



**NIBIO**

NORWEGIAN INSTITUTE OF  
BIOECONOMY RESEARCH

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# EURAGRI Conference 2018

## Some opening remarks and reflections

Nils Vagstad

Director General

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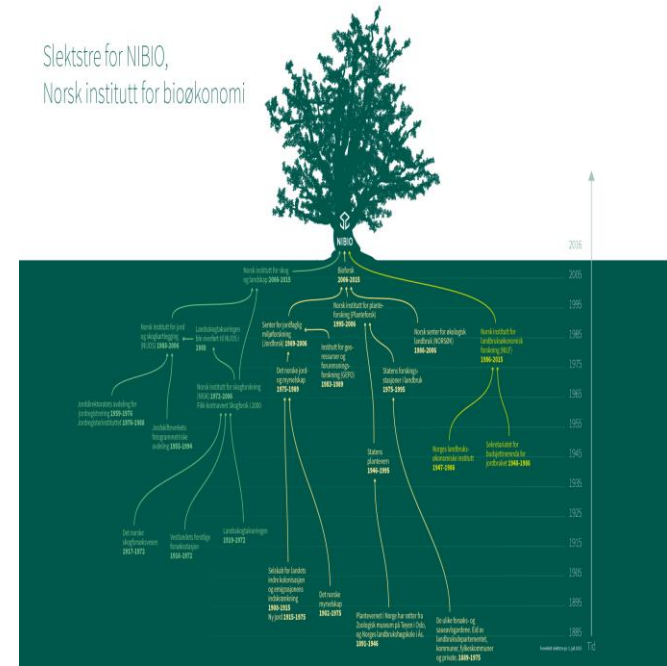


# NIBIO - Norwegian Institute of Bioeconomy Research



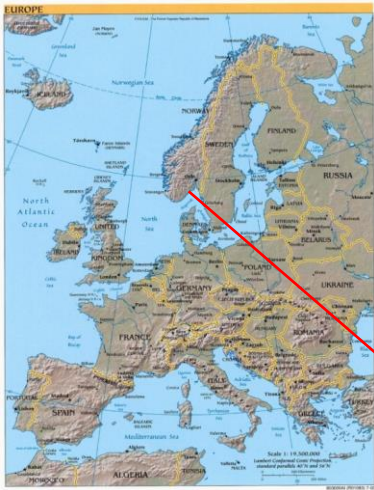
A new organisation – but with deep historical roots

Slektstre for NIBIO,  
Norsk institutt for bioøkonomi



- Established July 2015, through an institutional merger
- Governmental organisation
- Total staff - about 700

Establishing NIBIO is a part of the Governments strategy to strenghten the scientific capacity to develop a competitive Norwegian bioeconomy and a circular, low carbon society



# NIBIO - Norwegian Institute for BIOeconomy Research



## Five Research Divisions

Including 34 thematically defined research departments

Food production and society

Forestry and forest resources

Environment and natural resources

Biotechnology and plant health

Geography and statistics



# Food and food security – the fundamental platform for sustainable development

Prof M.S. Swaminathan



If Agriculture goes wrong, - nothing else will go right

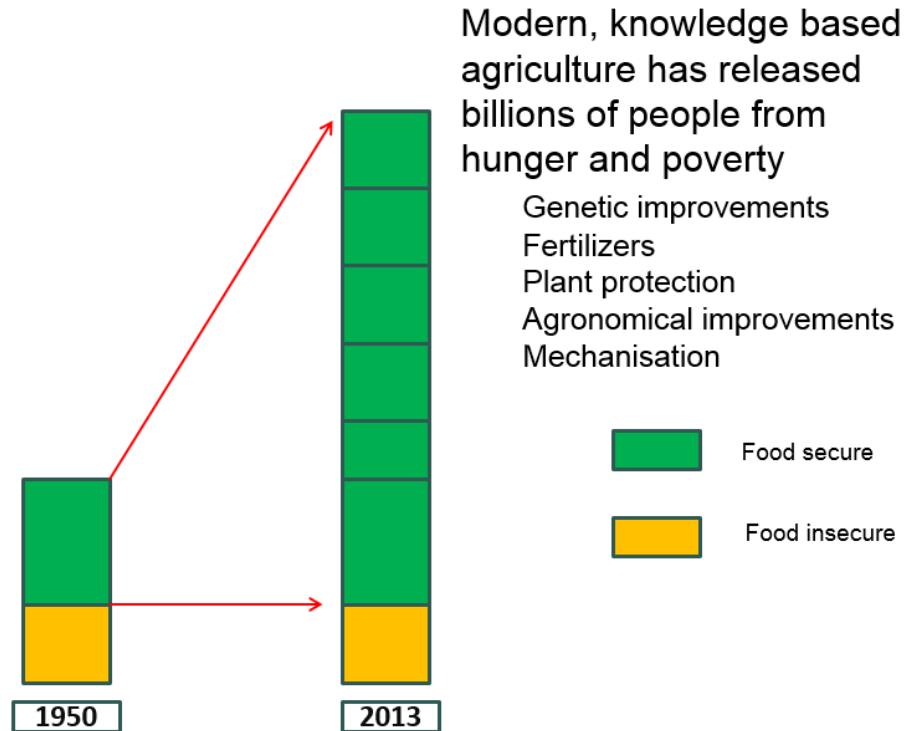
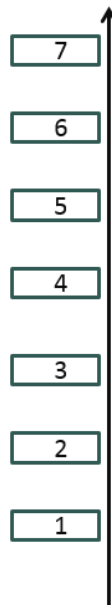


# Modern agriculture and the history of food production; Some say it is a failure – *but it is a GREAT SUCCESS*

*Has brought food security to 4 bill more than in 1950*

However; it does not imply there are no problems and challenges; *in contrary – they are numerous*

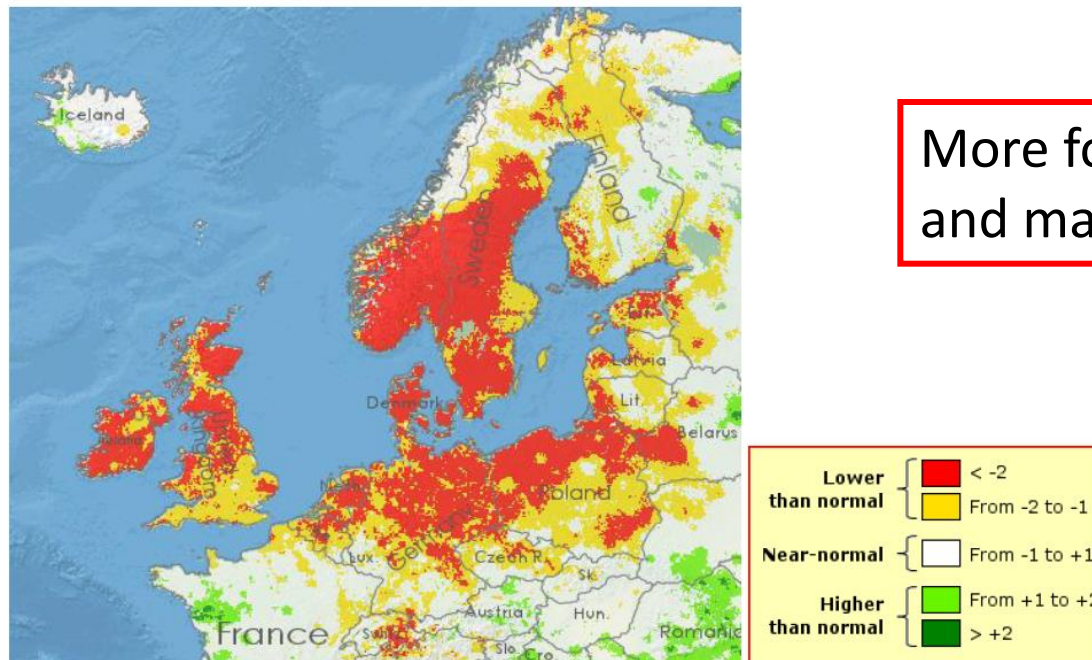
Befolkning,  
mrd



# Climate changes and UN SDG: VULNERABILITY – RESILIENCE - ADAPTATIONS

## Drought in Central-Northern Europe – July 2018

JRC European Drought Observatory (EDO) and ERCC Analytical Team  
17/07/2018

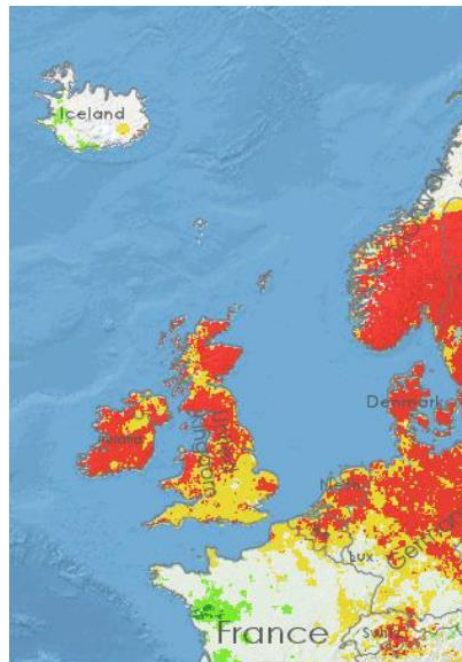


More focus on adaptations  
and managing extremes

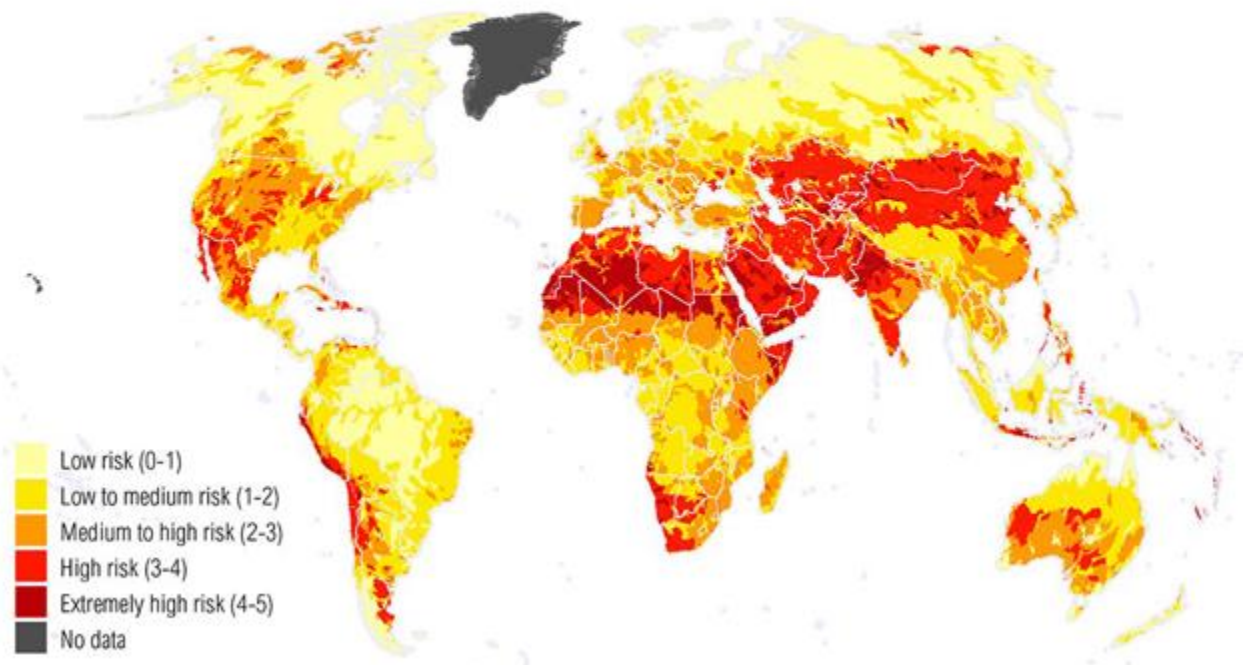
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## Drought in Central-Northern Europe – July 2018

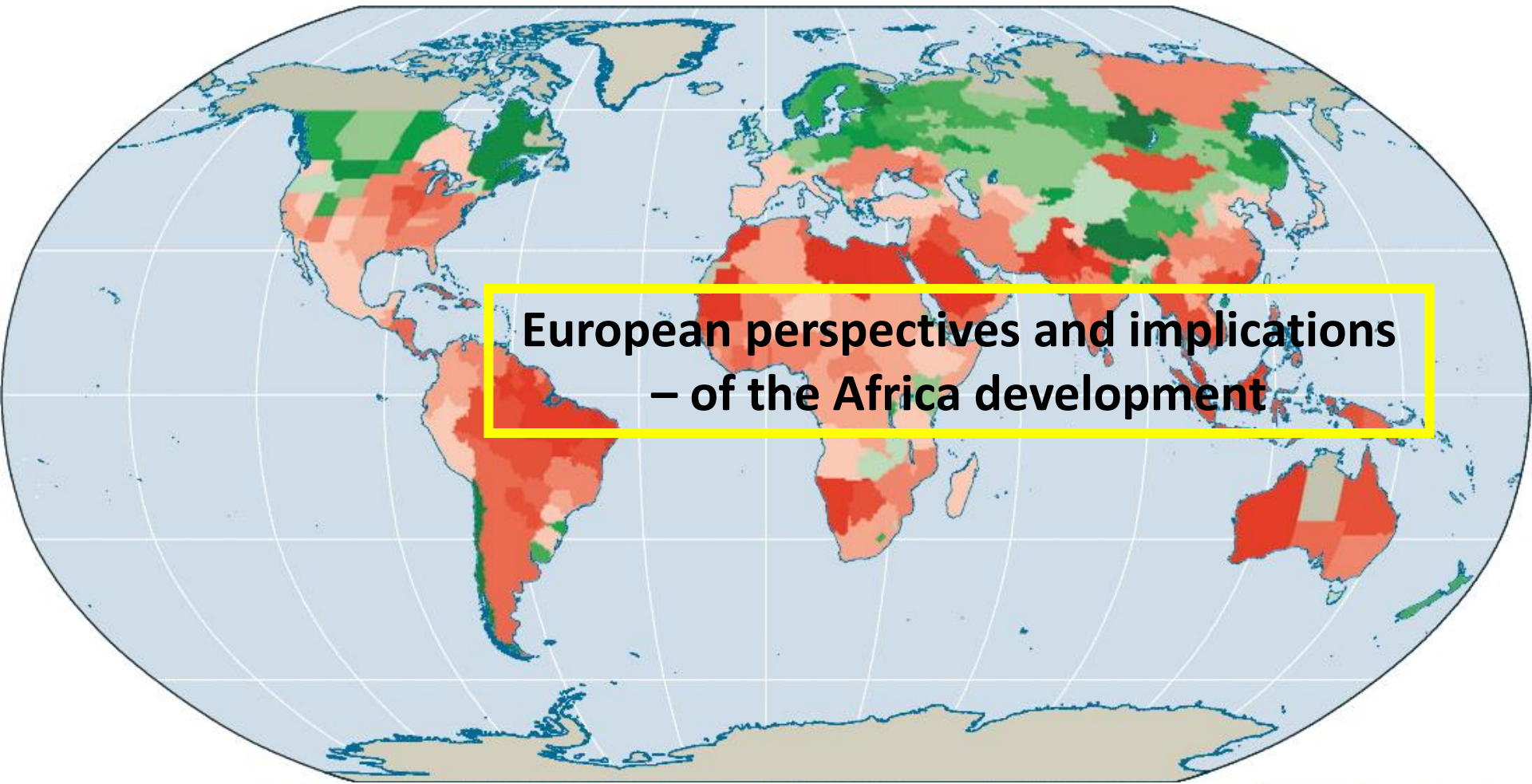
JRC European Drought Observatory (EDO) and ERCC Analytical Team  
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WATER SCARCITY – one of the greatest global challenges – with potential great political implications



# Predicted (IPPC models) changes in food production in 2050 due to changes in rainfall and temperature



**European perspectives and implications  
– of the Africa development**





# Global food systems are vulnerable

## A small number of breadbasket regions underpin trade

RESOURCE  
TRADE  
EARTH

DATA STORIES ABOUT

CHATHAM  
HOUSE  
The Royal Institute of  
International Affairs

Exporter  
ALL COUNTRIES

Importer  
ALL COUNTRIES

Commodity  
AGRICULTURAL PRODUCTS

Year  
2015

Units

Value (US \$)

Weight

23%

Share of all commodities trade

Scale

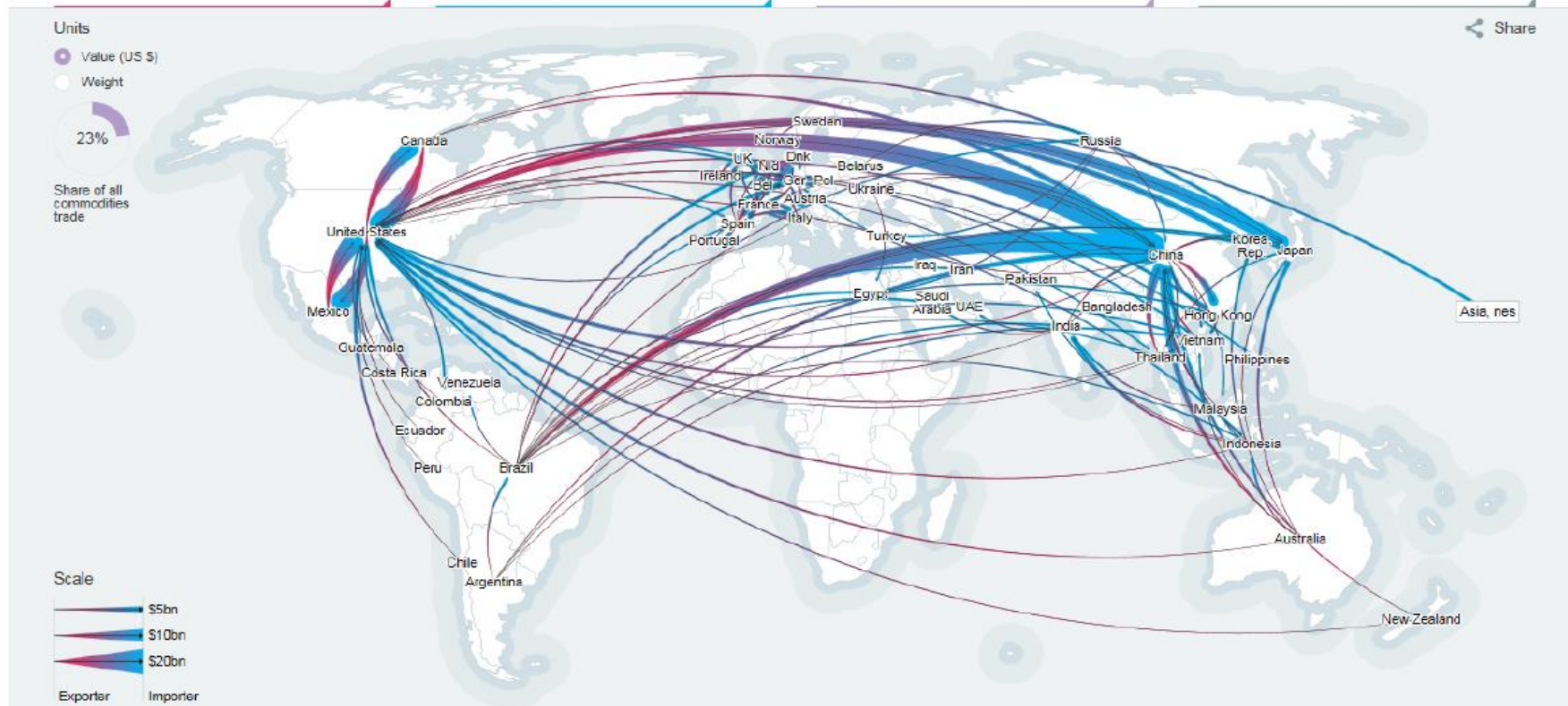
\$5bn

\$10bn

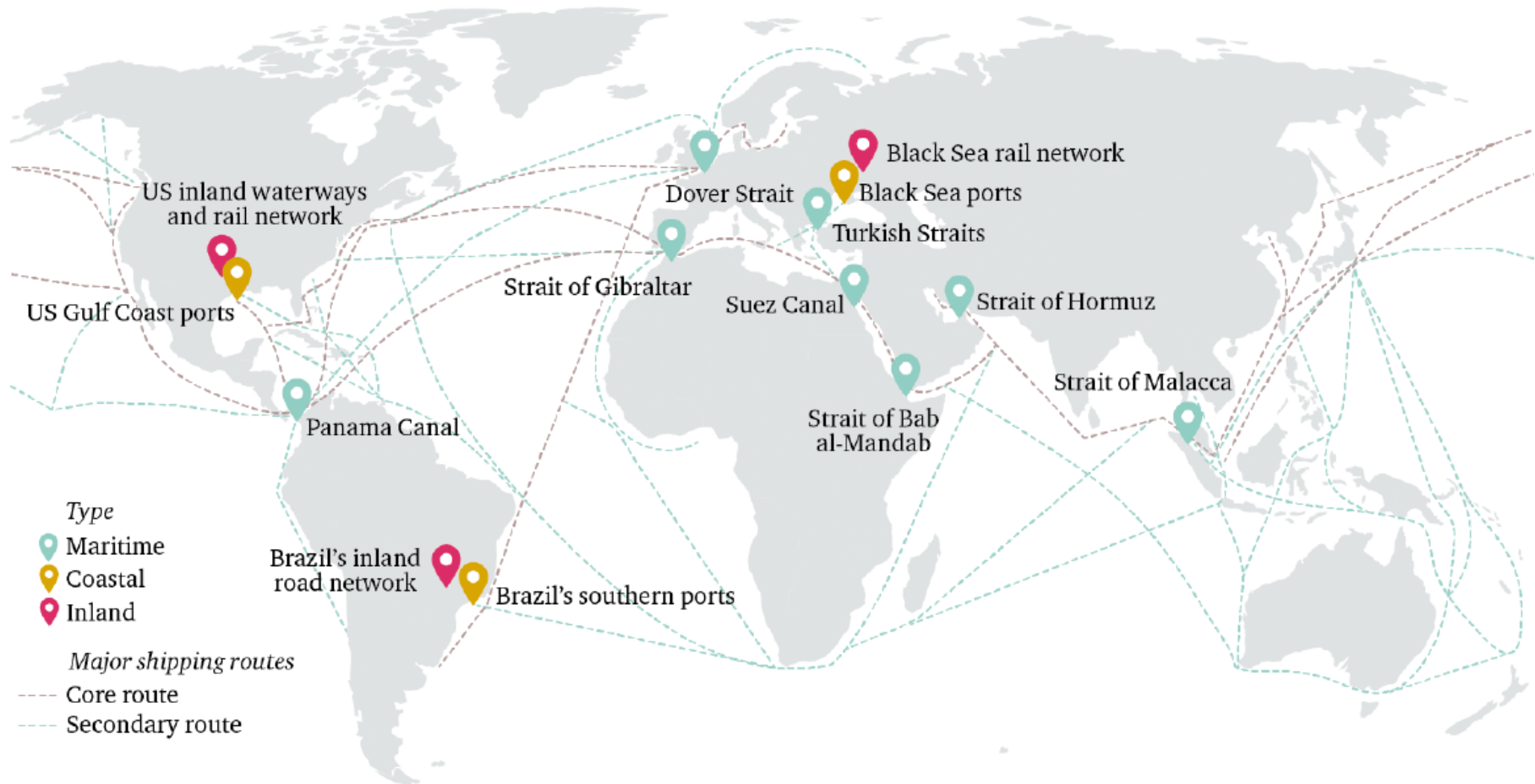
\$20bn

Exporter Importer

Share



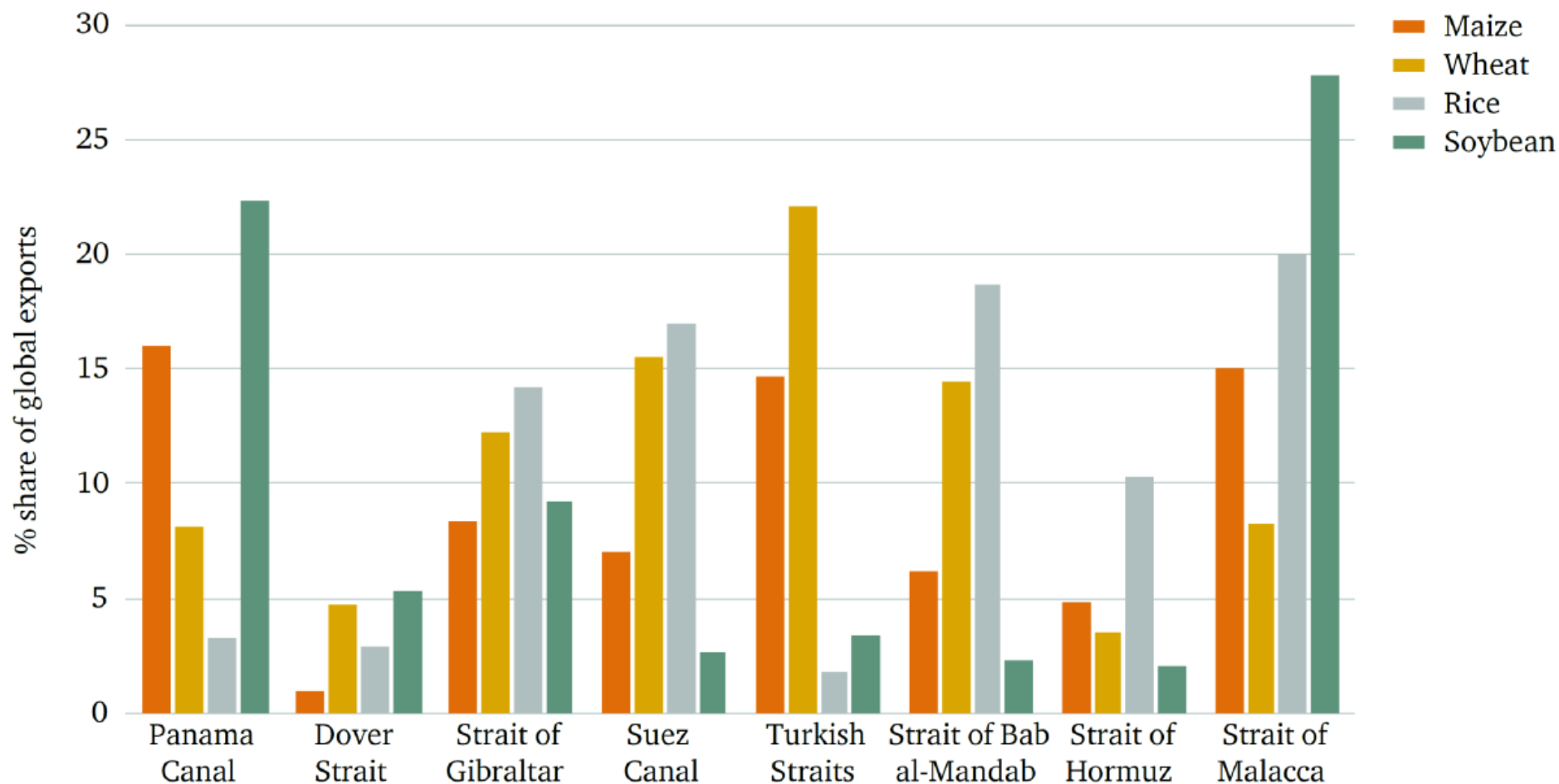
# Transport routes and infrastructure also constitute vulnerable nodes in the food system



Bailey & Wellesley (2017)

# These chokepoints are critical to global food trade

*Annual maritime chokepoint throughput as a share of total trade, 2015*



Bailey & Wellesley (2017)

# The core proposition of THE GLOBAL COMMISSION ON THE ECONOMY AND CLIMATE

We can build a better, more peoplecentred, more resilient growth model by **accelerating structural transformation in five key economic systems:**

- Clean energy systems
- Smarter urban development
- Sustainable land use
- Wise water management
- A circular industrial economy

# Bioeconomy/circular economy – *NOT ONLY A MATTER OF BIO-RESOURCES.*

Minerals and materials –  
critical for the new economy  
and the SDG

- Conflict minerals
- Minor recycling
- Geo-political perspectives

Reminds us about:

Solving problems in one area -  
creating problems in other areas



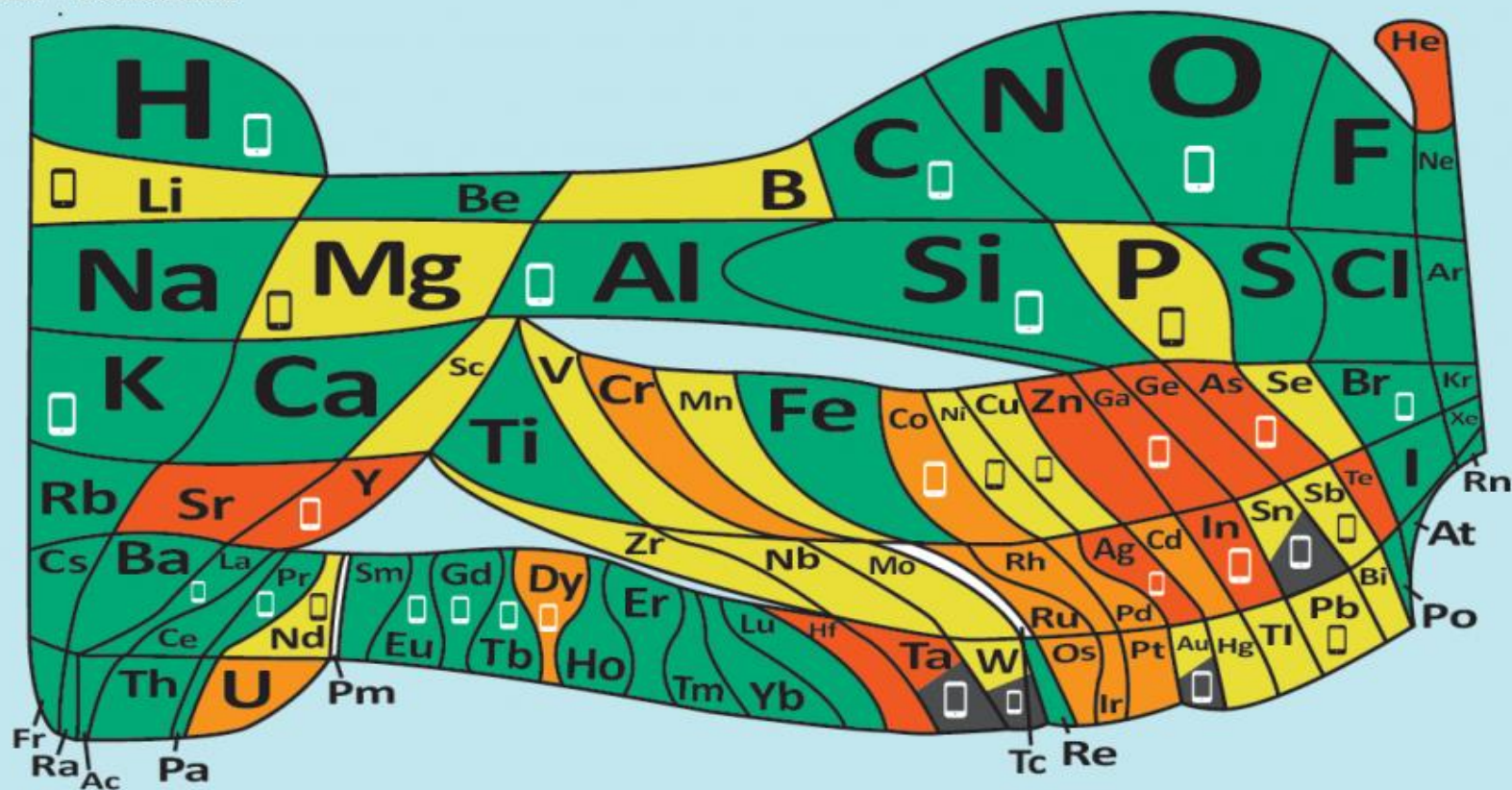


# The 90 natural elements that make up everything

*How much is there? Is that enough?*

United Nations  
Educational, Scientific and  
Cultural Organization

International Year  
of the Periodic Table  
of Chemical Elements



- Serious threat in the next 100 years
- Rising threat from increased use
- Limited availability, future risk to supply
- Plentiful Supply
- Synthetic
- From conflict minerals
- Elements used in a smart phone

Read more and play the video game <http://bit.ly/euchems-pt>



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# EUROPE – in between old and new superpowers. *A competitive Europe ?*

- Old empires losing position
- New empires emerging ?

*What does it mean for Europe*

## The China Belt and Road Project



## ...Today's Top 20 Worldwide Internet Leaders Today = USA @ 11...China @ 9

Public / Private Internet Companies, Ranked by Market Valuation (5/29/18)

Rank	2018 Company	Region	Market Value (\$B)	
			5/29/13	5/29/18
1)	Apple	USA	\$418	\$924
2)	Amazon	USA	121	783
3)	Microsoft	USA	291	753
4)	Google / Alphabet	USA	288	739
5)	Facebook	USA	56	538
6)	Alibaba	China	--	509
7)	Tencent	China	71	483
8)	Netflix	USA	13	152
9)	Ant Financial	China	--	150
10)	eBay + PayPal*	USA	71	133
11)	Booking Holdings	USA	41	100
12)	Salesforce.com	USA	25	94
13)	Baidu	China	34	84
14)	Xiaomi	China	--	75
15)	Uber	USA	--	72
16)	Didi Chuxing	China	--	56
17)	JD.com	China	--	52
18)	Airbnb	USA	--	31
19)	Meituan-Dianping	China	--	30
20)	Toutiao	China	--	30
Total			\$1,429	\$5,788

# Addressing future challenges: *RESEARCH SYSTEM HAS TO ADAPT AND CHANGE*

## Innovation and IMPACTS

- Incentives need to be adjusted

## Mode of work

- Both reductionistic and synthetic thinking is needed
- Contexts and conceptualization
- Less 'linear' processes – more interactive processes

## Responsibility and integrity

- The societal perspective





# Great efforts and difficult decisions in face with THE GRAND GLOBAL CHALLENGES:

Public support and understanding –  
science literacy and lay people's trust

Some paradoxes of modern societies

- More – and better - information and systems: Not always improving the literacy
- Pseudo-science groups vs science based institutions

Mitch Kapur: *“Technology advances at exponential rates, and human institutions and societies do not. They adapt at much slower rates. Those gaps get wider and wider.”*



## ALIENATION and misperceptions

- A threat to SDG achievements
- A challenge and responsibility for the science community

# This afternoon – visiting the field station of NIBIO Apelsvoll





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