



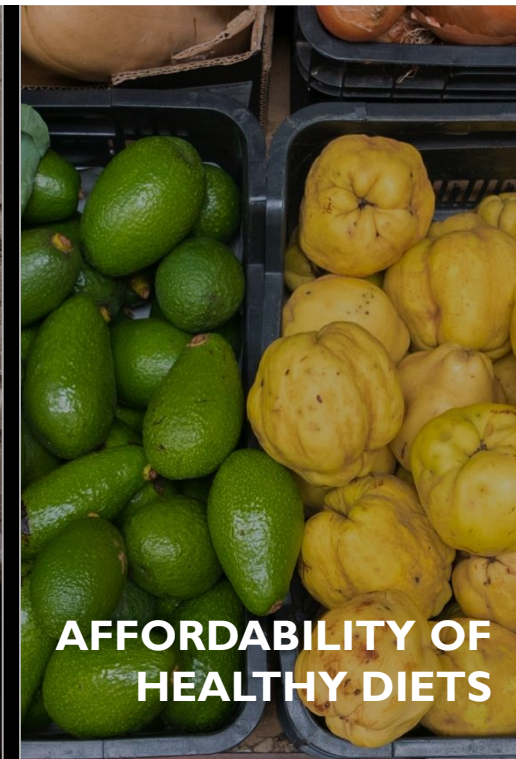
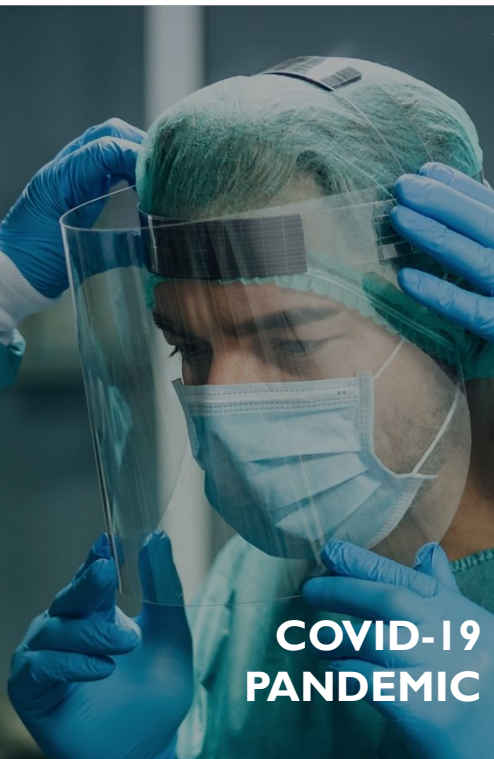
Food and Agriculture Organization
of the United Nations

Department of Agriculture, Food and the Marine

Research and Innovation for Sustainable Agrifood Systems: Delivering on the Ambition of Food Vision 2030

2nd JUNE 2022

Ismahane Elouafi
Chief Scientist, FAO



We are **not on track to ending hunger, food insecurity & malnutrition – major drivers & underlying factors are challenging us**



720-811
MILLION
PEOPLE
UNDERNOURISHED



CHILDREN

75 MILLION
STUNTING

26 MILLION
WASTING

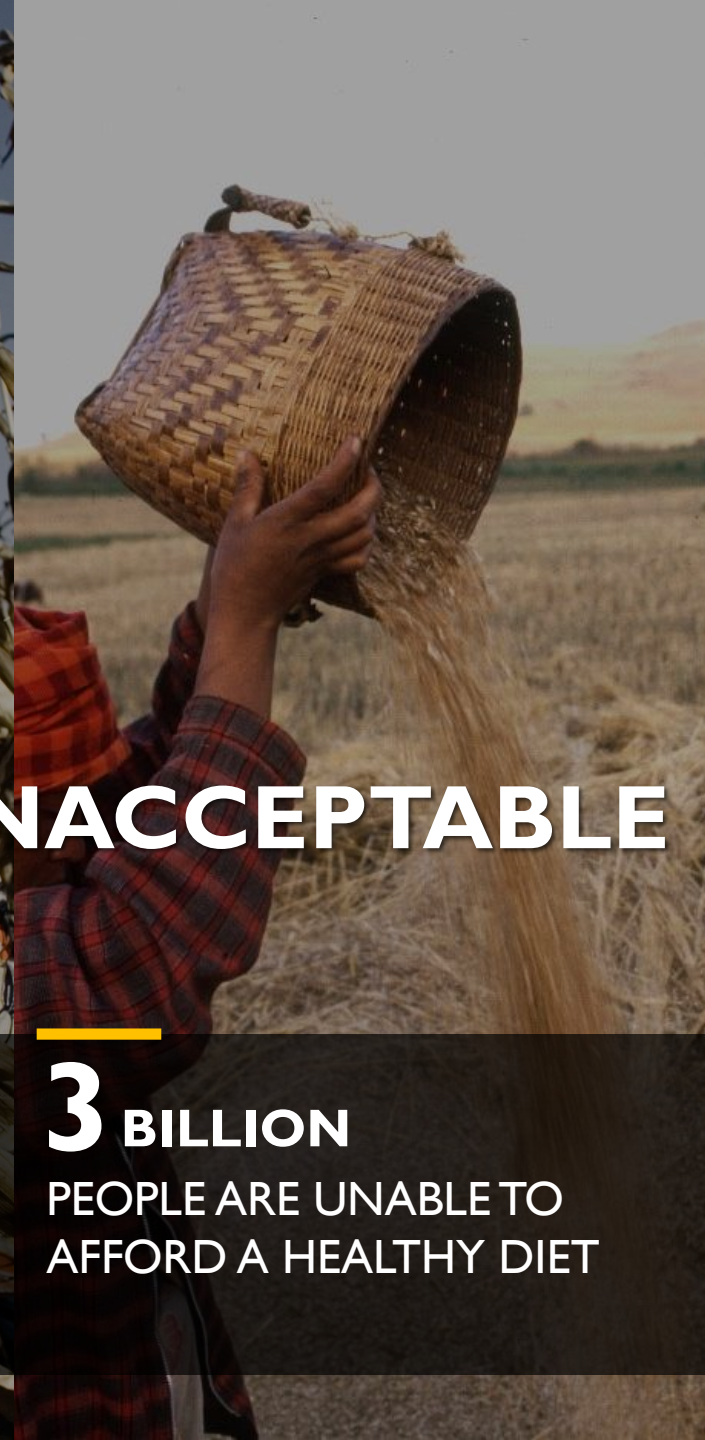
39 MILLION
OVERWEIGHT



THIS IS UNACCEPTABLE

193 MILLION

PEOPLE ARE AFFECTED BY
SEVERE FOOD
INSECURITY



3 BILLION

PEOPLE ARE UNABLE TO
AFFORD A HEALTHY DIET



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We cannot afford to look the other way any longer

DEFORESTATION



OVERFISHING



BIODIVERSITY LOSS



SOIL DEGRADATION



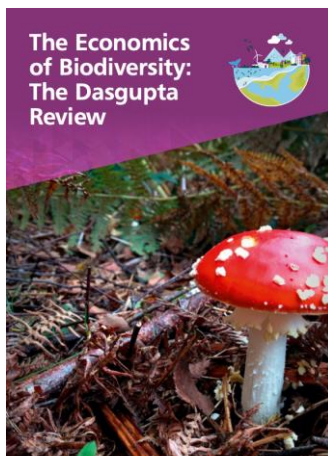
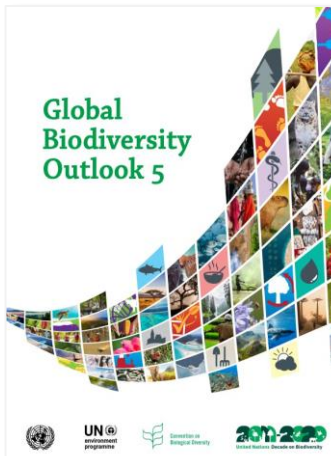
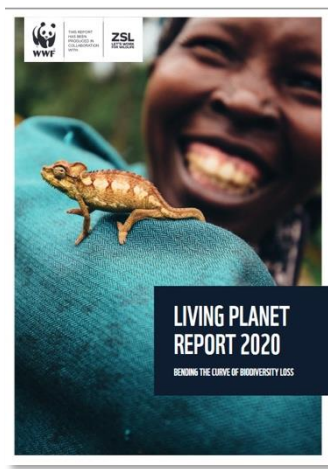
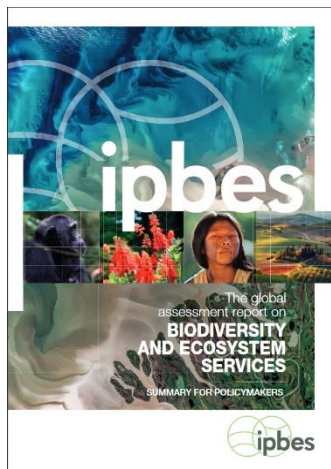
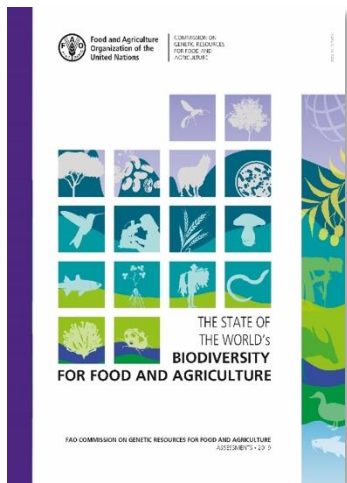
WATER SCARCITY

A high-resolution image of Earth from space, showing the Americas. North America is visible in the upper half, and South America is in the lower half. The oceans are a deep blue, and the continents are green and brown. White clouds are scattered across the globe. The background is a dark, star-filled space.

Our climate is changing



Biodiversity is being lost





Aboveground and belowground biodiversity

An inseparable
interaction

Above-ground
food web

Pollinators



Herbivores



Energy
and matter



Soil organic matter
decomposers

Symbiotic
beneficial
associations

Pathogenic
bacteria

Root feeding

Antagonistic/mutualistic relationships

Energy
and matter

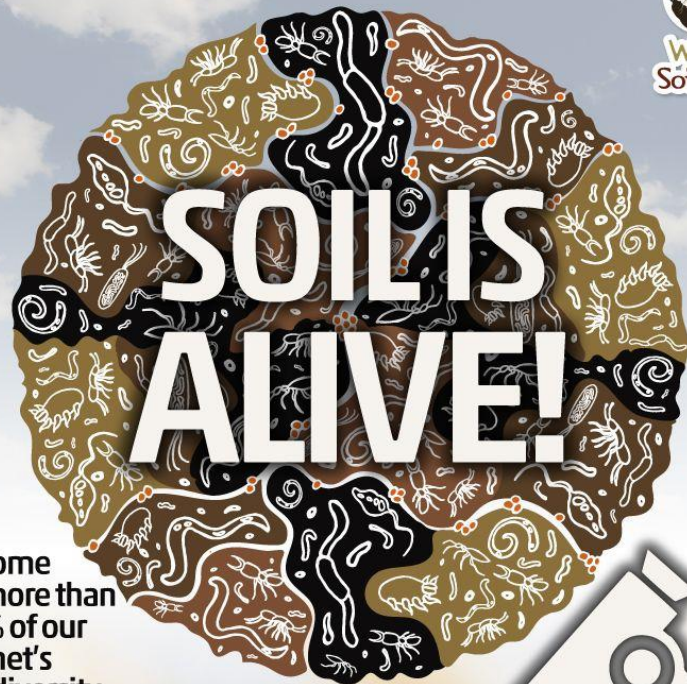


Below-ground food web

Litter
transformers

Saprophagous
macrofauna

Ecosystems
engineers



Soil is home
to more than
25% of our
planet's
biodiversity

25%

Yet,
we know
only 1% of
this universe

1%





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COVID 19 Impacts on Agriculture and Food security

A photograph of a farmer wearing a yellow shirt and a headscarf, working in a field with tall green grass. The farmer is holding a long-handled tool, possibly a hoe or a similar agricultural implement.

Shortages of
labour to produce
food

A close-up photograph of several ripe, red raspberries, showing their characteristic bumpy texture and vibrant color.

Decreased
supply of
perishable
commodities

A photograph of a meat counter in a market. Several trays of raw meat are displayed, with yellow price tags visible. A person is partially visible behind the counter.

Increasing struggle
for farmers to
access markets

A photograph of a white truck carrying a large stack of colorful shipping containers (blue, red, and white) on its flatbed. The truck is parked on a paved surface.

Transport
restrictions blocking
food deliveries



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Science, technology and Innovation: front and centre



UNITED NATIONS
FOOD SYSTEMS
SUMMIT 2021

TOKYO
NUTRITION
FOR GROWTH
SUMMIT 2021
Food, Health, & Prosperity for All



2020 UN BIODIVERSITY CONFERENCE
COP 15 - CP/MOP10-NP/MOP4
Ecological Civilization-Building a Shared Future for All Life on Earth
KUNMING · CHINA





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**Different regions will
need to address
different problems
but all will require the
best of science!**





**An enormous revolution in both
SCIENCE & TECHNOLOGY is moving
at incredible speed....**

A close-up, artistic photograph of a person's face, primarily the nose and cheek area, which is covered in a dense layer of small, multi-colored paint splatters or glitter. The colors are vibrant, including red, orange, yellow, green, and blue, set against a dark background. The person's eyes are visible in the upper left, looking downwards. The overall effect is one of creative expression and digital or scientific visualization.

**Science, technology
and innovation
are impacting
EVERYTHING**



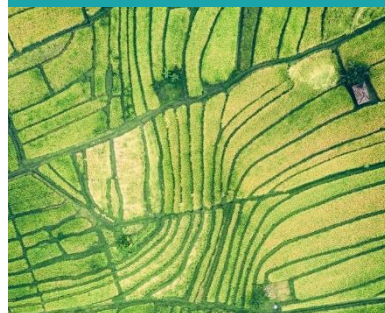
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FAO Strategic Framework 2022-31

Leaving No One Behind through efficient, sustainable, inclusive and resilient agrifood systems



BETTER PRODUCTION



Ensure sustainable consumption and production patterns, through efficient and inclusive food and agriculture supply chains at local, regional and global level



BETTER NUTRITION



End hunger, achieve food security and improved nutrition in all its forms



BETTER ENVIRONMENT



Protect, restore and promote sustainable use of terrestrial and marine ecosystems and combat climate change through MORE efficient, inclusive, resilient and sustainable agri-food systems



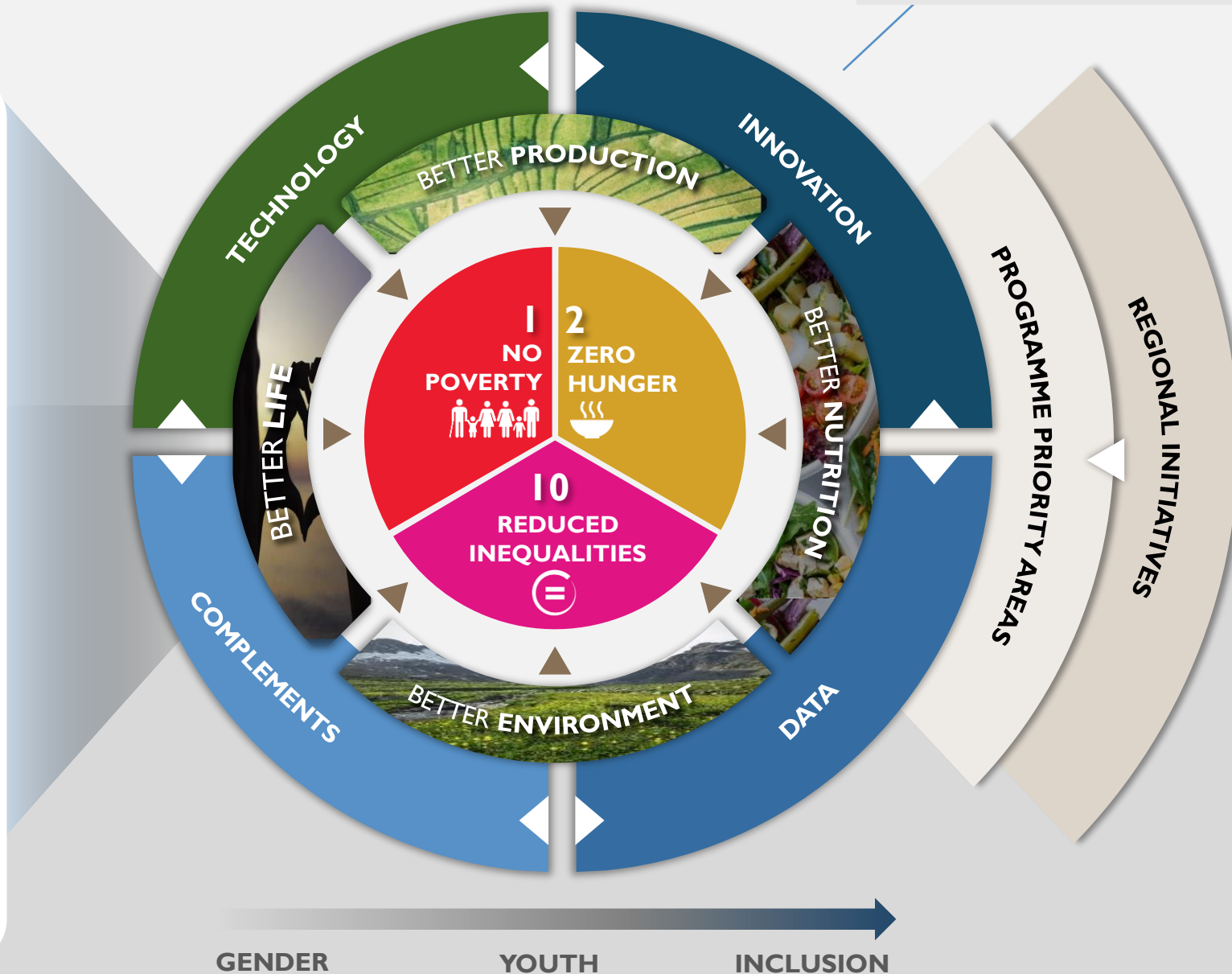
BETTER LIFE

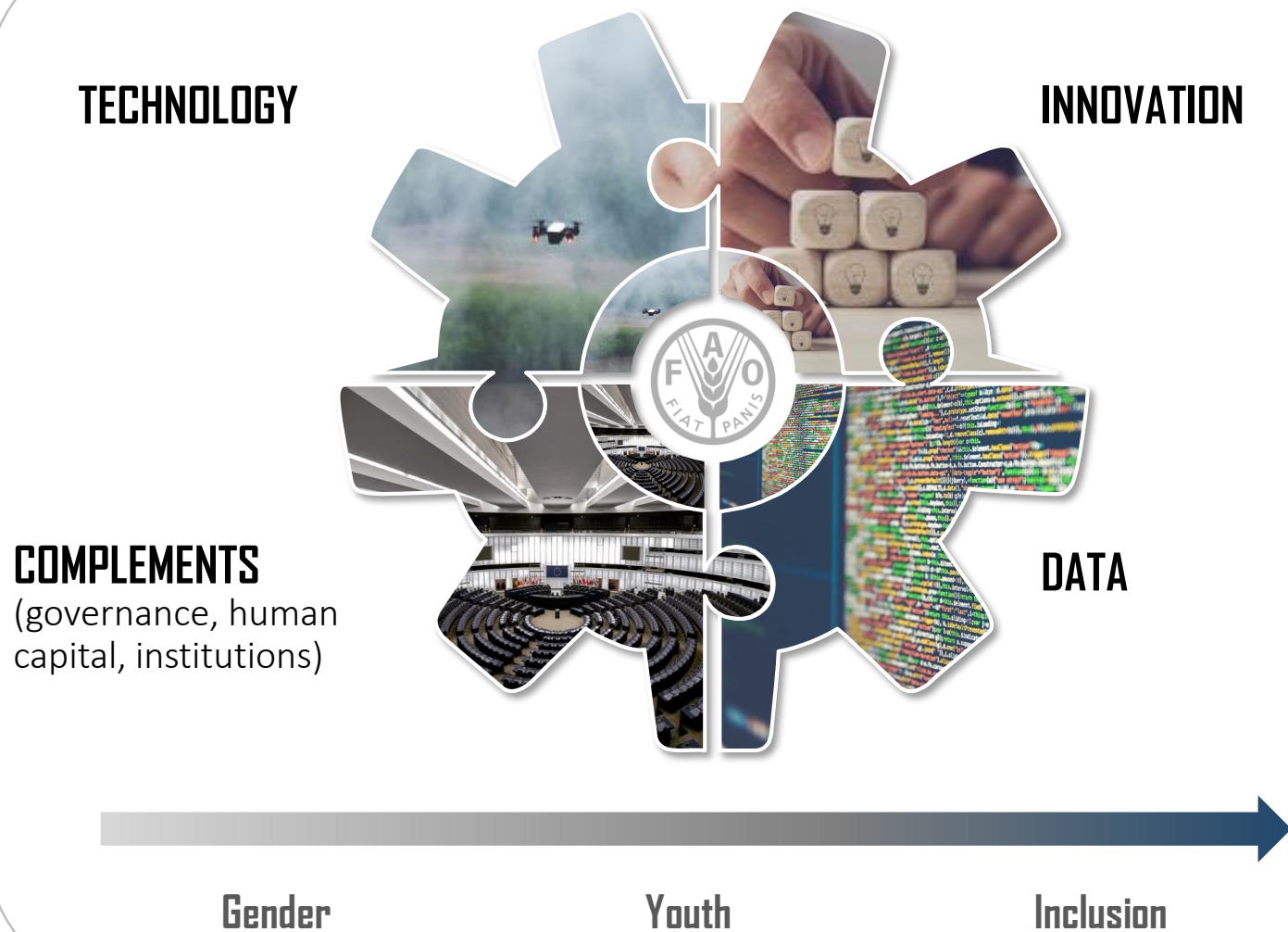


Promote inclusive economic growth by reducing inequalities (urban/rural areas, rich/poor countries, men/women)



science & innovation cut across all key dimensions of the FAO Strategic Framework 2022-31





We know the **accelerators of change...** and cannot transform food systems without them...

...but we need to **understand how and where to use them**



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FAO Science & Innovation Strategy

- strengthens the use of science and innovation in FAO's technical interventions and normative guidance
- serves as a key tool for the implementation of the Strategic Framework 2022-31



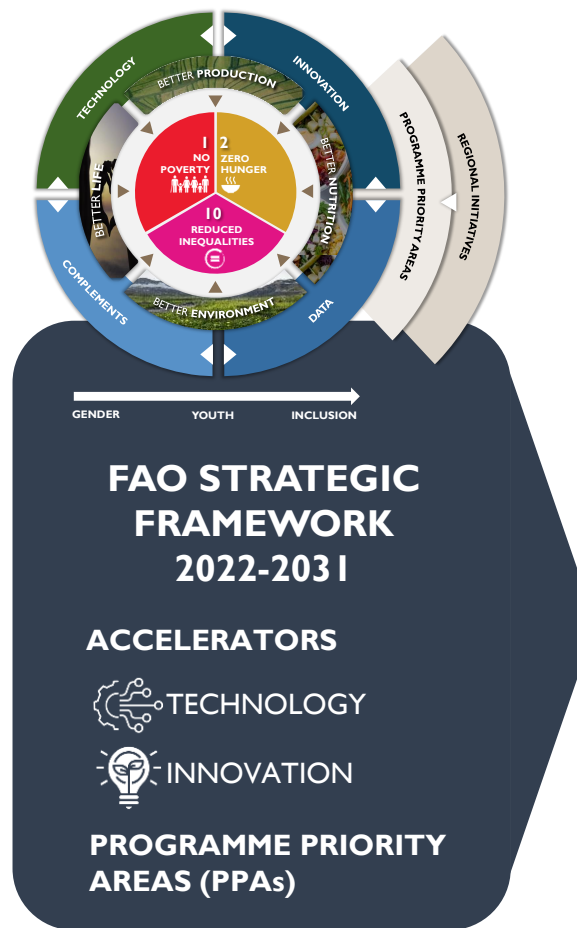


Goal



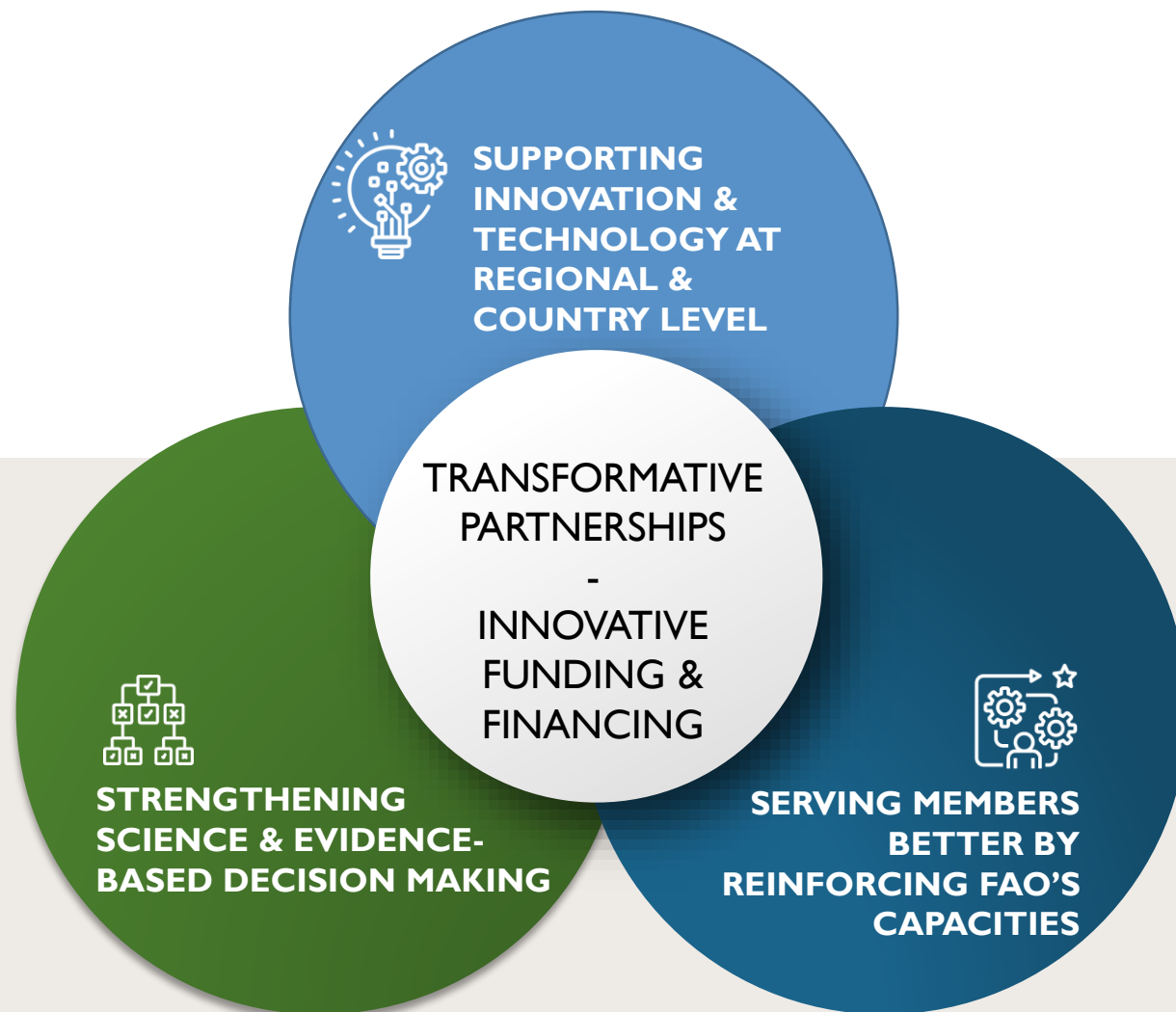
GOAL

Members harness **science and innovation** to realize context-specific and systemic solutions for MORE efficient, inclusive, resilient and sustainable agrifood systems for *better production, better nutrition, a better environment and a better life*, leaving no one behind, in support of the 2030 Agenda for Sustainable Development.






Proposed pillars of the S&I Strategy





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A close-up photograph of a large, shallow, woven basket filled with hundreds of small, silvery fish. A person's hand is visible on the left, reaching into the basket to pick up a small fish. A single, light-colored egg is also visible among the fish. The basket is made of woven bamboo or similar natural material. The background is dark and out of focus.

FAO must play a lead role in engaging in **strategic participatory foresight** to better prepare for alternative plausible futures and feeding it into anticipatory action, as well as in **convening the global community for constructive dialogue and exchange of knowledge.**



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We are undertaking a **study** to look at:

What **breakthroughs** in technologies and innovations are expected in the next 10-30 years that can contribute towards achieving agri-food systems transformation?

What would be the **context-specific impacts** of these disruptive technologies or innovations?

How can foresight enable **identification of synergies and trade-offs?**

What is the **role of foresight** in informing policy makers better anticipate investment needs and guiding future policies, particularly for emerging technologies and innovations?

POLEMIC TOPICS WHERE FAO'S VOICE IS NEEDED

EMERGING BIOTECHNOLOGIES: GENE EDITING

KEY BROAD-RANGE TOPICS



High-tech

- GM
- whole genome sequencing
- gene editing
- synthetic biology

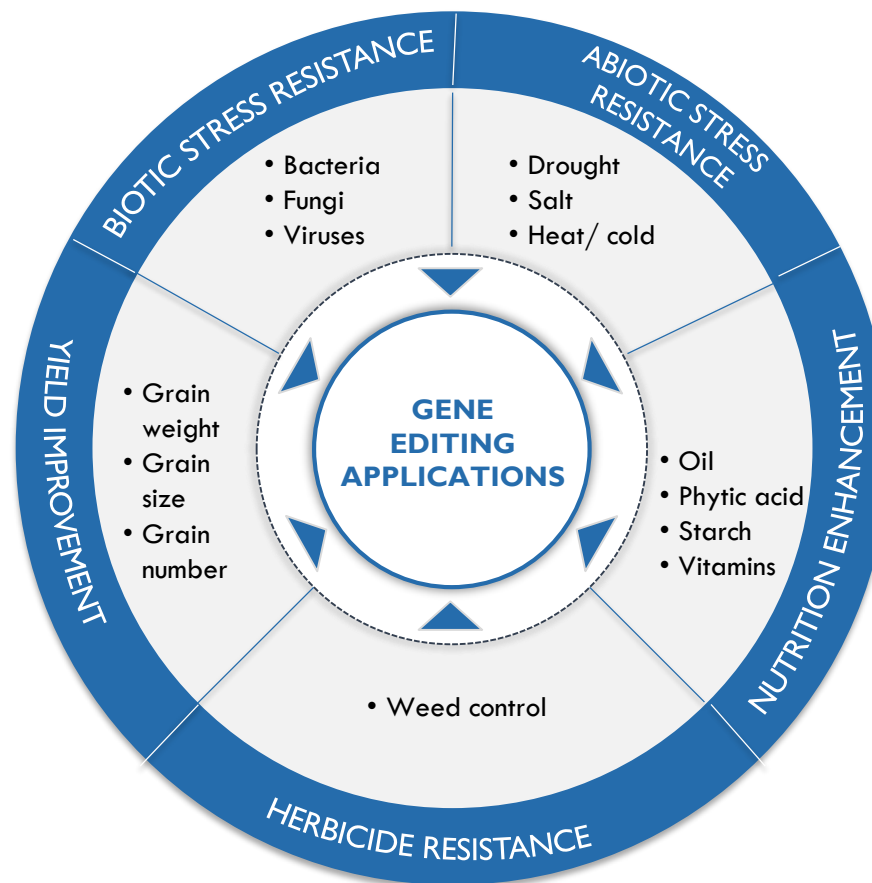


Low-tech

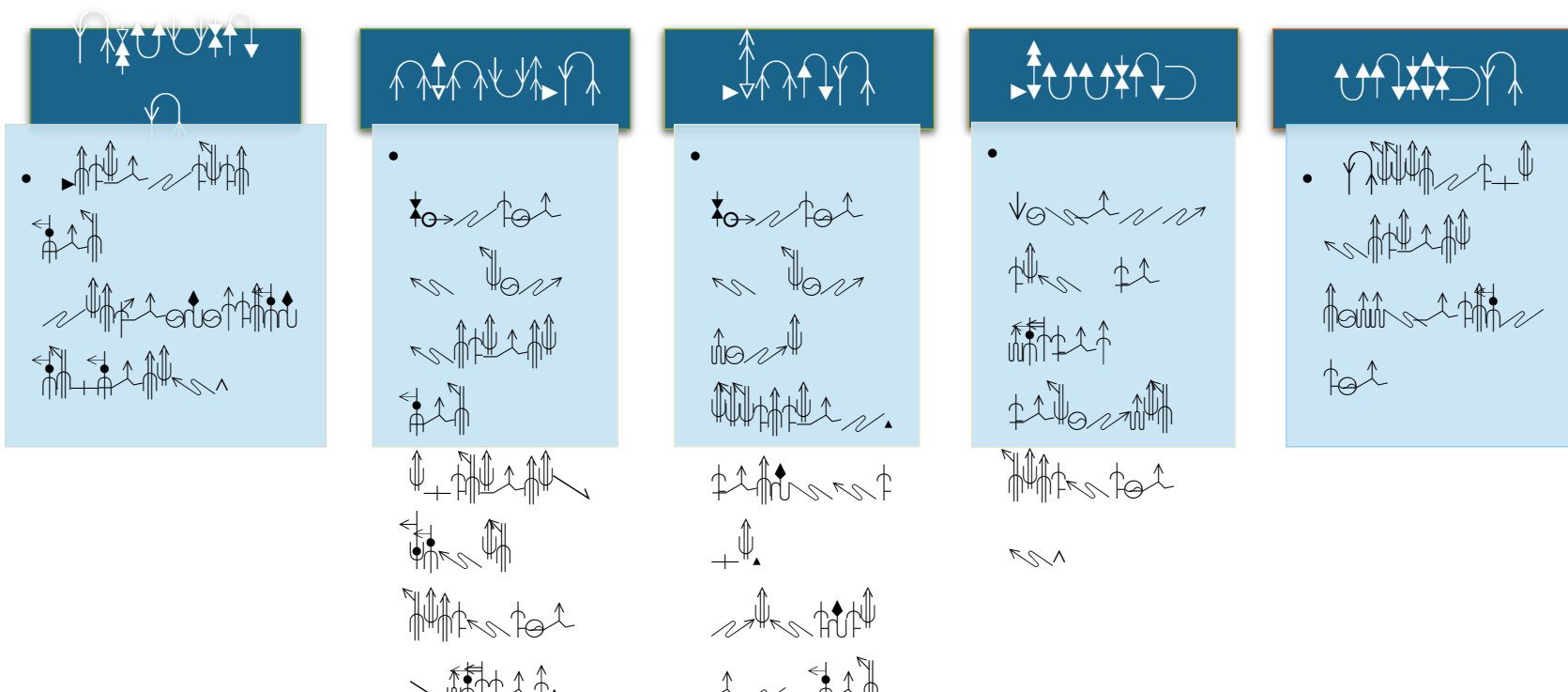
- Artificial insemination
- Fermentation
- Biofertilizers



ISSUE PAPER BEING COMMISSIONED



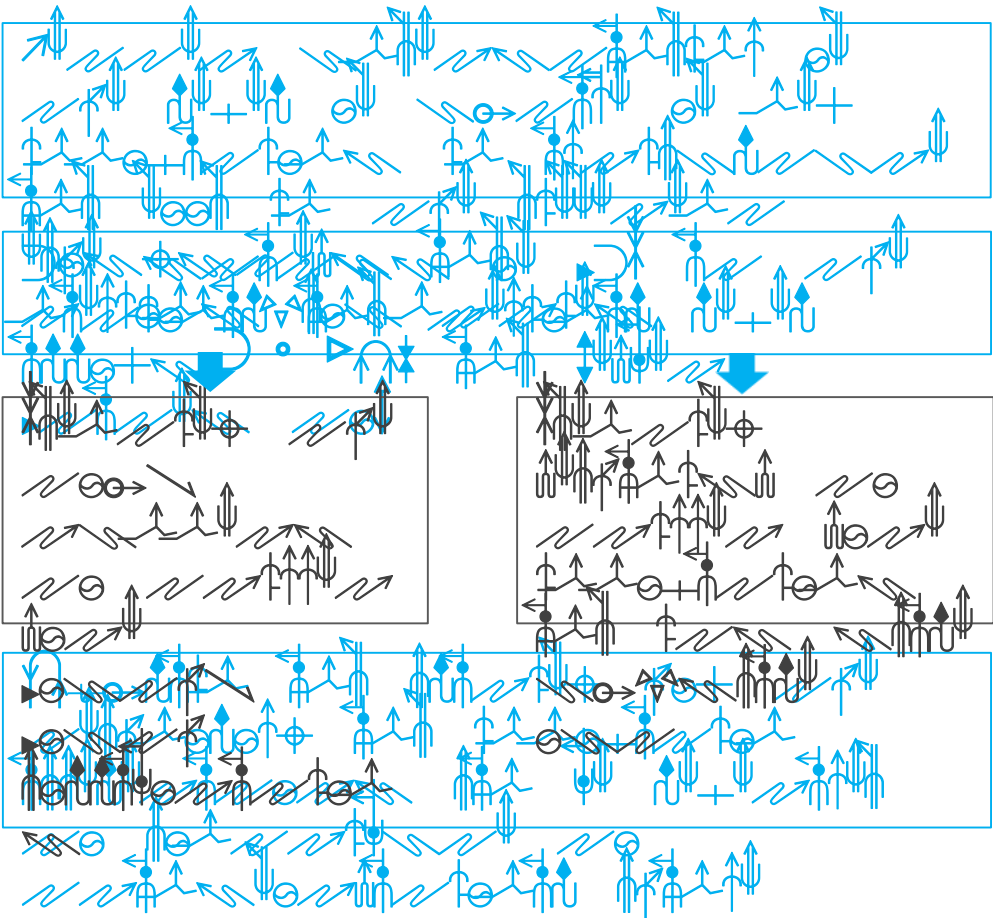
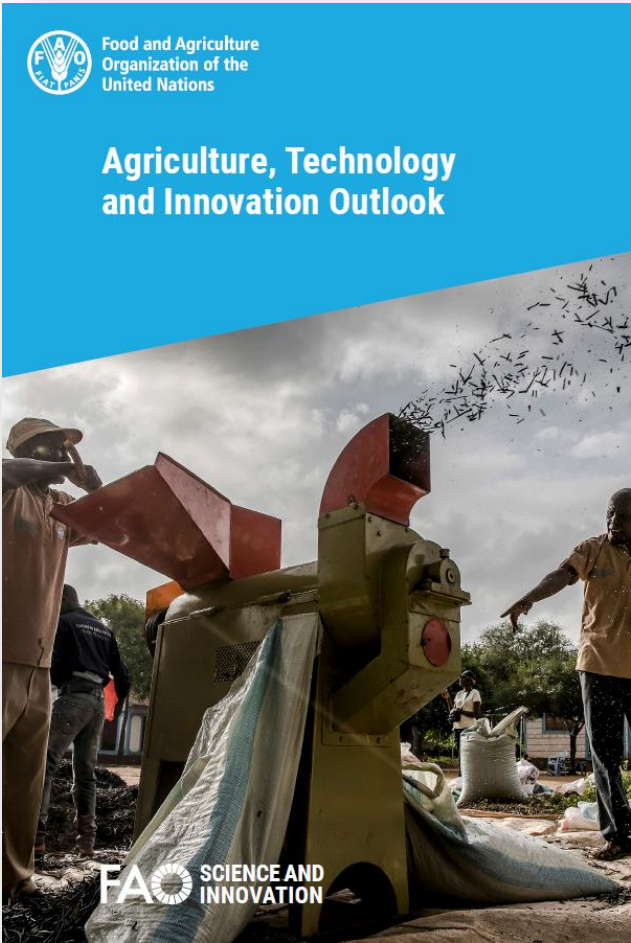
SAVE THE DATE!



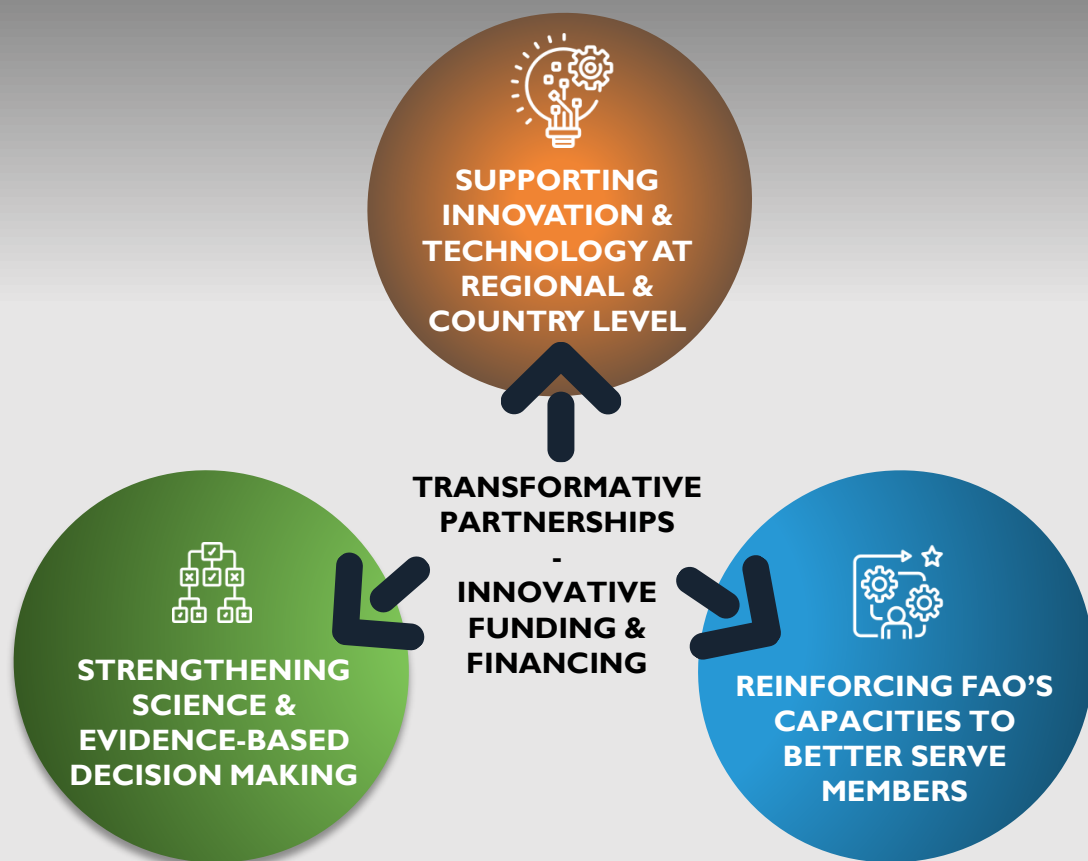


Agrifood Systems, Technology and Innovation Outlook (ATIO)

SCIENCE COMMUNICATION



Transformative Partnerships with Research Institutions and Private Sector





**unless we act strategically
we will not be able to sustain
life in the long run**



Thank you !

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