

Metrics, models and foresight for sustainable food and nutrition security in Europe

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1st Stakeholder Core Group Workshop, Prague, 30 October 2015

EU Sustainable food & nutrition security – a policy view on food system

20-75% of cancers
is attributable to diet

(WCRF, 1997)

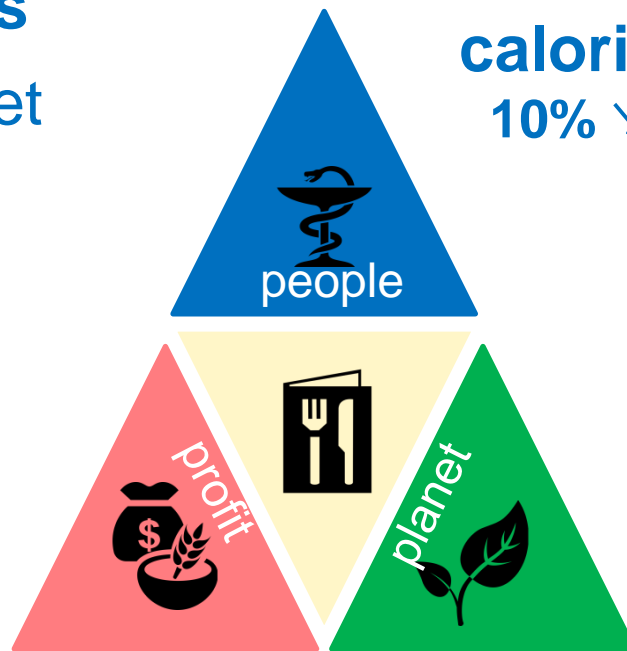
Growth & jobs

In EU MS farms,
fishing & food/bev
industries contribute

5-15% of GDP;

1-30% of jobs

(Eurostat 2015)



**Burden of disease;
calorie deficiency (in NMS)**

10% ↓ fruits & vegetables, ↑salts
8% underweight (children)

(Lim, 2010)

5-7% of people in NMS
undernourished

(IFPRI, 2014; Cockx et al. 2015)

**CC, resource eff.,
biofuel, food losses**

15-28% of total
GHGe is attributable to
food consumption

(Garnett, 2011)

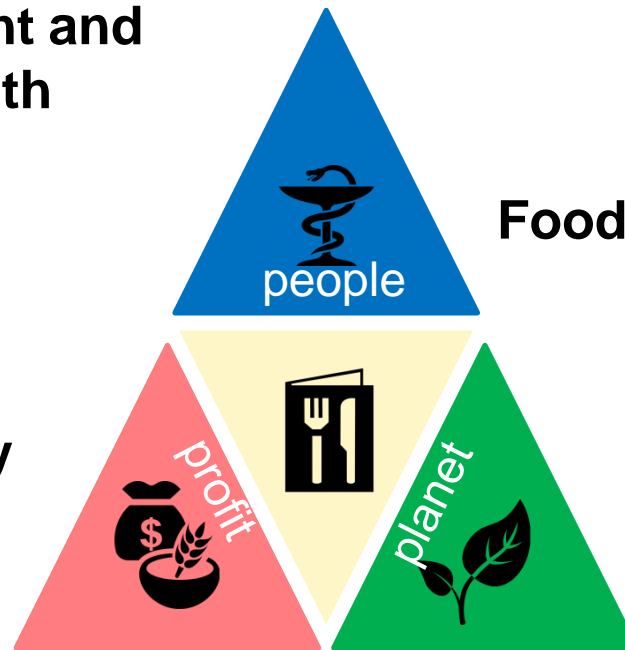
EU Sustainable food & nutrition security – a policy view on food system

Nutrition, overweight and obesity-related health
(COM (2007) 279)

Food losses and waste

Common Agricultural Policy
(COM (2010) 672)

Resource efficiency
(COM (2011) 571)



Circular economy
(COM (2014) 398)

Arguing for European diets to become more environmentally and economically sustainable, and more healthy and nutritious

Sustainable food and nutrition security in Europe – what does it entail?

- ✓ Dietary adequacy and health
- ✓ Affordability
- ✓ Cultural diversity
- ✓ Trust
- ✓ Food safety
- ✓ Environmental sustainability
- ✓ Economic viability
- ✓ Community resilience
- ✓ Resilience to shock and threat

EU food and nutrition security

World Food Summit, 1996

+

Sustainable EU food system

Contributing to health

Environmentally sound

Viable enterprise

Global food and nutrition security



Starting points

- Strengthening **EU food and nutrition security** requires more sustainable food consumption and production
- Impact of **consumer choice & diets** on society
←→decisions along entire food value chain
- **Innovation and policy** reform drive societal change
- Need analytical **tools** to inform debate



SUSFANS research objective

- «To build the conceptual framework, the evidence base and analytical tools
- for underpinning EU-wide food policies with respect to their impact on consumer diets
- and their implications for nutrition and public health in the EU, the environment, the competitiveness of the EU agri-food sectors, and global food and nutrition security»



SUSFANS Research Consortium (2015-2019)



WAGENINGENUR
For quality of life



INRA
SCIENCE & IMPACT



ILR



International Institute for
Applied Systems Analysis

Danmarks
Tekniske Universitet



ILSI
Europe



anses
agence nationale de sécurité sanitaire
alimentation, environnement, travail



JRC
EUROPEAN COMMISSION



National
Taiwan
University



Established under H2020-SFS-19A (Societal challenge 2)



INITIATIVE, MOBILITY AND PARTNERSHIP FOR
SUSTAINABLE GROWTH, EMPLOYMENT AND
INCLUSIVE SOCIETY - SOCIUS
H2020-SFS-19A
Grant #101015720
to the consortium SUSFANS
since 2015 to 2019



SUSFANS overview

- ✓ Pillar 1: Tools for assessing and monitoring the state and drivers of sustainable FNS

- ✓ Pillar 2: Models for counterfactuals, projections of drivers, future FNS
 - ✓ How can EU food system support “SHARP” EU diets?

- ✓ Pillar 3: Foresight and policy support
 - ✓ Baseline 2030-50, policy reform, producer innovation
 - ✓ Case studies on innovations to proof methods
 - ✓ Underpinning policy reform

Pillar 1 Assessing Sustainable Food and Nutrition Security

**Defining metrics:
concept, data,
indicators**

**Understanding the
drivers in dietary
change:**

- Consumers
- Actors in supply chain including trade and retail
- Primary agriculture and fisheries

Stakeholder engagement

**Foresight &
pathways for
change**

**Case studies on
the impact of
innovations in:**

- Intake of vitamin from fruit and vegetables
- Supply of livestock-fish protein

Pillar 2 Modelling Sustainable Food and Nutrition Security

Toolbox:

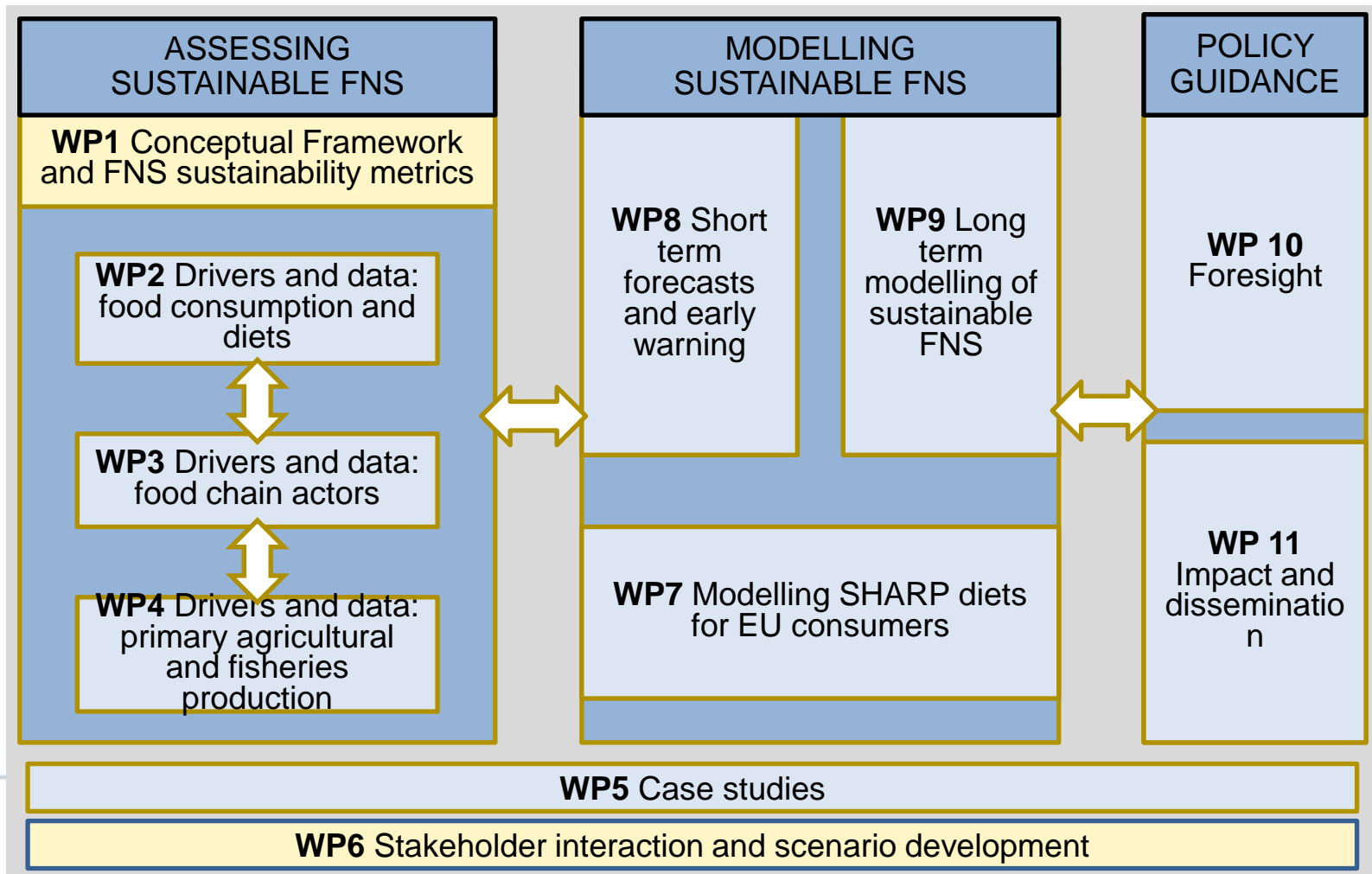
- Nutrition optimization
- Global markets, economy-wide
- Agricultural demand and supply (incl spatial)
- Crop, livestock, fishery
- Natural resource & Climate change

**Consumer, health,
nutrition policy**

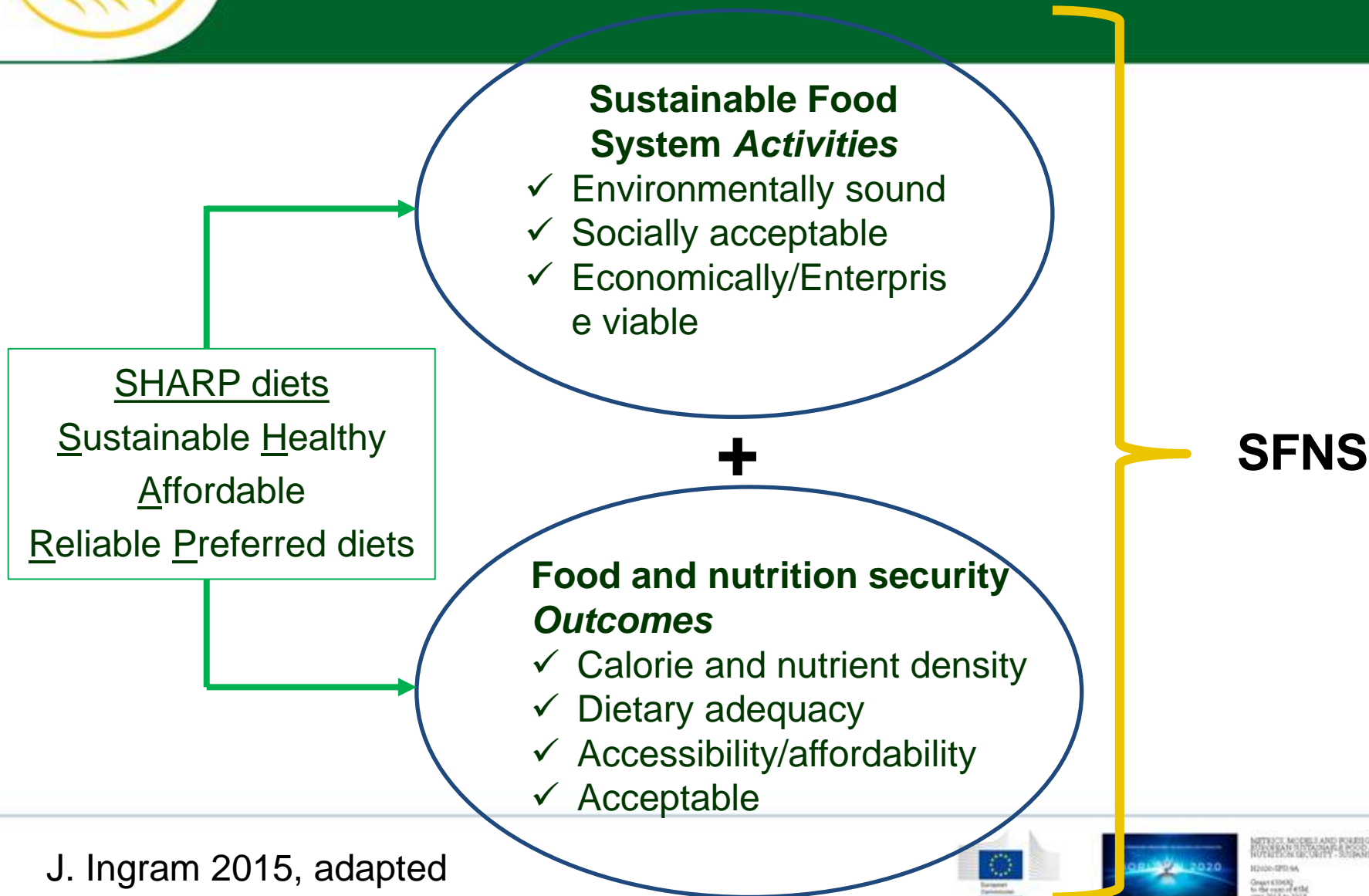
**Pillar 3 Policy guidance
for government & industry**

**Agriculture,
environment,
innovation/R&D policy**

Organization of research activities



Assessing Sustainable FNS





Metrics for system & FNS outcomes

- Nutrition (& health)
- Environment:
- Economics/enterprise
- EU and global food security

Proxy indicators → monitoring system



Data / scale

**4 EU states
countries
surveillance**

**~5000
products**

**~30 nutrients
& nutrient
requirements**

60-80% of
the diet?

**< 400
products**

**20-60 sub-
sectors**

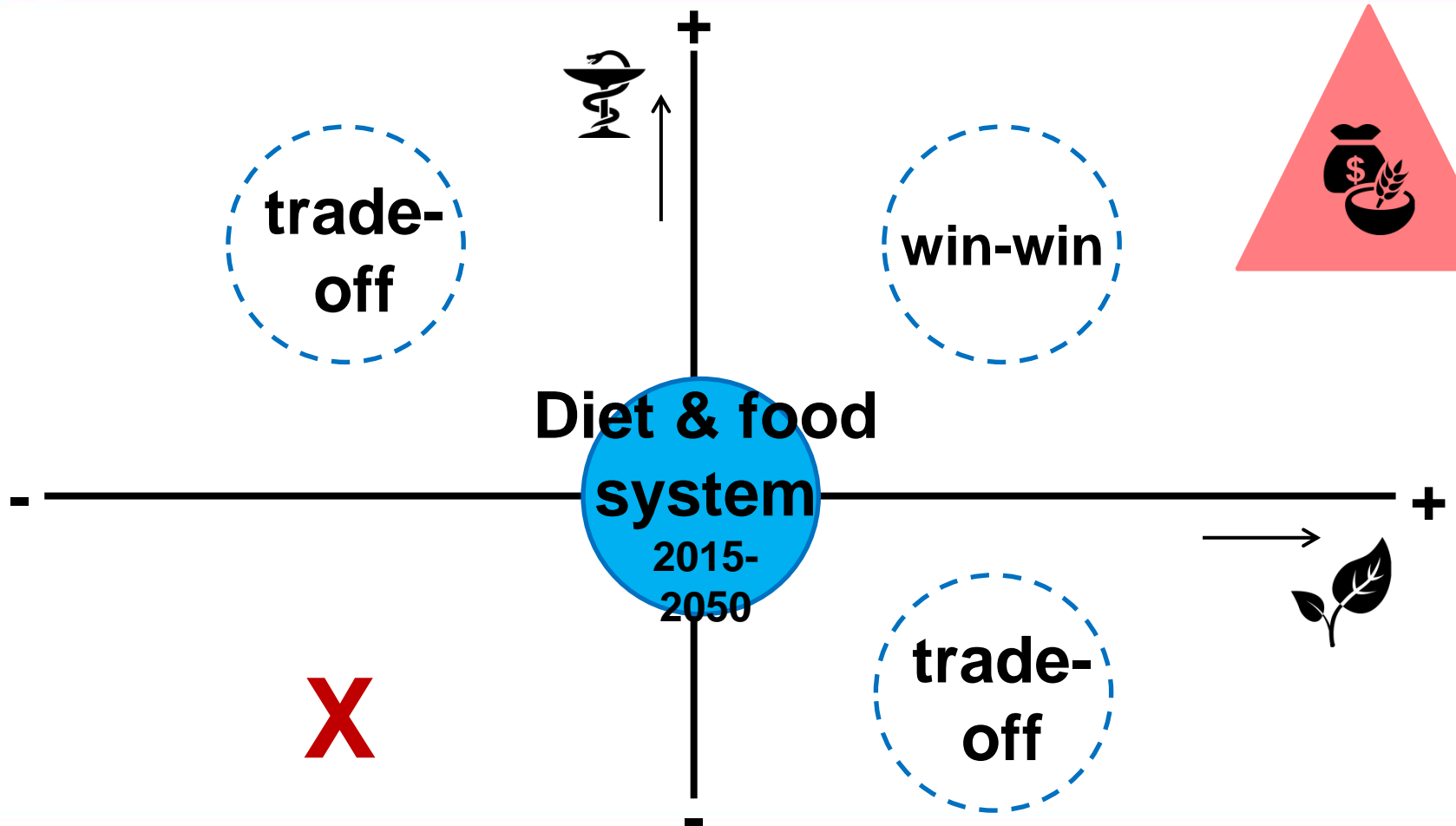
**Nutritional
data**

**Sustainability
indicators***

**Economic
performance**

Auestad and Fulgoni 2015, Woltjer et al 2014, Britz and Witzke 2014

EU sustainable FNS – Metrics/models help examine its dimensions and scales



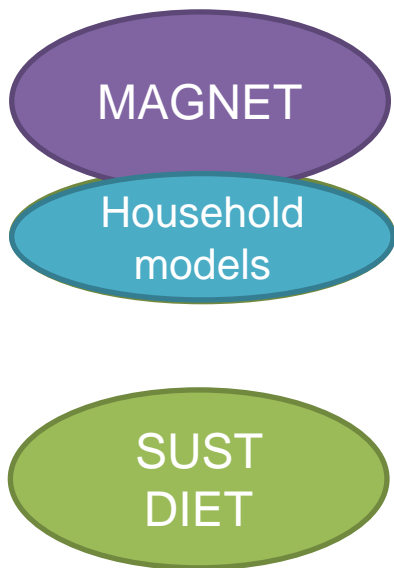


Modelling sust. FNS – alternative diet/food systems

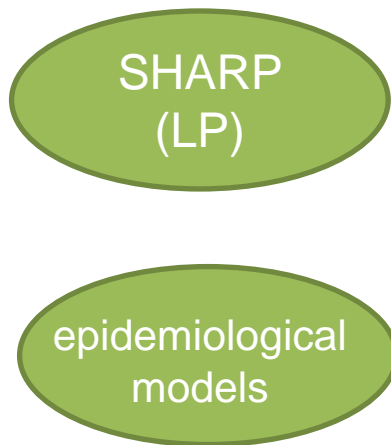
- micro-level modelling of nutrient intakes, habitual dietary patterns and preferences of individual consumers
 - Diet patterns in CZ,DK,FR,IT, EU nutrition surveillance
- macro-level modelling of food demand and supply in the context of economic, environmental and demographic changes
 - short to long term, and regions in and beyond EU
- Micro-macro linkages, Integrated assessment

Quantification framework: modelling counterfactual diets & food systems

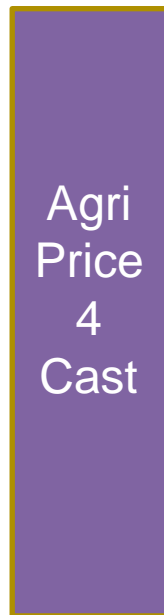
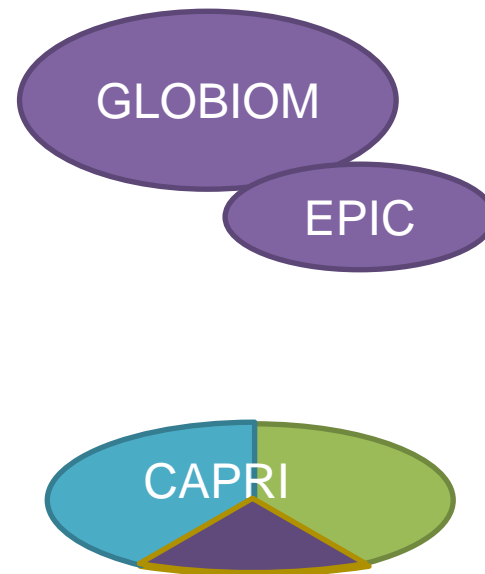
Food demand and value chain



Diet & Health models



Agricultural economic & biophysical models



Stakeholder interaction and scenario development

Global models: 

European models: 

Sub-regional models: 

Putting the model to work: stakeholders – scenarios – case studies

- Stakeholder exchange (throughout)
- Scenarios  **FOODSECURE**
FOR POLICIES THAT MATTER
TRANSMANGO (2016-17)
- Cases of game-changing innovation (2017-18)

**Sustainable
(animal)
protein**

**Sustainable
(fresh
produce)
vitamin**



Thank you!

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