

# Tailoring to scale

Macro enablers & micro triggers for inclusive sustainable food systems

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# How to transform the food system for production and consumption within planetary and health boundaries?



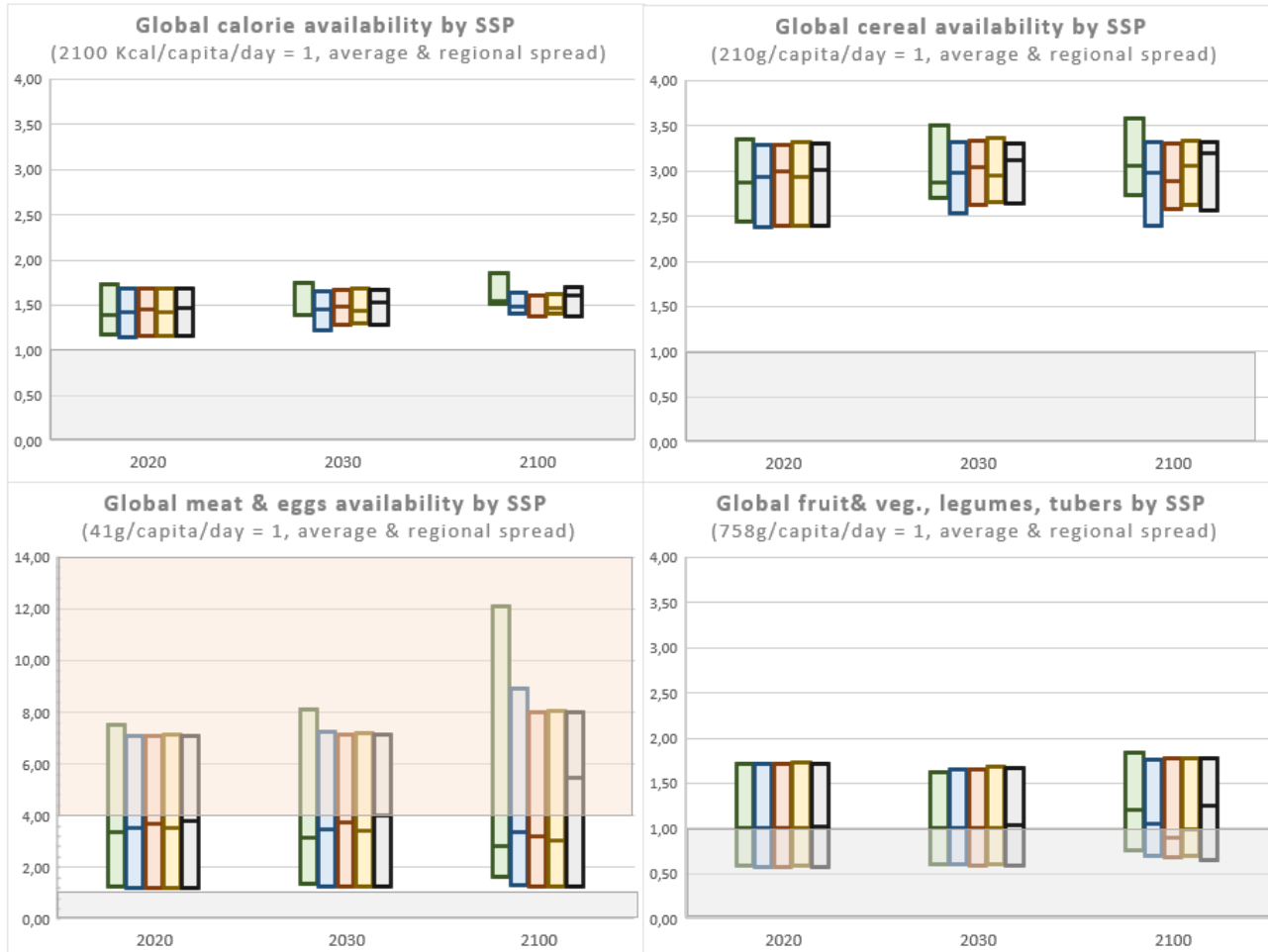
- Food links human wellbeing & environmental sustainability
- Reflect on work by Wageningen Economic Research on food systems from an international (global and non-EU) perspective:
  - Macro (national, regional & global) **enablers & bottlenecks**
  - Micro (farmers, consumer) **triggers for lasting behavioural change**
  - **Outline of policy research agenda** connecting macro & micro insights



# Good food for all? Macro enablers & bottlenecks of global food and nutrition security



# We could feed all, except for fruit & veg



■ Sustainability (SSP1) ■ Middle of the road (SSP2) ■ Regional rivalry (SSP3) ■ Inequality (SSP4) ■ Fossil-fueled development (SSP5)

## ■ Globally enough calories, cereals and meat to provide for all

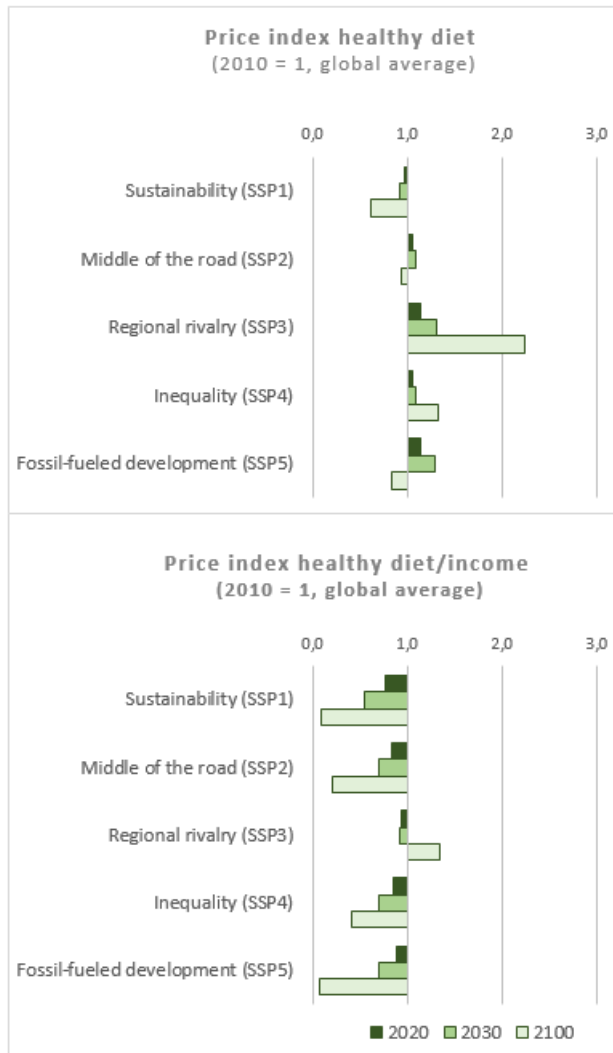
- While considerable spread across regions in SSP1-5 up to 2100, all major regions well above the minimum need (only Asia gets close to 1 for Meat & Eggs in 2100)

## ■ Availability of fruit & veg is concern even in short run and business-as-usual

- Reflects past R&D and other policies to produce staples (cheap calories) & meat
- Similar **concerted effort needed to boost fruit & vegetable production**



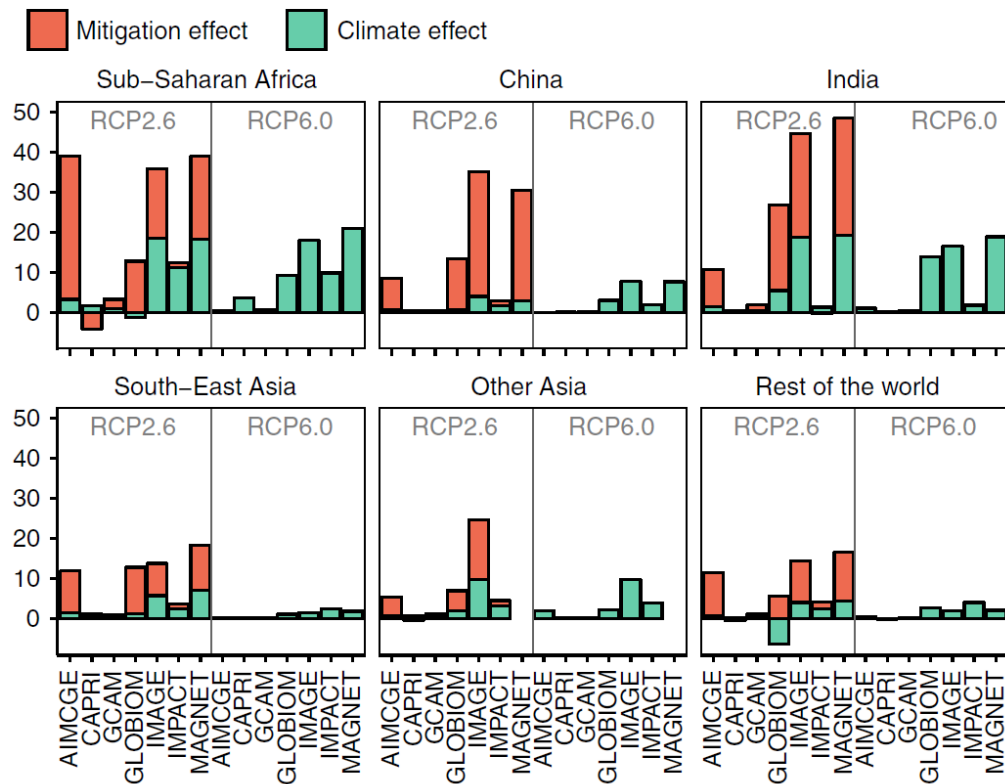
# Prices increase, but income and wages even more



- Concern on prices in many (partial) global projections, but income and low skilled wages outpace cereal and healthy diet costs in all but one SSP (SSP3 – regional rivalry)
- Projections continue current situation of **global availability & affordability....while people increasingly go hungry**
- May lead to **focus on lowering prices** of healthy food, but
  - many can afford a healthy diet, and many more will in future
  - be careful to start new race to the environmental & farming bottom by focussing on prices (or production) only
  - people who cannot afford healthy diet also struggle in other areas
  - reducing poverty creates financial space to respect environment in production
- For a change **inclusiveness and (re)distribution need more than lip service**

# Adding insult to injury - disasters increase inequality

**Change in population at risk of hunger** (millions) in 2050 under business-as-usual scenario (SSP2) with stringent mitigation (RCP2.6) and no mitigation (RCP6.0) ([Hasegawa et al., 2018](#))



- **Mitigation** is needed to keep climate change in check but also **puts more people at risk of hunger** ([Hasegawa et al. 2018](#), [Philippidis et al. 2020](#))

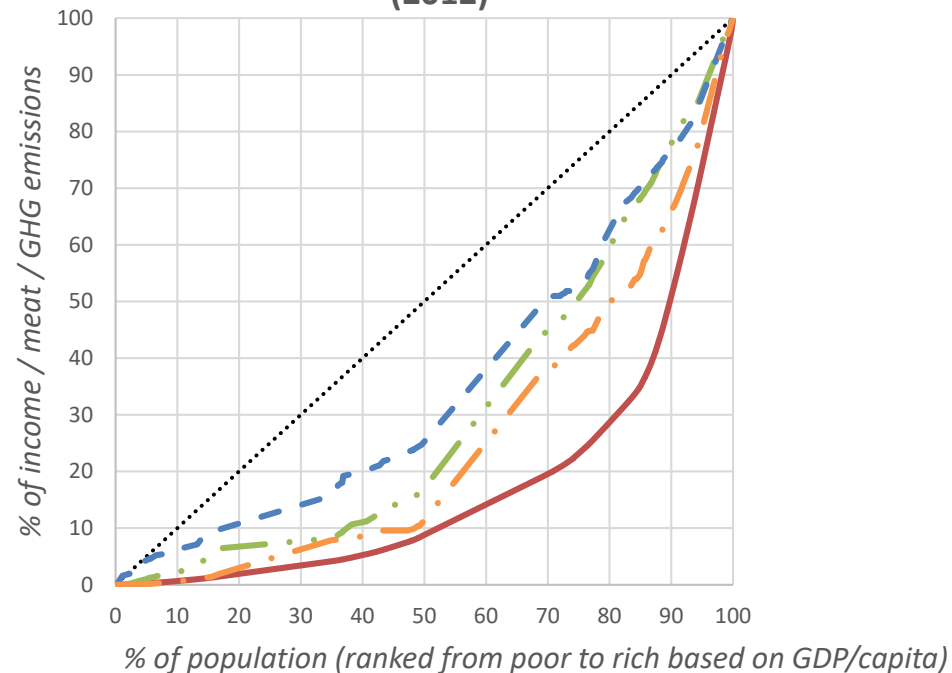
- Including SSA where number of undernourished is already rising fastest
- Mitigation exceeds climate effect

- Most **vulnerable regions hit hard by (global) COVID-19 policy measures**

- Shock is through income not availability (local lock-downs & global ripple in demand like garments)
- Stresses need for assuring sufficient purchasing power for all

# Core challenge = **behavioural change at scale** – how to overcome loss aversion for a lasting global change?

Global distribution of income, meat and GHG emissions  
(2012)



..... Equal distribution  
—•— Meat consumption (FAO FBS)  
—•— GHG consumption (Oxfam)  
— Income (WDI)  
—•— GHG production (WDI)

- Models plot a starry sky full of better global futures, but these require changes by all
- Continuing the fight against poverty and increasing inclusiveness is not enough
- We also need to change behaviour of the privileged
  - Literature on scope for changing diets with prices or information/nudging not encouraging (Lahtka et al, forthcoming)
- How to achieve behavioural change at scale, with influential groups giving up privileges, with often a 4-year policy-making horizon?



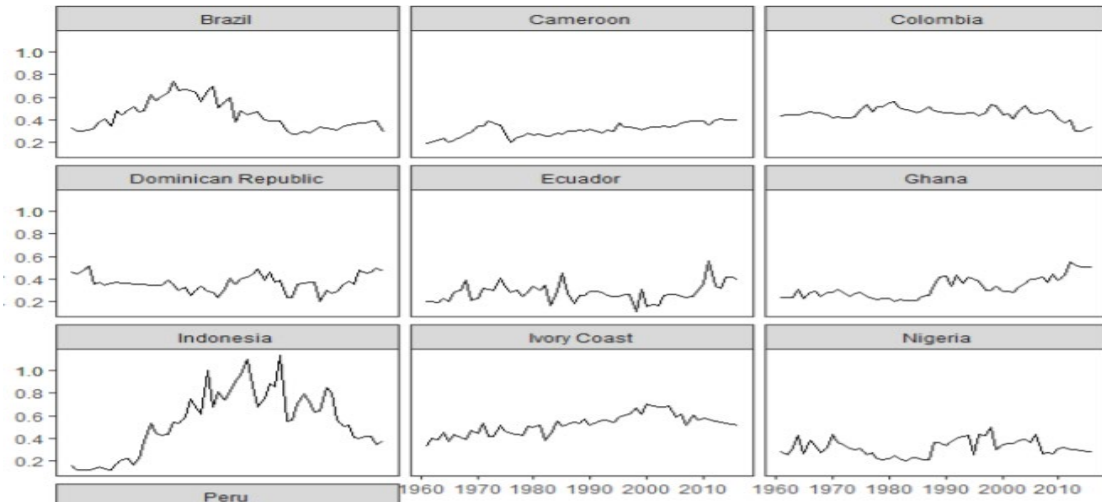
# Micro level incentives for behaviour change





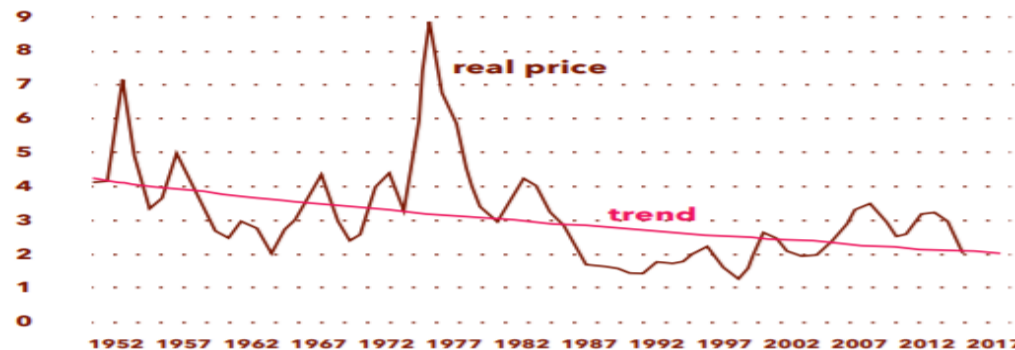
# Non-adoption - many interventions in the tropical commodities sector fail to trigger lasting change

Cocoa yields (ton/ha, 1960-2015)



Source: [Kozicka et al. \(2018\)](#)

Real cocoa price (2015, '000 US \$/ton)



Source: [Cocoa Barometer 2018](#)

- 50 years of interventions in the tropical commodities value chains failed to lift farmers out of poverty and prevent deforestation ([Waarts et al. 2019](#))
- Cocoa productivity did not increase since 1960, while real prices have been decreasing steadily.
- Many farmers do not adopt new farm management practices, or adopt a sub-optimal bundle of practices.
- Even after initially adopting new practices farmers may dis-adopt after a period of time.



Production (behaviour) research tends to focus on **contextual factors** (farm land size, infrastructure, labour market, environment)

# Sometimes you only need to ask – unexpected willingness to pay for healthier but pricier street food



*Additional green leafy vegetables in existing street foods in Lagos, Nigeria*

aim: healthier diets for urban consumers  
intervention:

- aug-sep 2020, vendors N=12
- option to add vegetables to street food meals, with a (profitable) price increase
- health benefits communicated by flyer

results:

- 46% purchased the additional vegetables
- vendors want to continue after intervention

Source: ongoing research in a A4NH project  
(contact: [ireen.raaijmakers@wur.nl](mailto:ireen.raaijmakers@wur.nl))

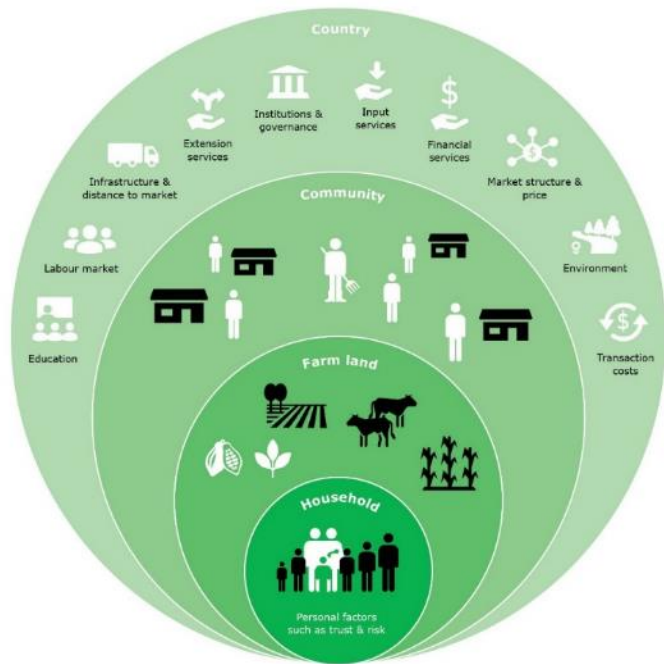
- Experiments can challenge preconceptions .....of researchers & participants
- Careful design needed
  - Localized experiment – add on to existing dish
  - Freedom of choice vendor – match own clients
  - Information on healthiness to trigger knowledge & justify price increase
- 10-25% price increase was accepted despite low income client base & during COVID-19 crisis



Consumption behaviour research tends to focus on **personal factors** (culture, taste, aspirations)



# Balance context & personal factors tends to flip depending on research angle (producer or consumer)



**Production:** focus on **contextual factors** in determining producer behaviour – *generic profit (or output maximization) drive assumption*



**Consumption:** focus on **personal factors** in determining consumer behavior – individual aspirations, culture etc. (*price only one of many personal drivers*)

# Dropping the blinders creates new perspectives for interventions – some examples

**Consumers may be producers** resulting in interlinked decision making.

*Burundi – eggs currently not seen as an option for poor by households (context) so not produced (not even for themselves) despite nutritional benefits*

**Avoid the context** as meal patterns are hard to change, add new healthy eating moments

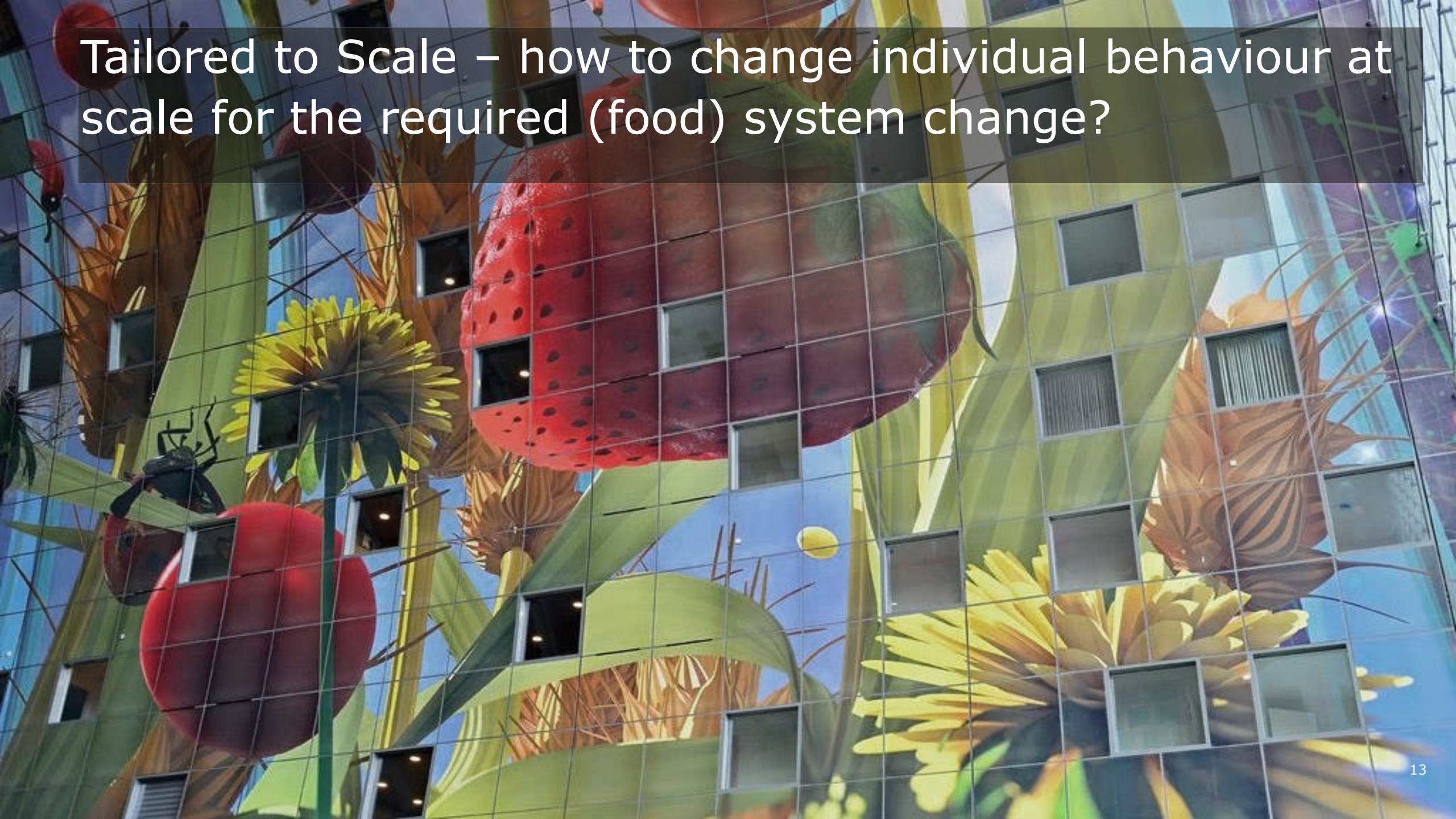
*Not easy to increase fruit & vegetables during regular meals (context of existing recipes/habits), easier to add new fruit & vegetable snack moments in between meals*

**Use aspirational goods to stimulate production** – consumption incentives can stimulate adoption of profitable production activities

*Opening a dancing to stimulate adoption of new production methods (providing the income for a new night out)*



Tailored to Scale – how to change individual behaviour at scale for the required (food) system change?



# Tailored to scale - one size does not fit all

*To be continued...*

- **Quantify trade-offs** among objectives (SDGs, Paris) for coherent policy design
- **Capture heterogeneities** among actors in terms of capabilities, opportunities and motivations to address scope for interventions as well distributional impacts
- **Experiment** to explore interventions & impact pathways (living labs) and get involved in research-implementation partnerships
- **Connect disciplines and scales** to build a track record on multidisciplinary and multi-scale analyses for policy/intervention design

*To be added ...*

**Taking transformations serious** within a food system perspective as people stand to lose something with either long run or no personal gains in return

- asks for creativity in designing interventions for the long run or common good to work around loss aversion
- while acknowledging political realities (incl. distribution effects, power asymmetries, short political horizon, limited global governance)
- and the need to make a food system change at scale in the short run

Not as a standalone exercise but **as integral part of both macro and micro studies**



Thanks Ruerd, for the never-ending ideas and energy to make a difference!



Waiting for the train, Jiangxi, 1997