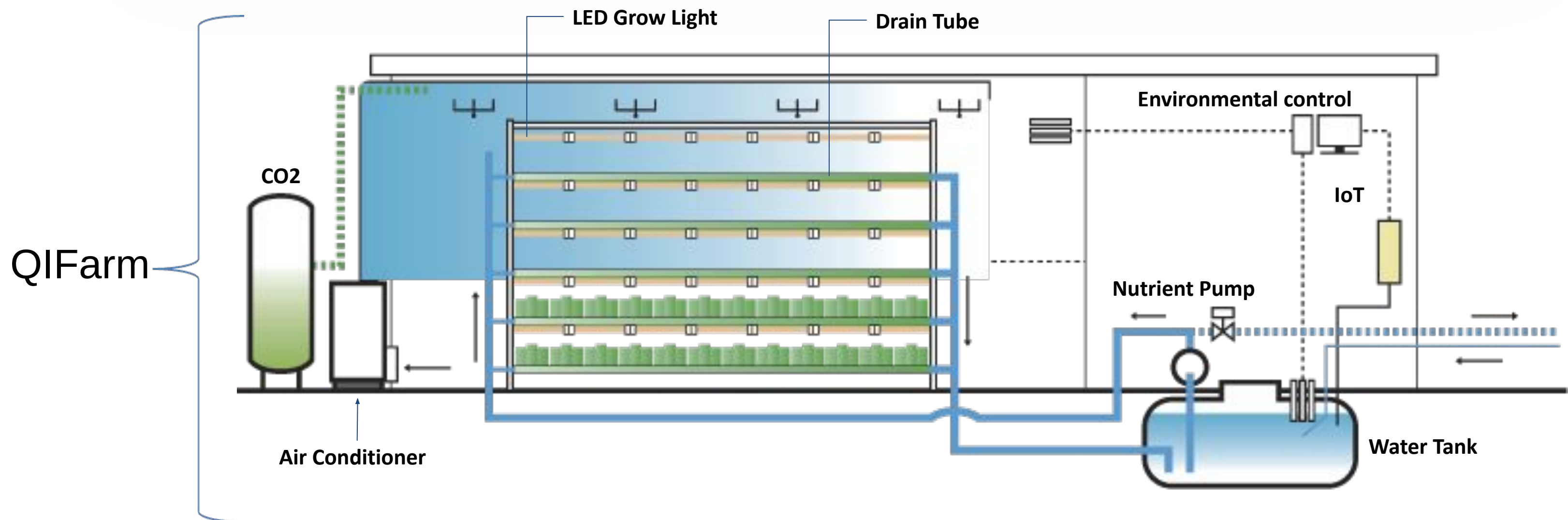
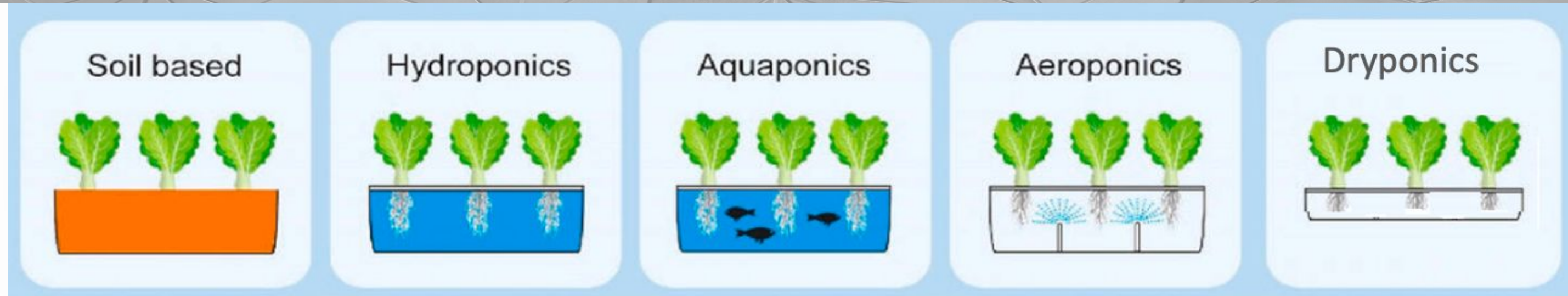




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Qazaq Innovation Farm Project

Vertical Farm Cultivation Types

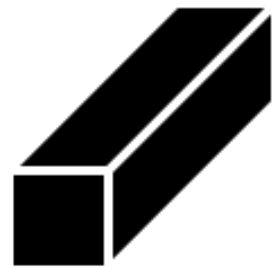


Plants successfully grown by QIFarm Team hydroponically

Vegetables	Leafy green, Tomato, Cucumber, Eggplant, Hot pepper, Turnips
Fruits	Strawberry, Pineapple, Melon, Watermelon
Grains	Oats, Barley
Beans	Broad Beans, Peas
Herbs	Thyme, Sage, Lavender, Basil
Spices	Coriander, Cumin, Fennel, Dell, Celery, etc
Edible Flowers	Chamomile, Viola, Nadeshiko-flower, etc
Cut Flowers	Rose and Carnation



Main Vertical Farming Components



METAL

Rack: main frame (aluminum is preferred)



PLASTIC

Water Flow System: growing tray, pipes, control/safety valves, tank



CHEMICALS

Fertilizers: Minerals & Ammonia for
Nutrient Recipe



SEEDS

Develop highest quality seeds within
Kazakhstan



IoT

Climate Control: Sensors,
Software/Hardware, Fans, Cameras, etc)



LIGHT

LED: Quantity (intensity), Quality
(Spectrum/recipe), Time (Duration)

Features of QIFarm's equipment



1. 100% OIC novel and state of art design
2. Dynamic structure (for building all system, adding or removing new parts)
3. Easy to assemble
4. Size adjustability
5. Light weight for logistic transport (all in one box)
6. Competitive price



IoT system

Rack monitoring system

Temperature (C°)
36.6 C



Humidity (%)
64.0 %



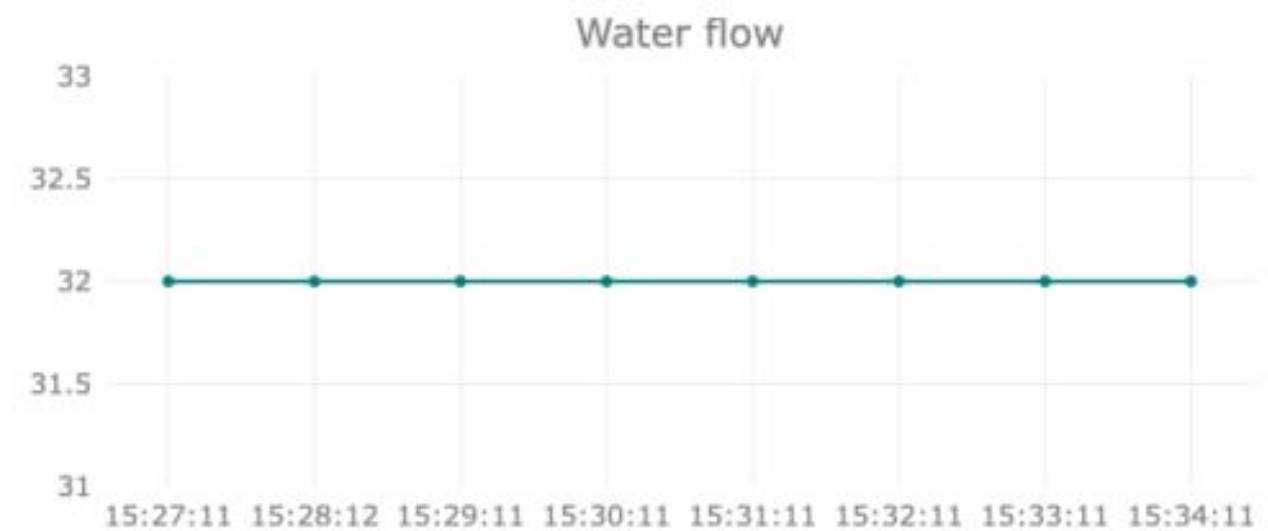
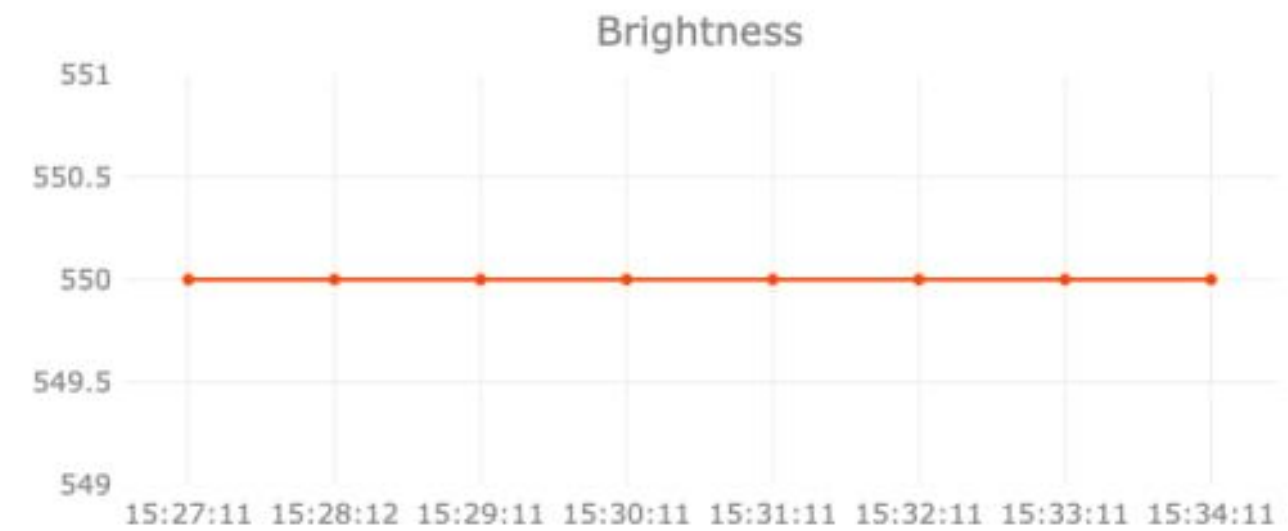
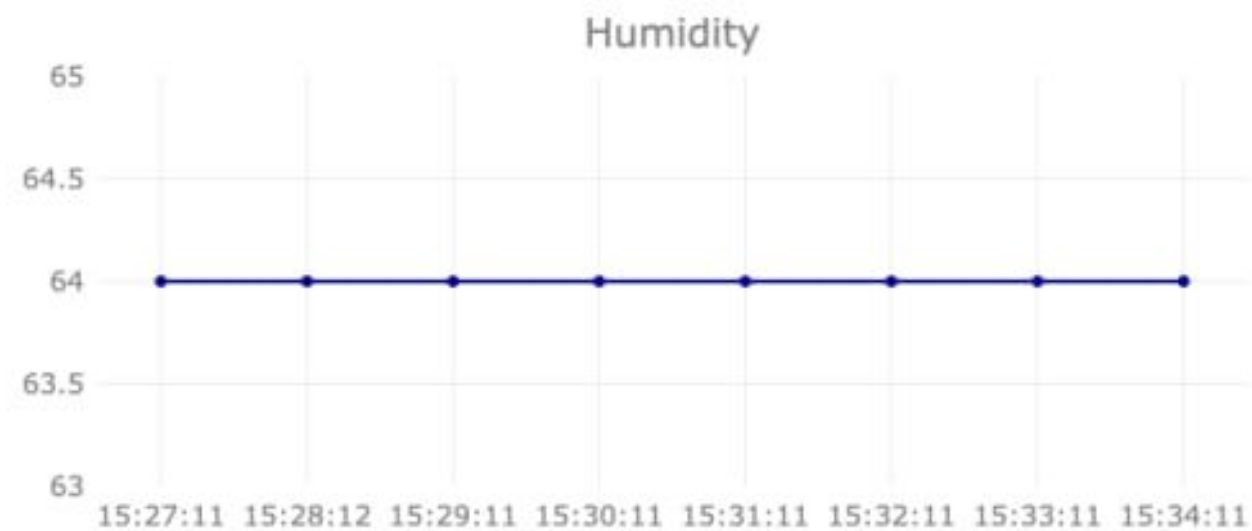
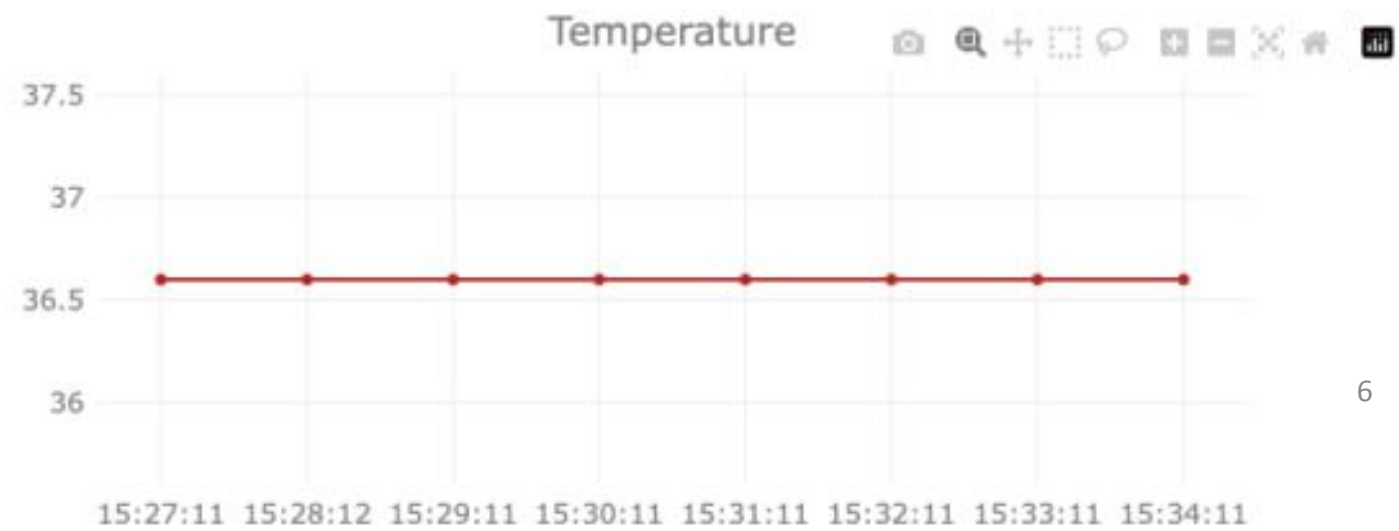
Brightness (lx)
550.0 lx



Water flow (l/min)
32.0 m



History Charts



Why do OIC countries need to develop VF?

Food security

Health and
nutrition

Sustainable
agriculture

Land constraints

Urbanization and
population growth

Climate change
resilience

Global position

⁷
Economic growth

Economic
structure
diversification

Technological
advancement

SWOT Analysis of Vertical Farming Business

Strengths

- Pesticide free crops
- Year round fresh crop
- Protection from extreme weather
- Maximize crop yield
- Dynamic scaling H&V
- Water conservation and recycling

Weaknesses

- High initial costs
- High demand for energy
- High operational costs
- A limited number of crops that can be grown⁸ economically
- Sophisticated skills required

Opportunities

- Continuous Urban growth
- Solar and wind energy
- Automation / IOT/ AI
- Advanced technology for pollinating vertically grown crops
- Awareness increase

Threats

- Power outage / cut
- Political lobbying of greenhouses
- Competition from land crop producers / Price reduction
- Restrictions in importing VF components (nutrients, seeds, etc.)

Opportunities of Arranging VF Production: Pilot Project in Kazakhstan

Resource availability with
competitive prices
(Metal, Plastic, Chemicals)

Possibility to develop and
produce other VF
components
(LED, IoT)

Transferability of
Technology/Know-How to
Kazakhstan

9

In Kazakhstan

- ❖ Available manufacturing power of factories
- ❖ Research power of scientific universities

QIFarm Project Goal & Objectives

Manufacturing the IoT-driven VF systems to provide OIC countries with fresh and healthy food while reducing waste and optimizing the consumption of available resources.



- Minimizing the price of small , medium, and large scale VF systems
- All components to be 100% made in Kazakhstan
- Transfer VF technologies to OIC countries.

QIFarm Project Models



Vertical Farming Firm Model

- ❖ For high quality, large quantity of fresh and healthy crops.
- ❖ More than 100 sq.m.



Business Support Model

- ❖ For a business associated with food such as café, restaurants, hotels, supermarkets etc
- ❖ Between 10 to 100 sq.m.



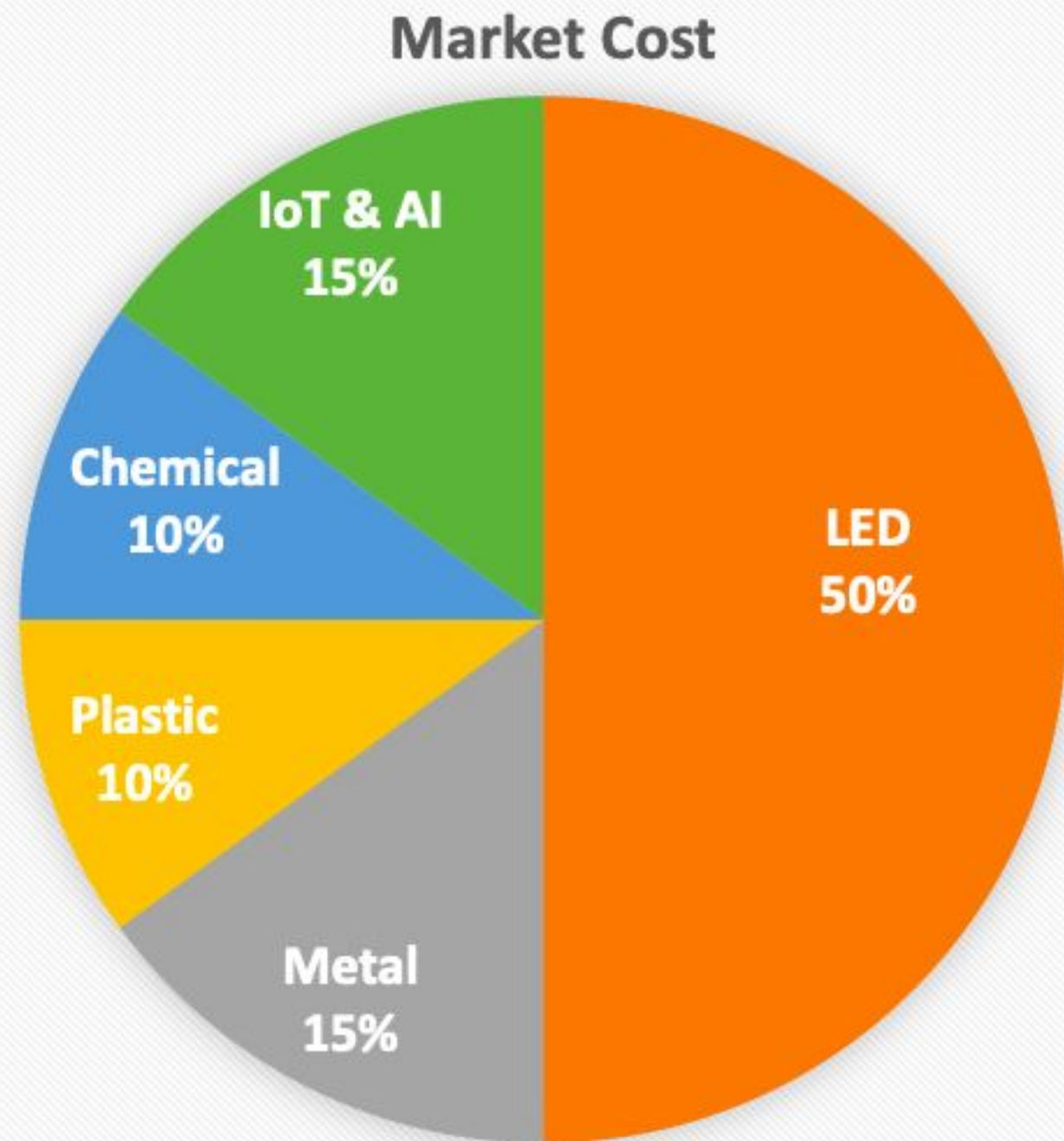
Family Model

- ❖ For families who are concerned with the quality of their food (in kitchen, balcony, or garage etc)
- ❖ This vertical home garden can be sized from 3 to 10 sq.m.

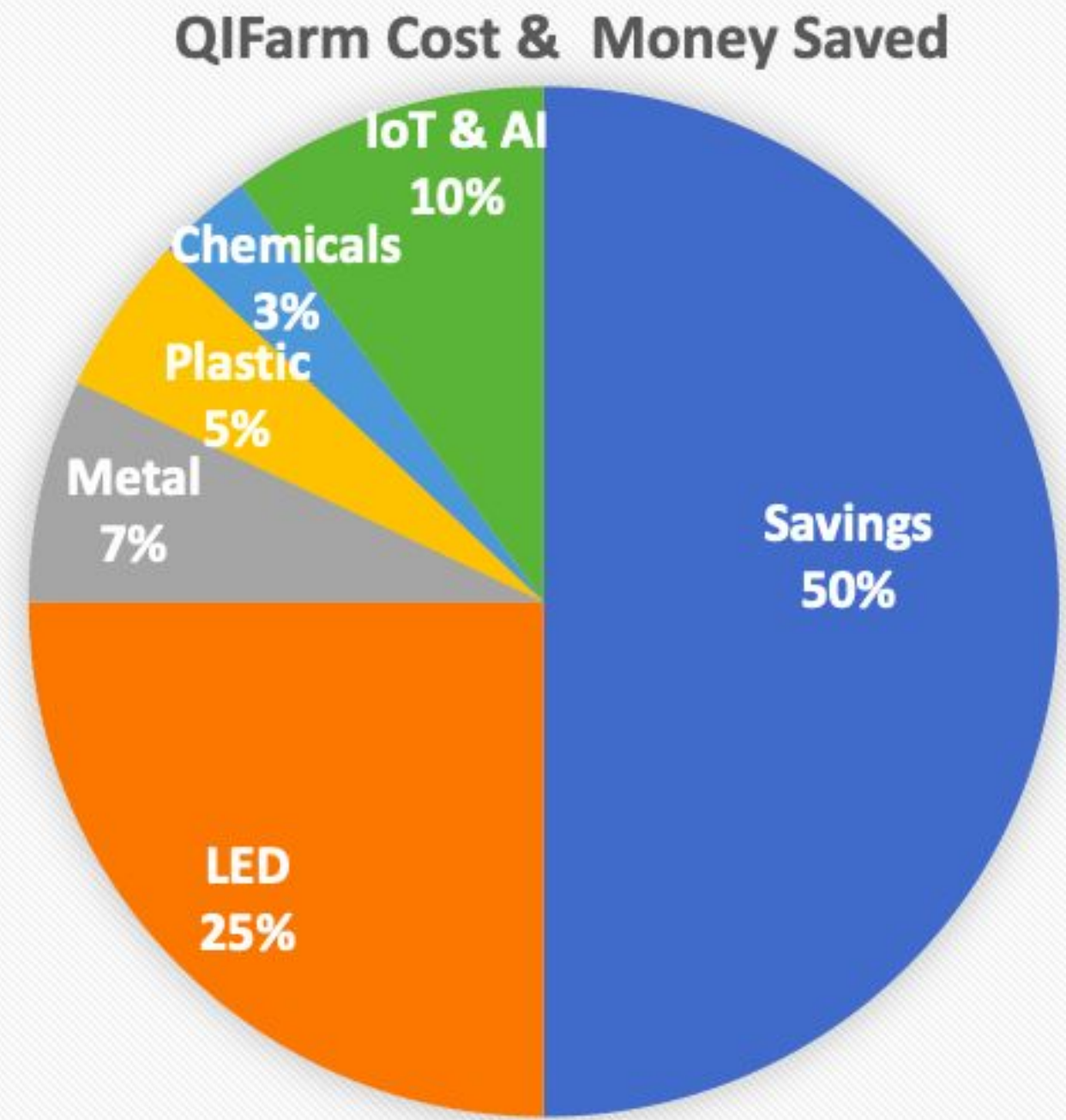
Success Indicators

- Availability of main raw materials, including Metals, Plastics, and Chemicals in huge amounts and competitive prices in Kazakhstan
- Possibility of VF Technology transfer including IoT / LED
- Full support of IOFS to export Kazakhstan VF technologies to OIC countries.
- Powerful R&D of Kazakhstan Universities.
- Connection to High Quality seeds and strawberry plants from Japan & Italy.

Vertical Farming Initial Cost Structure



With Same Quality



This is one of the success indicators of QIFarm Project.
As all the components will be produced locally (100% made in Kazakhstan)



**Here is the
beginning ...**



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