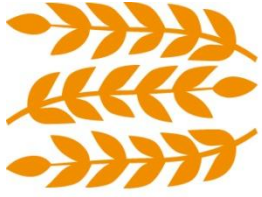
- **Ministry of Economy and Finance**
 - Budgeting Department
 - Supplies Department
- **Ministry of Business and Trade**
- **Ministry of Environment**
 - The Department of Water
 - The Department of Agricultural Affairs
 - The Department of Fisheries
 - The Department of Animal Resources
- **Ministry of Municipal Affairs**
 - Urban Planning and Development Authority (UPDA)
 - Public Works Authority (Ashghal)
- **General Secretariat for Development Planning**
- **Supreme council of Health**
- **Statistics Authority**
- **Customs and Ports General Authority**
- **Kahraama**
- **Hassad Food**
- **Mawashi**
- **Al-Meera**



Inputs to Qatar National Vision 2030

- **Human**
 - Capacity building, health, awareness
- **Social**
 - Effective Institutions, international commitments, national pride, research
- **Economic**
 - Diversification, market stabilization, leveraging hydro-carbon resources
- **Environmental**
 - Research, renewable energy, capacity building, resource protection





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Thank you

