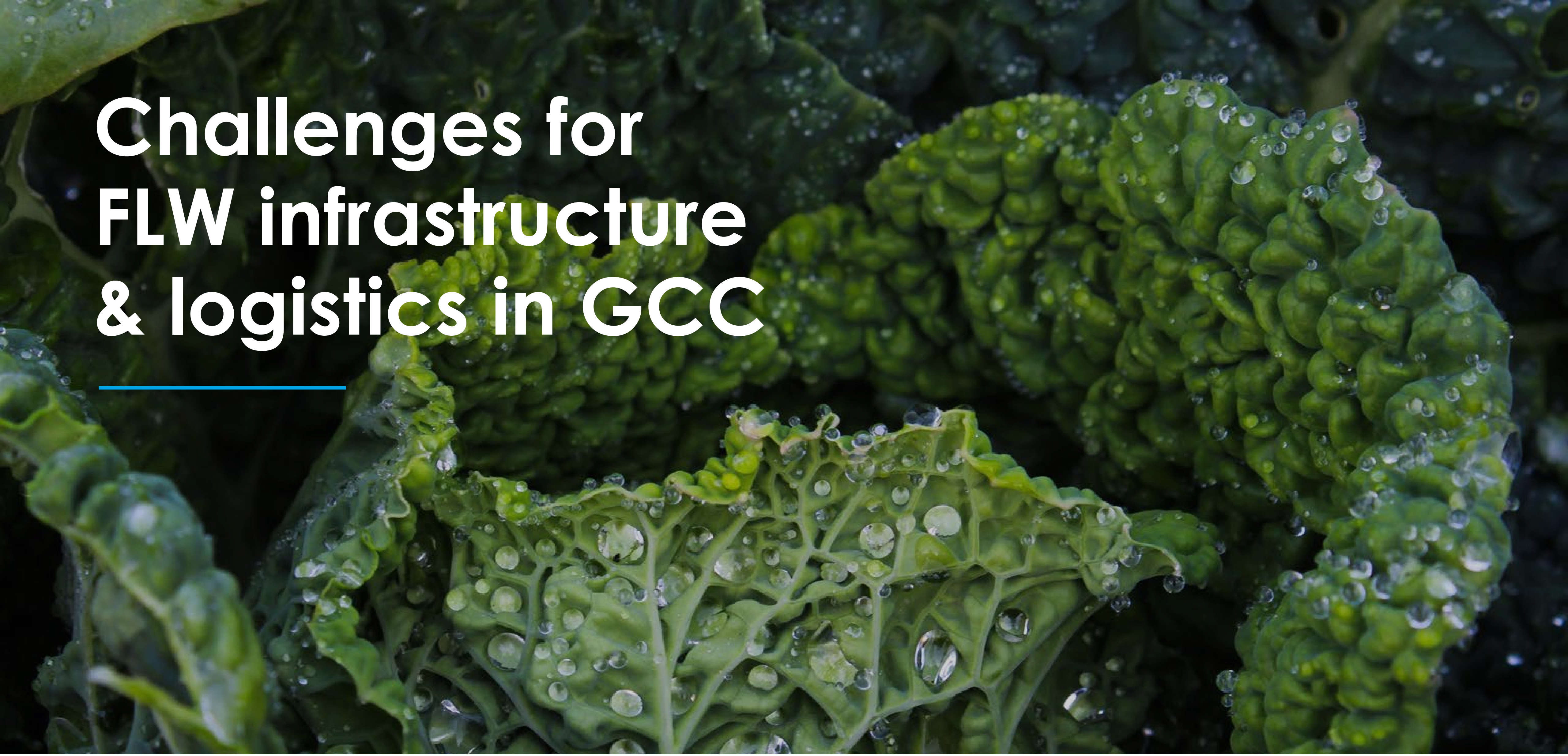
Challenges for FLW infrastructure & logistics in GCC



Oct 15th Regional food loss & waste workshop

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Ministry of Environment Water & Agriculture
Kingdom of Saudi Arabia المملكة العربية السعودية

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Vulnerable Supply Chains

Too Many Eggs In One Basket? Dangers Of Consolidation

Rising incomes, changing consumer preferences driving long term demand for diversified food.

Busier lifestyles driving demand for convenience.

Modernization & internationalization of retail and HORECA changing consumers' expectations of food.

Food & Beverage Market Growth Drivers

Favourable Demographic
Young & growing population

Distribution Channel Modernisation
supermarket & convenience, restaurants etc.

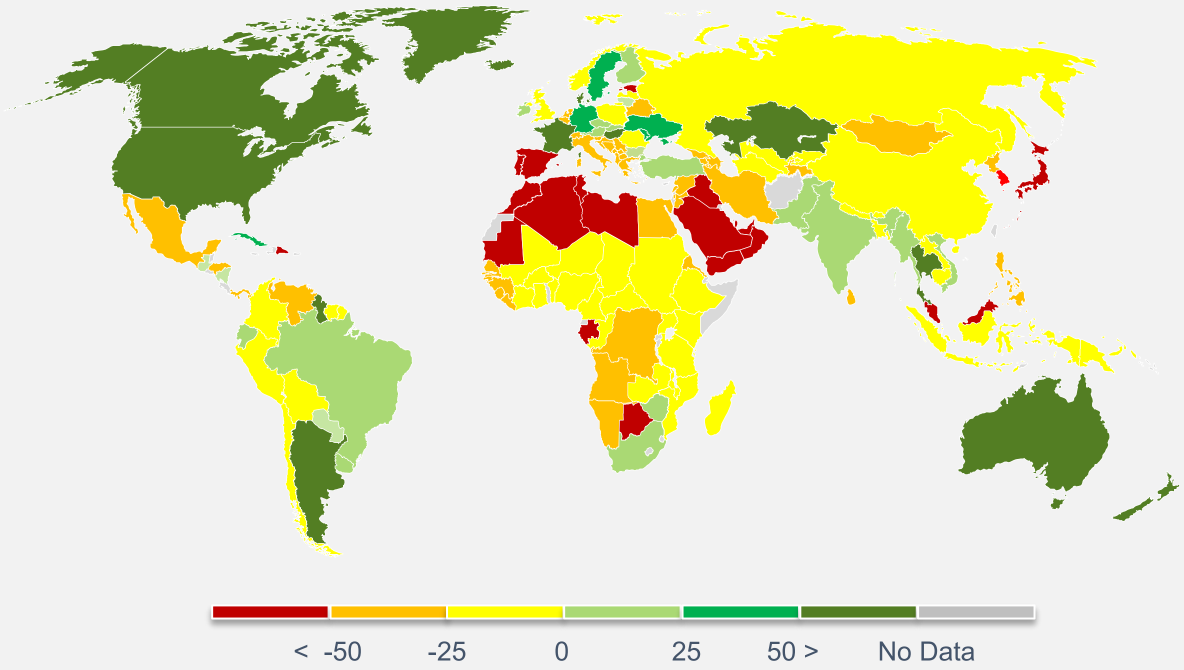
Strong Disposable Income
High spending native population

Social & Cultural Changes
Convenience food increasingly popular

Changing Dietary Preferences
Western & ethnic influences

Growing Tourism
Business and leisure tourism

Net Food Trade as Percentage of Consumption



Local environmental conditions mean that KSA and the wider GCC region is one of the most water scarce and food trade dependent regions in the world.

Source: FAO

FLW in KSA & GCC1 in the context of Regional Agri-Food Policy

Regional food security agenda – Sustainable high-tech agriculture; legislation to reduce FLW

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FOOD SECURITY IN THE REGION

GCC Region's food security agenda:

Reduce FLW across the food value chain

Ensure access to balanced food and promote healthy consumption

Enhance national capabilities for emergency and crisis response

Develop high value systems for sustainable local production

Diversity and stability of external food sources

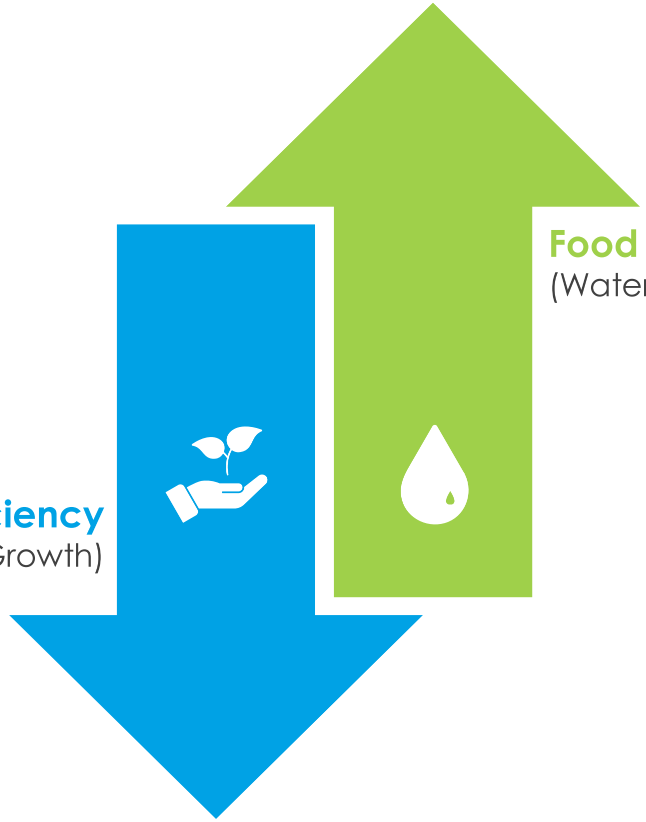
FLW in KSA & GCC1 in the context of Regional Agri-Food Policy

Regional food security agenda – Sustainable high-tech agriculture; legislation to reduce FLW

BALANCING FOOD DEMAND, SUPPLY, AND WATER CONSERVATION

GCC Governments are a vital link to production capacity with various support schemes, while conserving underground water resources

However, for food produced in GCC region, water / capita / year wasted due to FLW is estimated at 790 m3 in UAE and 500 m3 in KSA



Food Security
(Water Conservation)

Food Self Sufficiency
(Agricultural Growth)

FLW in KSA & GCC1 in the context of Regional Agri-Food Policy

Regional food security agenda – Sustainable high-tech agriculture; legislation to reduce FLW

ESTIMATED UAE / KSA FLW IN 2019

1.6/6.1 million
MT tonnes of FLW

AED13 billion/ SAR 40.5 billion
Estimated value of consumer food waste

33% - 35%
Of locally available supply in both countries

FLW in KSA and GCC1 in the context of Regional Agri-Food Policy

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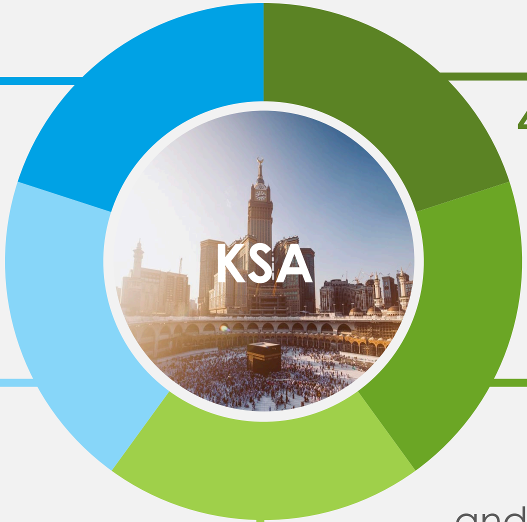
Regional food security agenda – Sustainable high-tech agriculture; legislation to reduce FLW

FLW ALONG THE FOOD VALUE CHAIN



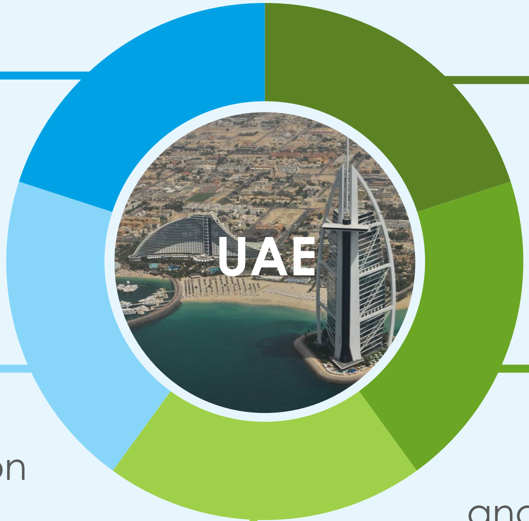
21.5% at primary production

4.5% at post harvest stage

57% at consumption

1% at processing and packaging

16% at distribution (retail, wholesale etc.)



5% at primary production

<1% at post harvest stage

90% at consumption

0.1% at processing and packaging

4% at distribution (retail, wholesale etc.)

Food Loss & Waste in GCC – Key Drivers

There is a general lack of awareness across stakeholders.
Governance and legislation are primary drivers of FLW.

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Governance & Legislation

- Lack of sustainable waste disposal and recycling policies
- Lack of incentives encouraging recycling / reuse
- Lack of National campaigns
- Lack of effective penalties for driving reduction on food waste

Consumer/Source

- Lack of awareness
- Cultural habits
- Mis-alignment of food supply & demand, at retailer & at home
- Affordability
- Extravagance at social gatherings

Collection & Recycling

- Absence of waste segregation systems at source and disposal
- Fragmented commercial food waste value chain
- Lack of awareness of recycling potential
- Lack of participation of public and private enterprise
- Food waste often not disclosed by food companies due to embarrassment. Often written off against marketing budgets
- Distributors and Retailers not aligned on demand planning

Source: Farrelly & Mitchell Research, MEWA

Corporate Infrastructure & Logistics

Food loss at primary production and post-harvest is managed on-site.
Food Waste at processing, distribution, consumption levels is challenging.

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FOOD "LOSS" PRIMARY PRODUCTION & POST-HARVEST

01
Poor planning
Production / marketing misalignment

02
Poor farm management
Over-mature / damaged crops

03
Poor storage
Poor temperature control

04
Poor sorting
Physical damage

05
Lack of hygiene
Contamination / decay

06
Poor marketing
Over-storage / spoilage

For Composting on-site

No Logistics issues in managing Food Loss

Source: Farrelly & Mitchell Research, MEWA

Corporate Infrastructure & Logistics

Food loss at primary production and post-harvest is managed on-site.
Food Waste at processing, distribution, consumption levels is challenging.

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FOOD "WASTE" (FW) …. PROCESSING / DISTRIBUTION / CONSUMPTION

Food Material Barriers

- Identification of suitability of FW
- Shelf life of FW
- Removal of harmful substances
- Need for de-packaging
- Volume & consistency of FW

Process Barriers

- Food Factory design
- Segregation of FW
- Contamination risk in FW

Logistics Barriers

Identifying potential customers for products made from FW

Distance/transport cost of FW collection**

Competing disposal routes for FW**

Turnaround time for processing FW to animal feed.**

Unusable FW from Landfills

Government Infrastructure & Logistics

Excellent roads and marine networks across the GCC region support private sector investment

GCC Governments investment

Construction of additional infrastructure & Logistics

SR70 Billion

KSA Logistics Market

240 million tons

Cargo handled by KSA seaports in 2017

1.2 million tons

Cargo handled by KSA airports in 2015

Other GCC Government Initiatives

International partnerships with private sector for linking infrastructure and Logistics systems internally and across borders.

Integration with systems for driving higher performance…

- More rigorous governance
- Leaner processes
- More efficient customs system

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Waste Regulation is rapidly evolving in GCC

Whilst existing waste laws are elementary, new waste management laws for KSA are imminent - expected to include mandatory fees and waste separation

Existing Regulation

Existing regulations lack integrated waste management.

Most landfills neglected; environmental issues (groundwater contamination).

Food waste disposed with other solid waste in landfills.

Limited recycling.. Lack of source segregation.

Lack of landfill tipping fees is a disincentive to improving the standard of waste disposal

Not a pressing issue until recent years. Now seen as a high priority to address.

New Draft Regulation

New draft waste management law proposed by MEWA in Jan 2020

New law comes into force 180 days after publication

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National Waste Management Centre (NWMC)

Governing body for waste management in the country
Including developing operation and commercial regulations

Waste Regulation is rapidly evolving in GCC

Whilst existing waste laws are elementary, new waste management laws for KSA are imminent - expected to include mandatory fees and waste separation

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LIKELY ACTION POINTS OF NWMC

GENERAL TERMS

KPIS IN WASTE MANAGEMENT

STOP ILLEGAL WASTE DUMPING

STRATEGIC INITIATIVES

FIVE-YEAR STRATEGIC PLAN.

RECORD WASTE PRODUCTION. DEVELOP NECESSARY REGULATIONS

WASTE PRODUCERS

WASTE SORTING AT SOURCE

IMPROPER SEGREGATION – WASTE RETURNED TO PRODUCER.

RECYCLING FEE TO WASTE PRODUCER

SERVICE PROVIDERS

Public tenders to select service providers

Exclusive licenses to waste management service providers

Compliance with controls, conditions and procedures

Severe penalty in case of breach of terms

Liability for environmental damage, public health and safety

Waste Infrastructure Opportunities – KSA examples

Further to new regulations, SIRC was established to drive waste infrastructure development & opportunities. Private Sector also more proactive.

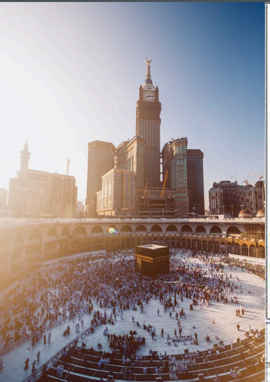
PUBLIC SECTOR

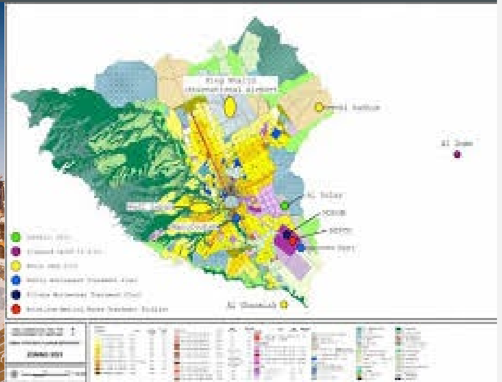
MEWA

National waste management law draft expected to be ratified in 2020

National Waste Management Center (NWMC) as governing body

Comprehensive waste management strategy for Riyadh





S.I.R.C (SAUDI INVESTMENT RECYCLING COMPANY)

Will champion waste management in KSA

سرك SIRC

Infrastructure focus

Tripartite Initiative (SIRC / Riyadh Municipality / NWMC):

- Recycling facility
- Sorting Facility
- Composting Facility

Opportunity focus

Biowaste Start-Ups:

- Edama – compost solutions
- Carbon CPU – fatty acids from biowaste (animal feed ingredient)

Waste Infrastructure Opportunities – KSA examples

Further to new regulations, SIRC was established to drive waste infrastructure development & opportunities. Private Sector also more proactive.

PRIVATE SECTOR

Best practice waste disposal contractors… Increasing demand by large food companies for responsible disposal.

More expensive than municipality contractors

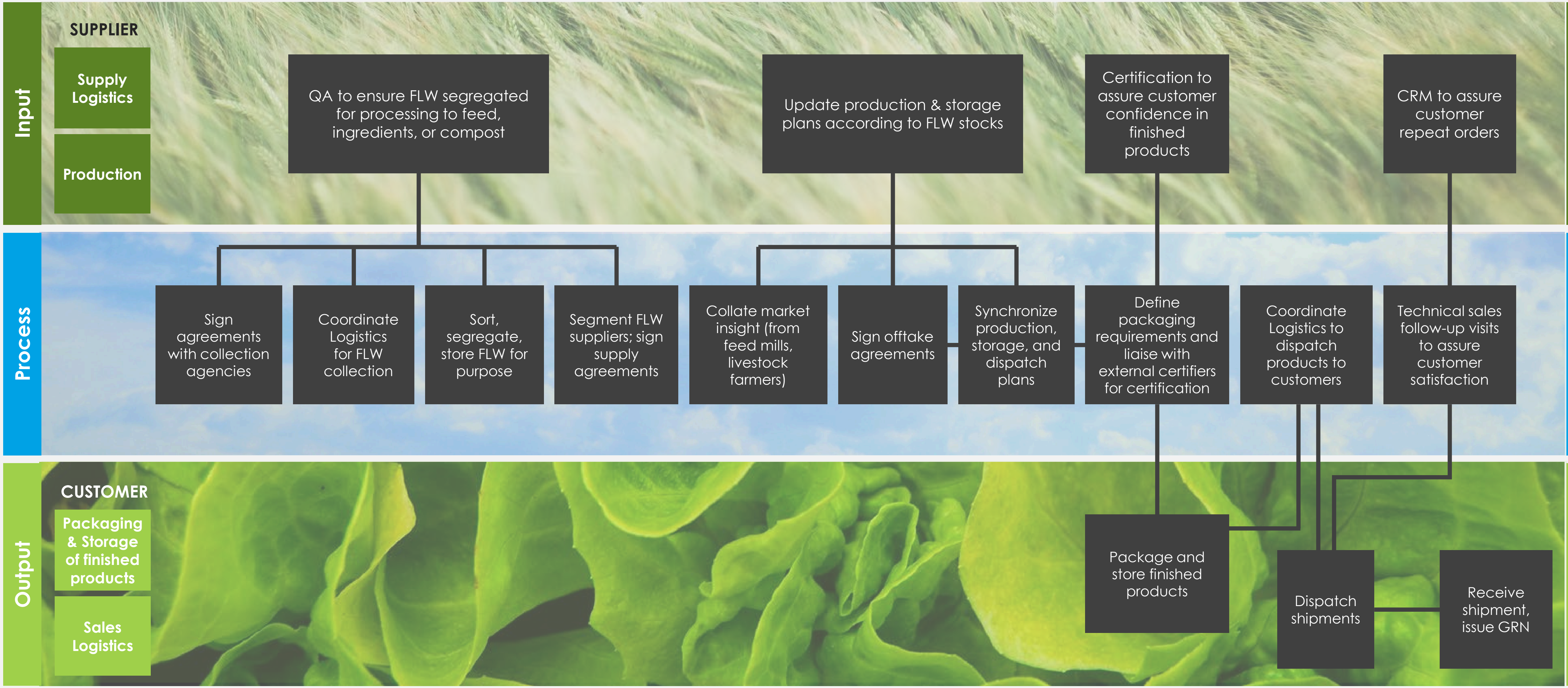
Some food manufacturers have launched FLW awareness programs among households and HORECA

Provide consulting service on proper waste disposal

Increasingly important element in CSR initiatives

Mitigating Supply Chain Challenges in managing FLW in GCC

Our Food Manufacturers should employ best-practice methodology for process mapping in the context of Suppliers, Inputs, Process, Outputs, and Customers (SIPOC) for reducing FLW



Farrelly & Mitchell At a Glance

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300+ SECTOR SPECIALISTS

16+ YEARS IN BUSINESS

CORPORATE & GOVERNMENT CLIENTS

OPERATIONAL & STRATEGIC STRENGTH

VALUE CHAIN FARM TO FORK

GLOBAL REACH & EXPERIENCE

FARRELLY & MITCHELL

Food & Agri-Business Specialists

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