

Globally connected sustainable, resilient & equitable cold-chains

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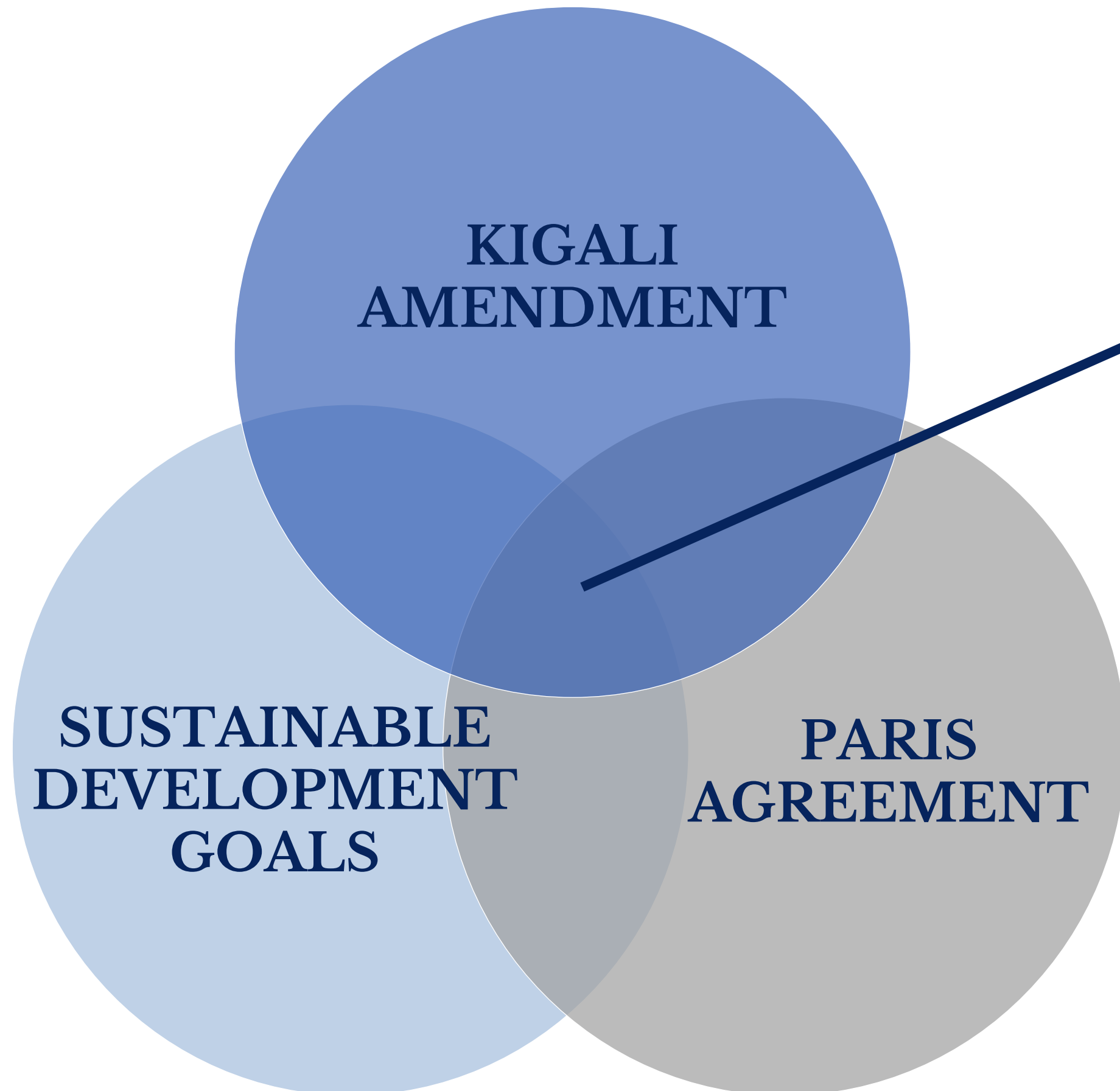
- **Less than half of the food that requires refrigeration is refrigerated.**



- **12% of the total food produced is lost due to lack of cold-chain; enough to feed 1 billion people**
- **25% of vaccines wasted; 1.5 million people/year lose their lives due to vaccine-preventable diseases.**

- Cold-chain technologies + food loss = 4% of total GHG emissions
- Cooling technologies: 7% of GHG emissions; could rise 90% above 2017 levels by 2050



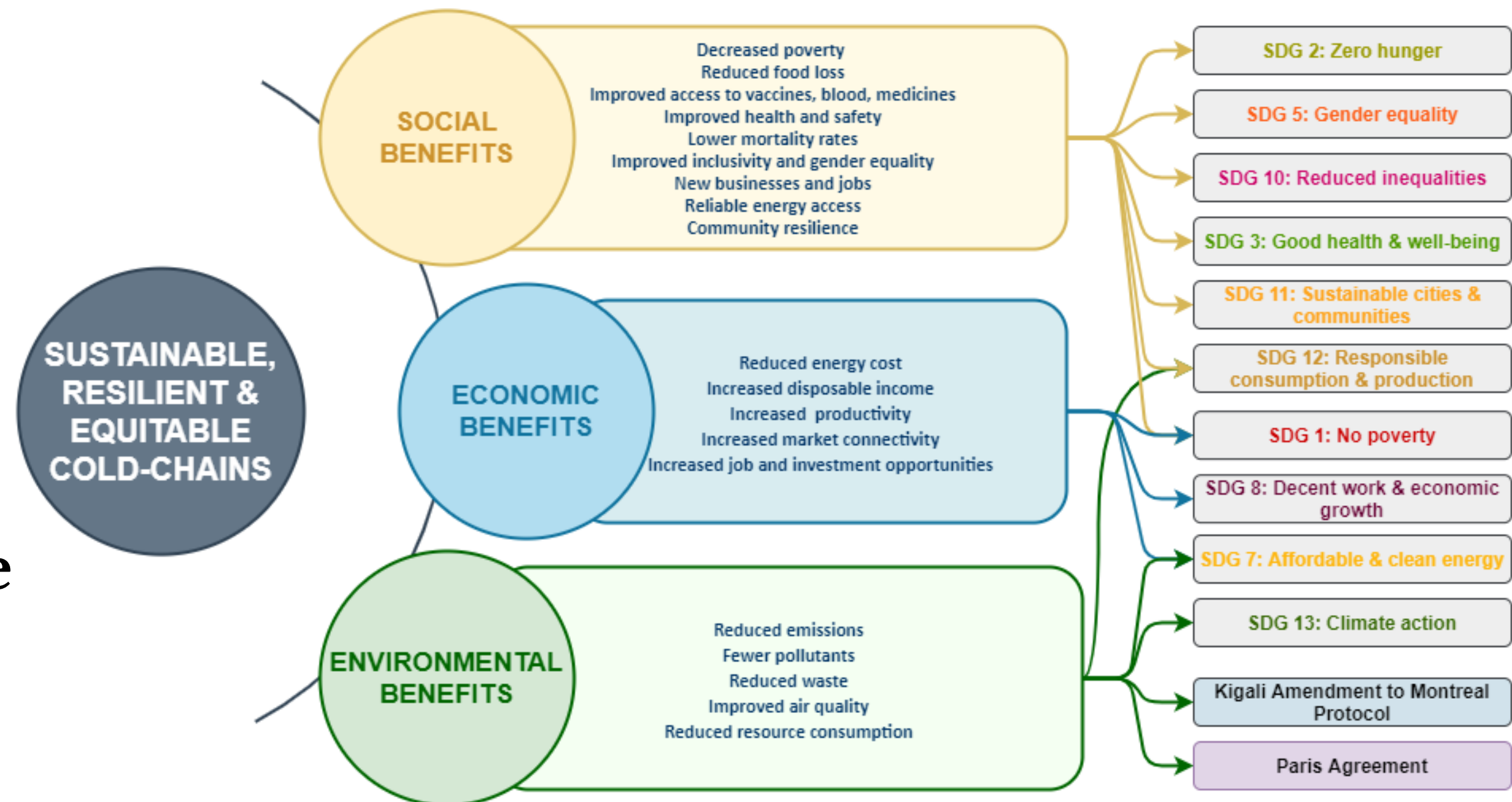


**Globally connected,
sustainable, resilient
& equitable
cold-chain**

- Key for achieving SDGs and a well-functioning global society
- Can contribute three internationally agreed goals simultaneously

In low-income countries, cold-chains are mainly owned and governed by the private sector:

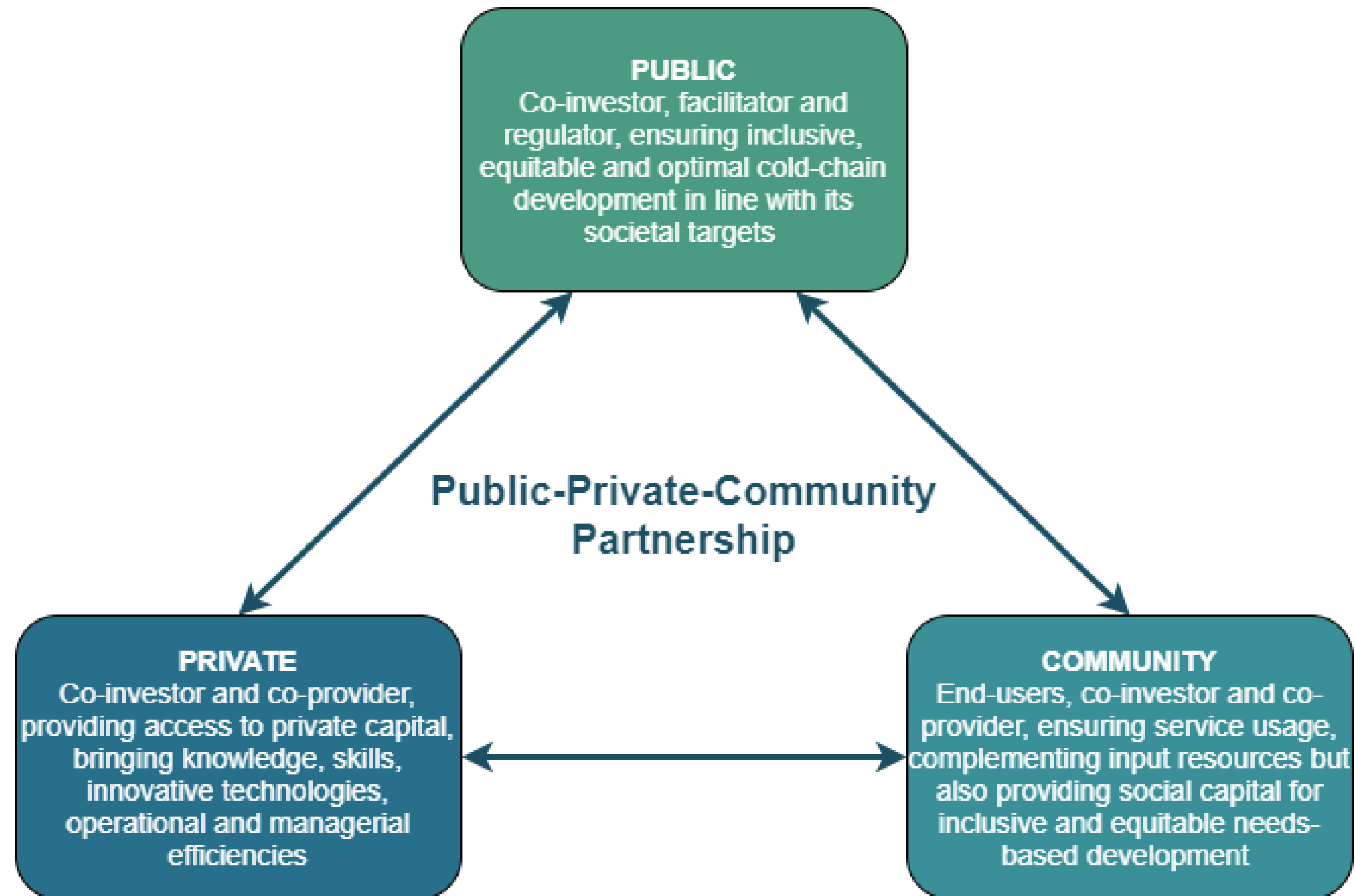
- Fails to deliver against society's most acute cold-chain needs
- Societal benefits are treated as “soft win”



Inefficient allocation of resources & suboptimal investments:

- **MORE PRODUCTION** without addressing PHL
- **MORE COLD STORAGE** buildings without other functioning elements & connectivity
- **MORE DONOR-DRIVEN PROJECTS** that are not market-oriented and depend on grant funding to continue
- **OLD TECHNOLOGY** that is not climate friendly and expensive

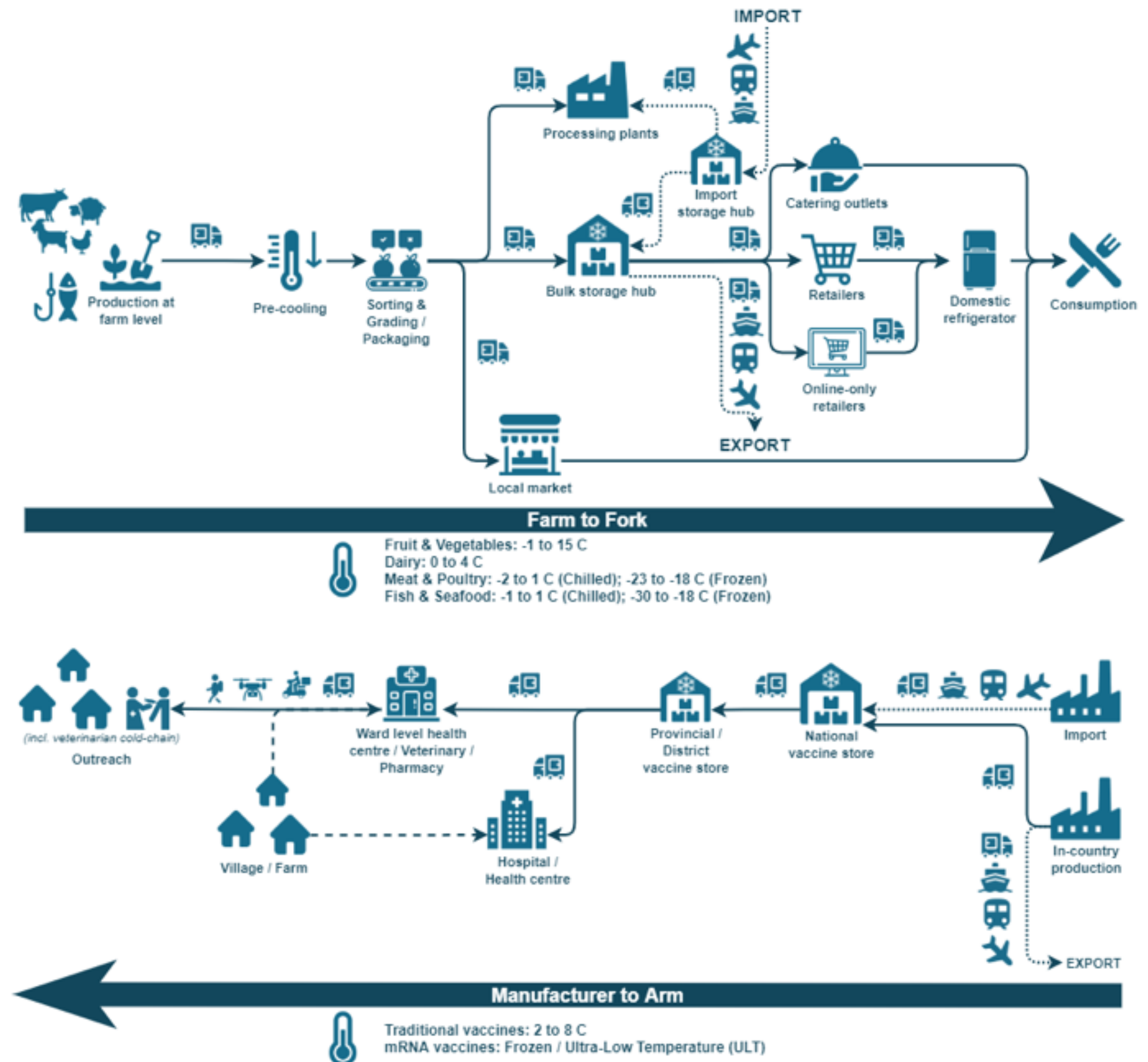
Cold-chain is a critical infrastructure



Disconnect between low-income and high-income countries:

- Cold-chain development & connectivity
- Policy and regulations
- Prevent beggar-thy-neighbour strategies

→ **Need for collaboration** between low-income and high-income countries



Multi-partner cold-chain research programmes across the UK, EU and internationally to design and deliver a **globally connected sustainable, equitable and resilient cold-chain** system:

- Africa Centre of Excellence for Sustainable Cooling and Cold-chain
- Horizon 2022 ENOUGH
- ZECC
- TICR



Value > £30M, excluding infrastructure and industrial contributions in kind

First-of-kind centre dedicated to sustainable cooling and cold-chain:

- Accelerated uptake of sustainable, equitable cooling and cold-chain solutions in the agriculture and health sectors in Africa
- Technical and business assistance
- Training and knowledge transfer
- International collaborations

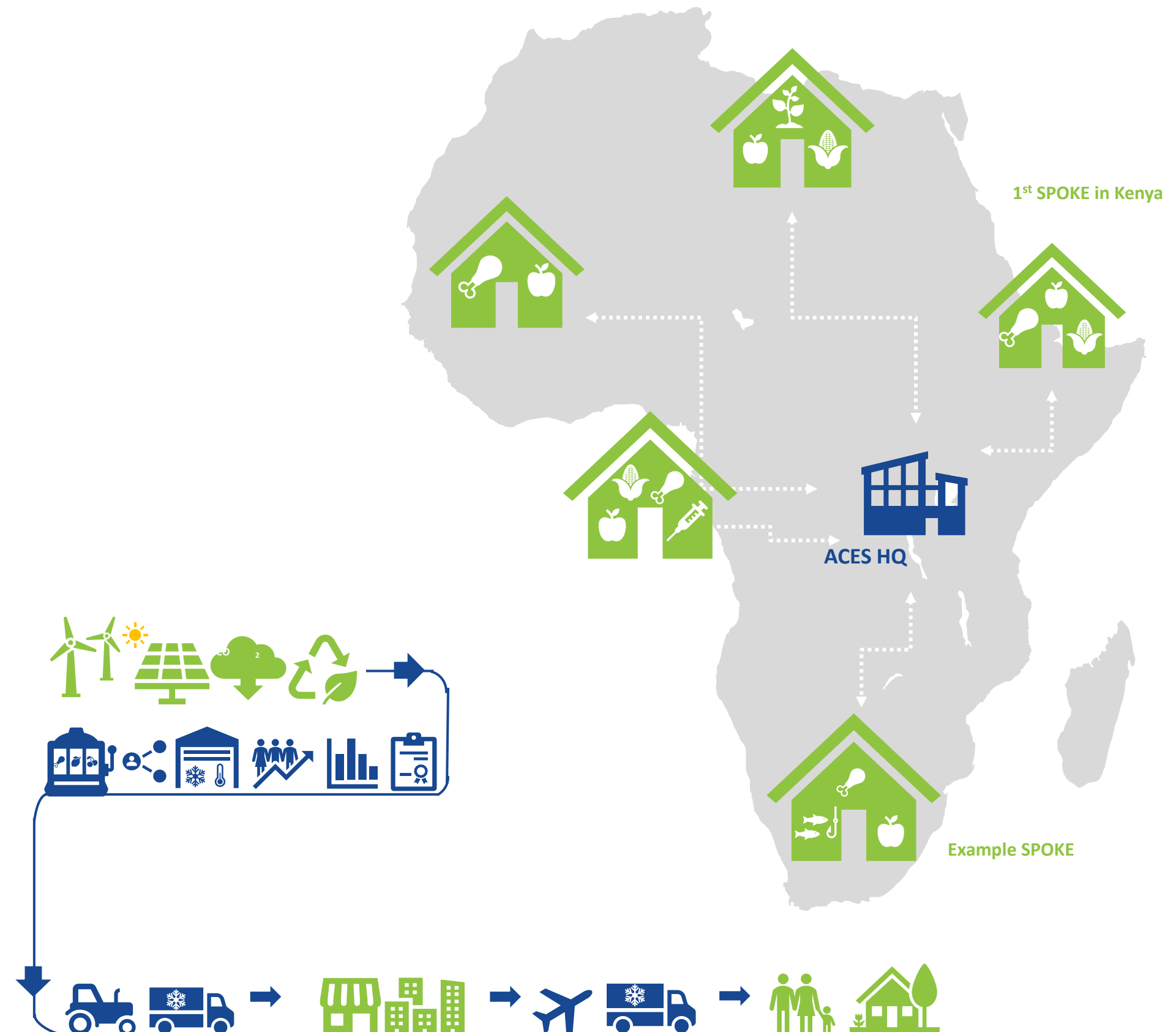


“ACES is a demonstration of how we can work together, to help tackle rising emissions and keep alive the goal of limiting average global temperature rises.”

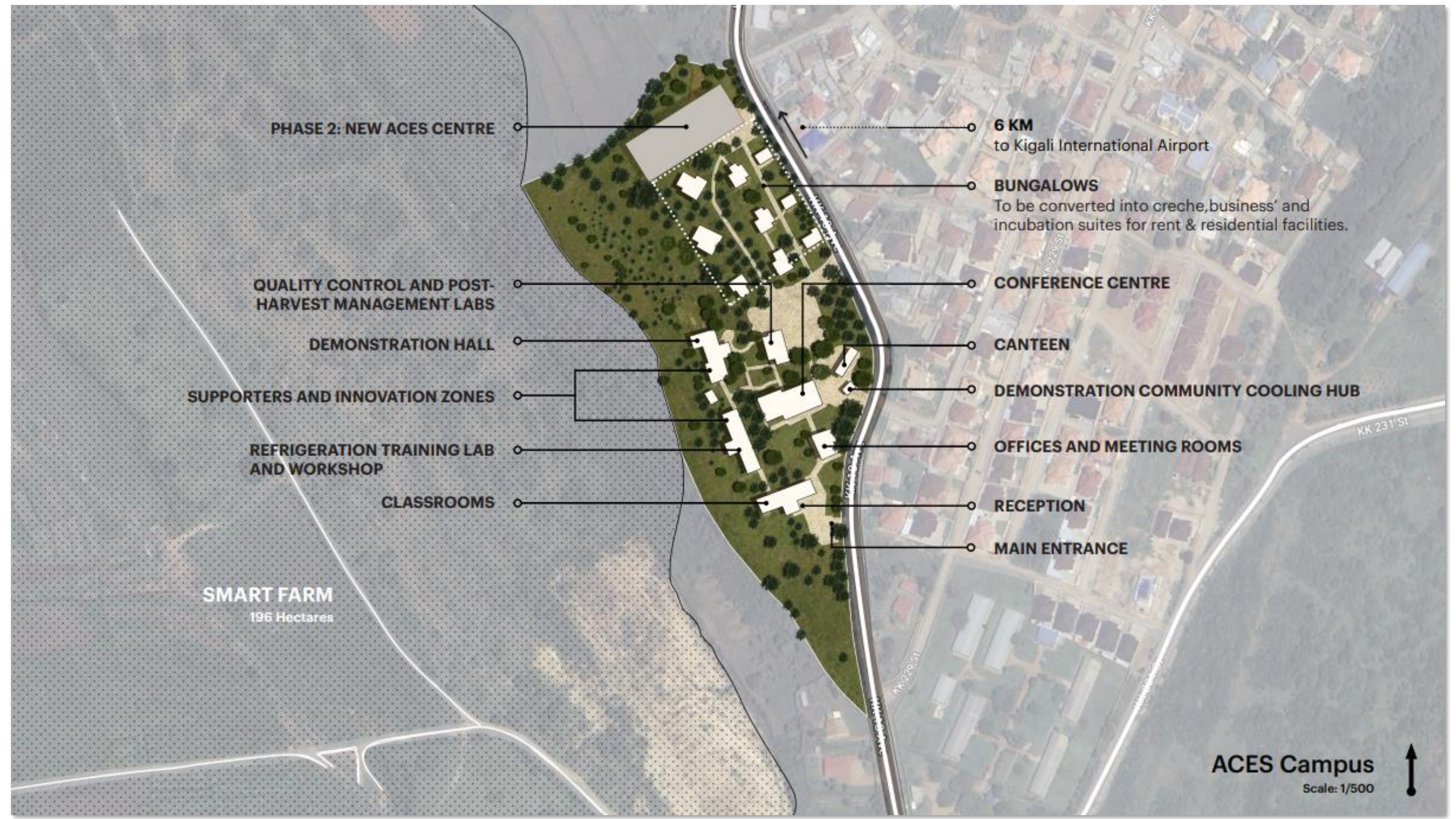
COP26 President, the Rt. Hon. Alok Sharma MP



- ✓ SPOKES deployed in strategic locations as real-world applications of ACES' solutions
- ✓ Specializing in particular needs and opportunities for local markets
- ✓ Provide technical assistance, demonstrations and knowledge transfer
- ✓ 1st SPOKE in Kenya
- ✓ Two CoEs in India in development (Hyderabad & Haryana)



- ✓ > \$25M of seed investment committed by the UK and Rwanda Governments and industry
- ✓ + the campus and physical infrastructure
- ✓ + smart farm



Complete logistics chains for soil to fridge

Support for businesses to accelerate market at scale:



Test and demonstrate solutions



Market intelligence and knowledge



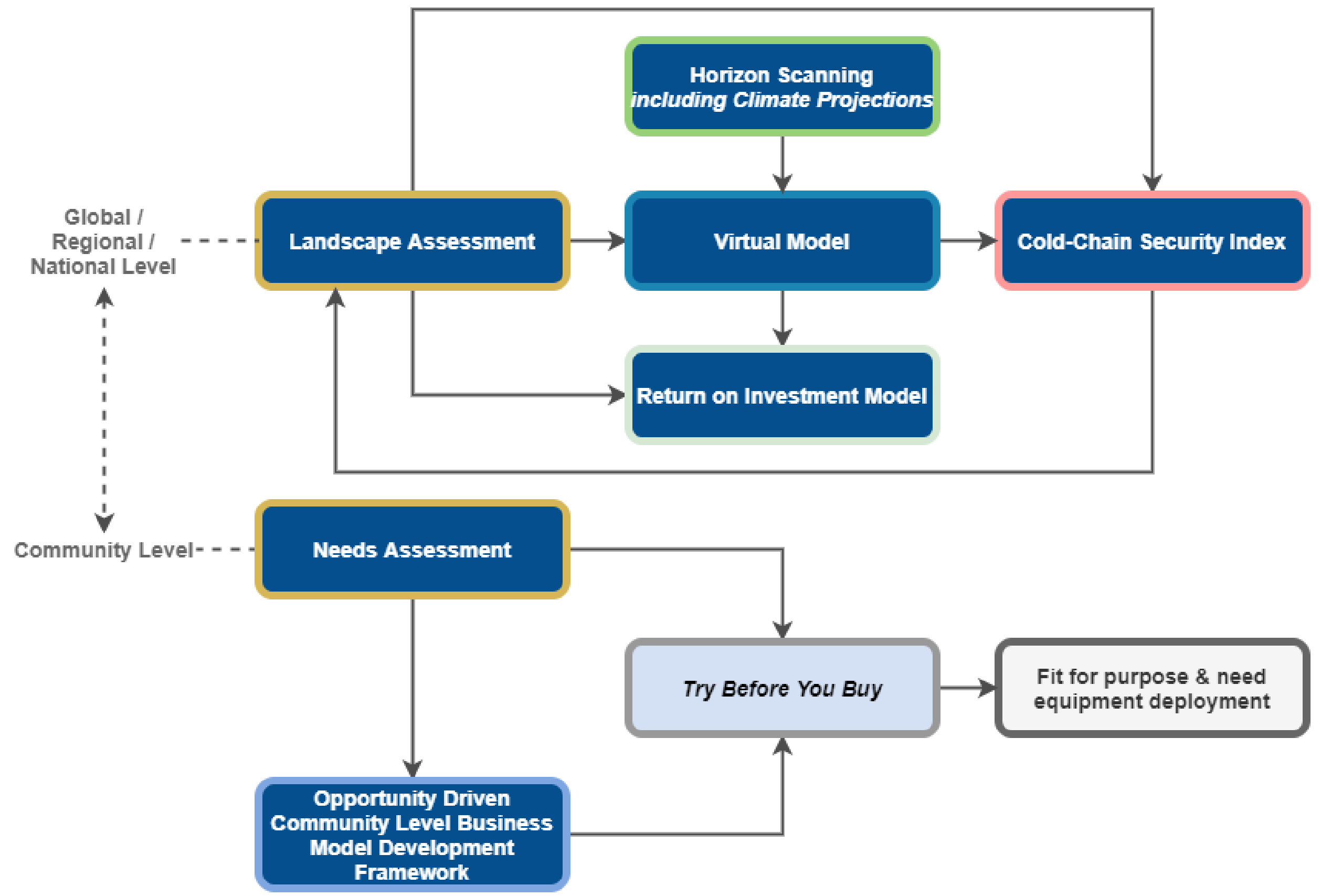
Skill gaps and capacity building



Incubation space

Tools, models, assessment methodologies:

- ✓ Understanding current and future cold-chain needs
- ✓ Virtual models to develop optimal solutions & stress testing
- ✓ Real value & return on investment



Global food and health security depend on achieving a **globally connected sustainable, resilient & equitable cold-chain**

- **84% of fruits & 47% of vegetables** are imported in the UK; Rwanda will double exports by 2025
- Need to close **56% food gap** by 2050
- With **60% of the world's uncultivated arable land** laying in Africa, the continent will play a key role in feeding the surging global population.



Global cooperation is needed to achieve win-win outcomes



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Centre for
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