

# Creating a robust blueprint for sustainable and cost-effective food logistics

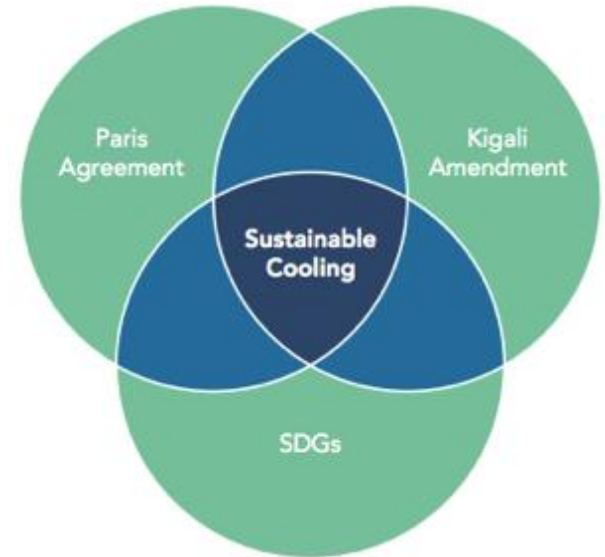
Toby Peters

Professor of Cold Economy, University of Birmingham

co-Director, Centre for Sustainable Cooling

[t.peters@bham.ac.uk](mailto:t.peters@bham.ac.uk)

- The world is off-track to meet the 1.5°C objective of the Paris agreement.
- The world is also off-track to meet the Sustainable Development Goals and adapt to fast increasing climate heat.
- But how we deliver new cooling demand will materially impact our ability to mitigate climate change and manage our natural resources?
- There needs to be a paradigm shift towards sustainable cooling, providing affordable access to clean cooling for all with minimal climatic impact.



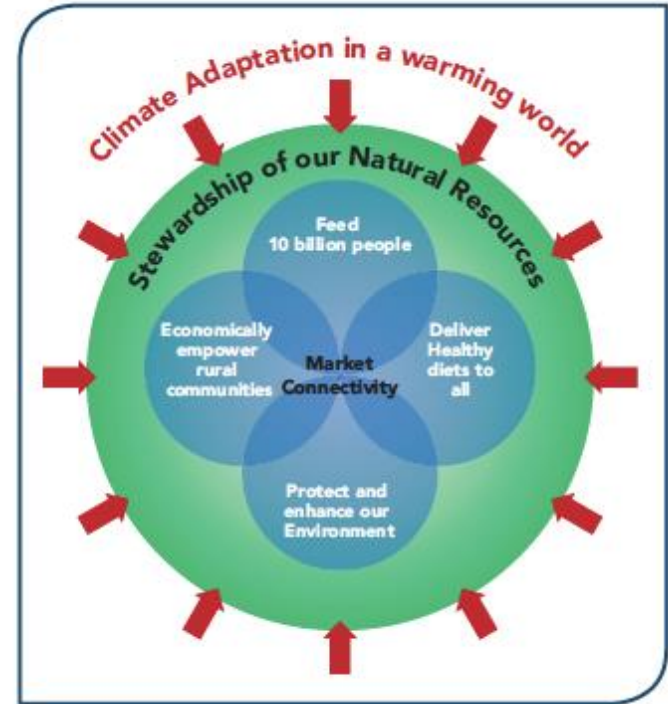
**Our food security is an integrated global issue.** More than 80% of fruits and nearly half our vegetables. Global food demand is set to grow by 50% by 2050 driven by people living in developing countries.

**Globally, more than 1.2bn tonnes of food is lost and wasted each year.** In India - less than 4% of the country's fresh produce transported under low-temperature conditions, >90% in the UK

**Food loss is also about the economic impact on small and marginal farmers.** In sub-Saharan Africa, more than 50% of workforce relies on agricultural sector.

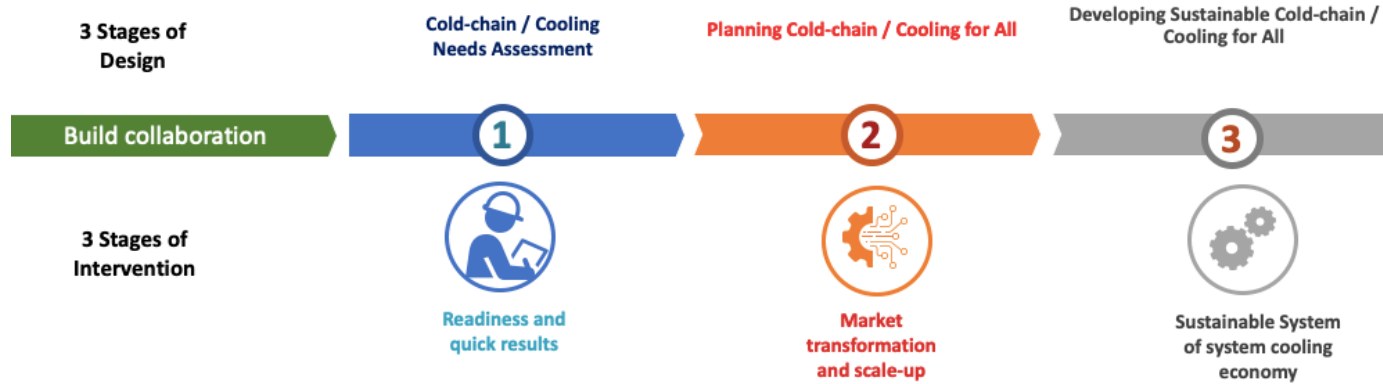
## The exam question.

*How do you create the local and global “field to fork” connectivity to nutritiously feed 10bn people while protecting and economically empowering half a billion small-scale farmers whose livelihoods and well-being are often dependent on only 1-2 hectares, as well as ensure they are climate change adaptation ready and resilient .... all within a zero emission strategy?*

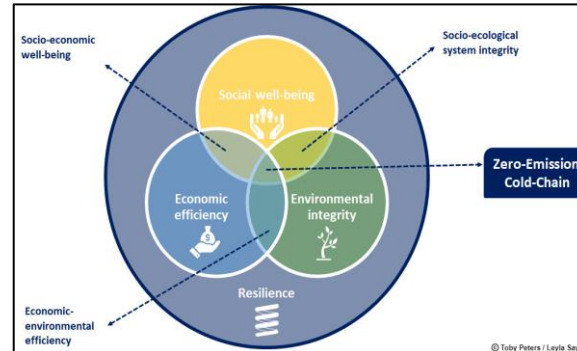


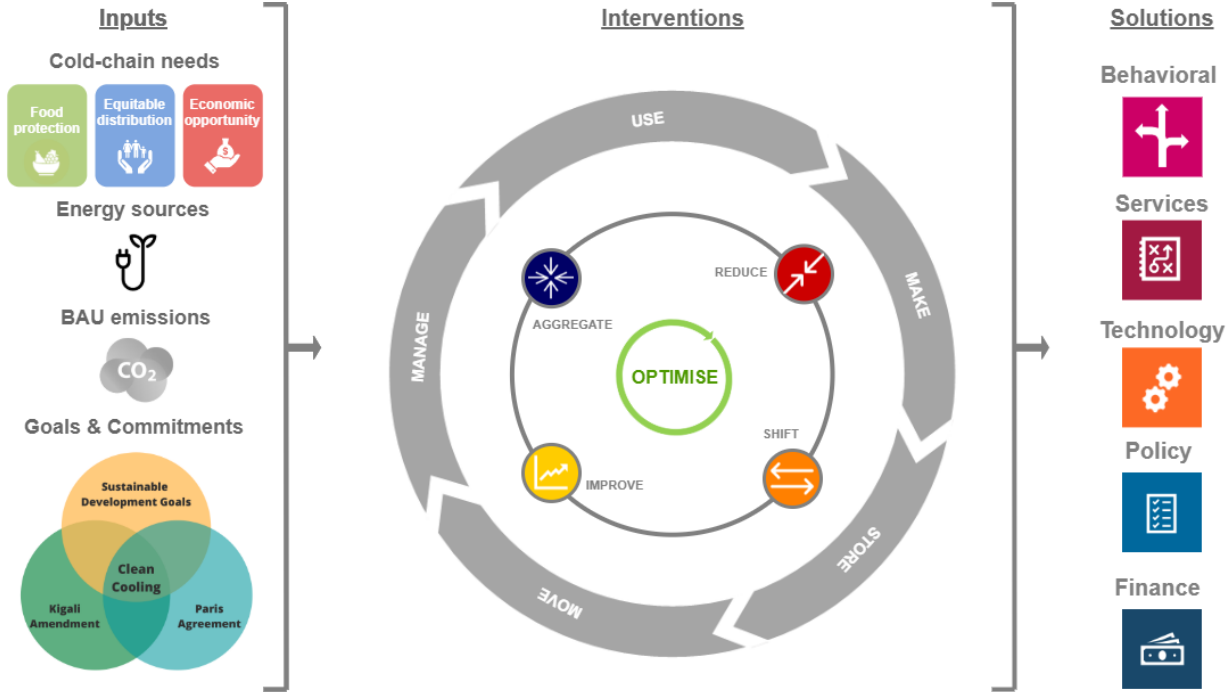
We need a whole systems approach to redefine the cold-chain architecture and map the opportunities available to reach net zero emissions by 2050, so as to deliver

- (i) demand and climate adaptation;
- (ii) resilience; *and*
- (iii) decarbonisation of the cold-chain for the food industry, from farmer and fishers to consumers simultaneously.



## Measurement of Success





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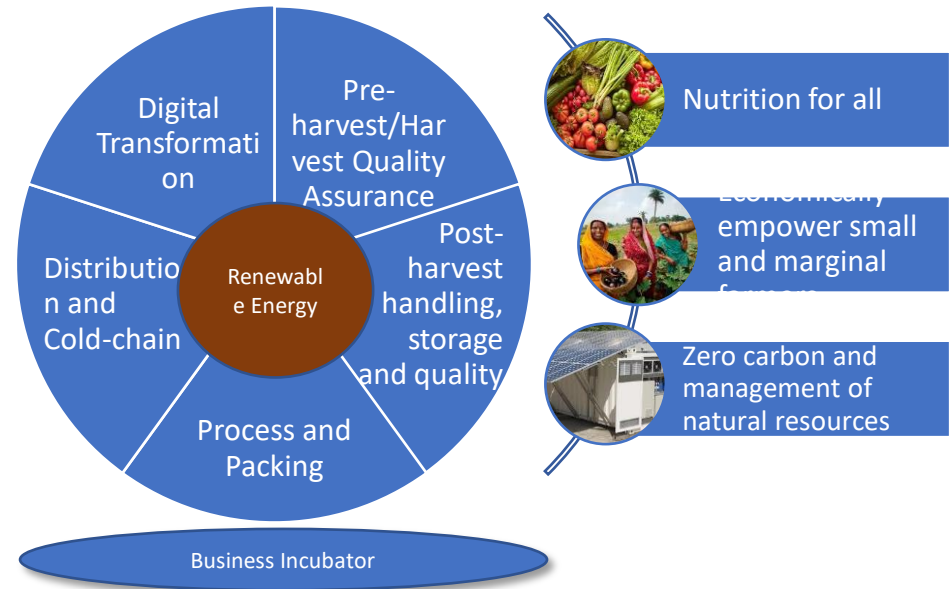


# 'Centre of Excellence' – Sustainable cold-chains

Holistic approach to sustainable market connectivity providing technical and business assistance, training and research to Farmer Product Organisation and small-holder farmer collectives enabling farmer transition from product driven to value and demand driven

The programme facilitates the development of world-leading food value chains and market systems, in line with the pillars of sustainability

**Project No. 1 is in Rwanda**





- With the UK reliant on imports strengthen our logistics and engagement
- Knowledge transfer and technology exports
- Build academic-academic, academic-industry and industry-industry collaborative partnerships for joint research, innovation and localisation.
- Global roll-out using twinning and hub and spoke models, delivering impact and global positioning for UK in key agenda for global markets in Asia, Africa and South America, etc.

**Centre of Excellence** – impact demonstration, technical and business assistance, capacity building and incubator. Also to include innovation and research centre for product and service development as well as engagement with supply chain for knowledge transfer, conferences and training.



**Using a Hub and spoke model**, cascade secondary centres into other States India to provide near to market demonstration, technical and business support and technical assistance.

**Using a twinning model**, create International Centres of Excellences and a UK-led global network of knowledge creation and export.

# FOOD SAVED IS AS IMPORTANT AS FOOD PRODUCED

## Delivers against the key pillars of sustainability



**Resilient Nutrition**  
supply safe,  
nutritious food to  
consumers to  
improve diets and  
nutrition.



**Economically  
empowered Farmers**  
effective basis for  
agri-business and  
generation of decent  
employment, in  
particular for rural  
women and youth.



**Renewable energy  
and Zero Carbon**  
Leapfrogging to new  
build cold-chains to  
integrate sustainable  
lower-GWP & energy  
efficient  
technologies.



**Natural Resources**  
Utilize natural  
resources in a  
sustainable  
manner.



# Covid-19 – a new, urgent, global Cold-chain Challenge

The third pillar of managing Covid-19

How do we rapidly immunise 60%+ of the world's population?

We are leading a research programme in Bangladesh with supporting work in India and Rwanda

<https://www.birmingham.ac.uk/news/latest/2020/09/blueprint-to-vaccinate-in-bangladesh.aspx>

