



# Future Foods:

## An Industry's Perspective on the Path to Sustainable and Nutritious Food

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# Outline

Introduction: Charoen Pokphand (CP) Foods

Challenge: Food Security

Challenge: Ageing Society

CPF R&D and Approach to Food Innovation



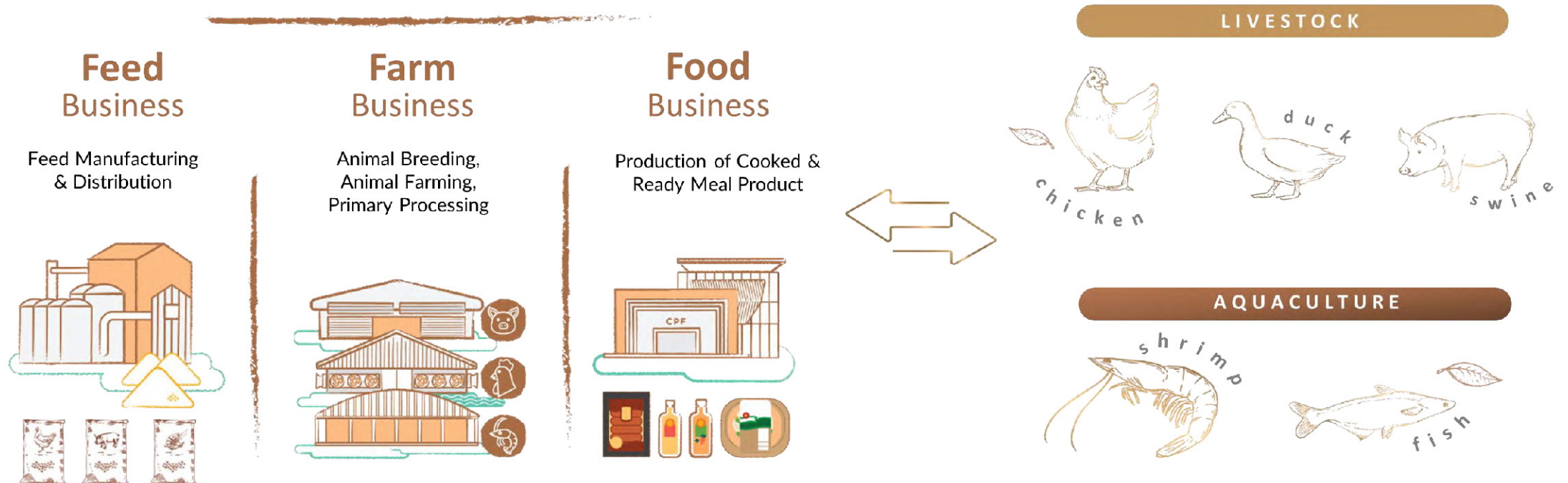
# Introduction: Charoen Phokphand (CP) Foods

CPF is the largest integrated operator of agro-industrial and food conglomerate in Southeast Asia

Annual turnover 2022: **\$17.5 BILLION**

Worldwide employee: **130K**

## “ Fully Integration ”



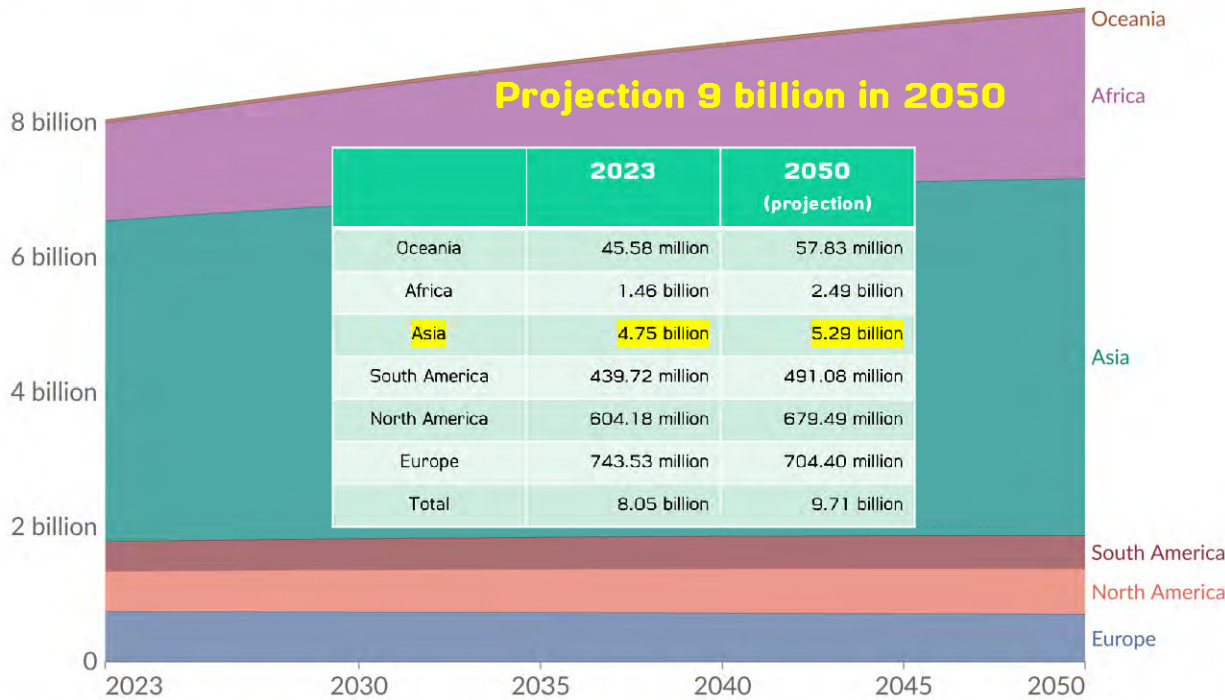


# Challenge: Food Security

## Population by world region

Historic estimates with future projections based on the UN medium-fertility scenario<sup>1</sup>.

Our World in Data



Data source: HYDE (2017); Gapminder (2023); UN (2022)

Note: Historical country data is shown based on today's geographical borders.

[OurWorldInData.org/population-growth](https://ourworldindata.org/population-growth) | CC BY

1. UN projection scenarios: The UN's World Population Prospects provides a range of projected scenarios of population change. These rely on different assumptions in fertility, mortality and/or migration patterns to explore different demographic futures. Read more: Definition of Projection Scenarios (UN)

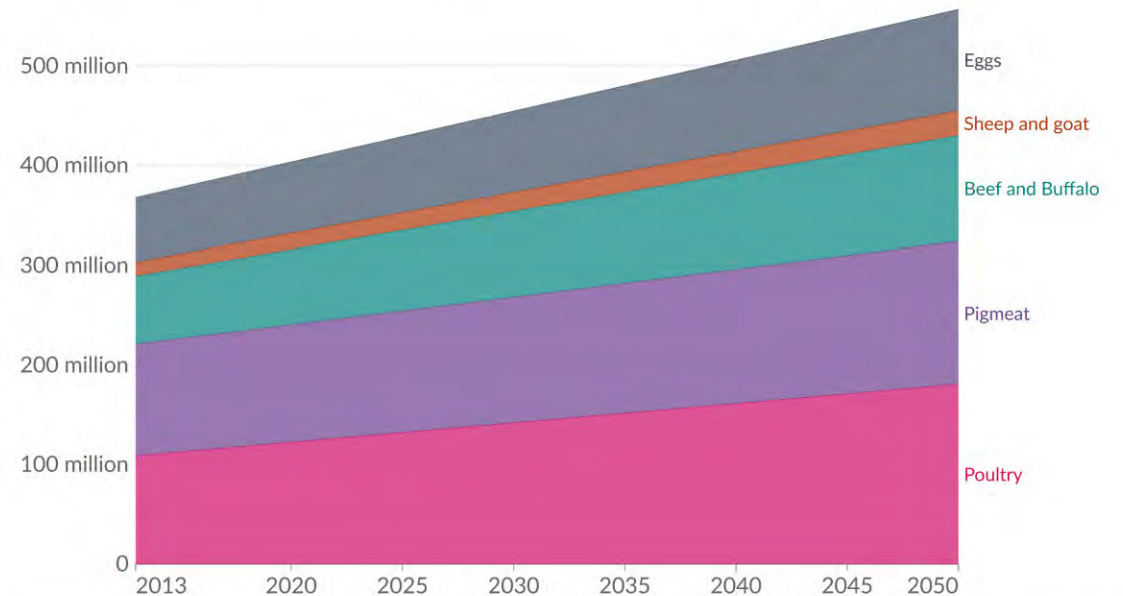
Source: <https://ourworldindata.org/grapher/population-regions-with-projections>

## How To Feed 9 billion?

### Global meat consumption, World, 2013 to 2050

Expressed in tonnes of meat. Data from 1961-2013 is based on published FAO estimates; from 2013-2050 based on FAO projections. Projections are based on future population projections and the expected impacts of regional and national economic growth trends on meat consumption.

Our World in Data



Data source: Food and Agriculture Organization of the United Nations

[OurWorldInData.org/meat-production](https://ourworldindata.org/meat-production) | CC BY

**Global Meat Consumption tend to increase from 400 to 600 million tons in 2050.**



# Challenge: Food security



## Climate

Worsening climate conditions reduces arable land, and more losses



## Conflict

International conflict can lead to breakdown of trade and supply chains



## Disease

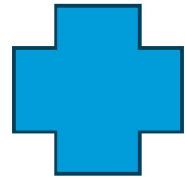
Old and new livestock and human diseases can threaten the industry and society



# CPF: Tackling GHG emissions throughout the supply chain

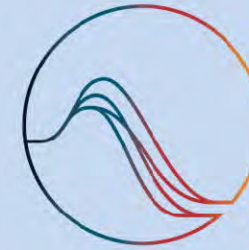
## Increasing Renewable Energy Usage

- Solar Energy
- Solid Bioenergy
- Gaseous Bioenergy



## Exploring new technologies & innovations

- Use of EV cars
- Hydrogen Energy from Manure



SCIENCE  
BASED  
TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

### Reducing emissions from plantation and animal farming (FLAG)

2020 (baseline)	2030	2050
0%	↓30.3%	↓72%

### Reducing emissions from energy use, packaging, waste (NFLAG)

2020 (baseline)	2030	2050
0%	↓42%	↓90%



# New technologies to make **food production** more efficient

## Upstream

Crop farming & sourcing



- Drone & Satellite technology
- Precision farming
- Regenerative Agriculture

## Midstream

Livestock & Aquaculture



- Advanced genetics
- Probiotics & microbiome
- Disease detection
- High-performance feed

## Downstream

Food processing



- Novel food processing and preservation methods
- Sustainable packaging

Data Analytics + Artificial Intelligence

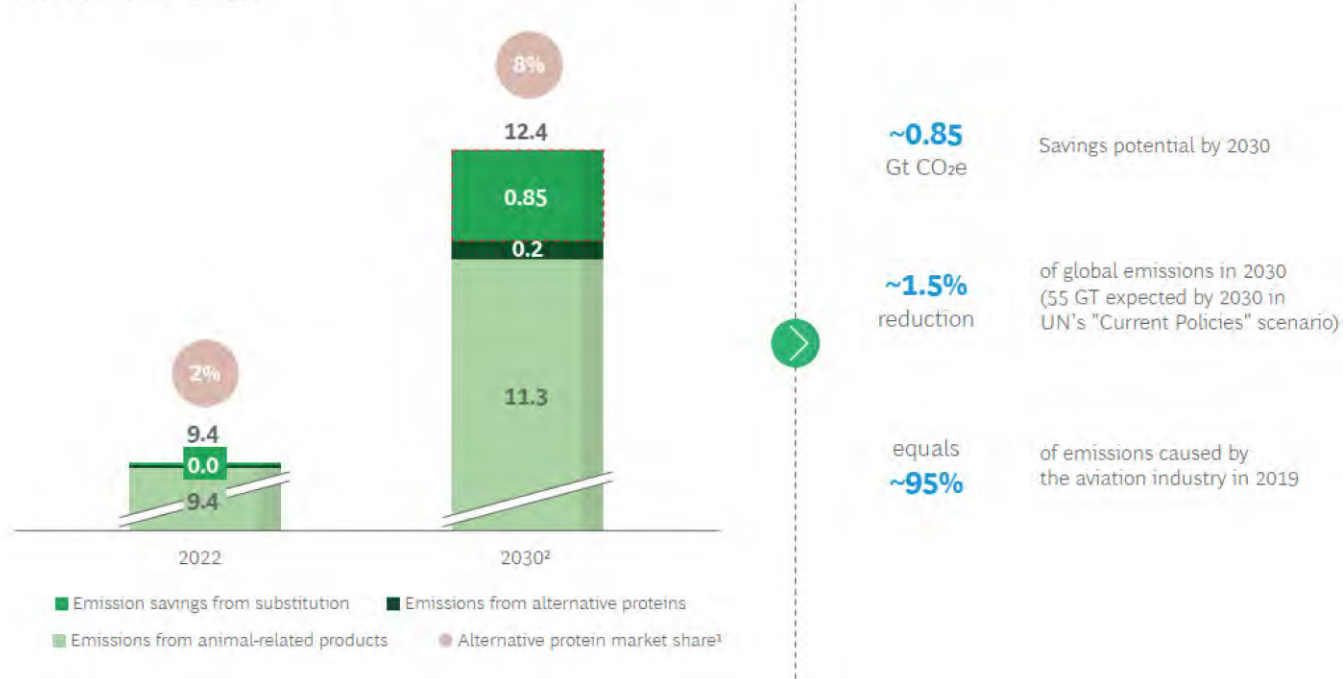


# Alternative Protein – Innovation to tackle food security and sustainability

**Consumption of alternative proteins can lower total GHG emissions by as much as 1.5% by 2030.**

Emission savings potential from substitution of animal-related products with alternative proteins

GHG emissions in Gt CO<sub>2</sub>e



**Plant-based meat products on the market has already established the sustainability benefits throughout the life cycle**

Product Type	% Land Use reduction	% Water Use reduction
<b>Beef Burger</b>	96%	87%
<b>Pork sausage</b>	47%	81%
<b>Chicken Burger</b>	84%	72%





# To become a global leader in alternative proteins



- Investment R&D for Plant-based meat since 2019
- Launch Plant-based products in May 2021
- No. 1 Brand "MEAT ZERO"



- Improvement of SKU to become next Gen 2,3
- Export to international market via CPF channel and network
- Development of new SKUs for different geography e.g. UK, Germany, US



# The roles of different alternative proteins

We see potential across the spectrum of alternative protein, not just plant-based meat

## Plant-based

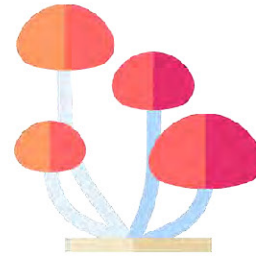


### Short-Medium term

#### Strengths

- Good nutrition profile
- Lower production cost and easy to scale
- Can serve as base for 'hybrid' products

## Mycoprotein

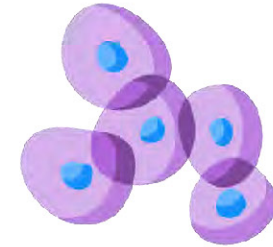


### Medium-term (3-5 Yrs)

#### Strengths

- Natural fiber formation
- Naturally clean/umami taste, enables clean label products
- Utilizes sidestreams as feedstock; production can be localized

## Cultivated



### Long-term (5-10 Yrs)

#### Strengths

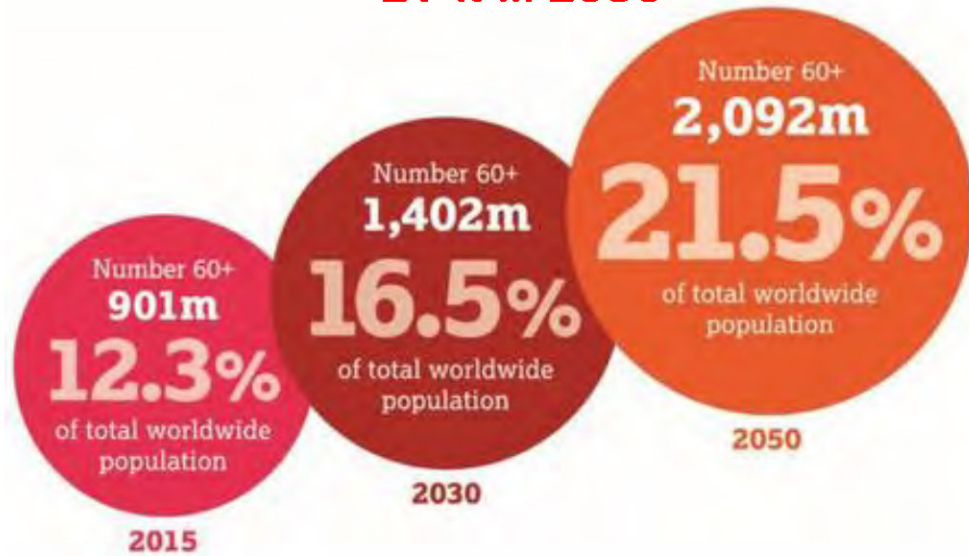
- Potentially match animal meat in taste and texture
- Can be used as ingredients to enhance other alternative proteins



# Challenge: Ageing Society

## Number and proportion of older people globally in 2015, 2030, 2050

> 21 % in 2050



Source: UNDESA Population Division. (2015). World population prospects: the 2015 revision; chart taken from HelpAge International (2015).

Year	Age	% of total Thai population
2005: Ageing society	> 60+	>10%
	> 65+	>7%
2022: Ageing society	> 60+	>20%
	> 65+	>14%
2030: Super-age society	> 65+	> 20%

Source: UN, 2015

## Food for mid-age and elderly:

- Preventive aspects e.g., NCDs ( lower/replace salt, sugar, fat, and others)
- Nutrient and composition e.g., healthy, nutritious, nutrient-dense, easy to digest
- Sensory aspects e.g., similar appearance and taste to normal food, easy to chew and swallow



# The 4 Area of Focus: Health & Wellness

To inspire & enable Thais to eat well leading to less sickness and dependent on medicine



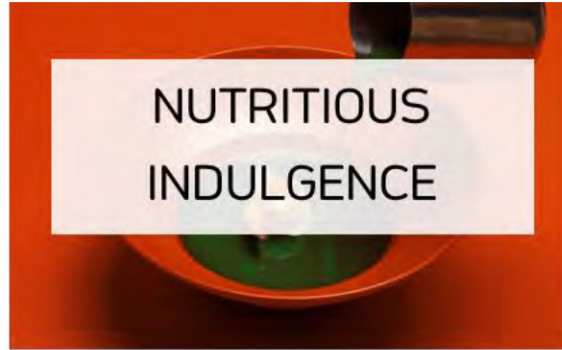
SAFE/FREE FROM  
(NO BADDIES)

- No Harmful Chemical compound
- No Antibiotics



GUILT-FREE  
INDULGENCE

- Sugar/Sodium reduction
- Healthier Choice Menu



NUTRITIOUS  
INDULGENCE

- Star Ingredients
- Alternative Protein



ENHANCED  
NUTRITION

- Food Supplement
- Medical Food





# R&D and Approach to Food Innovation

**Open  
Innovation**

**BELIEVER**

**Lypid**

**Others  
(confidential)**

**Research**

**University  
Partnerships**



- Leverages startup ecosystem for technological innovation
- Expand portfolio offering through manufacturing and distribution services

- Conduct basic research with local universities to foster faculty interest and talent
- Form partnerships with global research institutes to build credibility



**THANK YOU**