



How the marine ingredients industry is perceived and what it needs to do to secure its future



**Food and Agriculture
Organization of the
United Nations**

Árni M. Mathiesen

Assistant Director-General

Fisheries and Aquaculture Department

Food and Agriculture Organization of the UN, Rome, Italy



Food and Agriculture
Organization of the
United Nations

2018

THE STATE OF
**WORLD FISHERIES
AND AQUACULTURE**

MEETING THE SUSTAINABLE
DEVELOPMENT GOALS

FOREWORD

Human societies face the enormous challenge of having to provide food and livelihoods to a population **well in excess of 9 billion people** by the middle of the twenty-first century, while addressing the disproportionate impacts of climate change and environmental degradation on the resource base.....

.....*The State of World Fisheries and Aquaculture 2018* highlights the **critical importance of fisheries and aquaculture for the food, nutrition** and employment of millions of people, many of whom struggle to maintain reasonable livelihoods.....

.....Since 1961 the annual global growth in **fish consumption has been twice as high as population growth**, demonstrating that the fisheries sector is crucial in meeting FAO's goal of a world without hunger and malnutrition.

José Graziano da Silva
FAO Director-General



Food and Agriculture
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United Nations

FAO's Global mandate

Eradicate hunger, food
insecurity and nutrition

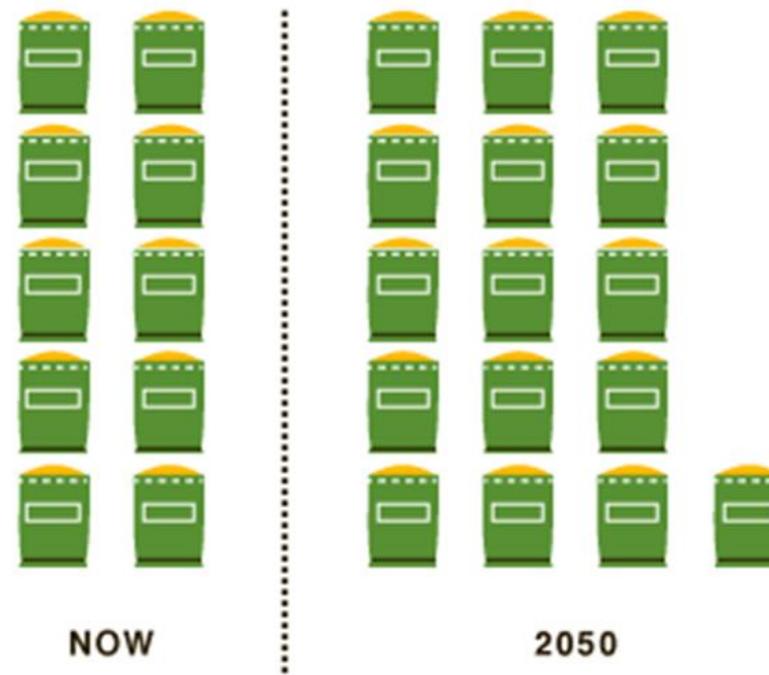


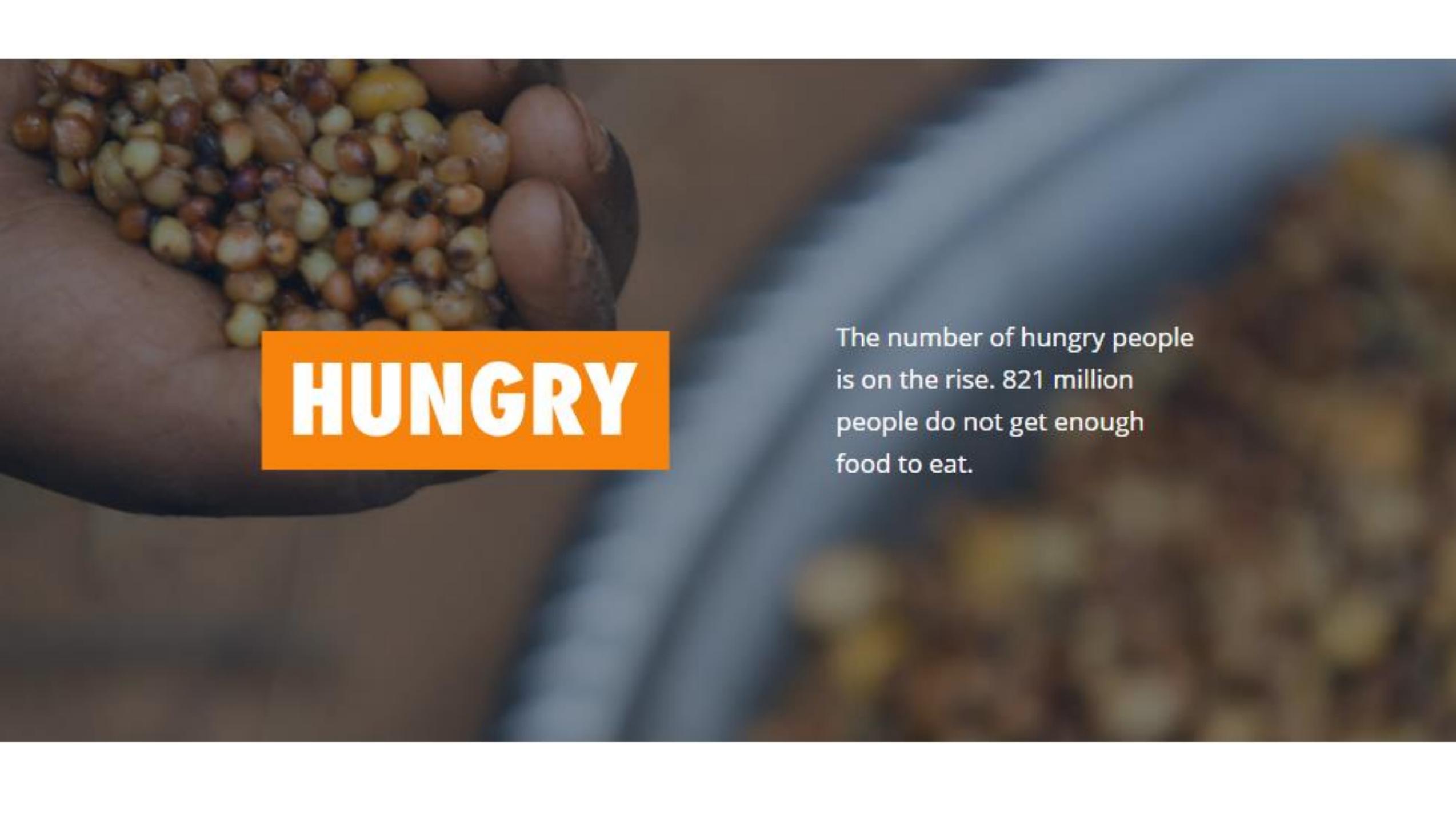
Eliminate poverty through
economic and social
progress for all



Sustainable management
and utilization of natural
resources

With current global trends in diets and
population, **60% MORE FOOD** will be
needed in 2050.

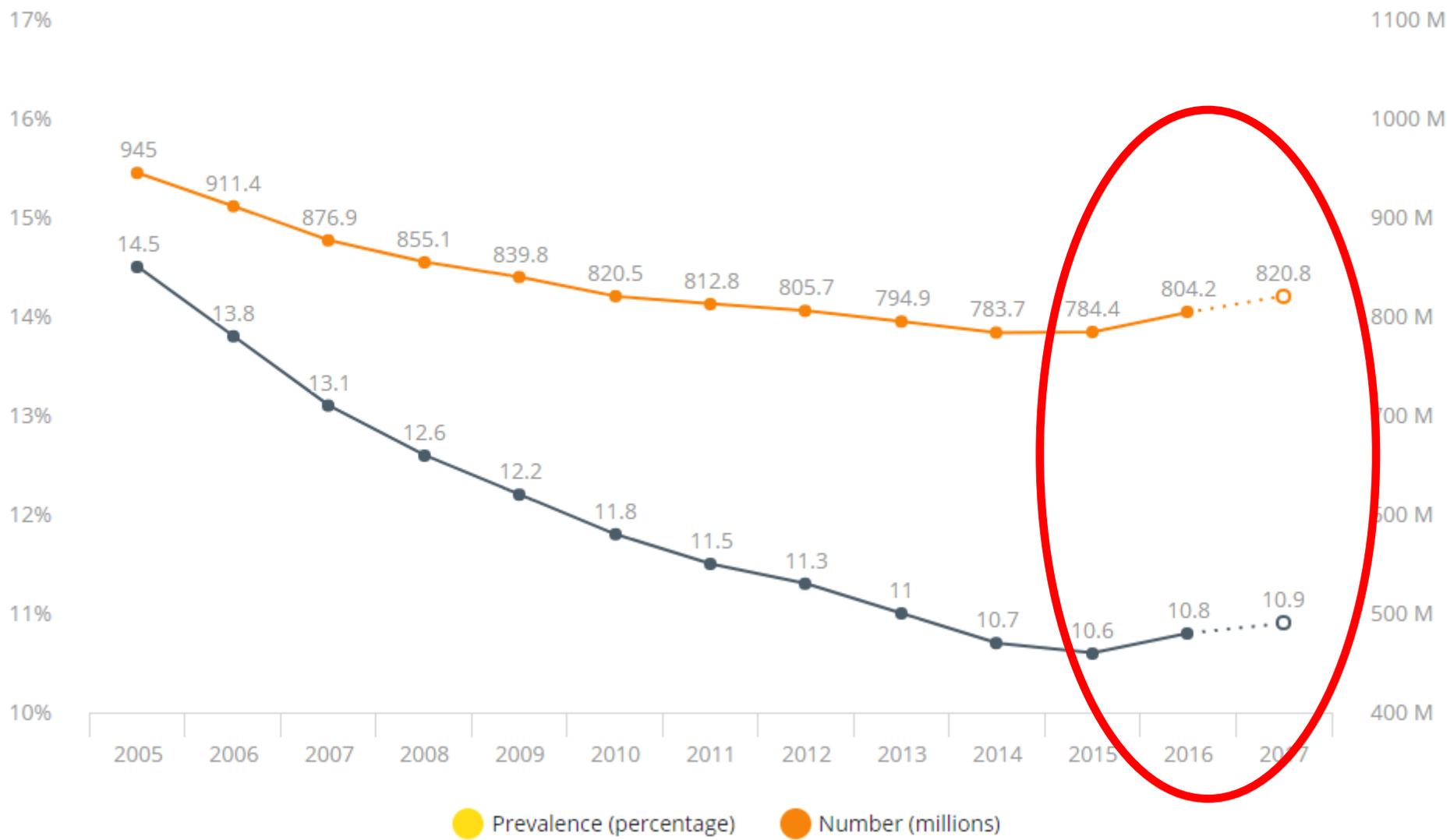




HUNGRY

The number of hungry people is on the rise. 821 million people do not get enough food to eat.

The number of undernourished people in the world has been on the rise since 2014, reaching an estimated 821 million in 2017

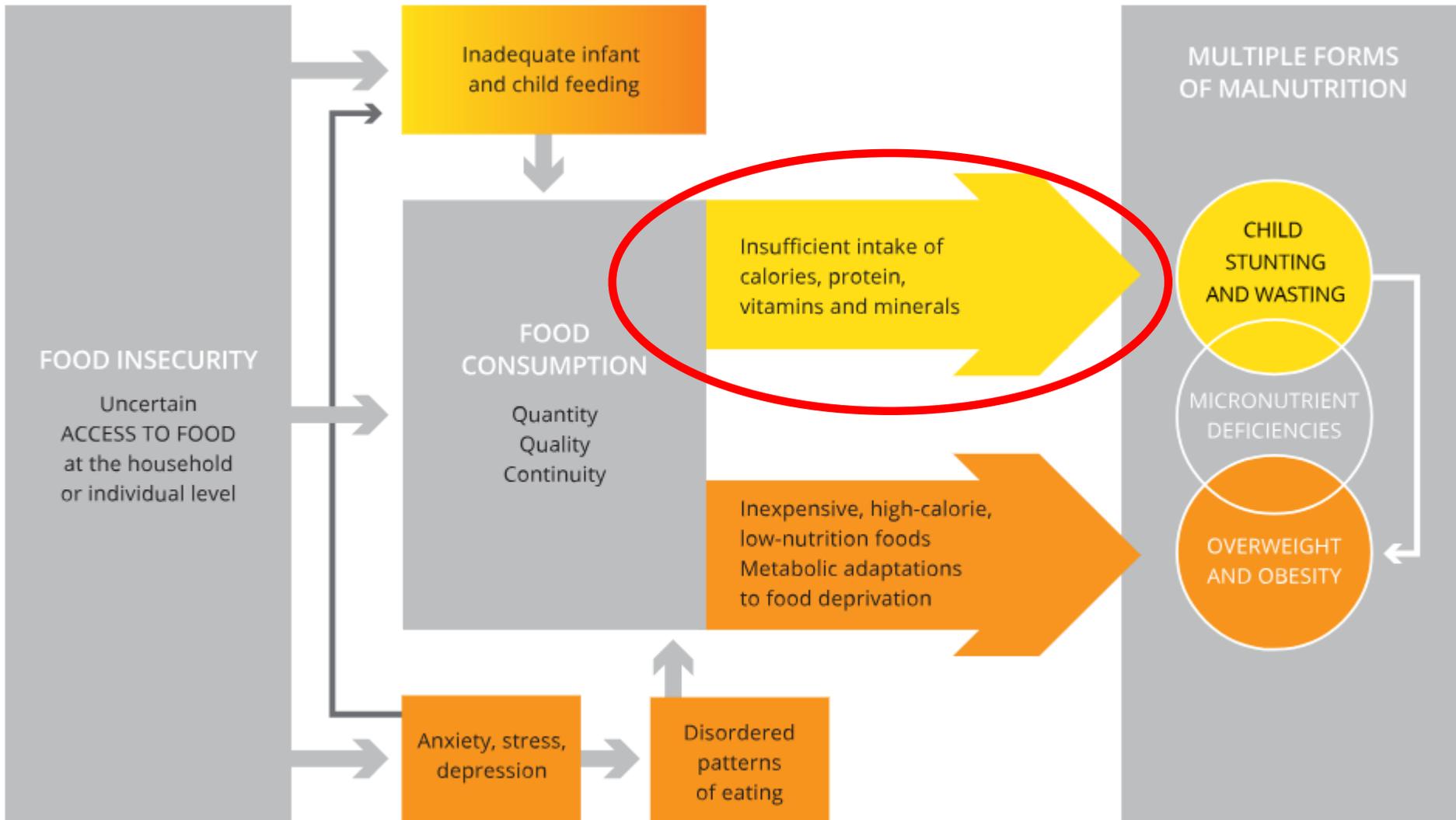


● Prevalence (percentage) ● Number (millions)

*Projected values, illustrated by dotted lines and empty circles.

Source: FAO

Pathways from inadequate food access to multiple forms of malnutrition



● Undernutrition pathway ● Obesogenic pathway

Source: Created by FAO Statistic Division for this report



Proteins

Excellent quality, better bioavailability and good sources of essential amino acids.

In 2015, fish accounted for about 17% of animal protein consumed by the global population*

Fats

Unique source of essential fatty acids (DHA, EPA);

Minerals and vitamins

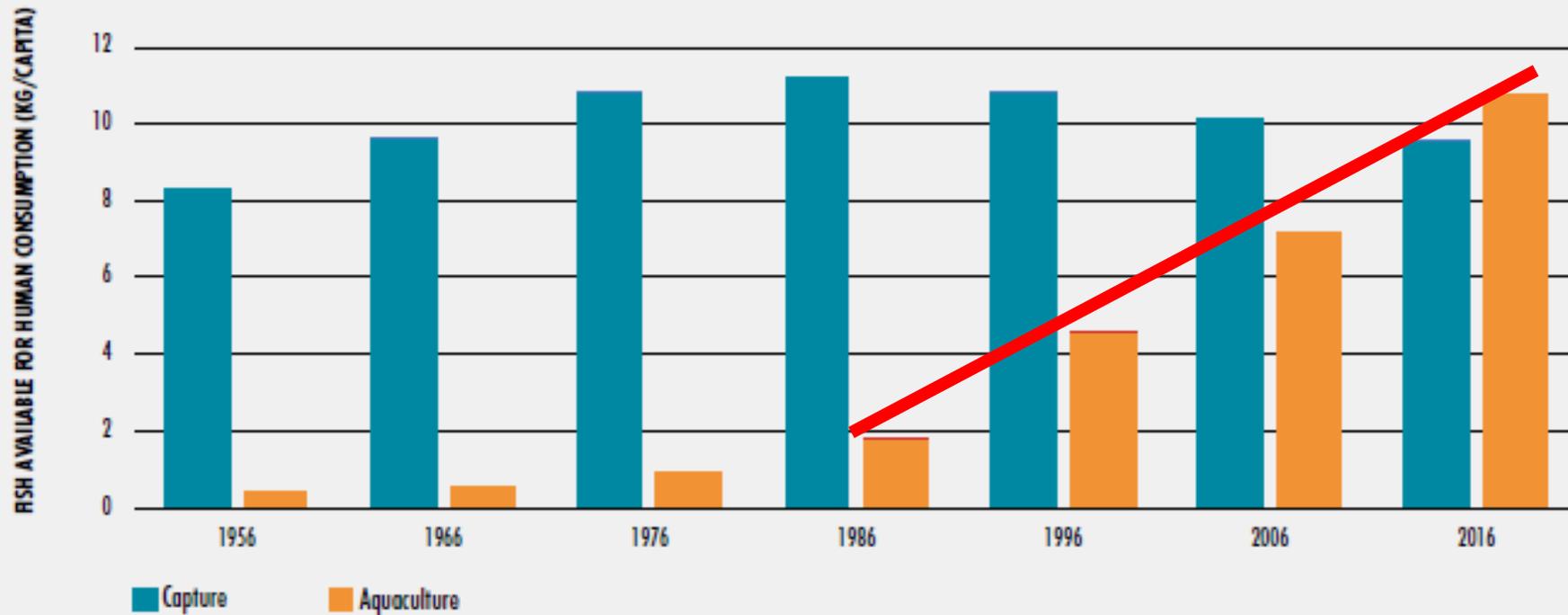
Unique and complete source of micronutrients;

- High bioavailability
- Most minerals: **calcium, iodine, zinc, iron, selenium, etc**
- Vitamins: vitamin D, **vitamin A**, vitamin B group

* SOFIA 2018

Where will it come from?

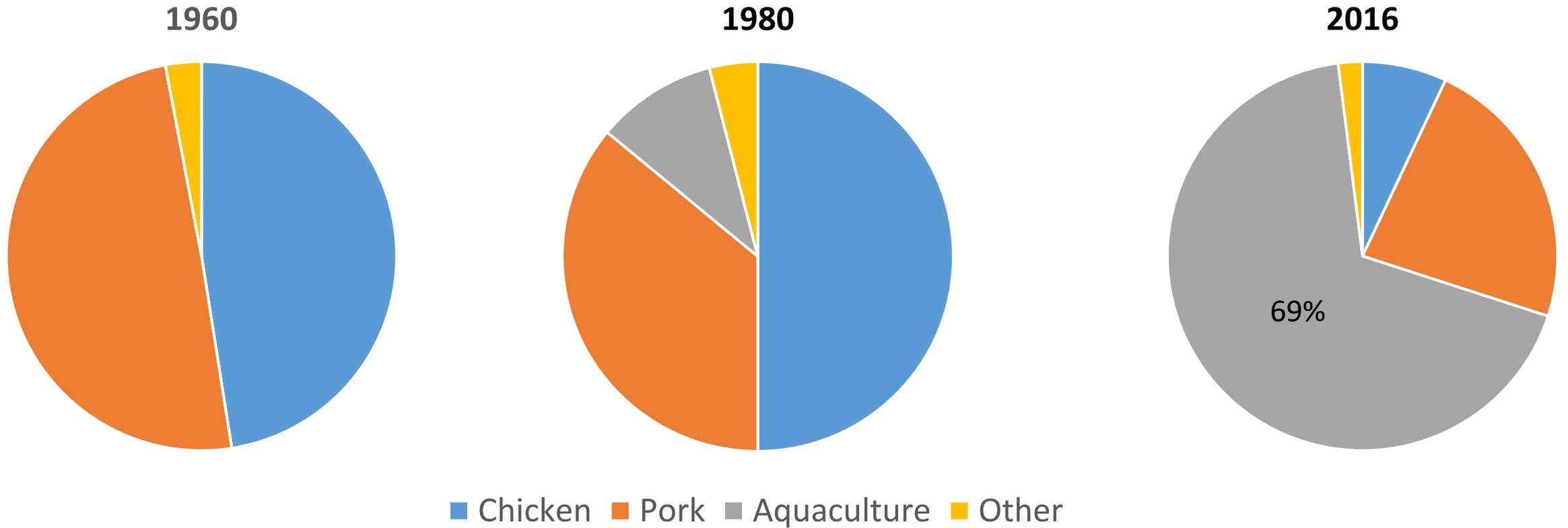
FIGURE 31
RELATIVE CONTRIBUTION OF AQUACULTURE AND CAPTURE FISHERIES TO FISH FOR HUMAN CONSUMPTION



Reality versus perception !

1. Tell your story honestly.
2. Be sustainable and responsible.
3. Help meet the Global Food and Nutrition Challenges.
4. Be innovative!

Use of fishmeal

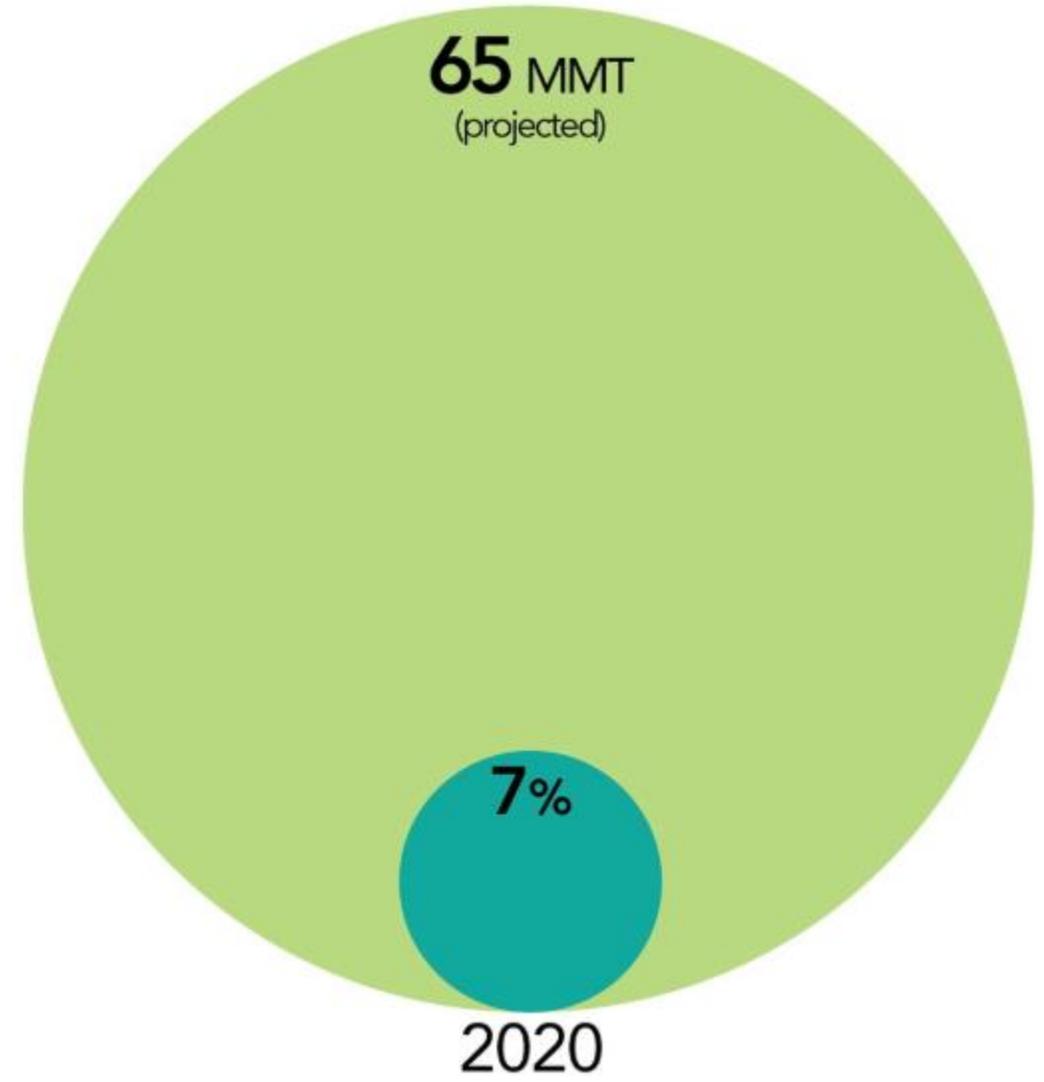
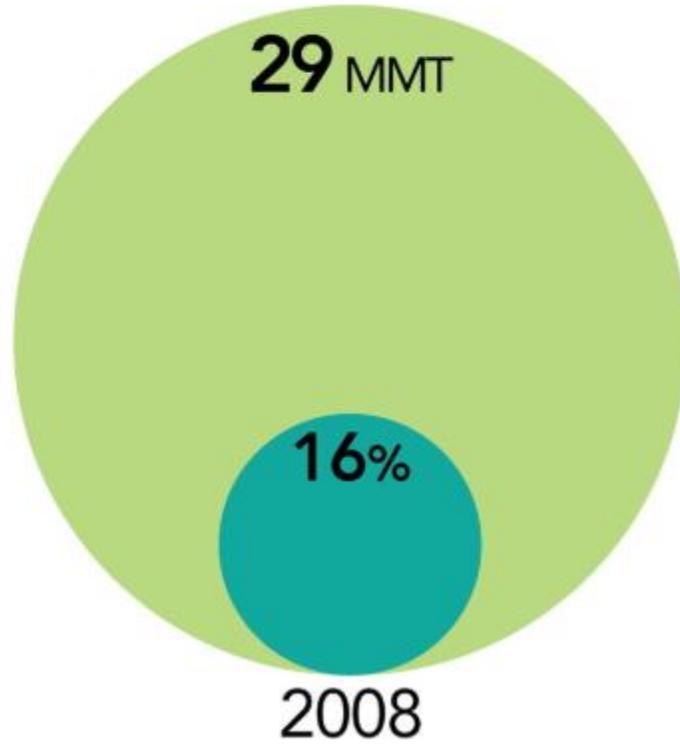
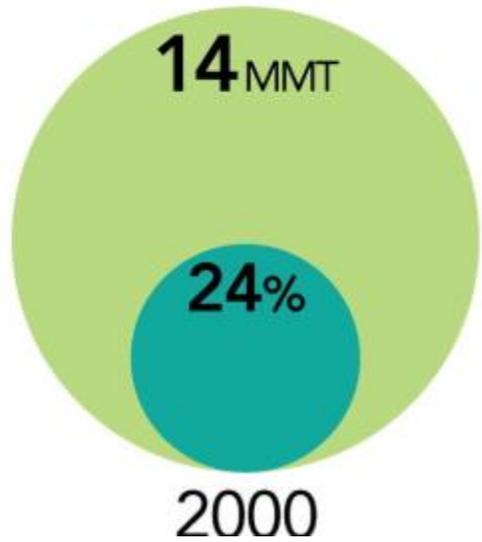


Source: IFFO

Aquaculture feed
from all sources



Fishmeal and
oil used as
aquaculture feed



Source: Fry, J.P. et al., 2016. Environmental health impacts of feeding crops to farmed fish. Environment International, 91, pp.201–214. Available at: <http://dx.doi.org/10.1016/j.envint.2016.02.022>

Food and agricultural systems are facing an unprecedented confluence of challenges



Natural resources are over-exploited, degraded, and their productivity declines

- water scarcity and pollution
- land degradation,
- deforestation
- biodiversity and ecosystem services losses
- overfishing and IUU fishing



Things are changing.....

- There is **pressure on the resources** from both land and oceans → less resources for fish feeds – both fishmeal/oil based and plant based
- And there is more pressure on use of plants and fish for **direct human consumption**
- So perfect storm of:
 - less resources
 - preferred use of those resources away from feeds
 - need for more feed to supply the demand on aquaculture products

.....so where is the feed for aquaculture growth coming from?

Innovation in both terrestrial and aquatic raw materials for feeds



MagMeal™ and MagOil™

- AgriProtein has announced plans to build up to 200 factories globally to scale up production of insect protein for animal feeds. Each factory will produce 5,000 tonnes of MagMeal, as well as and 2,000 tonnes of MagOil per year...



- Ingredients from the ocean in primary production, rather than reliance on secondary/tertiary production
 - Phyto and zoo plankton production
 - Macro algae species
 - Bacteria



How the marine ingredients meets the challenge will determine its real and perceived image in the future

Be true to your name