

Qatar National Food Security Strategy 2018 – 2023

Food Security Department

January 2020

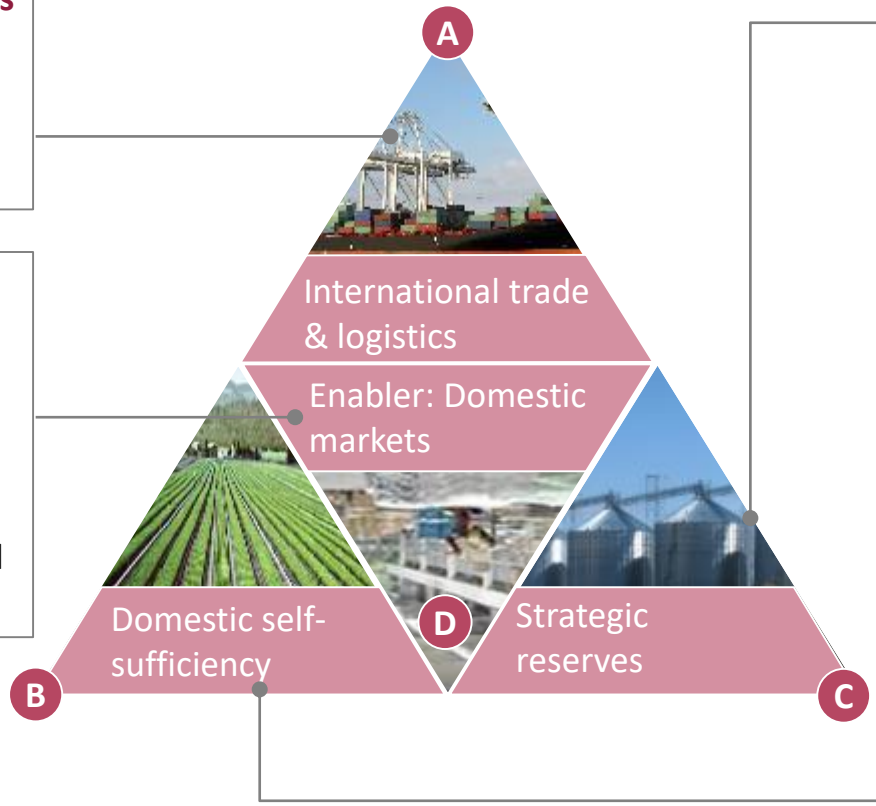


To build a robust food security strategy, Qatar should focus on four pillars

Interdependent food security strategy

- Ensure that trade routes are **diversified so that risk-exposure is limited**
- **Contingency plan** for alternative routes as needed

- **Move food from port, field or reserves to table as efficiently as possible** (i.e., limiting food losses/waste), with regulations that foster competition and encourage safety



- **Put in place adequate but sensible reserve capacity** to act as a buffer in time of crisis, both for inputs (water, seeds, fertilizer) and outputs (food products)

- **Efficiently cultivate** crops, meat and fish within the confines of a Qatar's resource base to ensure a stable source of perishables in times of crisis
- Provide a regulatory framework that **creates incentives to focus on commodities that make sense from a cost-competitiveness point of view**



Going forward, Qatar should pursue 13 initiatives to make its food system more robust against potential supply shock scenarios in the future

Priority initiatives

Pillars

Food Security Strategy initiatives

<p>A</p> <p>International Trade and Logistics</p>	<p>A1 Geographically diversify trade partners for critical commodities to reduce Qatar’s exposure to external factors by having 3-5 partners per critical commodity</p> <p>A2 Proactively put in place contingency plans to limit impact of trade shocks or other exogenous disruptions</p>
<p>B</p> <p>Domestic Self-sufficiency</p>	<p>B1 Increase vegetable production by establishing a hydroponics greenhouse cluster to reach 70% self-sufficiency on greenhouse vegetables (e.g., tomatoes, pepper, cucumber, squash, lettuce)</p> <p>B2 Expand and improve production capacity for red meat (fattening units and breeding farms for sheep and goat) and fisheries (fish farms)</p> <p>B3 Cap production of fresh milk and poultry to 100% self-sufficiency by discontinuing tenders and redirecting capacity to other purposes (shifting poultry surplus to egg production)</p> <p>B4 Reduce ground water-based fodder production by switching to TSE</p>
<p>C</p> <p>Strategic Reserves</p>	<p>C1 Leverage the private sector to store a broad range of products to act as a permanent short-term buffer against shocks to the system</p> <p>C2 Put in place strategic reserves of perishables and select non-perishables as an insurance against potential trade and production disruptions</p> <p>C3 Increase potable water reserves as an insurance against potential crisis scenarios, balancing risk-exposure and ‘insurance’ cost</p> <p>C4 Reduce net depletion of the Aquifer by optimizing water usage in agriculture</p>
<p>D</p> <p>Domestic Markets</p>	<p>D1 Streamline the domestic go-to-market model (farmgate to retail) to ensure transparency in the price setting process and assist farmers in improving their productivity and quality of produce</p> <p>D2 Establish integrated food waste program, including collection and treatment / alternative usage of organic waste</p> <p>D3 Optimize and simplify the governance of food standards in Qatar, to monitor food safety in the country and to supervise quality certification more effectively</p>

A Strategy pillar: International trade and logistics

Ensure that Qatar’s food import strategy is resilient against potential trade shocks and disruptions and that Qatar can quickly react to the loss of trade partners or a drop in self-sufficiency

Initiatives

	Description	Action plan (near-term)
A1. Trade partner diversification	Geographically diversify trade partners for critical commodities to reduce Qatar’s exposure to external factors by having 3-5 partners per critical commodity	<ul style="list-style-type: none"> • Develop future state for sourcing countries and trade partnerships • Determine regulatory levers to incentivize private sector to diversify • Initiate relationship building support between Qatar private sector and trade missions / entities in target countries
A2. Contingency planning	Proactively put in place contingency plans (both for the private sector and public sector) to limit impact of trade shocks or other exogenous disruptions	<ul style="list-style-type: none"> • Private sector to develop contingency plans based on guidelines set by government • Test effectiveness of “rerouting” contingency plans for resilience in collaboration with Somod • Develop data dashboards to track readiness

Performance metrics

KPI	2023 Target
A1 Number of trade partners per commodity	• 3-5²
A1 Share of imports from top 2 partners	• 50% - 70%¹
A2 Presence of contingency plan by importer ³	• 100%

¹ 70% for 3 partners and 50% for 5 partners

² Number of partners to be reduced once self-sufficiency rates increase over time

³ Only importers of considerable size (not for small/premium importers), list of eligible importers to be decided



A Diversification and contingency planning efforts should focus on a number of critical commodities

■ Diversify + contingency plan¹

	Consumed amount - <i>Tons/year</i>	Self-sufficiency %	Shelf life <i>weeks</i>		Consumed amount - <i>Tons/year</i>	Self-sufficiency %	Shelf life <i>weeks</i>			
Perishables	Tomato	48,197	30%	3-4	Perishables	Milk	231,946	84%	1-2	
	Cucumber	19,488	62%	4		Fresh poultry	22,100	98%	<1	
	Pepper	13,472	9%	4		Fresh water fish	NA	NA	1-2	
	Squash	7,208	51%	3-4		Seawater fish	40,838	37%	1-2	
	Cabbage	8,974	24%	3-8		Other seafood	5,273	0%	1-2	
	(Water)melon	24,416	5%	2-3		Sheep meat	53,000	14%	1-2	
	Cauliflower	9,868	15%	1-3		Camel meat	6,000	28%	1-2	
	Potato	58,880	~0%	20		Beef	7,000	3%	1-2	
	Onions	84,662	3%	12-34		Eggs	31,850	23%	12	
	Lettuce	6,749	6%	<1		Non-perishable	Frozen poultry	96,805	~0%	~100
	Eggplant	10,244	47%	Up to 40			Rice	183,600	0%	17
	Herbs	NA	NA	50			Wheat	210,986	~0%	17
	Banana	40,318	0%	4			Legumes	40,821	0%	50-100
	Apples	29,661	0%	30			Sugar	65,904	0%	13
Citrus	60,551	1%	8-12	Oils	80,460		0%	17		
Dates	32,426	87%	13-39	Milk powder	24,332	0%	13			

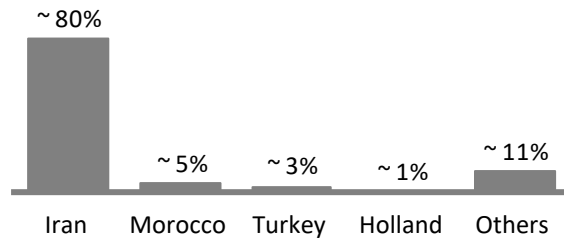
¹ Contingency plan for perishables only

A1 Qatar needs to geographically diversify trade partners for critical commodities to reduce its exposure to external factors

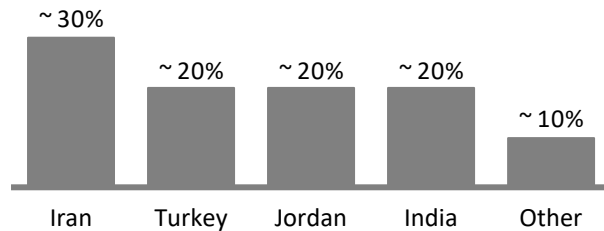
□ Focus of next pages

Critical perishables

Current source differentiation for tomato, % of imports¹

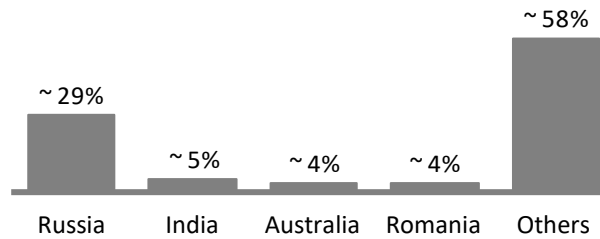


Suggested source differentiation for tomato, % of imports

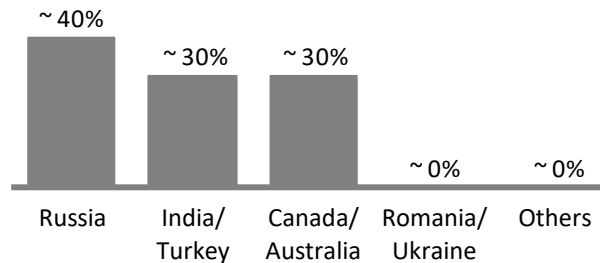


Critical non-perishables

Current source differentiation for wheat, % of imports²



Suggested source differentiation for wheat, % of imports



- For perishables, in steady state, the list of potential countries will be **determined by the transportation time and the perishable shelf-life**
- In a **steady-state scenario**, **airborne trade routes should be avoided** due to the cost (with the exception of limited premium products)
- In an ideal world Qatar would have 4-5 partners for every perishable. **However, the minimum quantity sourced per week from a partner should be 10 ton (container size)³**. This cost limitation might impact the number of partners proposed ⁴
- If **strategic reserves for non-perishables are in place**, **diversification should mainly be driven by financial reasons**. A **6+ month reserve should suffice to guarantee the food security**

There are only limited countries within ~14 days of (land+)seaborne transport from Qatar. Due to the limited shelf-life and cost of cooled transport, the group of trade partners should be limited to these countries in a steady-state scenario



B Strategy pillar: Domestic self-sufficiency

Ensure Qatar's self-sufficiency in strategic commodities (i.e., perishables that Qatar can produce competitively) and shift production towards best practice technologies to drive yield improvement

Initiatives

	Description	Action plan (near-term)
B1. Vegetables	Increase vegetable production by establishing a hydroponics greenhouse cluster to reach 70% self-sufficiency on greenhouse vegetables	<ul style="list-style-type: none"> Finalize greenhouse cluster infrastructure plans Develop bid guidelines (including subsidy programs) for private sector operators and launch process
B2. Red meat & fresh fish	Expand and improve production capacity for relevant varieties of red meat and fish	<ul style="list-style-type: none"> Setup intensive fattening units & better herd mgmt. for livestock Streamline livestock breeding in the private sector Monitor 3 ongoing fish farming projects for timely completion
B3. Fresh milk & fresh poultry	Cap production of fresh milk and poultry, and shift additional capacity to other purposes	<ul style="list-style-type: none"> Suspend any new project tenders Shift additional capacity towards milk derivatives or frozen poultry / egg production
B4. Fodder	Reduce ground water-based fodder production by switching to TSE	<ul style="list-style-type: none"> Estimate TSE availability for fodder & infrastructure needs Develop a transition plan for existing fodder producers

Performance metrics

KPI ¹	2023 Target
B1 Self-sufficiency on GH vegetables	▪ 70%
B1 Hectares with high-tech greenhouses	▪ 110
B2 Self-sufficiency on red meat	▪ 30
B2 Self-sufficiency on fresh fish	▪ 95%
B3 Self-sufficiency on fresh milk and poultry	▪ 100%
B4 Local fodder production using TSE	

¹ Additionally to the KPIs listed, 2 water-related KPIs should be monitored to evaluate progress of the strategy: water consumption per crop, and distribution of irrigation systems used in agriculture, i.e. % of land using flood irrigation, sprinkler irrigation, drip irrigation, hydroponics



B Principles we used to determine self-sufficiency targets for local production

If...	Sourcing strategy	Reasoning
<ul style="list-style-type: none"> Product is not perishable 	<p style="text-align: center;">Source everything from abroad; 0% production locally</p>	<ul style="list-style-type: none"> Product can be stored in strategic reserves to protect against trade shocks
<ul style="list-style-type: none"> Product is perishable but cannot be produced sustainably and competitively locally 		<ul style="list-style-type: none"> Agronomic conditions do not allow for local production
<ul style="list-style-type: none"> Product is perishable and can be produced sustainably locally but currently there is low production in Qatar 	<p style="text-align: center;">Produce in Qatar but cap production at 70%</p>	<ul style="list-style-type: none"> Leave room for variety from imports Limit waste due to production fluctuations
<ul style="list-style-type: none"> Product is perishable, can be produced sustainably locally and we are already close to 100% self-sufficiency 		<ul style="list-style-type: none"> There is no sense in over-producing and exporting as this means Qatar will export water

Exceptions to the rules:

- Fodder can be produced sustainably with available TSE
- Current population of goats and sheep can be used to expand local production of red meat even though relatively less economically viable



B Qatar should increase local production of perishables to secure 30% to 70% self-sufficiency in strategic commodities

Category	Current self-sufficiency, %	Perishability	Self-sufficiency target, %	Directional recommendation	Rationale
• Vegetables	28%	<1 month	70%	↑	Self-sufficiency should be maximized while leaving room for variety from imports and limiting waste
• Eggs	28%	3 months	70%	↑	Self-sufficiency should be maximized while leaving room for variety from imports¹ and limiting waste
• Red meat	18%	<1 month	30%	↑	Assuming 30-40% of sheeps/goats² and 10% of cattle³ are raised for meat consumption
• Fresh fish	74%	<1 month	95%	↑	Assuming 5% of fresh fish cannot be produced in Qatar (e.g., sardines)
• Fresh dairy	106%	<1 month	100%	→	Capped at 100% self-sufficiency to avoid excessive resource usage
• Dairy derivatives (e.g., butter)	20%	1-2 months	0-50%	→ ↑	Not competitive to produce locally, but potential solution for over-production ⁴
• Fresh poultry	124%	<1 month	100%	→	Capped at 100% self-sufficiency to avoid excessive resource usage
• Frozen poultry	0.2%	> 1 year	0%	→	Not competitive to produce locally
• Fodder	54%	>1 year	63%	↑	Increase Fodder production using recycled water
• Cereals & legumes	0%	>1 year	0%	→	Not competitive to produce locally

1 To cover this need, current production could be shifted to eggs to avoid over-production of poultry meat goat (1.3 mn) would be used productively; 3 Side product from dairy production; 4 Over-production expected to reach 44% by 2020; binding: The sector should be monitored very closely and deadline should be extended if the phase out endangers production of red meat

2 Rough production if current population of sheep and
3 While this is the target, it is not



C Strategy pillar: Strategic reserves

Put in place adequate but sensible reserves to act as a buffer against temporary import or production disruptions and as an insurance policy against longer term shocks to the system

Initiatives

	Description	Action plan (near-term)
C1. Private sector reserves	Leverage the private sector to store a broad range of products to act as a permanent short-term buffer against shocks to the system	<ul style="list-style-type: none"> • Create policy framework for private sector role • Engage private sector to develop a roadmap with timelines for setup of buffer stocks
C2. Public sector reserves	Put in place strategic reserves of perishables and select non-perishables as an insurance against potential trade and production disruptions	<ul style="list-style-type: none"> • Baseline existing storage plans to validate reserve requirements • Develop infrastructure blueprint and validate investment plans • Develop process and identify partners for reserve management
C3. Potable water reserves	Increase potable water reserves using underground reservoirs as a long-term storage mechanism	<ul style="list-style-type: none"> • Commission detailed design and tender requirements for underground water storage
C4. Groundwater reserves	Reduce net depletion of the Aquifer by optimizing usage of groundwater in agriculture	<ul style="list-style-type: none"> • Develop plans to increase TSE production from wastewater • Evaluate plans for desalination capacity expansion

Performance metrics

KPI ¹	2023 Target
C1 Private sector compliance with reserve levels ³	<ul style="list-style-type: none"> • 100% • 2 months for 7 perishables
C2 Public reserve levels	<ul style="list-style-type: none"> • 6 months for 6 non-perishables, ag inputs
C3 Potable groundwater capacity	<ul style="list-style-type: none"> • 400,000 m³ per day
C4 Annual aquifer net depletion	<ul style="list-style-type: none"> • 0 m³

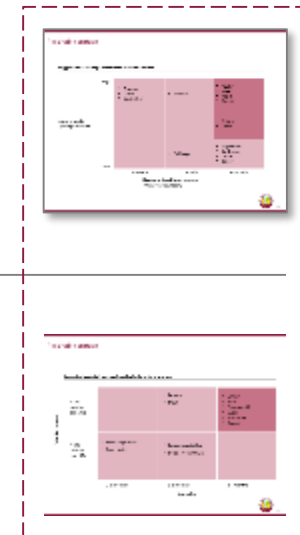
¹ Additionally to the KPIs listed, ² water-related KPIs should be monitored to evaluate progress of the strategy: water consumption per crop, and distribution of irrigation systems used in agriculture, i.e. % of land using flood irrigation, sprinkler irrigation, drip irrigation, hydroponics



C The strategic food reserves have a double purpose - act as a short-term buffer against shocks and an insurance policy against longer disruptions

■ Private sector storage
 ■ Public sector storage

Reserve use	Component	Products to store ²	Objective
Buffer against shocks	Private sector storage	<ul style="list-style-type: none"> Perishables (fruits, vegetables, dairy, meat) Selected dry goods 	<ul style="list-style-type: none"> Share burden on ensuring short term food supply with private sector Guarantee full diet on 2-4 weeks basis for full pop.¹
	Strategic short-term reserves of perishables	<ul style="list-style-type: none"> Onions Apples Carrot Dates Potato Red meat (Frozen) poultry 	<p>Provide a healthy and balanced quality diet</p> <ul style="list-style-type: none"> High consumption Good storability and shelf-life Healthy nutritional mix
Longer term "insurance policy"	Strategic long-term reserve of non-perishables	<ul style="list-style-type: none"> Wheat Edible oils Beans Sugar Rice Powder milk 	<p>Provide sufficient calorific intake</p> <ul style="list-style-type: none"> Very high storability and long shelf-life High calorific content
	Long-term reserve of agricultural inputs	<ul style="list-style-type: none"> Agricultural chemicals Fertilizer Seeds Fodder Animal medicine etc. 	<ul style="list-style-type: none"> Required to sustain agricultural efforts and remain self-sufficient for selected products



¹ If shelf-life allows

² List of critical commodities to be stored - could be expanded with other items

C In the future, the reserves should cover the full population with a balanced diet for 2 months and 75% of the current population with a basic diet for 6 months

■ Private sector storage
■ Public sector storage

Reserve use	Component	Coverage	Rationale
Buffer against shocks	Private sector storage	2-4 weeks Full population	<ul style="list-style-type: none"> Incentivize/Regulate the private sector to maintain 2-4 weeks of supply of perishable products¹
	Strategic short-term reserves of perishables	2 months Full population	<ul style="list-style-type: none"> Post-blockade stock-out in 2017 showed the need for government-owned supply for 1-2 months An 8 week upper-boundary for the reserve capacity are sufficient, given diversification & contingency planning efforts, and assumption that complete isolation is very unlikely When there is overlap with the private sector storage, the requirements for the public sector storage can be lowered
Longer term "insurance policy"	Strategic long-term reserve of non-perishables	6 months 75% of population	<ul style="list-style-type: none"> 6 months of non-perishable reserves act as an adequate insurance in most potential scenarios, given lower perceived possibility of sustained complete blockade Additionally, rotation cost and complexity become increasingly difficult for larger reserves Peer countries have similar reserve capacity
	Long-term reserve of agricultural inputs	6 months Full capacity	<ul style="list-style-type: none"> 6 months of non-perishable reserves act as an adequate insurance in most potential scenarios, given lower perceived possibility of sustained complete blockade

¹ Regulation currently being decided upon

D Strategy pillar: Domestic markets

Bring transparency and efficiency in the food supply chain to ensure fair commercial practices for all value chain participants, reduced waste in the supply chain, and better food quality for end-consumers

Initiatives

	Description	Action plan (near-term)
D1. Farmer support program	Streamline the domestic go-to-market model for farmers to ensure transparency in the price setting process and assist farmers in improving productivity	<ul style="list-style-type: none"> • Create the policy framework to transform the domestic wholesale market process • Setup the farmer support entity (infrastructure, processes) and pilot different commercial models
D2. Food waste program	Establish integrated food waste program, including collection and treatment / alternative usage of organic waste	<ul style="list-style-type: none"> • Develop a detailed food waste management program based on diagnostics and benchmarking • Review and amend regulatory framework to support launch of food waste program
D3. Food standards governance	Optimize and simplify the governance of food standards in Qatar, to monitor food safety in the country and to supervise quality certification more effectively	<ul style="list-style-type: none"> • Decide and launch the new food standards governance structure • Integrate and accelerate food quality check process at customs • Review and adjust food safety regulations • Establish clear food certification process

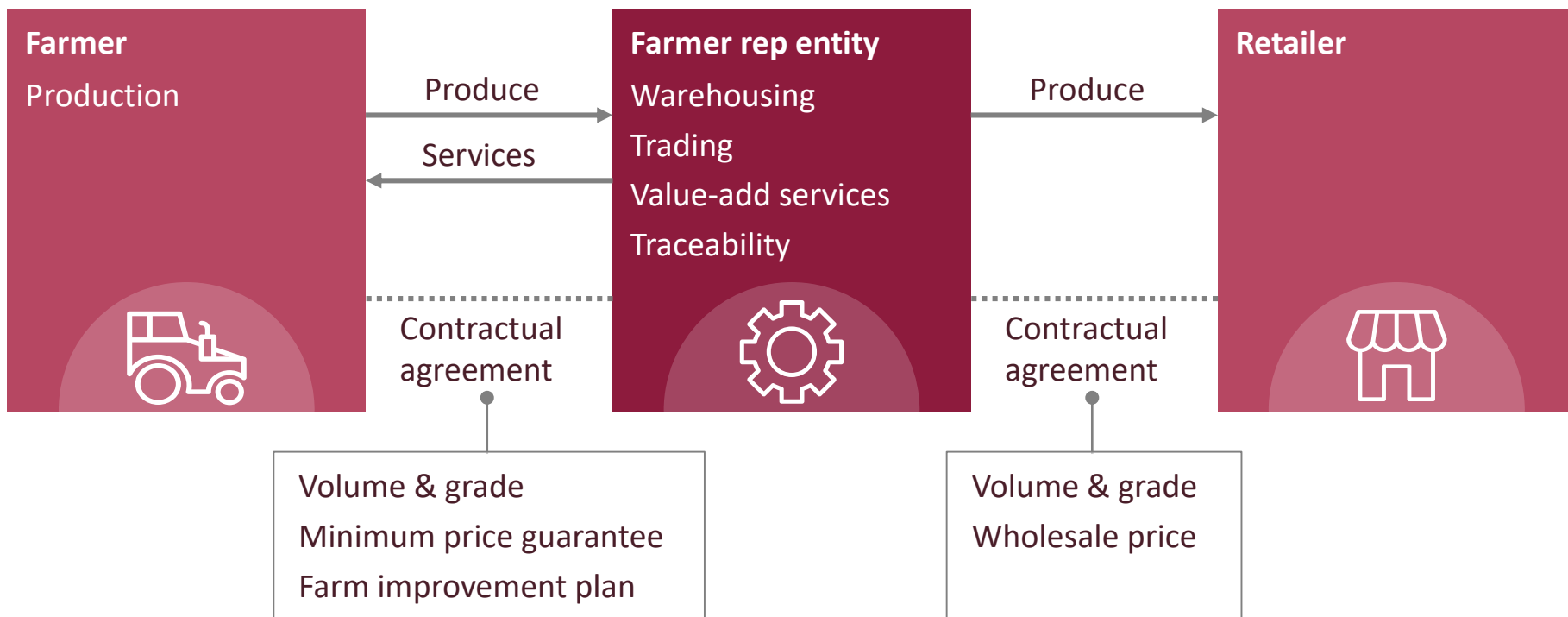
Performance metrics

KPI ¹	2023 Target
D1 Eligible farmers covered by program	▪ 90%
D2 % food waste reduction	▪ 5 ppts¹
D2 % food waste processed	▪ 20%
D3 Share of products certified based on quality of output (vs. production process)	▪ 100%
D3 Food safety incidents per capita p.a.	▪ 0

¹ Close half of the gap in food waste in the value chain in Qatar (~14%) versus Europe (~5%)



D1 The farmer support program will be delivered through a farmer representative entity that is both a wholesaler/trader and a service provider for local farms



Primary services offered to farms by the entity

- Centralized procurement of inputs
- Crop advisory/extension services
- Commercial support (marketing & trading)
- Farm credit
- Warehousing
- Produce traceability

D1 This program is expected to enhance performance of the local crop farms in Qatar through three levers

Increase productivity of local farms

- Adoption of best-fit farming technologies
- Technical training and extension services
- Access to high-quality crop inputs

Offer an efficient go-to-market channel for local farmers

- Removal of existing intermediaries & wholesale process
- Farmer representative trading entity
- At-scale access to value-add services

Reform price regulation across the market

- Improve the price setting process
- Introduce certification at product level



Higher yield



Lower unit costs



Higher margin



Better crop quality

1 I.e., hydroponics-based greenhouses for salad vegetables and open field for onion, potatoes
3 Allows direct negotiation with B2B customers

2 E.g., in crop planning and on-farm interventions
4 Storage, transportation 5 Including packaging and labelling

D2 Integrated food waste program - Best practice initiatives should be implemented to minimize food waste at each stage of the value chain

Value chain stage

Issues

Strategic recommendations

Customs



- Food **clearance** can take up to **12-24 hours**, increasing **risk of damage**
- **Long procedure times** because
 - Full **inspection on-site** (documentary compliance lead time is– 6x higher than UAE)
 - Lack of **infrastructure** (e.g., labs)

- Set **legal maximum time** for product clearance to less than six hours
- **Further develop and promote adoption of a registration system** to ensure most products are approved before arrival

Farmer



- **No secondary market** for production considered unsuitable for direct consumption
- **Farmers not trained** on best practices to minimize production waste

- **Continue to facilitate development of processing companies** facilities (e.g., food canning) to create a secondary market for production that is unsuitable for direct consumption
- **Develop extension service** to **educate farmers** on storage best practices to minimize production wastage

Intermediary players (Central Market, retailers)



- **Absence** of adequate **handling & storage** infrastructure at Central Market

- Promote development of **best-in-class handling & storage** facilities at new Central Market locations
- Further promote development of private sector warehousing cold storage space (e.g., through affordable warehousing)

End-consumers & HORECA



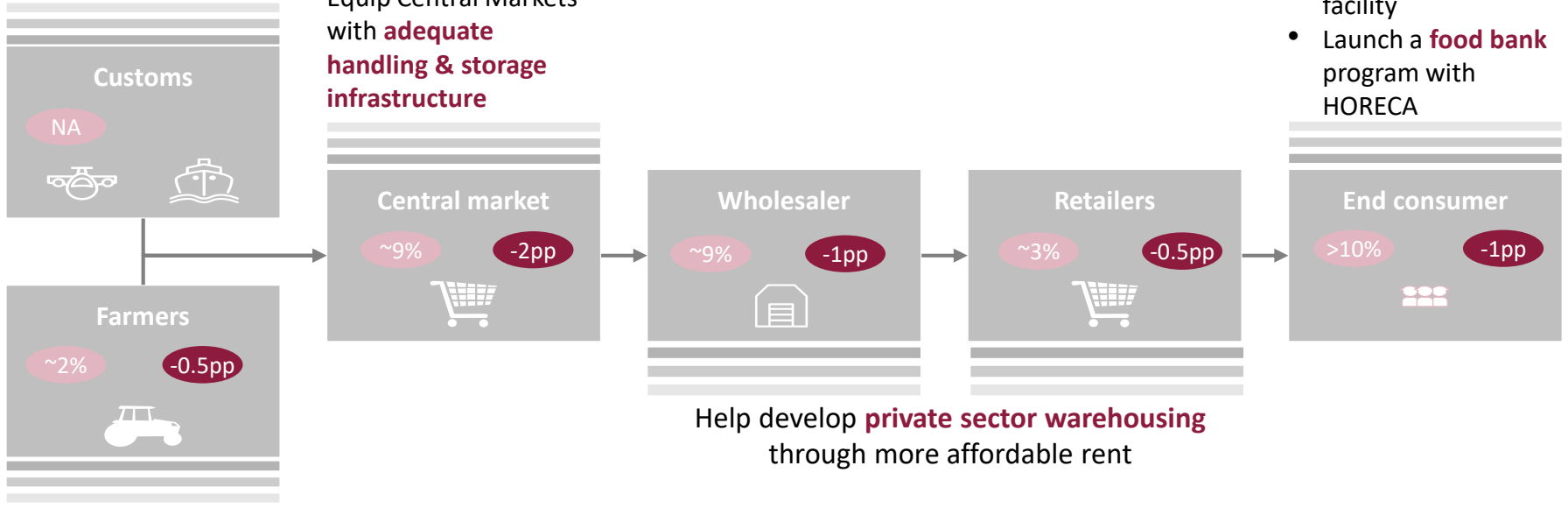
- **Absence** of best practice **compost processing**
- **No compost collection program** in place

- Establish a **waste treatment facility** to process compost waste using windrows composting technology
- Make left over out-of-date products available in **food banks** for limited amount of time
- Launch **campaigns** to **encourage change** in behavior

D2 Best practice initiatives should be implemented to minimize food waste at each stage of the value chain and reduce overall wastage by ~5 pp

Actions to reduce wastage throughout the food value chain & their potential impact

- Reduce maximum **time** for product **clearance**
- Increase adoption of **pre-arrival registration**







- **Educate farmers** on best practices
- Develop **secondary market** through processing

- Establish **waste collection program** and waste treatment facility
- Launch a **food bank** program with HORECA



D3 A governance mechanism should be established to address current food standards / certification and food safety issues

NON EXHAUSTIVE

Issue	Supporting factors	Mandate for the governance mechanism
<p>Long clearance times </p>	<ul style="list-style-type: none"> Both MoPH & MME need to clear vegetables and fruits due to dispersed expertise 	<ul style="list-style-type: none"> Integrate quality assessment processes and decision-making Build expertise to execute the required checks
<p>Strict interpretation of GSO¹ standards </p>	<ul style="list-style-type: none"> Stricter interpretation of regulation than other countries, e.g., <ul style="list-style-type: none"> Mandatory labelling in Arabic (vs. Arabic stickers accepted in UAE) Effective expiry date required (vs. 'Best before' guidance) 	<ul style="list-style-type: none"> Provide scientific basis for taking the (less conservative) GCC interpretation of the standards set by GSO
<p>Lack of quality monitoring </p>	<ul style="list-style-type: none"> 'Qatar Premium vegetables'' certifications granted based on a yearly assessment with no regular inspection checks Organic certification on-hold since the blockade 	<ul style="list-style-type: none"> Put in a place frequent inspection checks to ensure quality certification for local production and imports based on product output throughout the year
<p>Insufficient hygiene standards at Central Market </p>	<ul style="list-style-type: none"> Trading area in current Central Market not equipped with appropriate display infrastructure or air conditioning New Fish Central Market not suitable for fish display and handling 	<ul style="list-style-type: none"> Approve new Central Market locations in terms of infrastructure and provide recommendations when needed Inspect Central Market locations on regular basis and sanction hygiene-related misconduct



The mandate of the new governance mechanism should be facilitated through an official legislative framework (e.g. publication of decree detailing the roles and responsibilities)

¹ Gulf Standard Organization ² To be closer to regional benchmarks and based on stakeholder's interviews

E There are many public and/or private partners that could be involved in drafting and implementing the strategy

NOT EXHAUSTIVE

