FACULTY OF
BIOSCIENCE ENGINEERING

DEPARTMENT OF AGRICULTURAL ECONOMICS
RESEARCH GROUP INSPIRA - **IN**STITUTIONAL, **S**OCIO-ECONOMIC AND **P**OLITICAL **I**SSUES IN **R**URAL-URBAN **A**REAS

ON RESEARCH AND INNOVATION

HOW LIFE SCIENCE UNIVERSITIES DO AND CAN CONTRIBUTE TO SUSTAINABLE FOOD SYSTEMS

Prof. Joost Dessein - 14TH ICA RECTORS AND DEANS FORUM 2024 - October 25th 2024 – Zagreb, Croatia

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INSPIRA

About us

The research group on Institutional, Socio-economic and Political Issues in Rural-urban Areas (INSPIRA) is part of the Department of Agricultural Economics at the Faculty of Bioscience Engineering, Ghent University.

The main focus of INSPIRA is the study of rural and urban development processes in the food system. The research group tackles different issues related to food production, security and governance, social and environmental justice, and knowledge and market systems. Researchers at INSPIRA seek to understand how these issues interact with institutional and socio-economic structures at local, national and international levels and how this affects livelihoods and communities around the world.

We contribute to the broad field of bio-science engineering by integrating different disciplines such as economics, sociology, political science and anthropology. This interdisciplinary approach covers both rural and agricultural as well as urban and metropolitan societies, which is also reflected in the varying academic backgrounds of our researchers.

Research areas

Research areas

- Food security
- Food democracy, food sovereignty and agroecology
- Food policy and food governance
- Rural sociology
- Rural market access, cooperatives and contracts
- Institutional changes in land, labour and market conditions
- Agricultural knowledge systems

Education

- Nutrition and food policy
- Rural development
- Development economics
- Sociological perspectives on agriculture
- Rural project management
- Seminars in rural development

Education

First semester courses

- **Scientific Communications on Rural Development**
- **Development Economics**
- **SDG lab: Economy**
- **SDG lab: Sociology**

Second semester courses

- **Sustainable Food Systems**
- **Sociological Perspectives on Rural Development**
- **Rural Project Management**
- Food and Nutrition Policies

Marijke D'Haese

Prof. dr.ir.

Head of Department

Marijke D'Haese is professor in rural development economics. She spent her childhood in...

Read more

Joost Dessein

Professor

Prof. Joost Dessein (*1971) is associate professor at the department of Agricultural Economics...

Read more

Branwen Peddi

PhD student

Branwen Peddi is a PhD Candidate at the Department of Agricultural...

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Amber Steyaert

Assistant

Amber Steyaert started her PhD at the Department of Agricultural Economics in...

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Ruben Savels

Assistant

Ruben Savels joined the Department of Agricultural Economics as an...

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Daniël van der Velden

PhD student

Daniël van der Velden received his MSc in...

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Jonas Adriaensens

PhD student

Jonas Adriaensens is a Belgian PhD student and joined the Department of...

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Estellina Namuziebi

PhD student

Estellina Namuziebi (DLSC) is a Doctoral Student of Bioscience...

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Zorei Gomez Vargas

PhD student

Zorei Gomez Vargas is a Ph.D. candidate from Bolivia focused on food security...

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Kennedy Vaai Mutuku

PhD student

Kennedy Vaai Mutuku has been a Doctoral Stu...

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Willy Désiré Emera

PhD student

Willy Désiré Emera received his MSc in Development, Environment and Society...

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Luis Phillips

PhD student

Luis Phillips has been a PhD Candidate at the Department of Agricultural...

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Mariam Amadou Diallo

PhD student

Mariam A. joined the Department of...

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Belainew Belete

PhD student

Belainew Belete is a PhD student at the Department of...

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Siyane Deressa

PhD student

Siyane Deressa is a PhD candidate at the department of...

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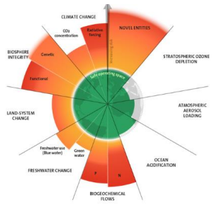
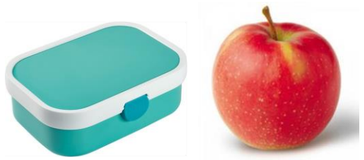
Outline :

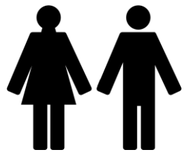


Introduction

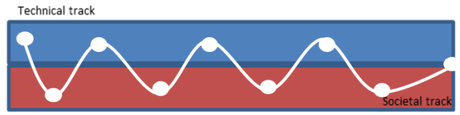


Narratives and research communities

Sustainable food systems



The researchers we create



The researchers we need

Innovation and imagination

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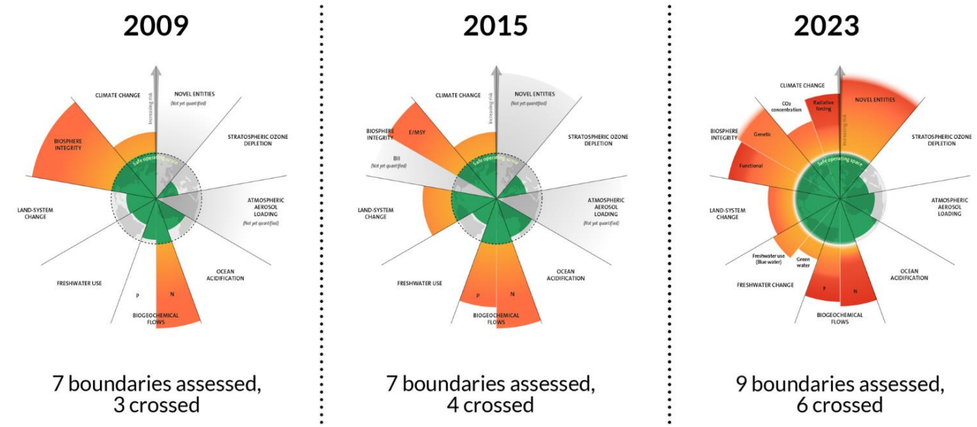
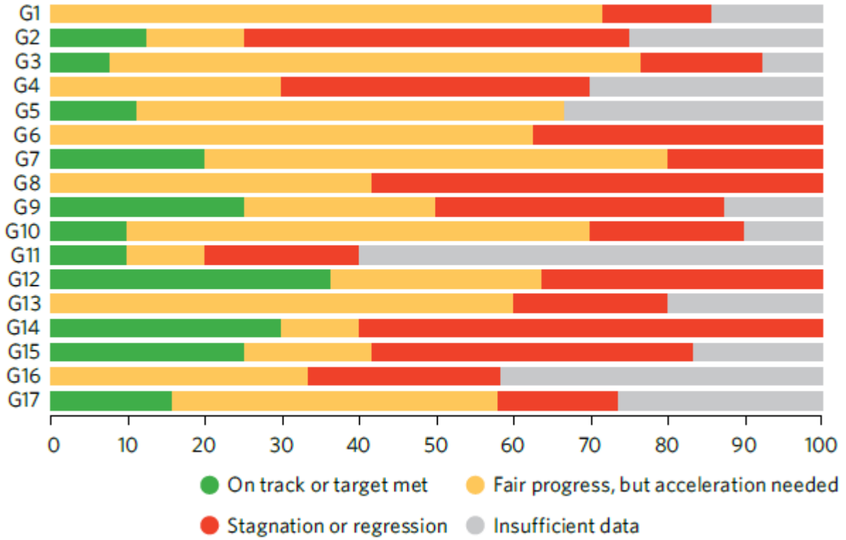
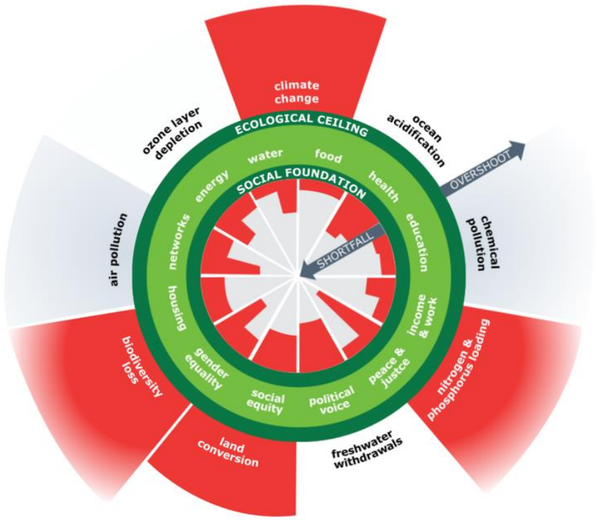


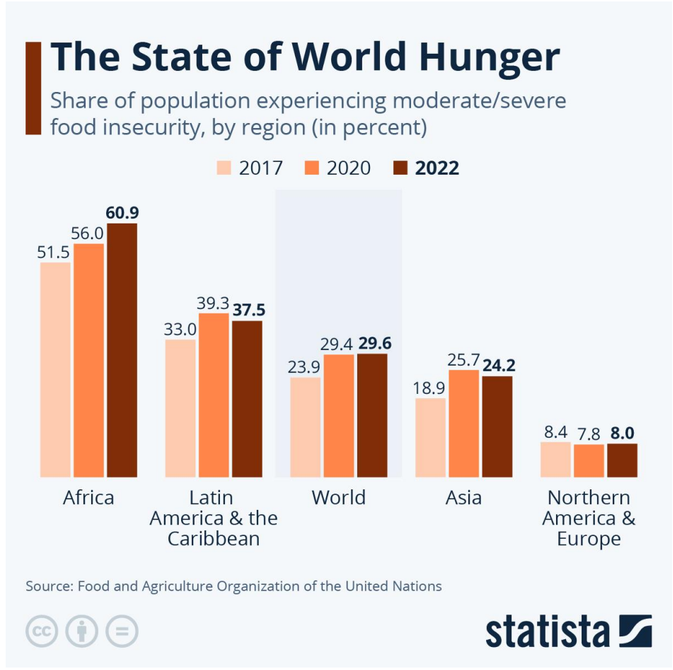
Credit: Azote for Stockholm Resilience Centre. Based on Richardson et al. 2023, Steffen et al. 2015, and Rockström et al. 2009)



Credits: unstats.un.org/sdgs/report/**2023**/progress-midpoint/



Credits: Kate Raworth, The Doughnut of Social and Planetary Boundaries (2017)



Credits: Food and Agricultural Organization of the United nations, 'The State of World Hunger', 2024

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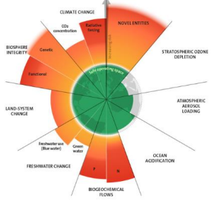

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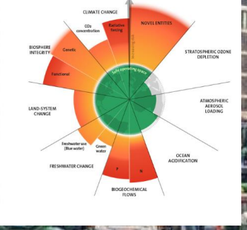

CLIMATE CHANGE
NOVEL ENTITIES
STRATOSPHERIC OZONE DEPLETION
ATMOSPHERIC AEROSOL LOADING
OCEAN ACIDIFICATION
BIOGEOCHEMICAL FLOWS
FRESHWATER CHANGE
LAND-SYSTEM CHANGE
BIOSPHERE INTEGRITY

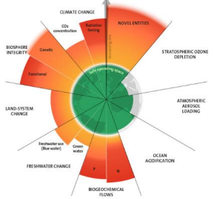

FARMERS DEFENCE
FORCE


RED DE BOER
TURNHOUTS
VENNENGEBIED


BANDADES D'ACTIONS PAYSANNES


GRONA
VOOR VOEDSE


GOE BOEREN
KOE LT
HET KLIMAAT
CHANGER NOTRE AGRICULTURE ALIMENTATION
SAUVER LE CLIMAT
BOEREN
ENCORE



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Contents lists available at ScienceDirect

World Development

journal homepage: www.elsevier.com/locate/worlddev

Development Review

When food systems meet sustainability – Current narratives and implications for actions

Christophe Béné [a,*], Peter Oosterveer [b], Lea Lamotte [a], Inge D. Brouwer [c], Stef de Haan [d], Steve D. Prager [a], Elise F. Talsma [c], Colin K. Khoury [a,e]

[a] Decision and Policy Analysis Program, International Center for Tropical Agriculture, Cali, Colombia
[b] Department of Social Sciences, Wageningen University, The Netherlands
[c] Division of Human Nutrition, Wageningen University and Research, The Netherlands
[d] International Center for Tropical Agriculture, CIAT-Asia Office, Hanoi, Viet Nam
[e] National Laboratory for Genetic Resources Preservation, USDA-Agricultural Research Service, Fort Collins, CO, USA


When food systems meet sustainability – Current narratives and implications for actions

Table 1
Different narratives about the failure of food systems.

The state of play	What is the failure about?	What is threatened and needs to be fixed?	Where do the priorities for action stand?

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When food systems meet sustainability – Current narratives and implications for actions

Table 1
Different narratives about the failure of food systems.

The state of play	What is the failure about?	What is threatened and needs to be fixed?	Where do the priorities for action stand?
"our food system is failing us"	Inability of the system to feed the future world population	Food security	Closing the yield gap

How to feed the 9 billion?
Hence: increase crop production

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When food systems meet sustainability – Current narratives and implications for actions

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Different narratives about the failure of food systems.

The state of play	What is the failure about?	What is threatened and needs to be fixed?	Where do the priorities for action stand?
"our food system is failing us"	Inability of the system to deliver a healthy diet	Nutrition security and health	Closing the nutrient gap and ensuring the quality of diet

Not quantity, but quality
Hence: how to meet nutritional needs locally and globally.

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When food systems meet sustainability – Current narratives and implications for actions

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"our food system is failing us"	Inability of the system to produce equal and equitable benefits	Social justice, democratic process, small-scale actors	Decentralization, grass-roots autonomy

distributional dimension of the equation
Hence: paradox that although, on aggregate, present food systems are producing enough food to feed the current world population, almost one billion people are still suffering from hunger.

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When food systems meet sustainability – Current narratives and implications for actions

Table 1
Different narratives about the failure of food systems.

The state of play	What is the failure about?	What is threatened and needs to be fixed?	Where do the priorities for action stand?
"our food system is failing us"	the negative impact that modern food systems have on the environment and natural resources Hence: the 'food-print' of these systems		
	Unsustainability of the system and its impact on the environment	→ Natural resources, agrobiodiversity, energy-water-carbon efficiency	→ Reducing the food-print of the system on the environment

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When food systems meet sustainability – Current narratives and implications for actions

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	Unsustainability of the system and its impact on the environment	Natural resources, agrobiodiversity, energy-water-carbon efficiency	Reducing the food-print of the system on the environment

Possible **synergies** and **divergences**

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When food systems meet sustainability – Current narratives and implications for actions

This ‘mess of narratives’ results from three main communities of experts

AGRICULTURALISTS

NUTRITIONISTS

(SOCIAL) ECOLOGISTS

+ INTERDISCIPLINARY COMMUNITIES such as ‘agro-ecology’ and the ‘value chains for nutrition school’

⇨ Although often present within one faculty, still rather distinct communities

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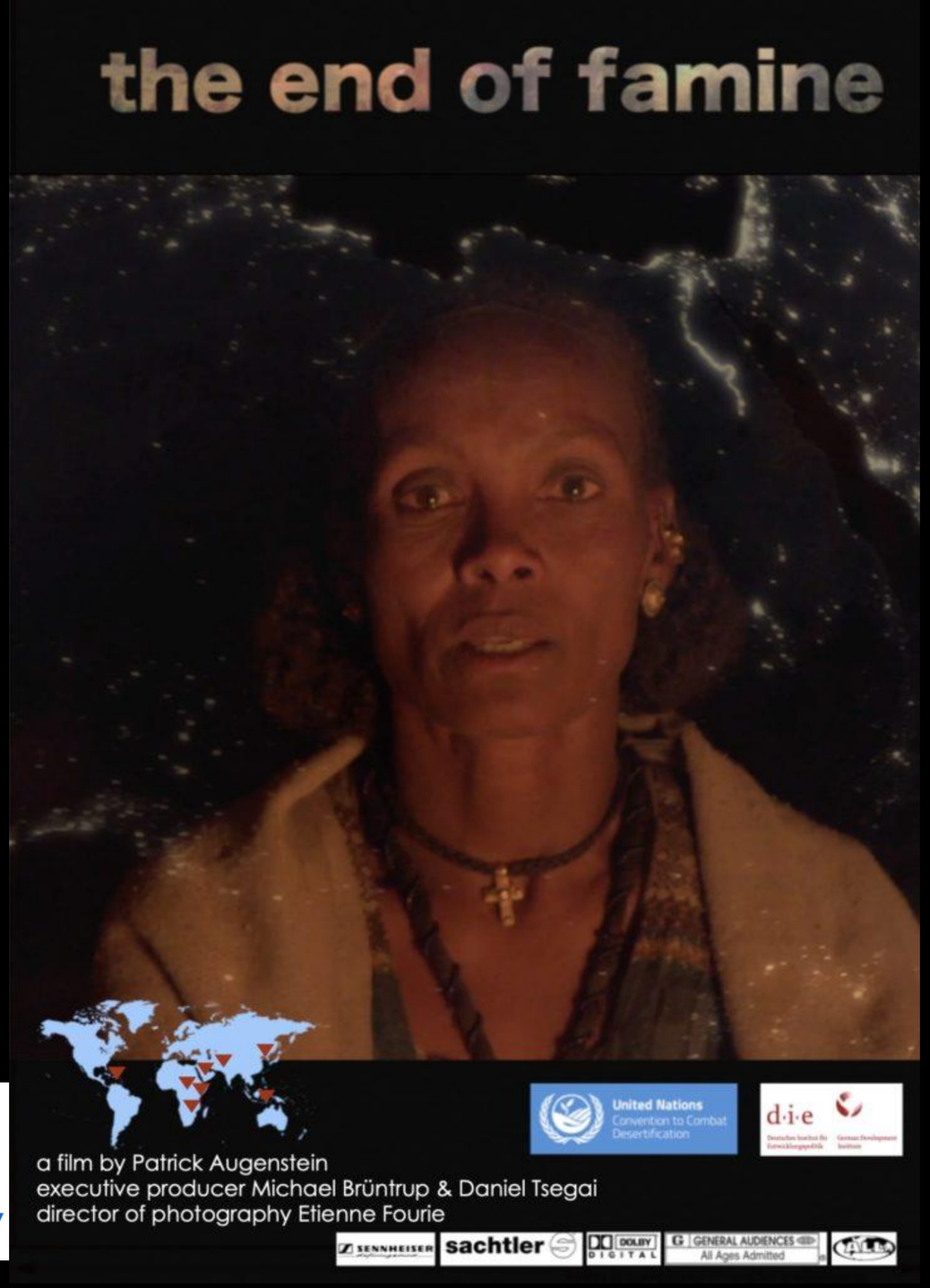

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Narratives downsize the complexity of our food system's failure:

"We are trying to 'naturalize' what is deeply political"

When food systems meet sustainability – Current narratives and implications for actions

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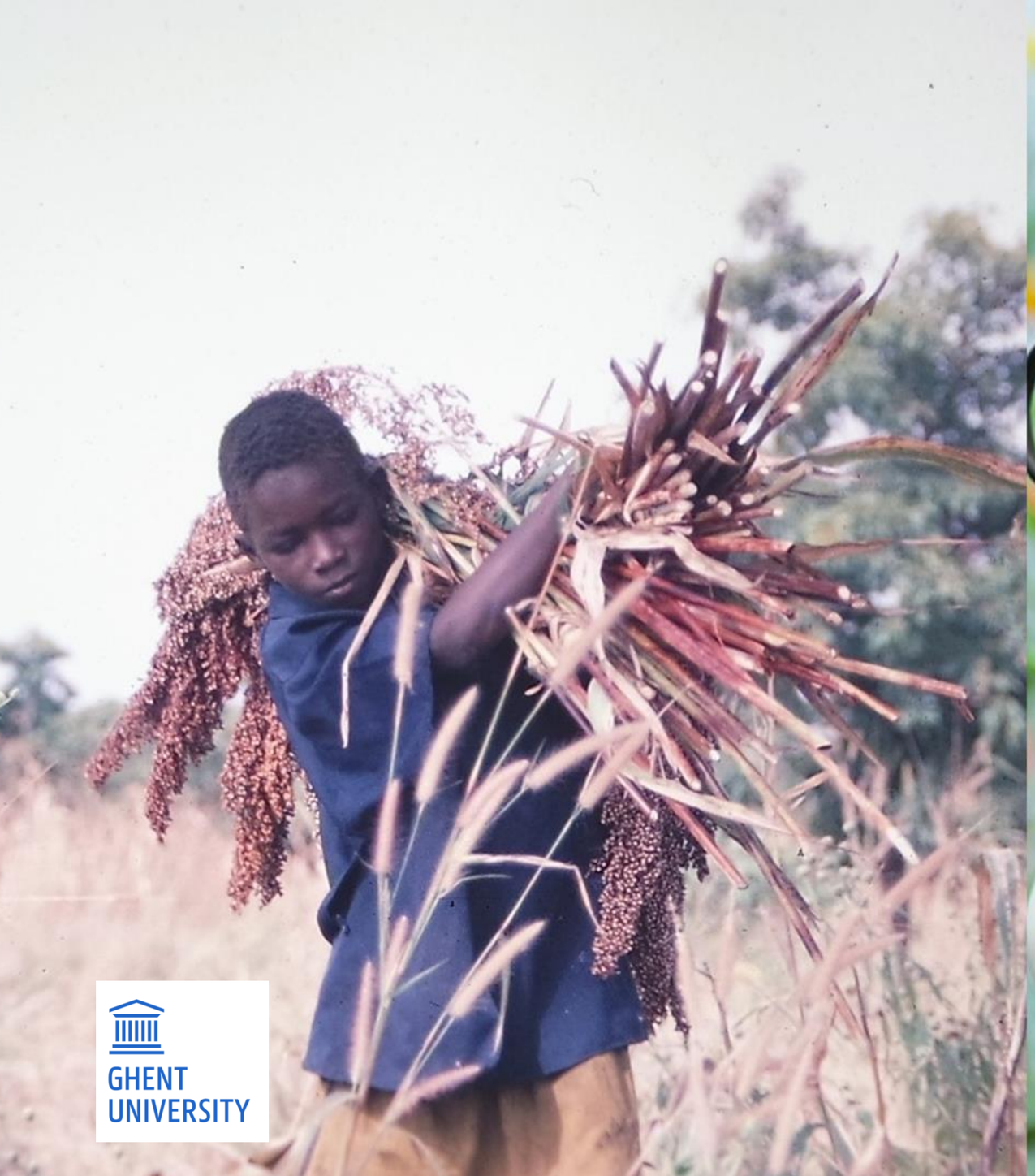

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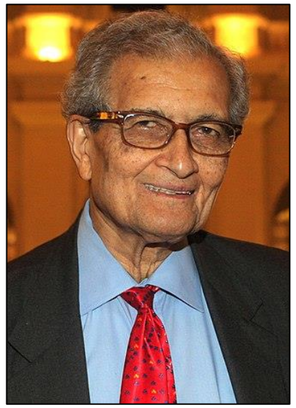
UN Conference on Food and Agriculture, 1943, Virginia

"a secure, adequate, and suitable supply of food should be a cardinal aim in every country"



Amartya Sen

first International Conference on Nutrition held in 1992 (FAO, 1992)

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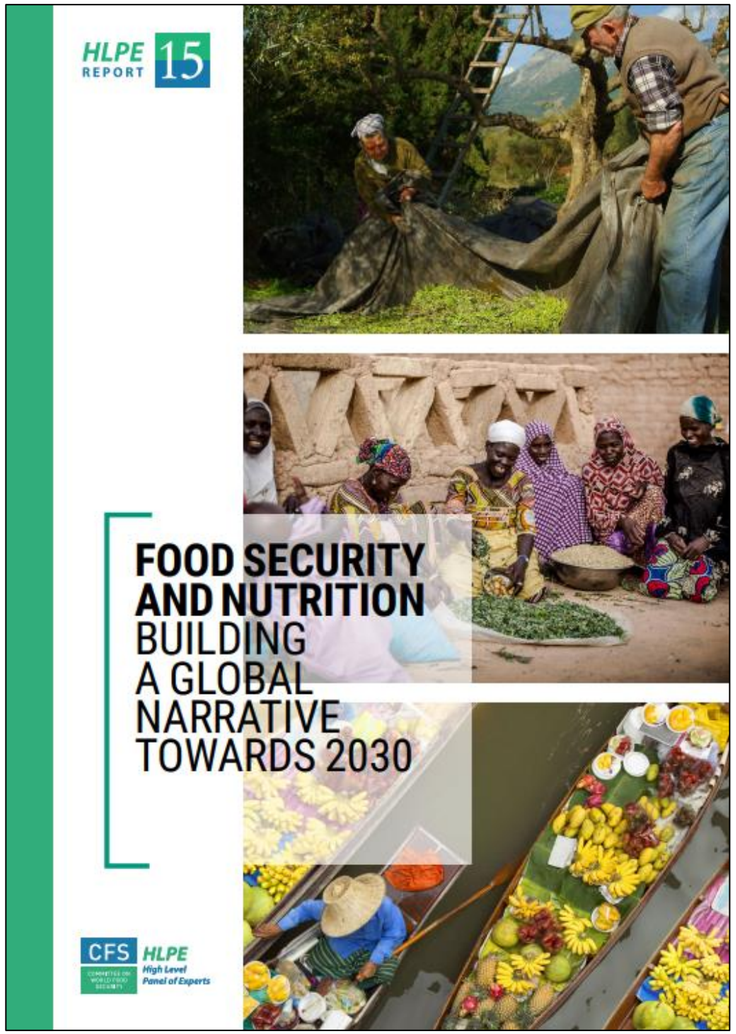
Sustainable food systems embody <u>qualities that support six dimensions</u>.

Sustainable food systems are:

- *productive and prosperous* (to ensure the **availability** of sufficient food);
- *equitable and inclusive* (to ensure **access** for all people to food and to livelihoods within that system);
- *empowering and respectful* (to ensure **agency** for all people and groups, including those who are most vulnerable and marginalized to make choices and exercise voice in shaping that system);
- *resilient* (to ensure **stability** in the face of shocks and crises);
- *regenerative* (to ensure **sustainability** in all its dimensions);
- *healthy and nutritious* (to ensure nutrient uptake and **utilization**).



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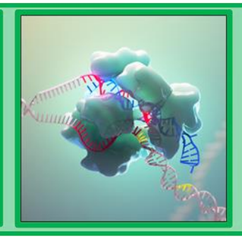
1880

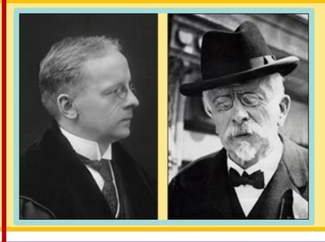
1950

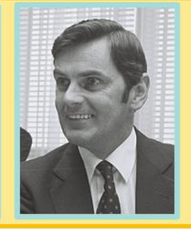
CULTURE



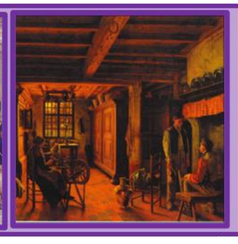
SCIENCE
KNOWLEDGE

TECHNOLOGY





POLICY



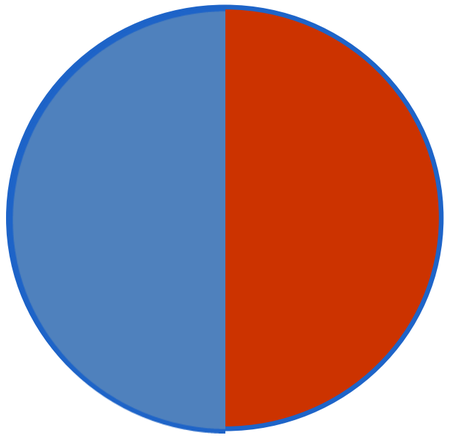
MARKETS

INDUSTRIAL
NETWORKS

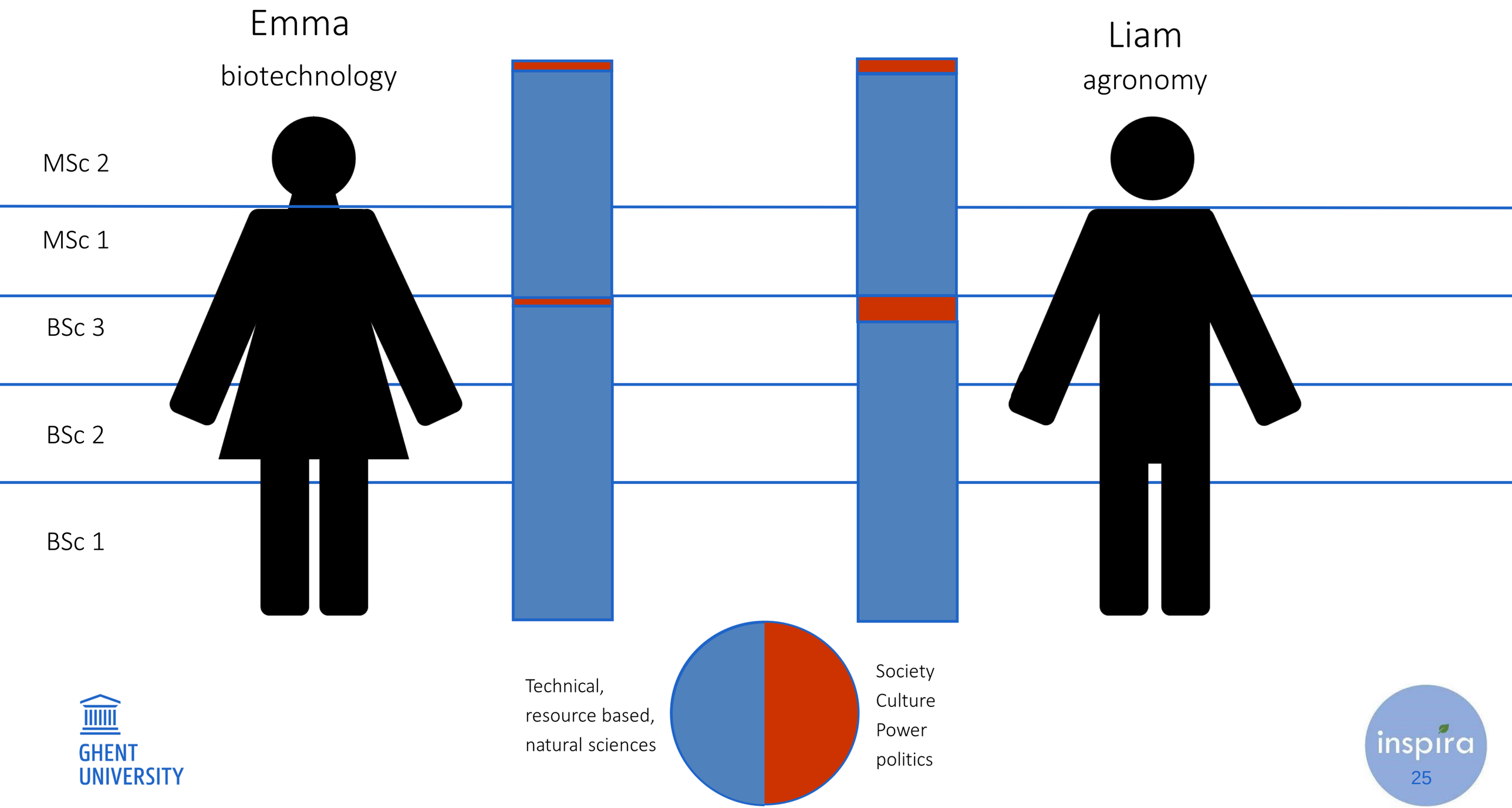


The complex context of our food system: a six-dimensional concept of a sustainable food system (intersectionality) and the co-existence and interactions of multiple narratives, that are partial, often contradicting and always reductionist.

Technical,
resource based,
natural sciences



Society
Culture
Power
politics



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On innovation and research: do we need a ‘new’ Msc in life science or bioscience engineer?

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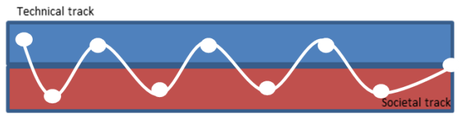
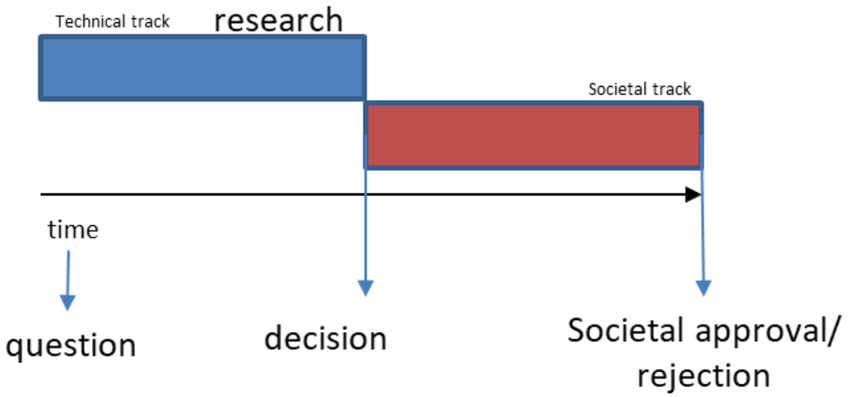
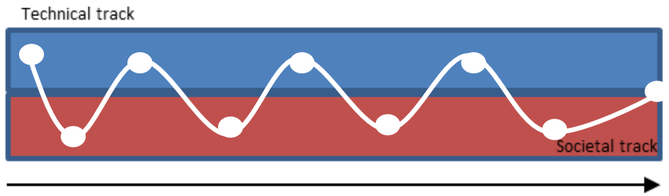


On innovation and research: do we need a ‘new’ Msc in life science or bioscience engineer’?

From **DAD** (Develop - Announce – Defend) …



… to **ELE** (Engage – Learn – Enable)



(Re-)formulating the question

research

decision making

Societal negotiation

Inter- and transdisciplinarity
Imagination and future thinking

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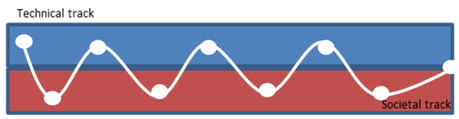
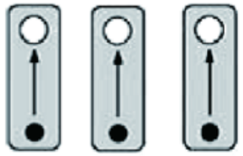


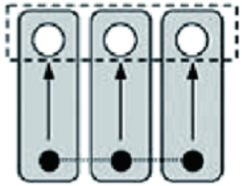
Disciplinarity

- Within one academic discipline
- Disciplinary goal setting
- No cooperation with other disciplines
- Development of new disciplinary knowledge and theory



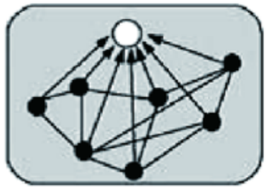
Multidisciplinarity

- Multiple disciplines
- Multiple disciplinary goal setting under one thematic umbrella
- Loose cooperation of disciplines for exchange of knowledge
- Disciplinary theory development



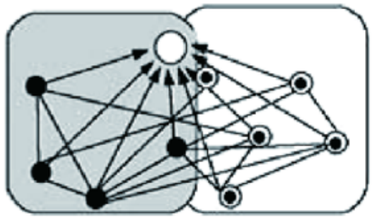
Interdisciplinartity

- Crosses disciplinary boundaries
- Common goal setting
- Integration of disciplines
- Development of integrated knowledge and theory



Transdisciplinarity

- Crosses disciplinary and scientific/academic boundaries
- Common goal-setting
- Integration of disciplines and non-academic participants
- Development of integrated knowledge and theory among science and society



- discipline
- non-academic participants
- goal of a research project
- movement towards goal
- cooperation
- integration

- thematic umbrella
- academic knowledge body
- non-academic knowledge body

Credit: Tress et al. 2004

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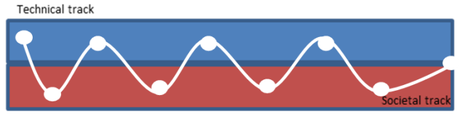
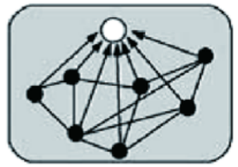


Interdisciplinartity

- Crosses disciplinary boundaries
- Common goal setting
- Integration of disciplines
- Development of integrated knowledge and theory




KU LEUVEN

METAFORUM

Metaforum position paper 22

Sustainable Agricultural Production and the Societal Challenges

Position paper by a Metaforum working group, presented on 30 September 2024

Conclusion and recommendations only – full translation of the position paper to follow shortly

The working group consists of:

Coordinator: Wannes Keulemans, plant biotechnology

Tessa Avermaete, bioeconomics
Barbara De Coninck, plant biotechnology
Johan De Tavernier, bioethics
Annemie Elsen, soil science
Gerard Govers, geography
Olivier Honnay, ecology
Charlotte Janssens, bioeconomics
Filip Rolland, molecular biotechnology
Wouter Saeys, precision agriculture
Geertrui Van Overwalle, intellectual property law

Metaforum KU Leuven
www.kuleuven.be/metaforum

Pluralising knowledge in agricultural development: the case for revitalising indigenous and local knowledges in Ghana

Branwen Peddi

Collaboration Ugent and WUR

Bio-science engineering and philosophy

Challenges:

- *Publishing: disciplinary publication culture*
- *You need excellent researchers, trained in different fields, able to connect different paradigms*
- *And an academic culture that allows this*

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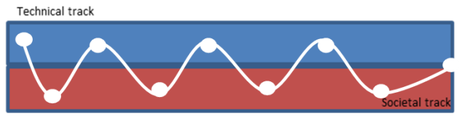
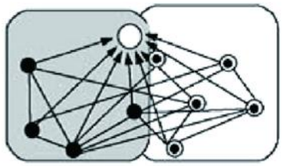
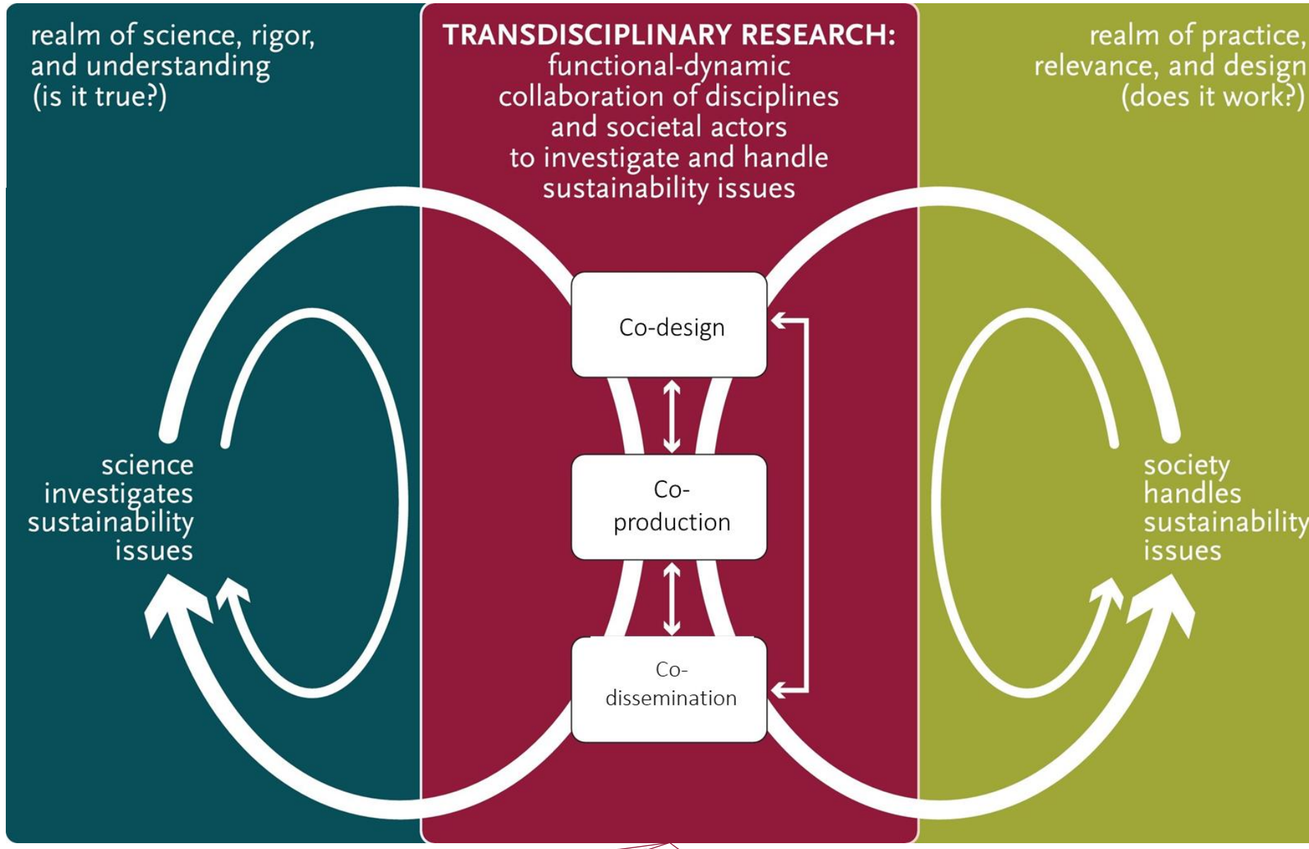


Transdisciplinarity

- Crosses disciplinary and scientific/academic boundaries
- Common goal-setting
- Integration of disciplines and non-academic participants
- Development of integrated knowledge and theory among science and society



Credit: Verheyen et al. (forthcoming), based on Pohl et al. 2017



The European Innovation Partnership for Agricultural Productivity and Sustainability (EIP-AGRI): "Knowledge is co-created between practice, scientists, advisers, enterprises, NGOs, etc."

(EIP-AGRI, 2017, p. 3)

THE MULTI-ACTOR APPROACH

LIVING LABS

PARTICIPATORY THEORY BUILDING

...

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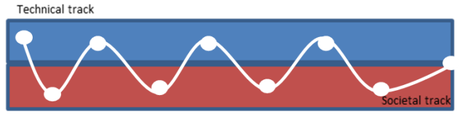

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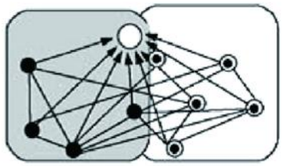

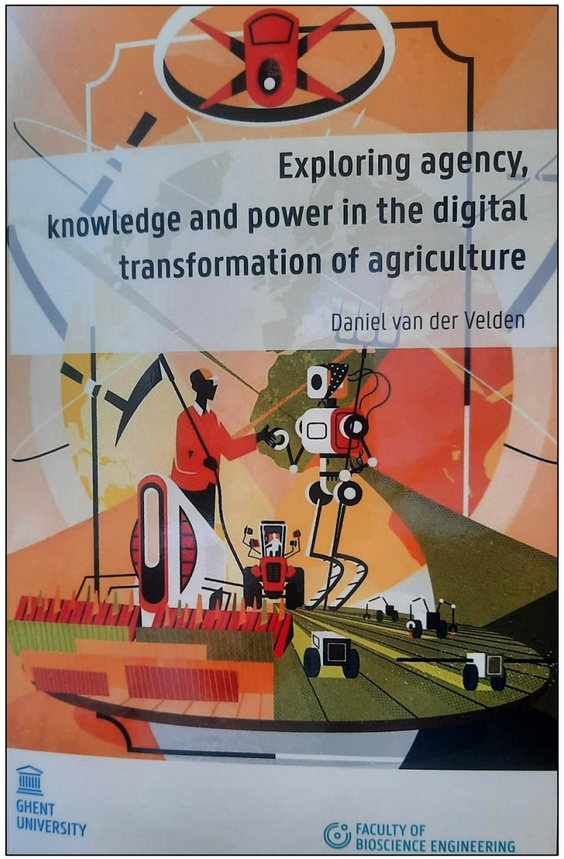

Credit: PhD Daniel van der Velden

Promotors: Joost Dessein, Laurens Klercks; Lies De Bruyne

Difficult and complex processes that often fail (cf. Felt et al 2016).

But: huge ‘positive publication bias’

Forthcoming in NJAS: van der Velden et al.: “Participation and co-theorising: how stakeholder interests and scientific outputs clash in the Horizon 2020 multi-actor approach”

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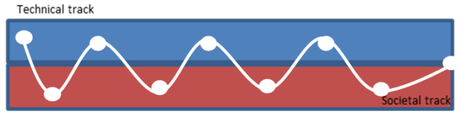

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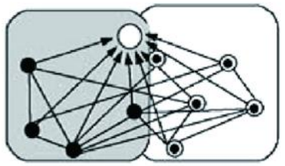

Embracing transdisciplinarity and ‘the art of failing’:

- Centre for Unusual collaborations (the Netherlands)
- Urban Academy (Stadsacademie, City of Ghent and Ghent University)
- FARO (Food Action and Research Observatory, Barcelona)

CENTRE FOR UNUSUAL COLLABORATIONS

FARO
Food Action and Research Observatory

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On innovation and research: do we need ‘a n e engineer’?

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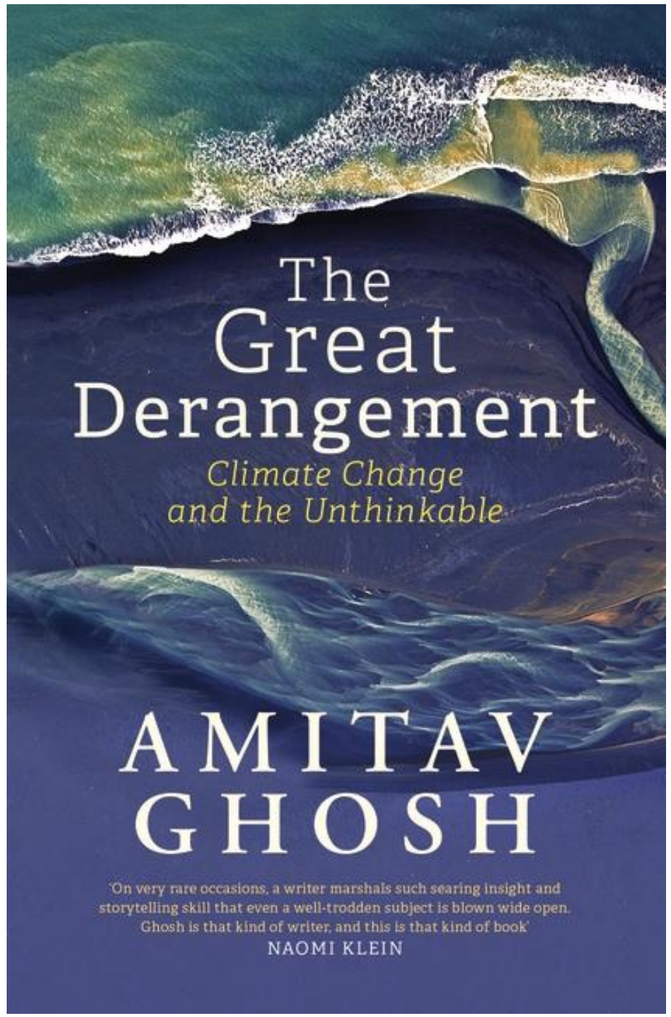

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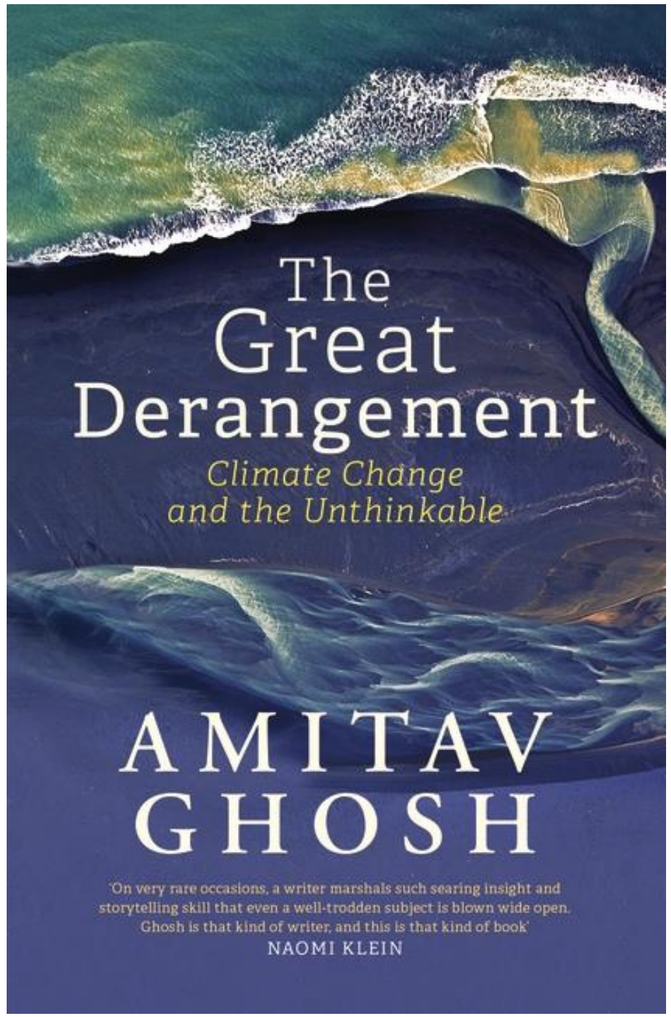

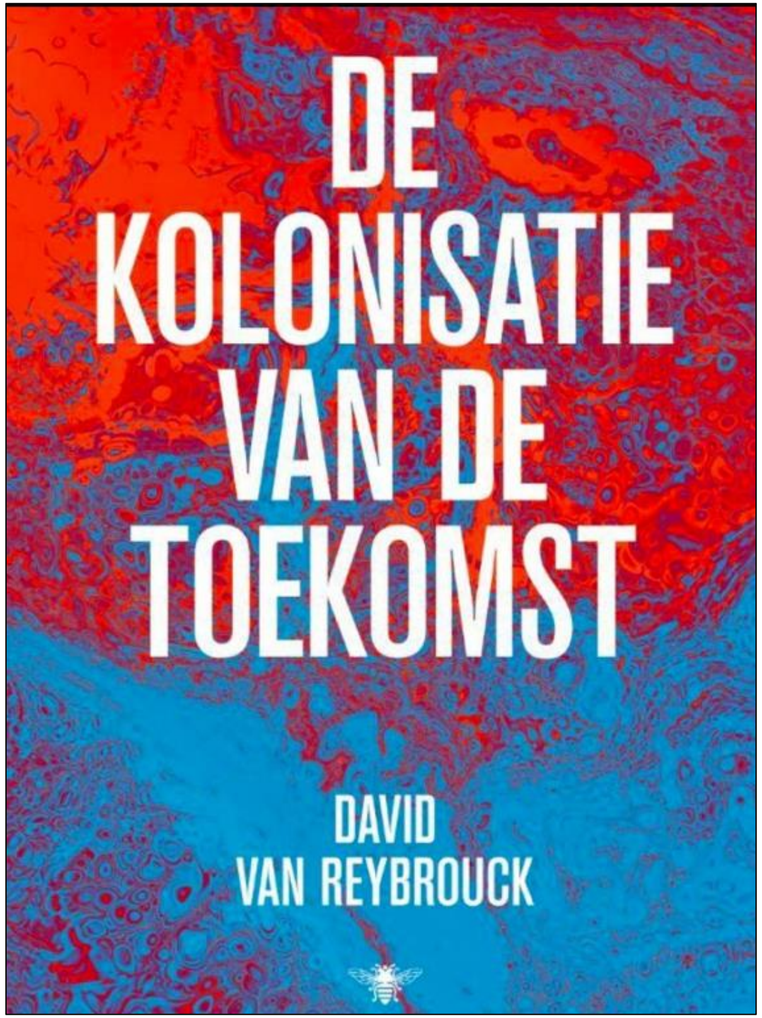

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"The Colonisation of the Future. Living on the brink of the climate catastrophe"

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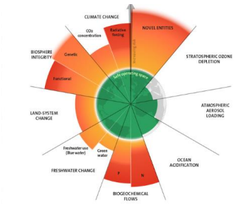
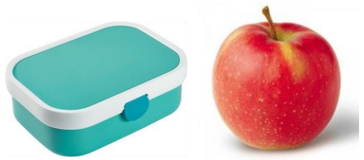
Are we turning the tide?

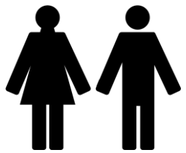


Innovation? Yes! – but what kind of innovation?

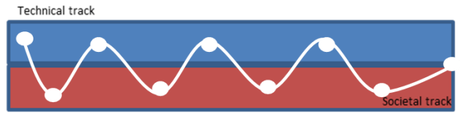


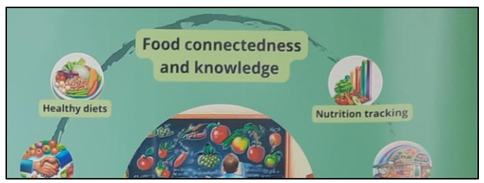
Life sciences engineers/masters needed? Yes! – but a new profile

Report extensively on failures, and be critical about inter/trans practices



Reorient funding mechanims, allowing for a genuine, balanced funding of future pathways





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THANK YOU FOR LISTENING

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