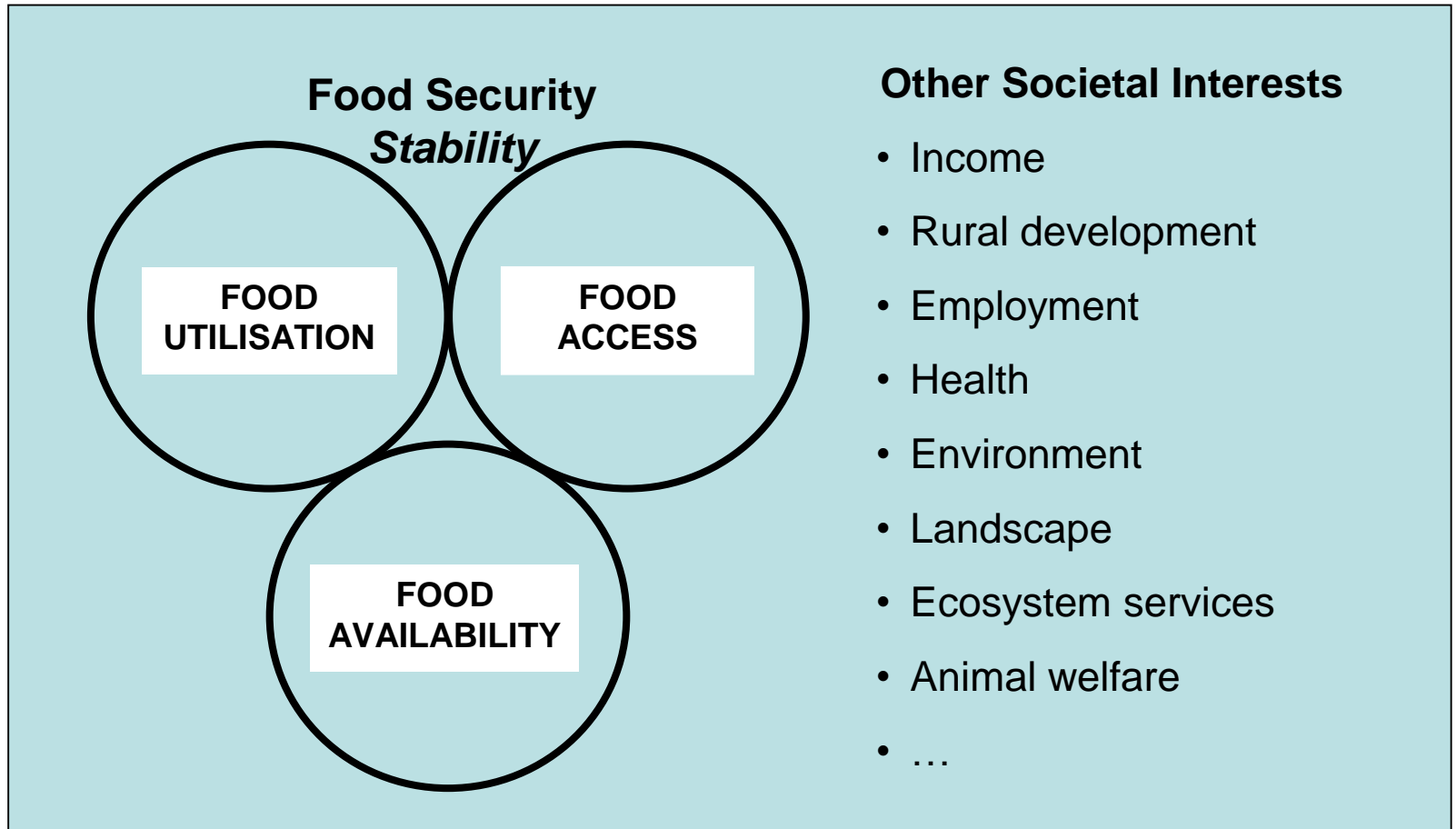


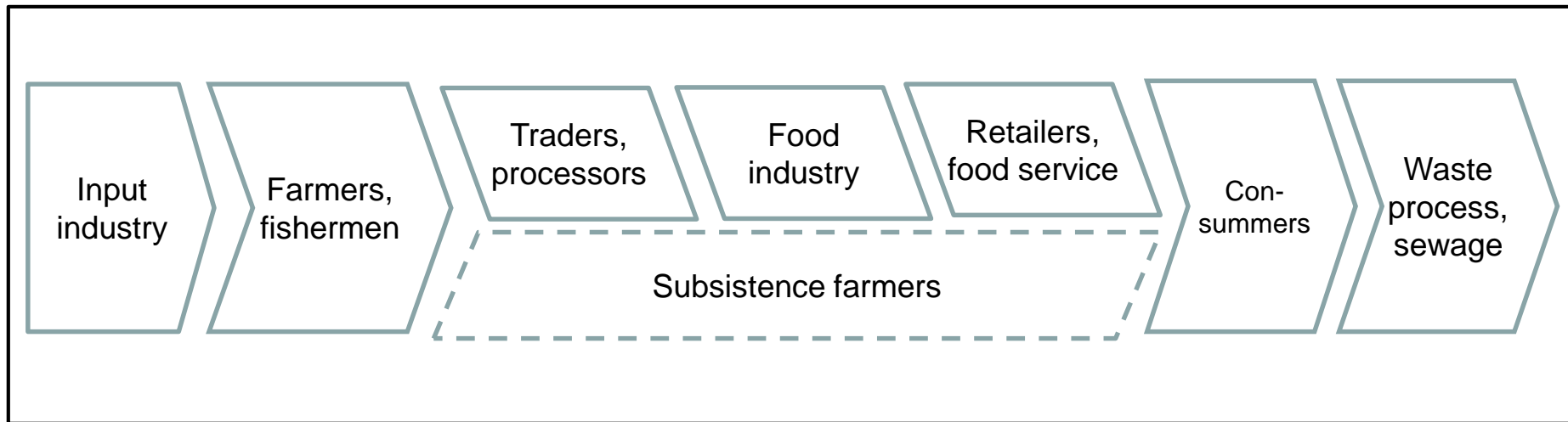
What do we want from Food Systems?



Food Systems include a set of *'Activities'* ...

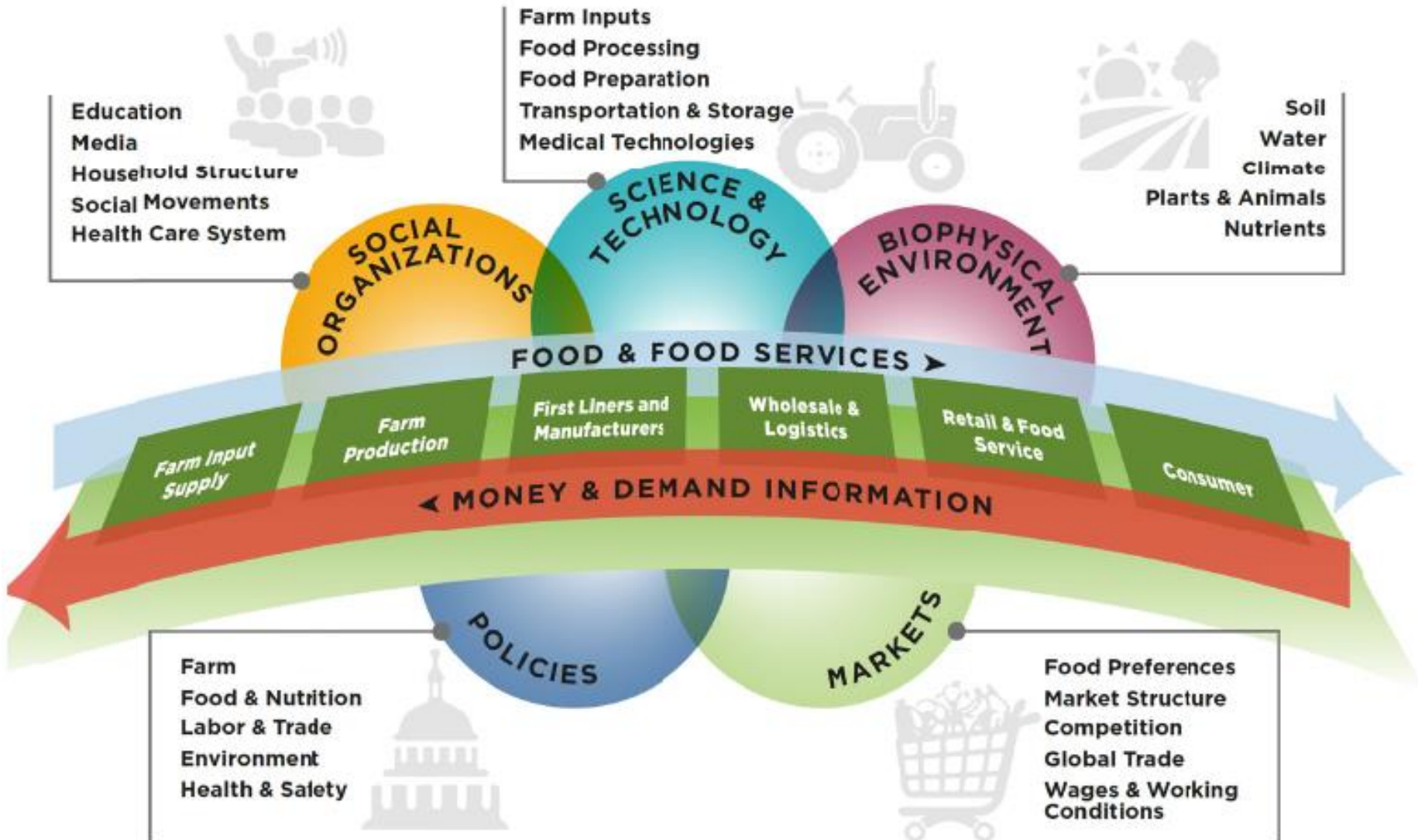


... conducted by a range of 'Actors' ...



... all of whom have a range of incentives
and motives ...

... whose Activities are influenced a range of 'Drivers' ...

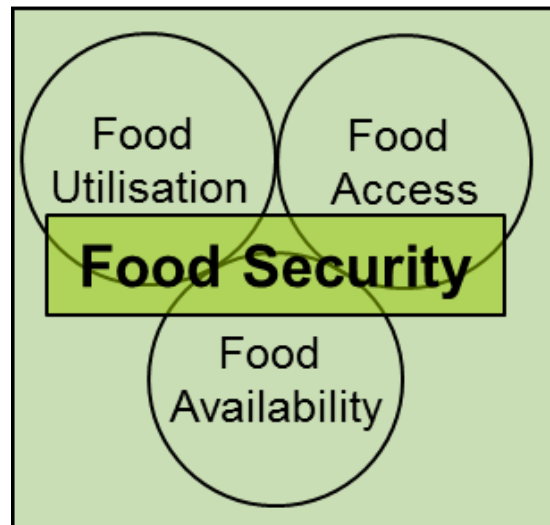


... and which lead to a range of 'Outcomes'.



Socioeconomic Outcomes

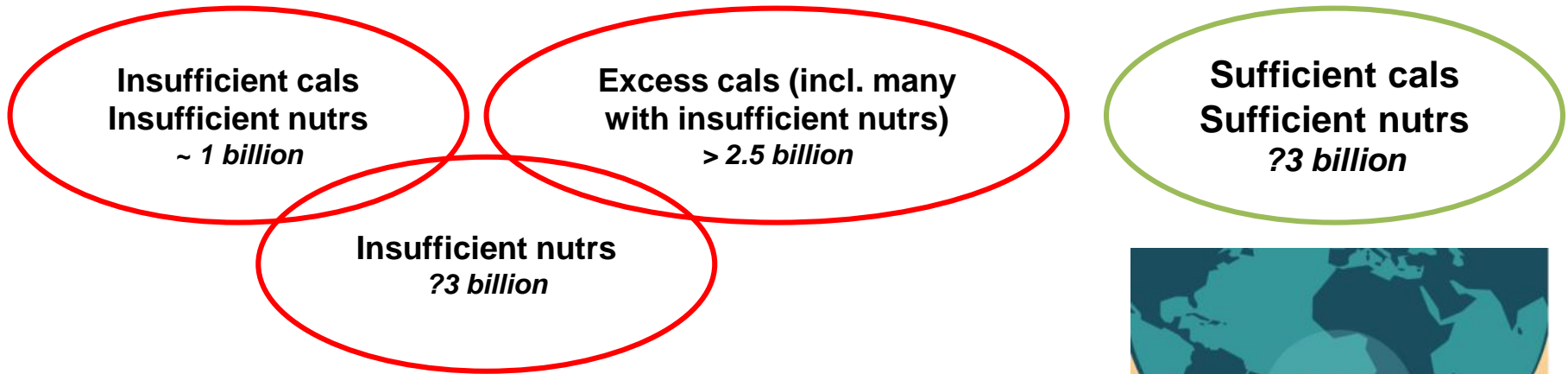
- Income
- Employment
- Profit
- Social capital
- Political capital
- Human capital
- ...



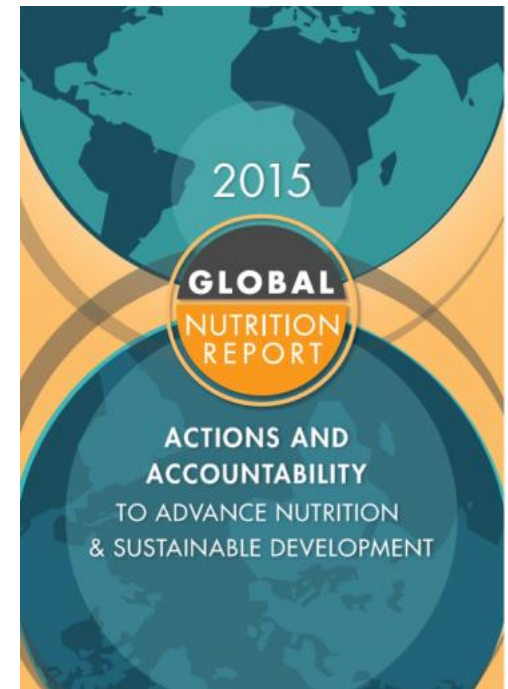
Environmental Outcomes

- Climate change
- Water availability
- Water quality
- Biodiversity
- Biogeochemistry
- Soil degradation
- ...

We know the *current* global food security 'situation'



- **“Triple Burden of Malnutrition”**
Different, overlapping forms of malnutrition the ‘new normal’ (IFPRI 2015)



We know the *current* global environmental 'situation'

- Soil **33% degraded**
- Fresh water **20% aquifers overexploited**
- Biodiversity **60% of loss**
- Marine resources **29% over-fished; 61% fully-fished**
- Fossil fuels **30% of all fossil fuel use**

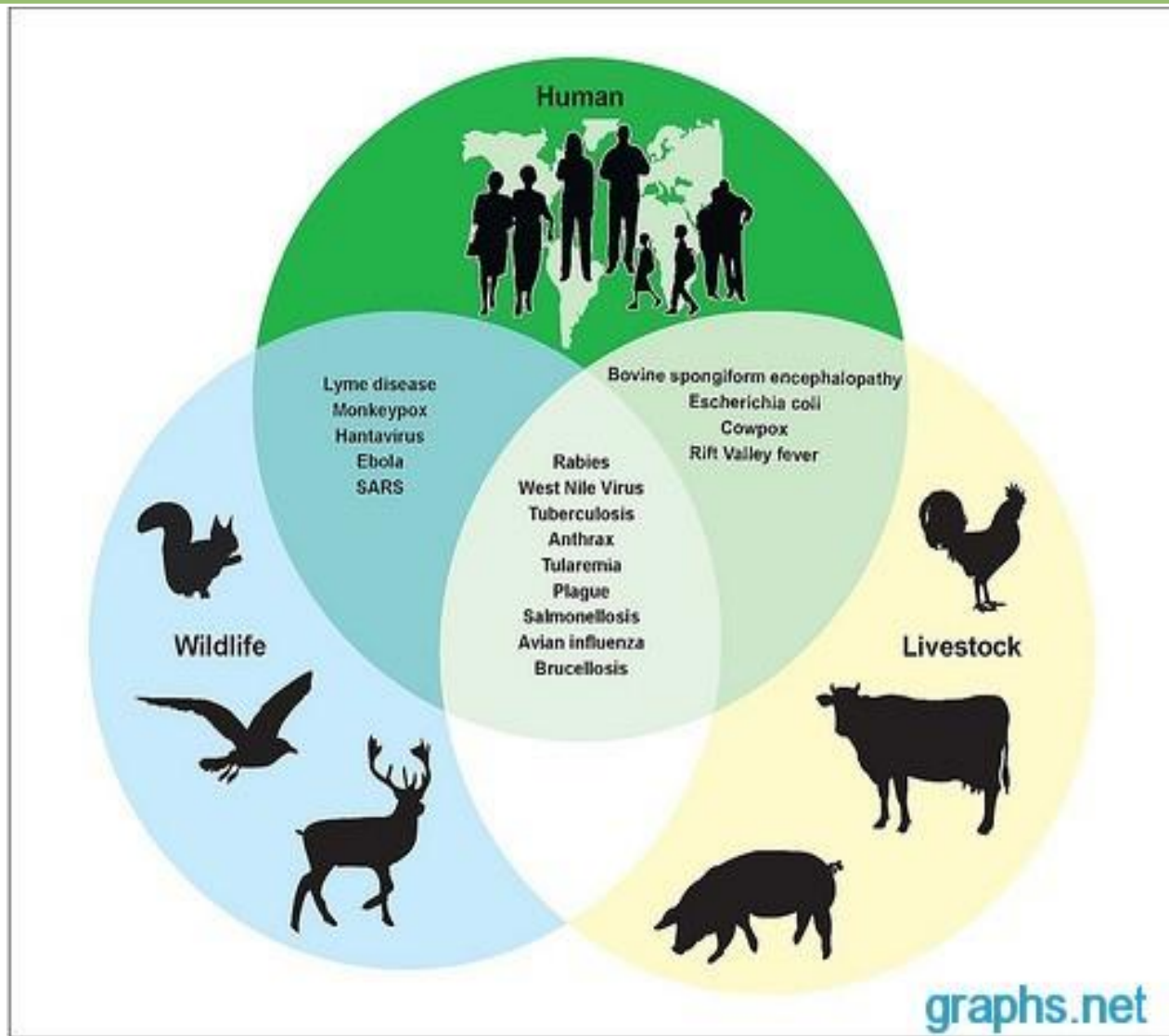
And **24% of total GHG emissions**

And pollution: chemicals, plastics, litter, ...



We know the *current* concerns about animal-human interactions

- Zoonotic disease extent, impact, spread: Global connectivity => greater impact.
- Links between human and animal prophylaxis, e.g. AMR
- Increasing risk of disease emergence with the rapid changes at the A-H interface.



And we know the *current* ethical concerns

- Child labour
- Animal welfare
- Workers rights
- Inter-generational legacy
- Food waste
- Farmer welfare and safety
- ...

Food System Challenges

Achieving food security for a growing, wealthier, urbanising population while minimising further environmental degradation and maintaining vibrant food system livelihoods and enterprises.

against a current background of

- natural resource depletion
and
- many stagnating rural economies
and
- changing climate
and
- social, geopolitical, economic and cultural changes

Food System Stresses and Shocks

Stress <i>pressure or tension exerted on a system</i> <i>[Steam Trains / Weak Signals]</i>	Shock <i>sudden surprising event affecting a system</i> <i>[Black Swans]</i>
Demography	Trade embargoes
Social & cultural norms	
Nat resource degradation	Food scares
Climate	Extreme weather
Geopolitics	
Science & technology	
Automation	Geophysical events
Urbanisation	Conflict

Over what time period?

- **Short-term *interruptions* (usually due to shocks)** to eg:
 - Fishing or agricultural activities
 - Critical ingredient supply
 - Just in time groceries delivery
 - Consumer shopping patterns due to food scares
- **Longer-term *disruptions* (usually due to stresses)** to eg:
 - Natural resource degradation
 - Energy price
 - Low-carbon emission regulations
 - Change in dietary preferences

Why is it so hard to make progress?

- Complex adaptive system, many interactive '**drivers**' and feedbacks
- Set of dynamic **actors** and **activities**
- Trade-offs among socioeconomic and environmental **outcomes**
- Wide range of power and vested interests; fragmented governance

But ...

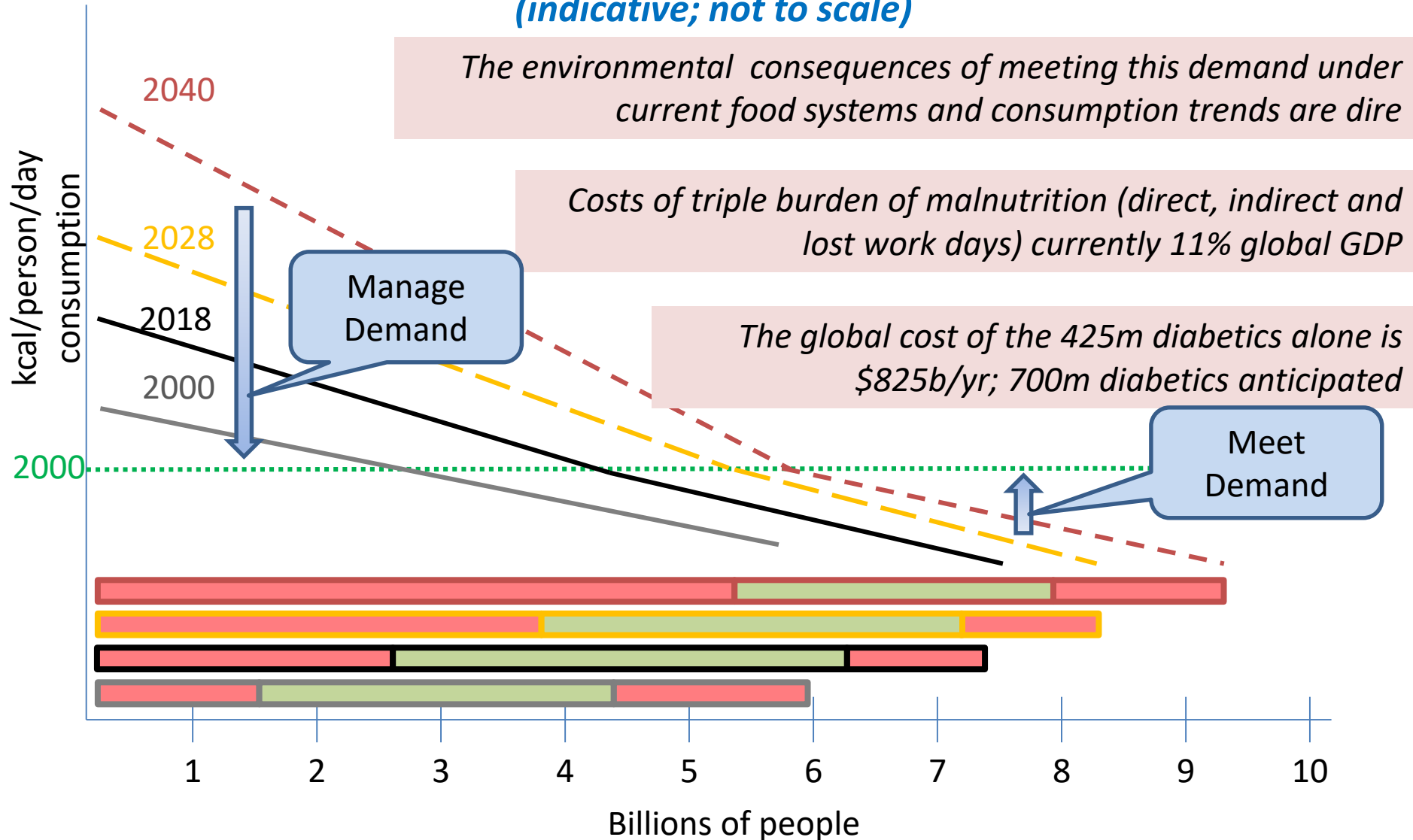
- Many policy, fiscal, social and technical options for change
- Multiple options for cooperation among actors
- Many plausible futures

=> **Needs stronger foresight capacity**

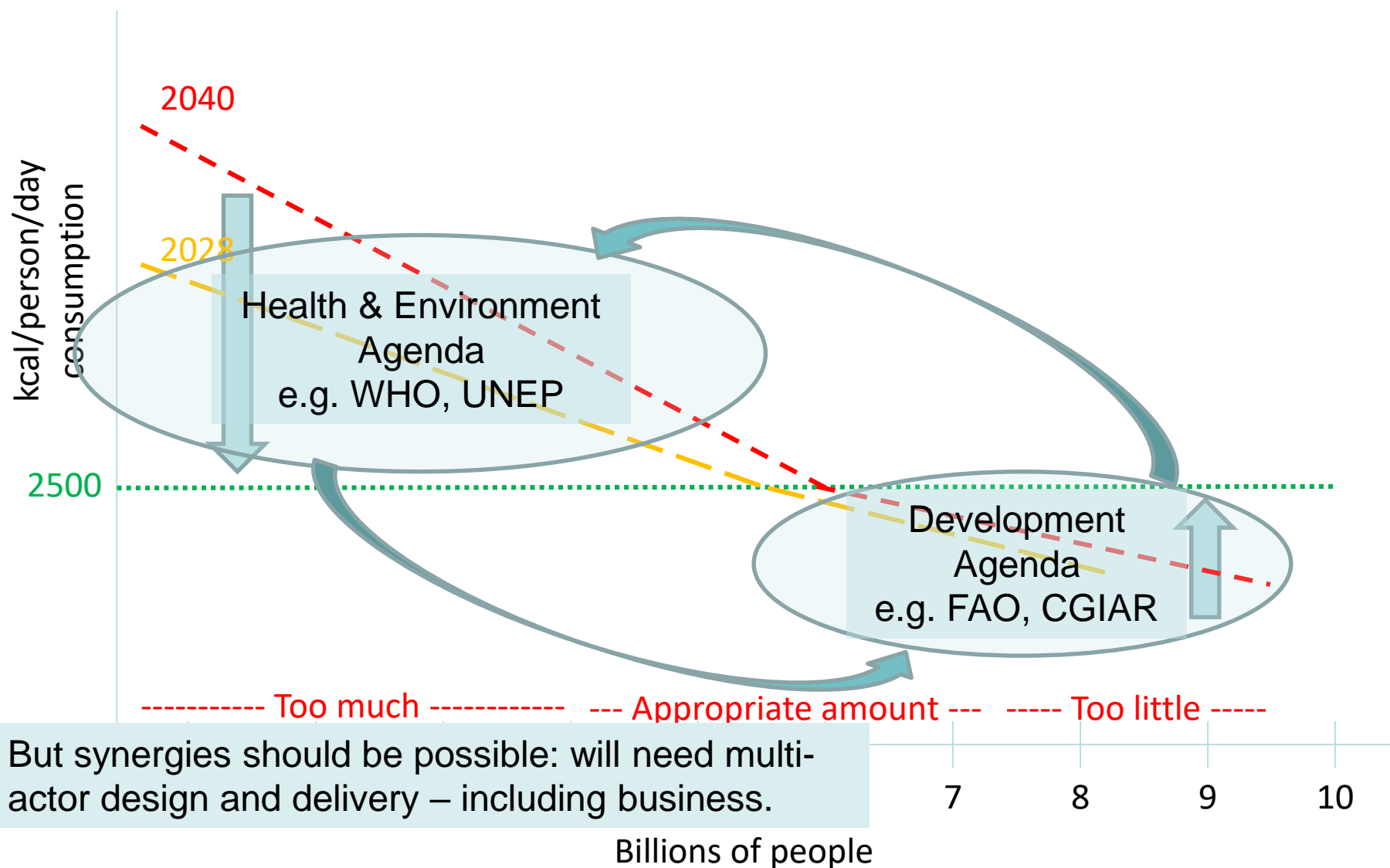
Looking ahead...

Calorie consumption

(indicative; not to scale)



Different motives, different agenda ...



Now – 13:00

- Please get into groups of 3-4 people,
- Walk round the infographics: how do they fit with Food System ‘thinking’? (drivers, actors, activities, outcomes) (10 mins)
- Back to tables: Agree key issues Foresight needs to help address (10 mins)
- Report 2-3/table
- Plenary discussion