



What drives (in)efficient use of resources?

Findings from a meta-analysis of literature

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DYNAMIX – Brief project overview

DYNAMIX – DYNAmic policy MIXes for Absolute Decoupling of Environmental Impact of EU Resource Use from Economic Growth

OBJECTIVE

To identify policy pathways to achieve absolute decoupling of economic growth from resource use and its environmental impacts in the EU in 2050

PARTNERS



WORK TO BE PERFORMED

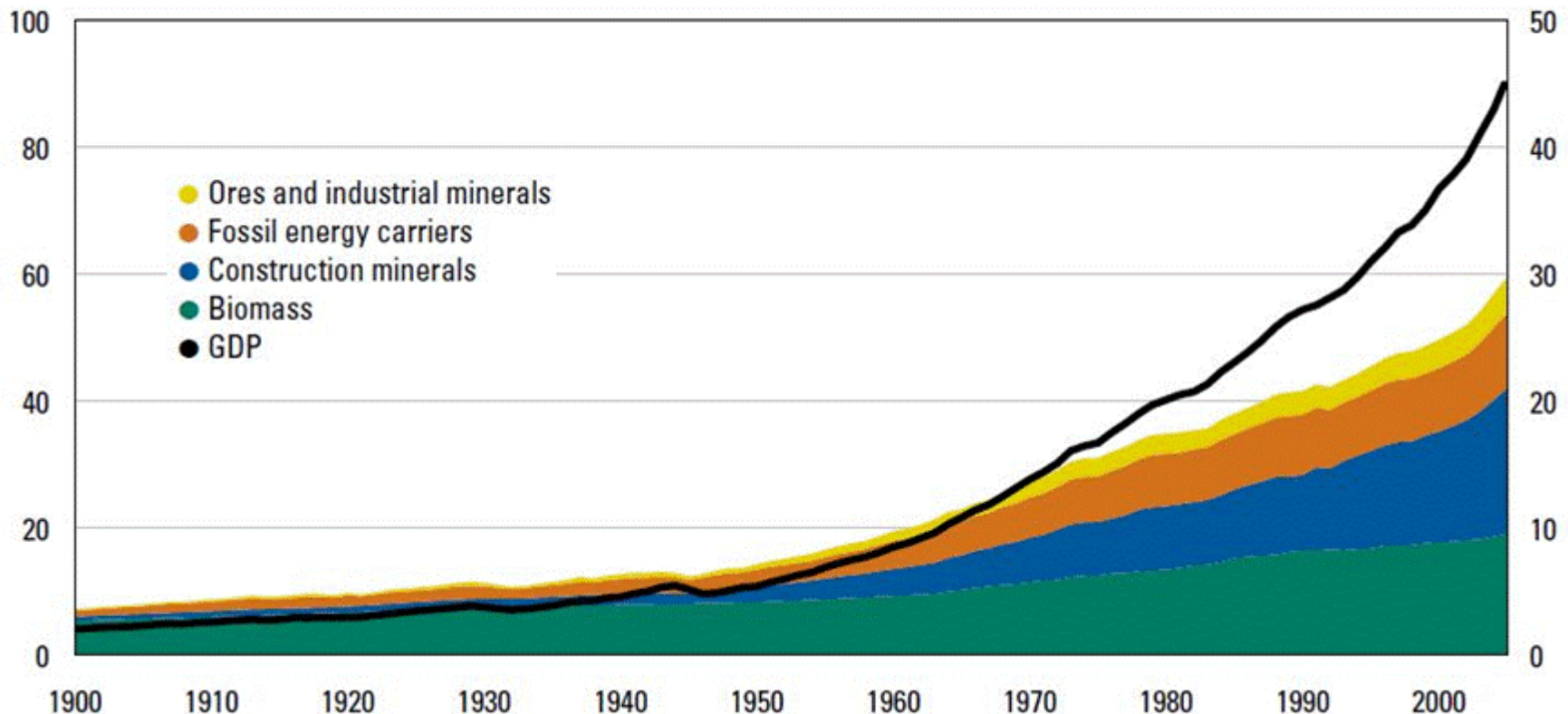
Ex post assessment of existing policies; development of scenarios and new policy mixes (incl. paradigm shifts); quantitative modelling; qualitative ex ante assessment; and stakeholder involvement through policy platforms.



Background – Global Resource Use

Material extraction
Billion tons

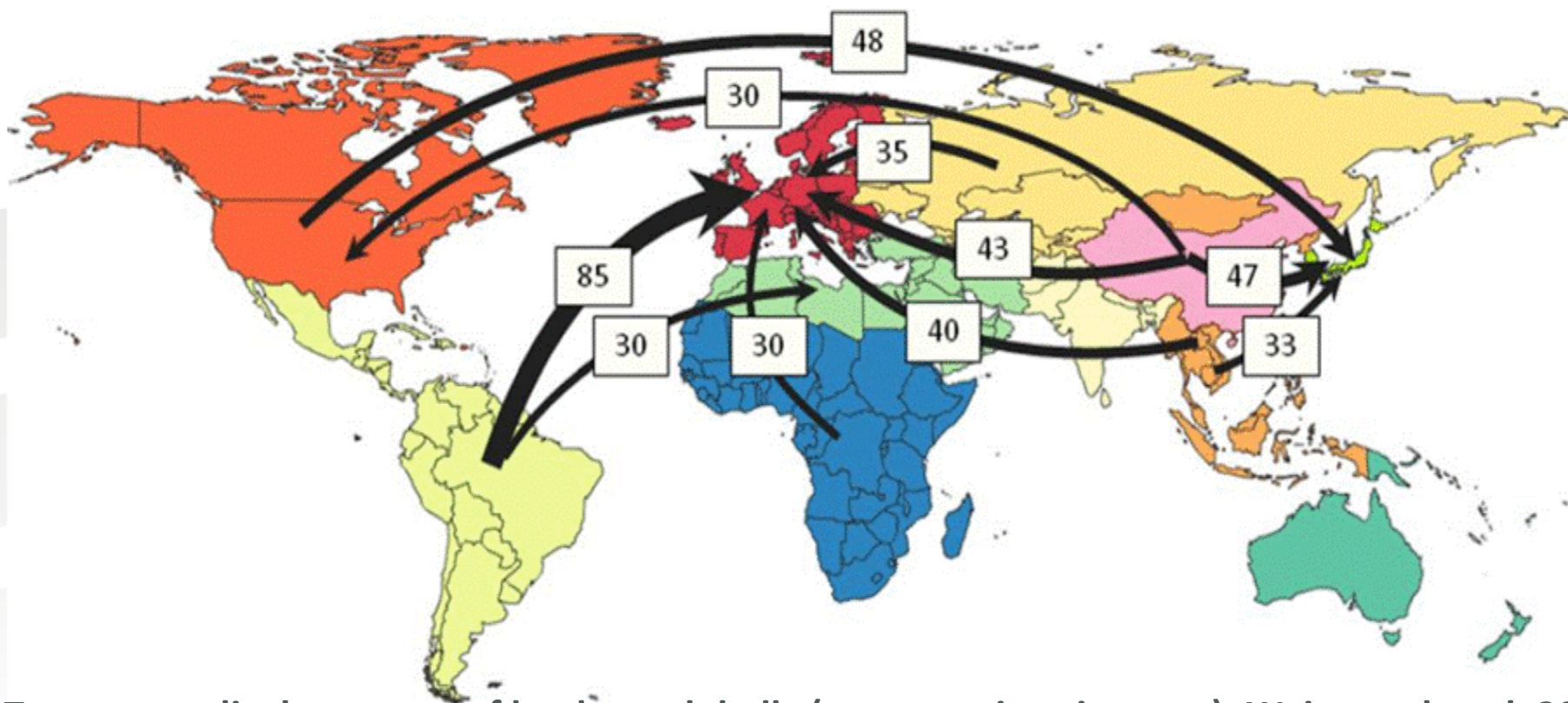
GDP
trillion (10¹²) international dollars



Global Material Extraction in billion tonnes, 1900 – 2005; Krausmann et al. 2009 (in UNEP 2011)



Background – Global Land Use



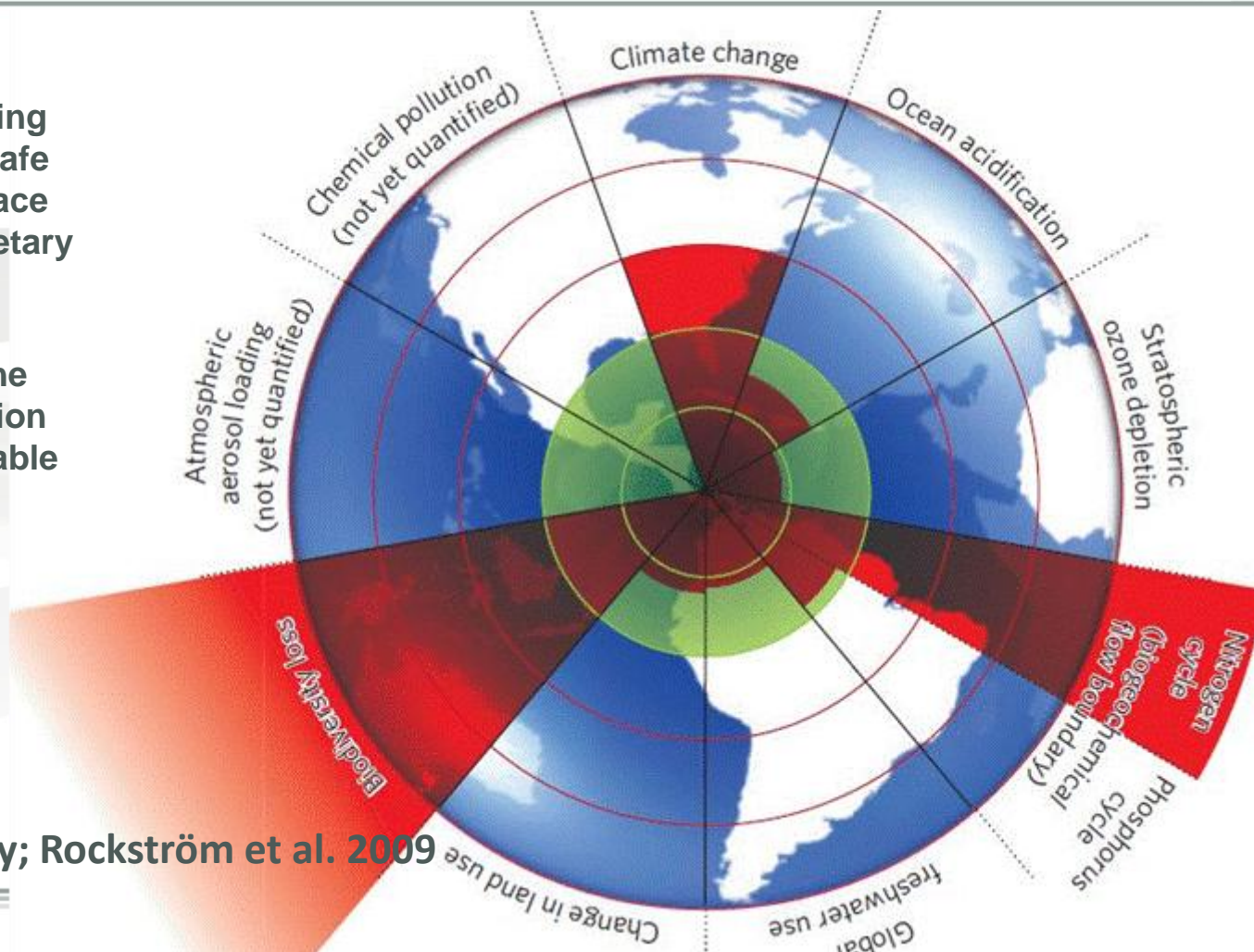
Top ten net displacements of land use globally (exports minus imports); Weinzettel et al. 2013
arrows indicate the direction of product flow; units are in million gha per year.



Background – Planetary Boundaries

inner green shading
= proposed safe
operating space
for nine planetary
systems

red wedges =
estimate of the
current position
for each variable



Beyond the boundary; Rockström et al. 2009



Methods and approach

Research question: **What drives (in)efficient use of resources?**



Meta-analysis of 28 peer-reviewed articles

Selected according to multi-step selection procedure (e.g. type of article, relevance for the topic and year of publication)

Coded by three scientists; interim intercoder reliability checks

Qualitative clustering approach (3 Tiers of increasing detail)

Assessing no. of mentions and direction of effect



Results – relevant Tier 1 and 2 drivers

Driver names	Tier	No. of mentions	Direction		
			Negative	Positive	Undetermined
Behavioural and informational	1	37	21	13	3
Consumption and production patterns	2	17	12	4	1
Environmental awareness	2	7	-	7	-
Knowledge/information, training, skills	2	6	5	-	1
Paradigms, world views, mental models, cultural practices	2	7	4	2	1
Policy and regulatory	1	21	9	11	1
Legal-administrative settings and political actions	2	21	9	11	1
Technological and infrastructural	1	19	11	5	3
Complexity and applicability of technologies	2	3	2	-	1
Infrastructure design	2	16	9	5	2

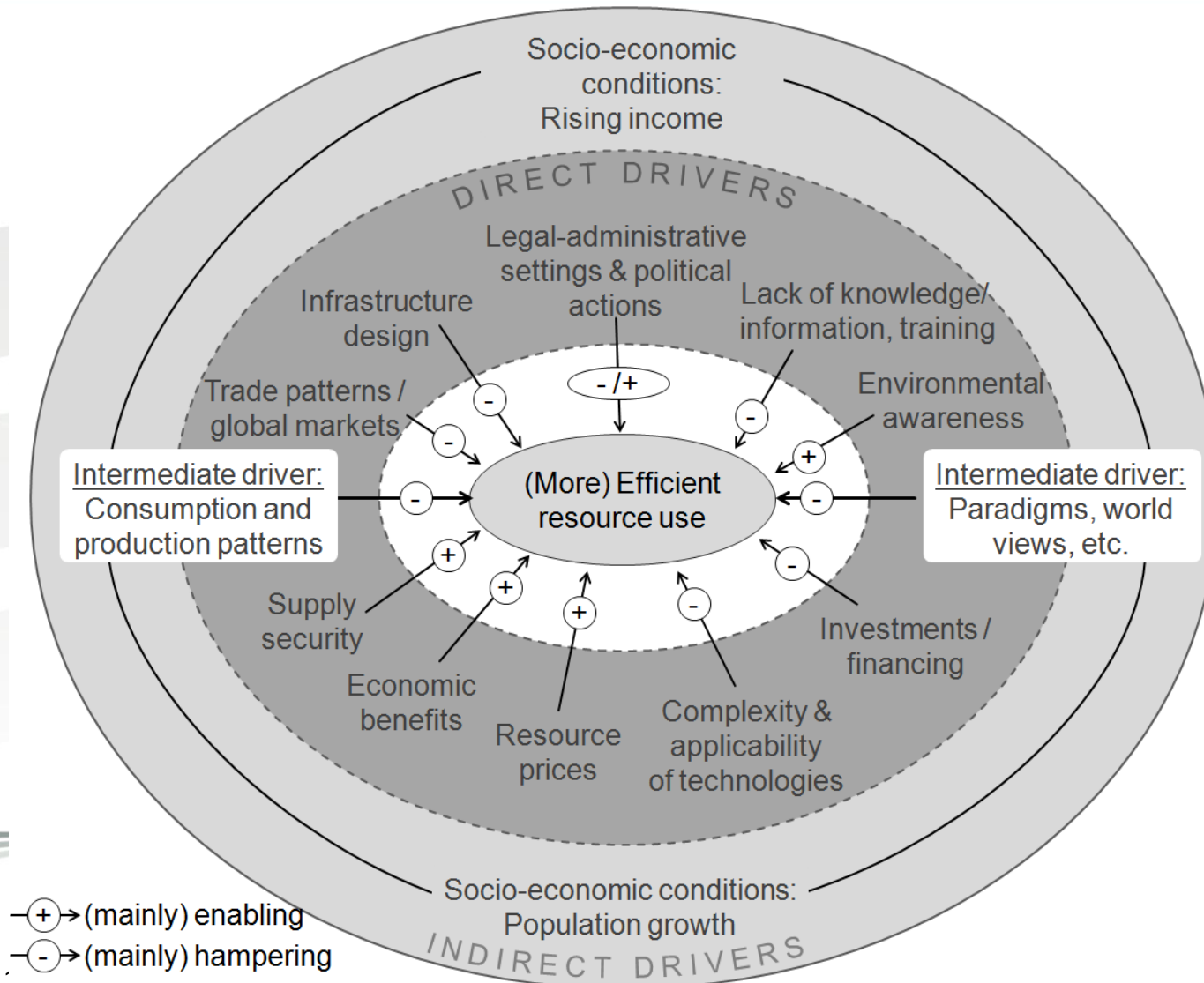


Results – relevant Tier 1 and 2 drivers cont'd

Driver names	Tier	No. of mentions	Direction		
			Negative	Positive	Undetermined
Socio-economic	1	49	26	18	4
Economic benefits/(future) economic value	2	9	2	6	-
Investments / financing (public & private)	2	6	4	2	-
Resource prices (price developments)	2	6	1	4	1
Socio-economic conditions	2	19	14	2	3
Supply security	2	4	-	4	-
Trade patterns / global markets	2	5	5	-	-
Grand Total		133	70	49	14



Discussion – causal linkages of drivers





Discussion – policy priorities

Key drivers

- Socio-economic issues relevant for context and framing of behaviour
- Economic development and population growth impacting planetary boundaries
- Moderated by westernised consumption and production patterns

Policy priorities

- Foster technological innovation, in combination with
- Targeting paradigms, practices and behaviour to reduce rebound effects
- Enabling frameworks for transition



Conclusion – policy mixes needed

Policy mix designed as (case specific) appropriate combination of

- Informational, economic, fiscal and regulatory instruments

To help setting the right framework conditions allowing business and societal actors to

- challenge existing production and consumption patterns
- and experiment with innovative approaches.

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