

Global Material Resources Outlook to 2060

Economic drivers and environmental consequences

Dr. Eva Barteková

Environment and Economy Integration Division, OECD

Ninth Regional 3R Forum in Asia and the Pacific, Bangkok, 4 March 2019

 @OECD_ENV



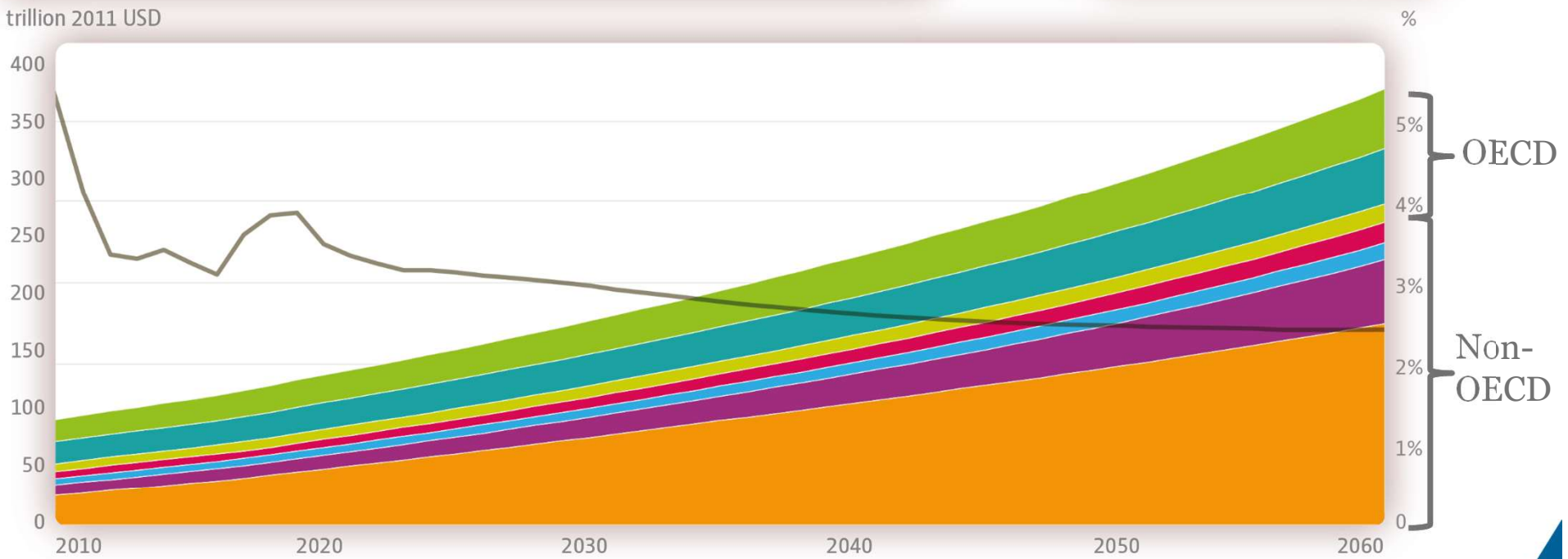


Outline

- The economic drivers of materials use
- Materials use projections to 2060
- Environmental consequences
- Conclusions and policy implications



Global economy to triple ...



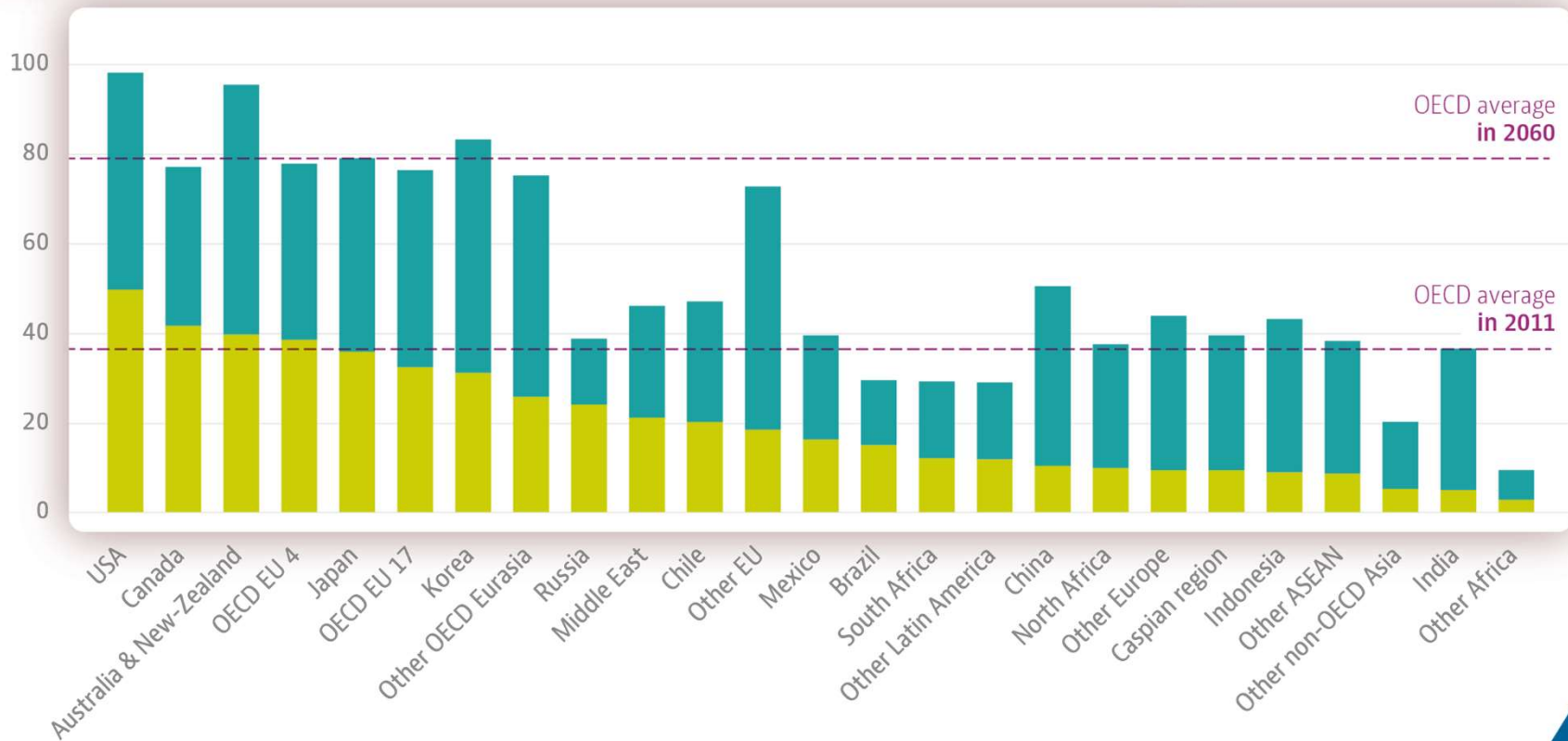
....but global growth slows down





Living standards will converge to current OECD levels

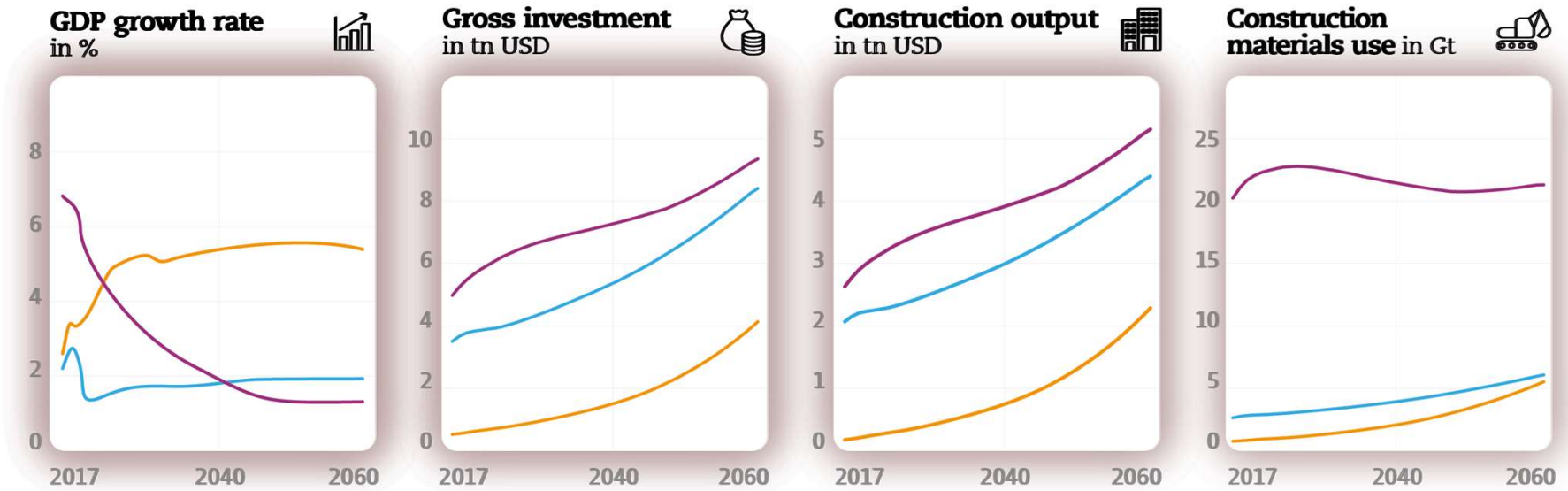
● GDP per capita in 2011 ● GDP per capita in 2060 thousand USD in 2011 PPP





Investment increases over time and construction follows

United States China Sub-Saharan Africa

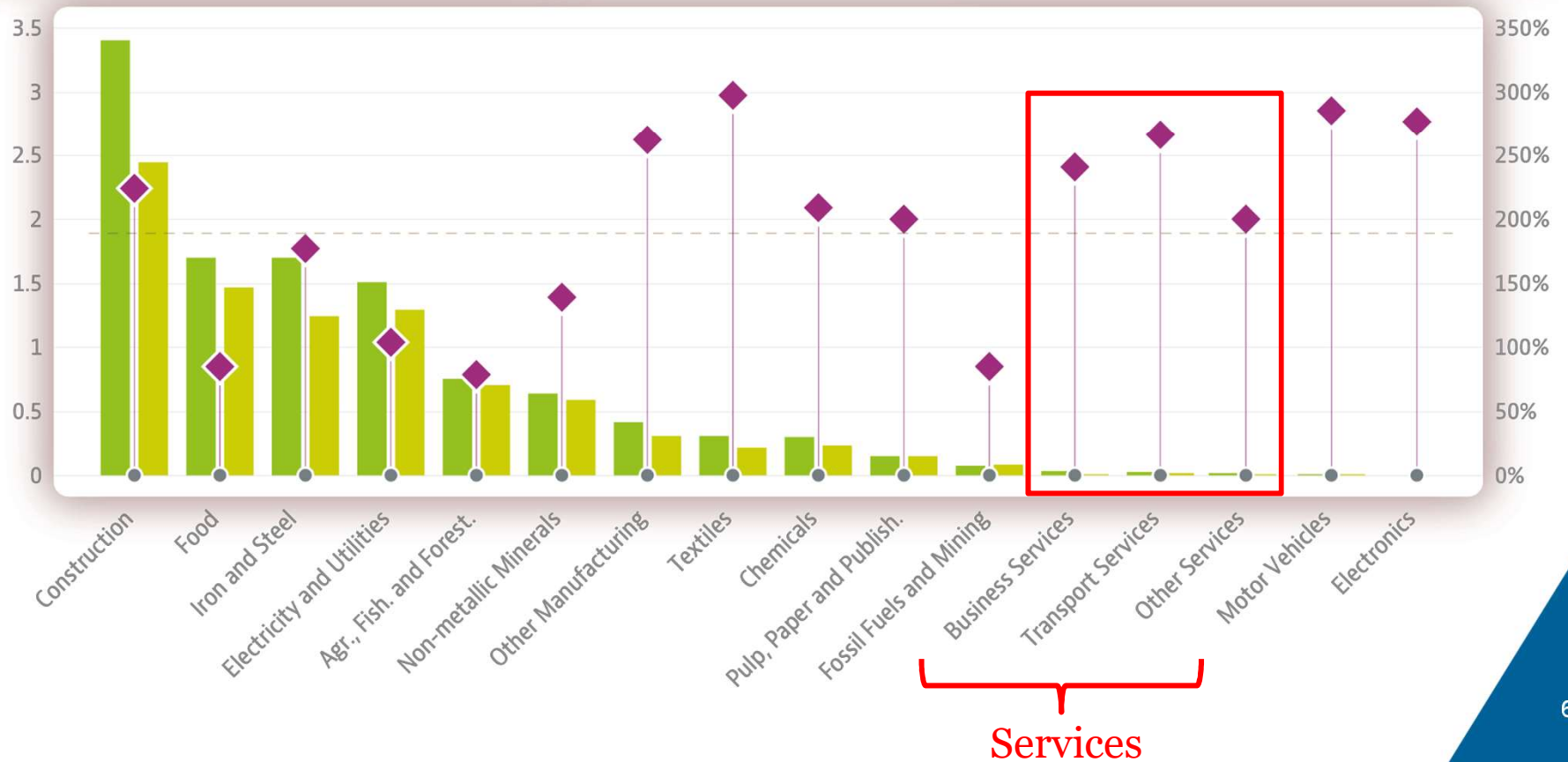




Structural change shifts activity away from material intensive sectors

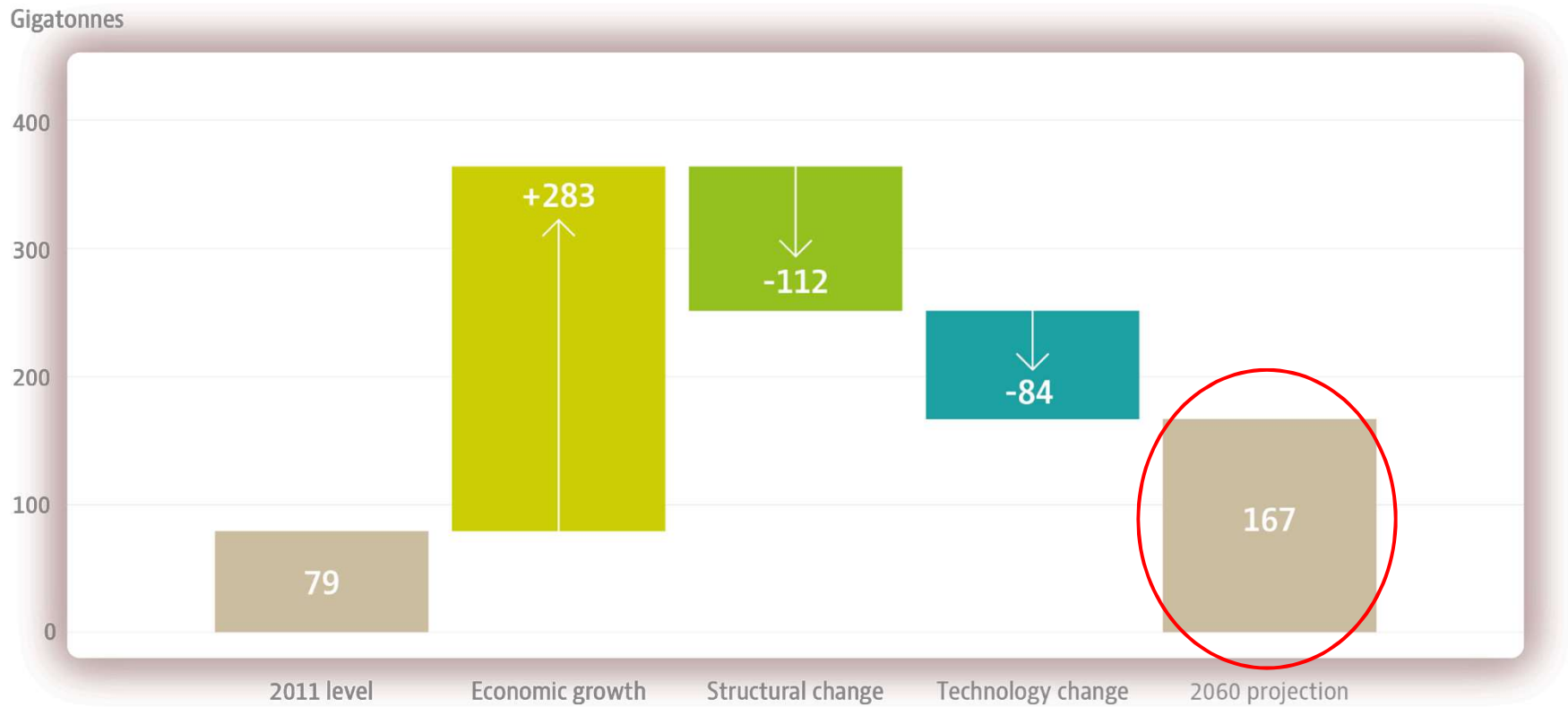
Material intensity in 2060 in tonnes/USD
Material intensity in 2011 in tonnes/USD

Output growth 2011-2060 in %
Average output growth 2011-2060 in %





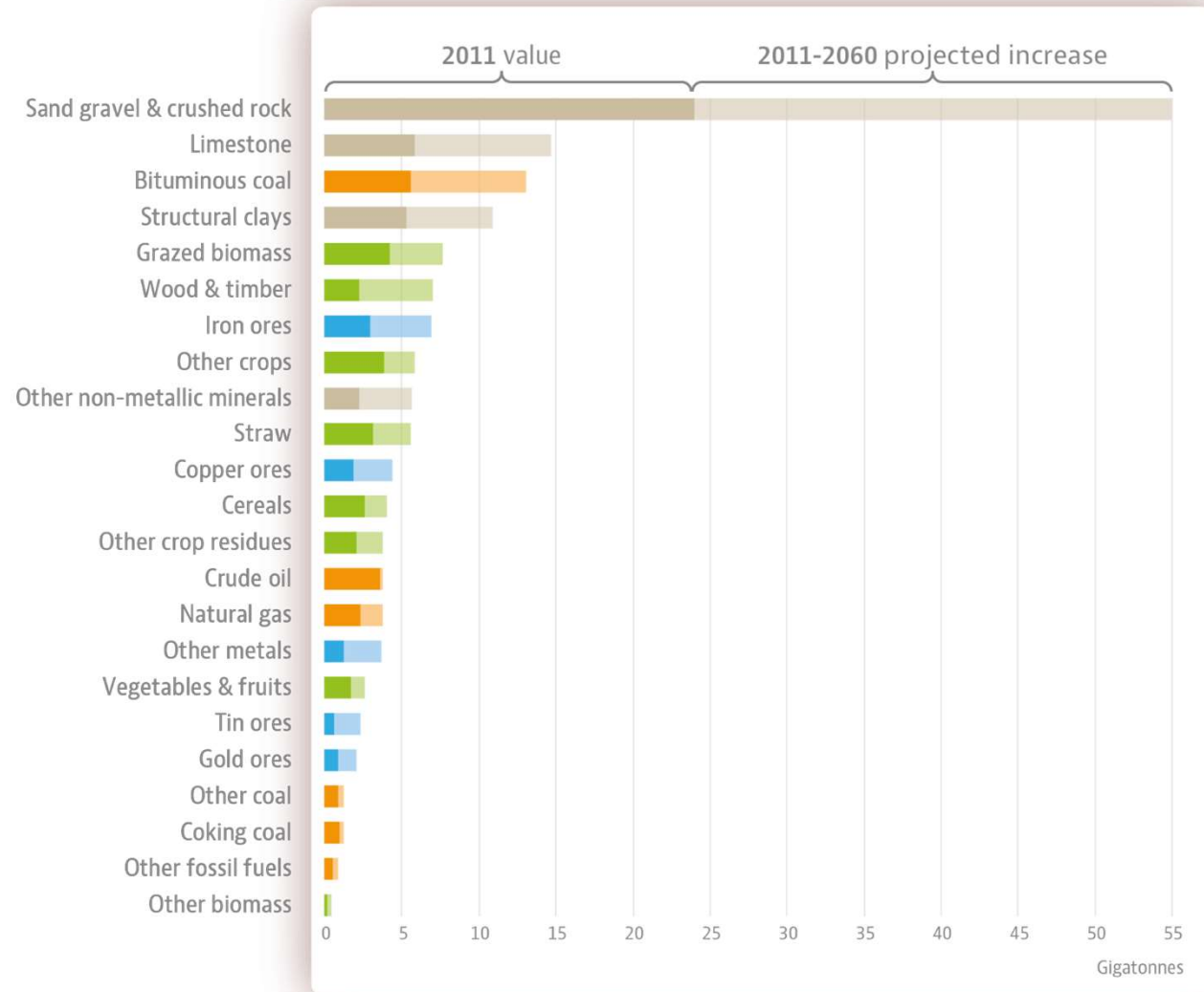
Competing forces lead to near doubling of materials use





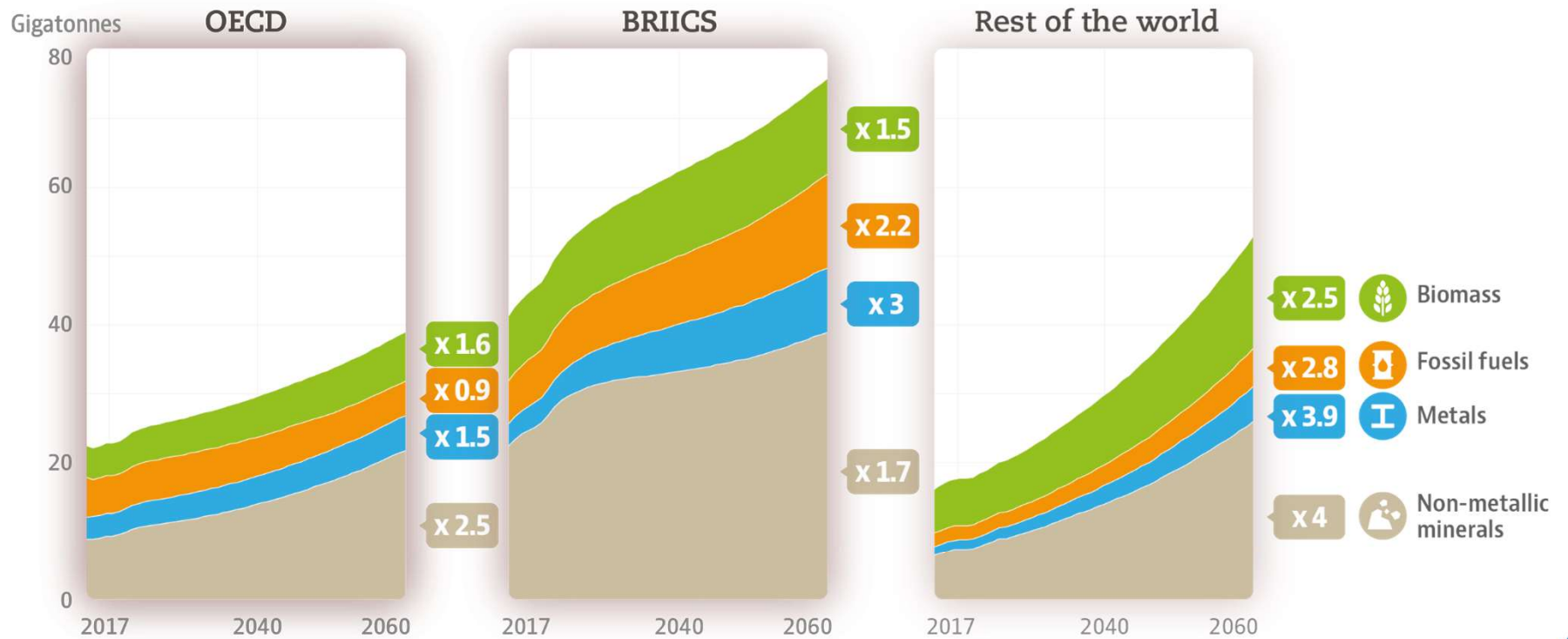
Growth in material use differs widely across materials

- Biomass
- Fossil fuels
- Metals
- Non-metallic minerals





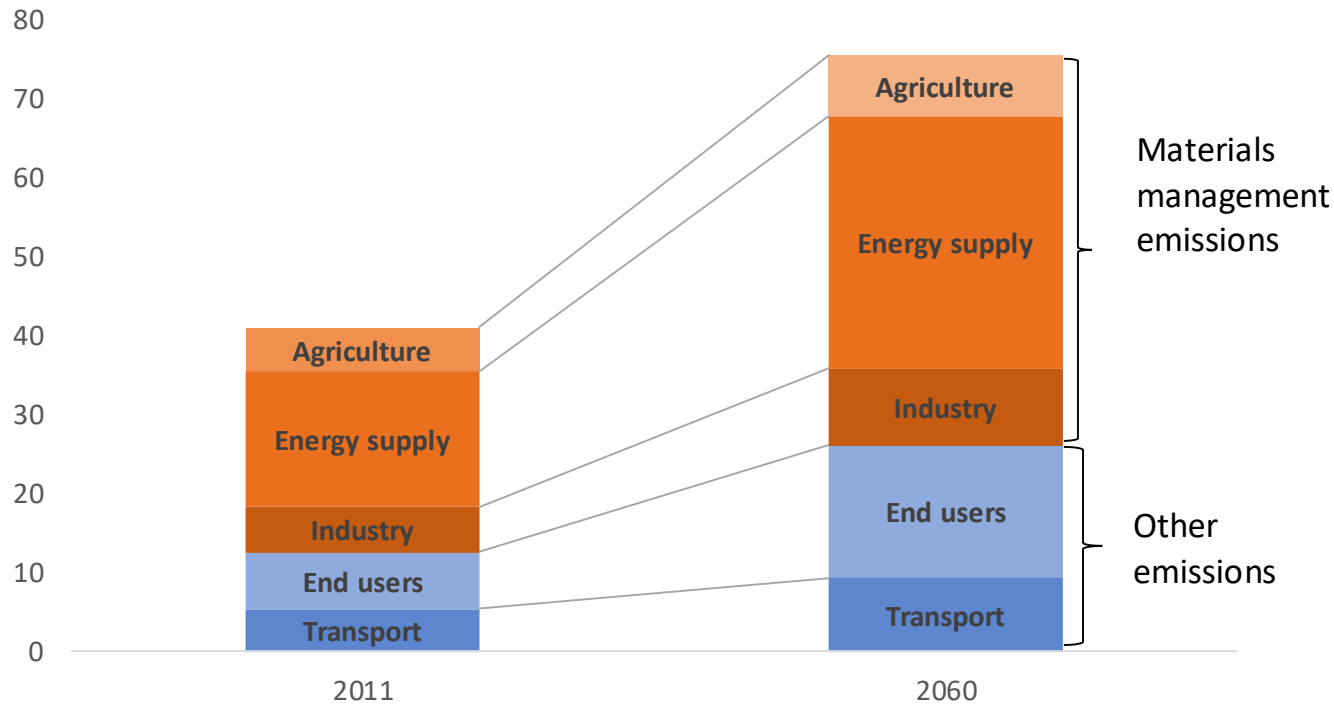
.. And across countries





Greenhouse gas emissions related to materials management will more than double

GHG emissions in CO₂ equivalent



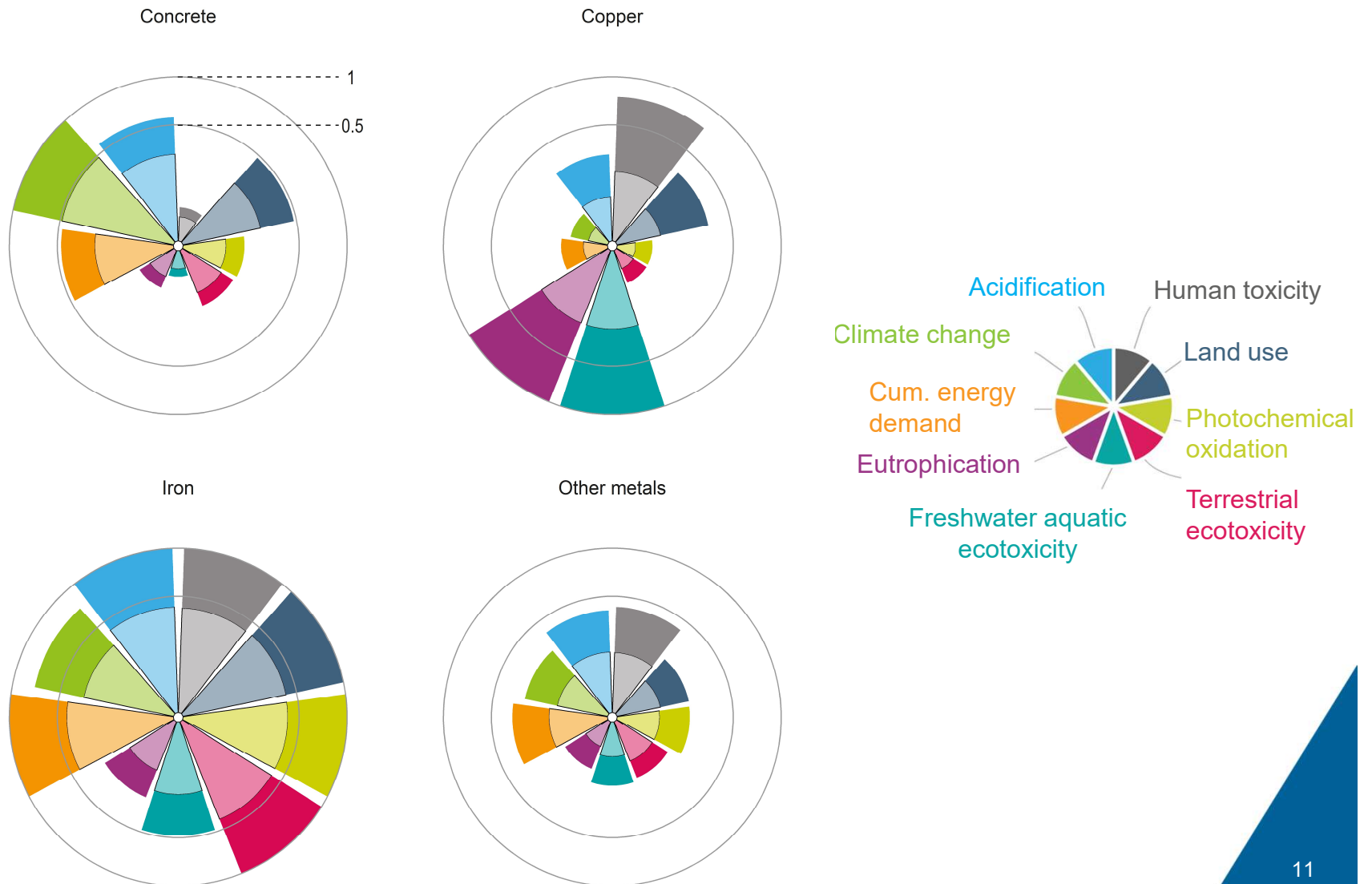
12% of total ghg emissions associated with 7 key metals

12% of total ghg emissions associated with concrete

50Gt CO₂ eq emissions associated with materials cycle



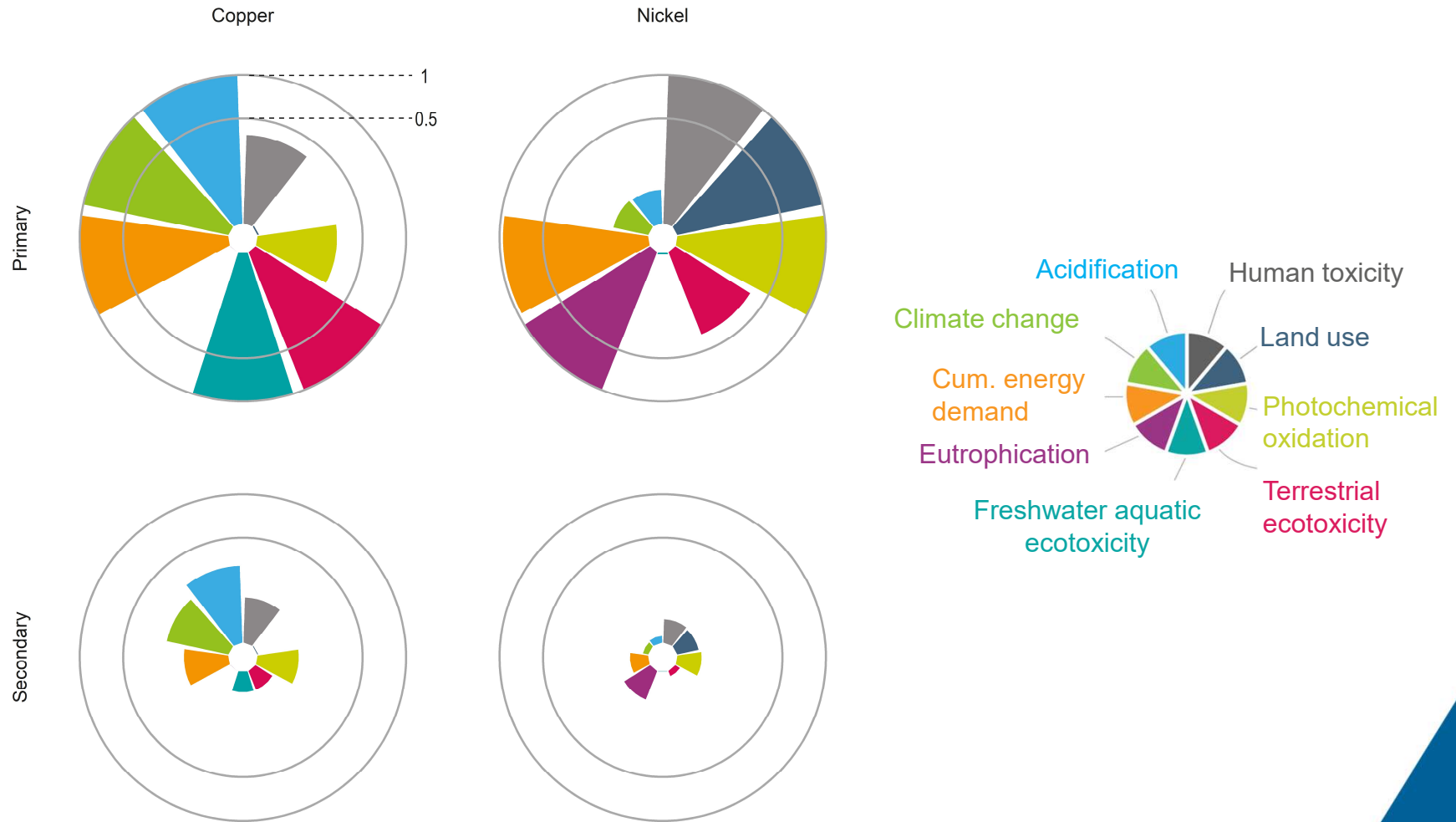
Environmental impacts from extraction and processing will more than double, but vary widely by material



Total environmental impacts (highest impact in 2060 normalised to 1)



Primary materials cause much more environmental damage



Per kg environmental impacts (highest impact normalised to 1) for 2015



Conclusions

- Conflicting socio-economic trends will drive materials use. Despite structural and technological change, global materials use will double between now and 2060.
- This exacerbates a wide range of environmental impacts, and is on a collision course with meeting the objectives of the Paris Climate Accord.
- While recycling becomes more competitive over time it is not sufficient to shift the balance between primary and secondary materials use.
- Given the stark differences between materials we need greater granularity within resource efficiency policies, motivated by environmental concerns.
- Greater coherence is needed between resource management and climate policies, as well as other policies, such as trade and innovation.

Thank you for joining us!



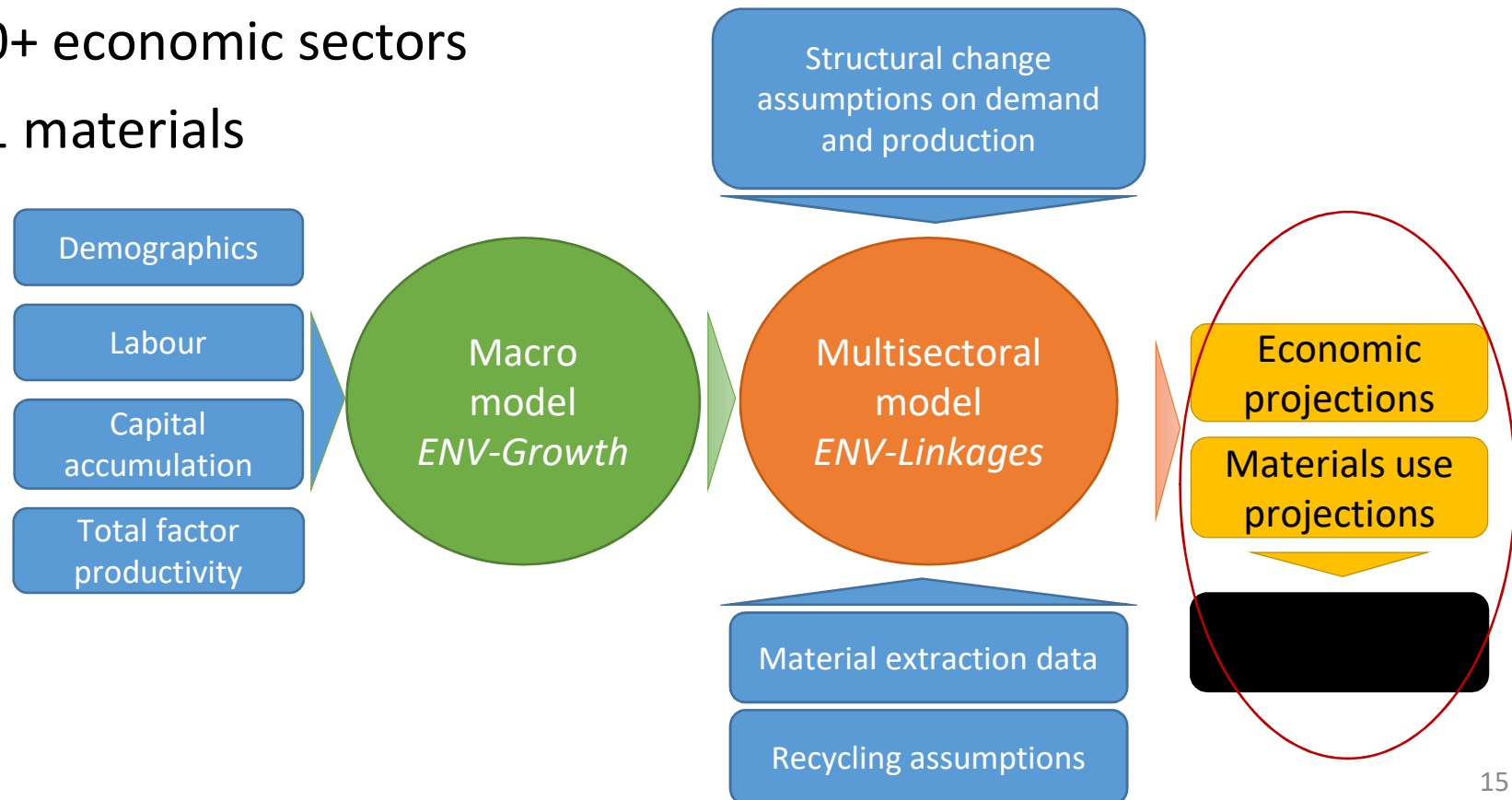
Authors: Shardul Agrawala, Rob Dellink, Jean Chateau, Ruben Bibas, Elisa Lanzi, Martin Benkovic

Find the report, highlights and explore the data at:
oe.cd/materials-outlook

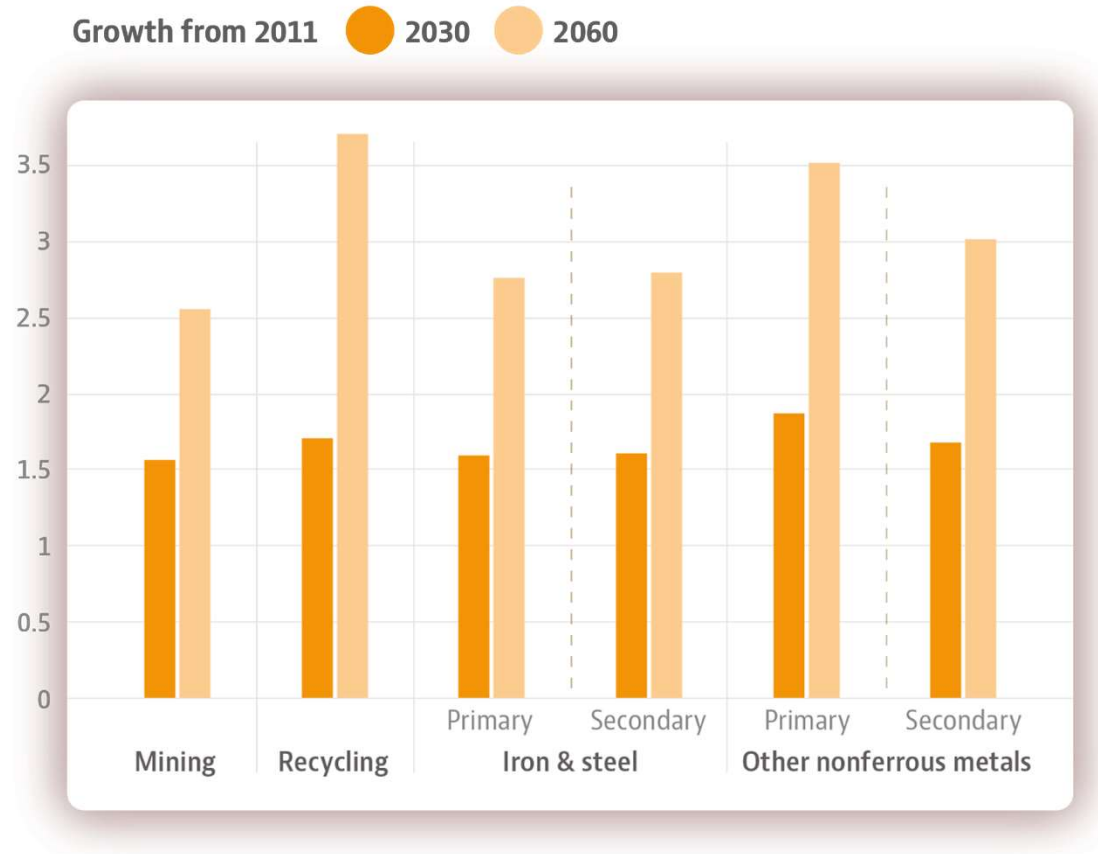
For more information, contact:
Eva.Bartekova@oecd.org

Material Resources Outlook in a nutshell

- Global assessment (disaggregated to 12 large economies + 13 regions)
- 2060 time horizon
- 50+ economic sectors
- 61 materials



Recycling grows faster than mining ..



.... but remains a small share of the economy