Designing Better Circular Economy Policies

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ETUC Circular Economy Conference

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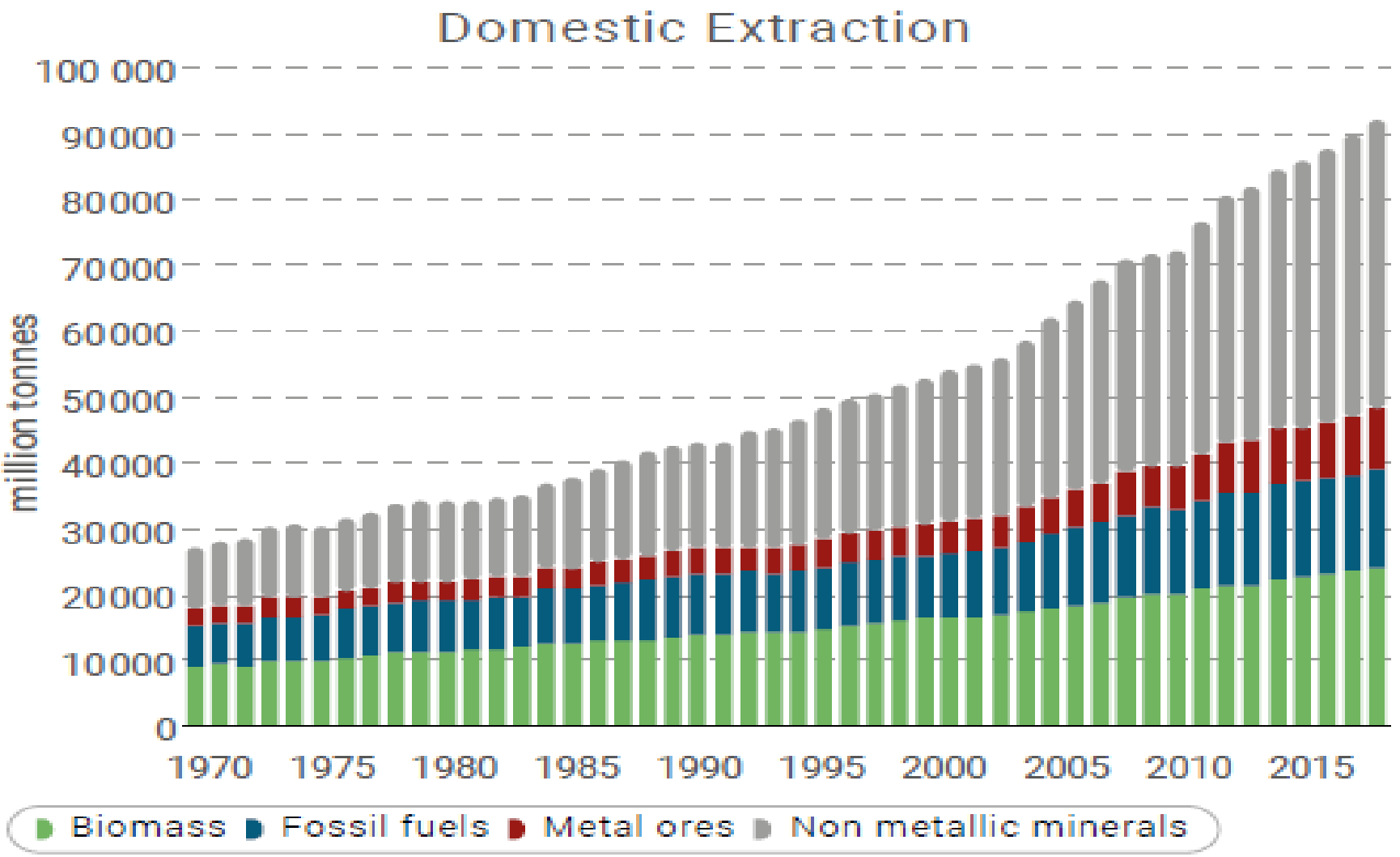
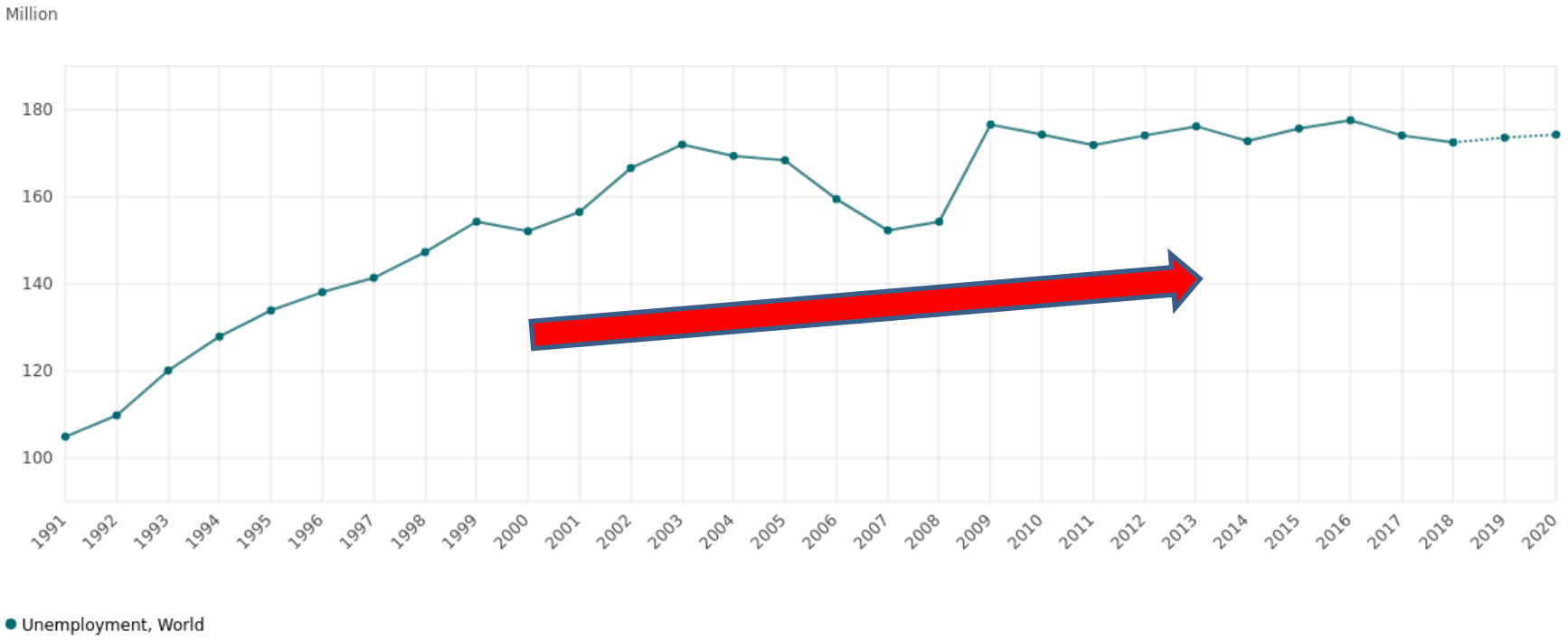
Context: Global material extraction



Source: UNEP & IRP, 2018

At same time, poverty, unemployment, inequality rising…

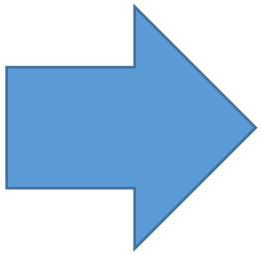


This dataset includes both real and imputed data from 1991-2018, as well as projections from 2019-20. Estimates may differ from official national sources.
Source: International Labour Organization, ILO modelled estimates (ilo.org/wesodata)

To convince the 'non-converted' circular policies must achieve social and economic outcomes

Circular policies…

- Transport
- Electricity
- Buildings
- Industry
- Agriculture
- Waste



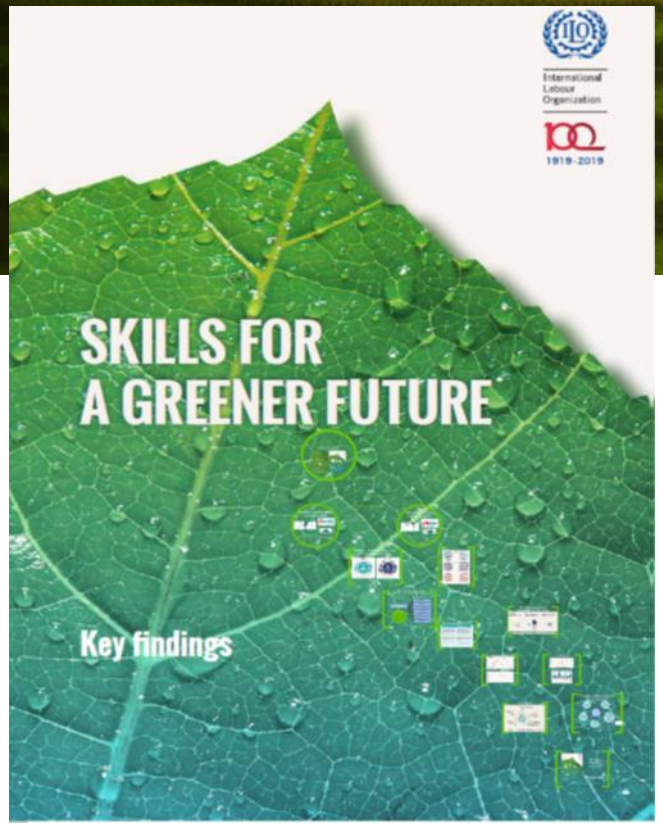
…which have positive social & job outcomes!

- Maximise job creation
- Protect job loosers
- Reduce poverty & inequality
- and other Goverment targets!

Just Transition

Global circular economy policies and its social and economic impacts

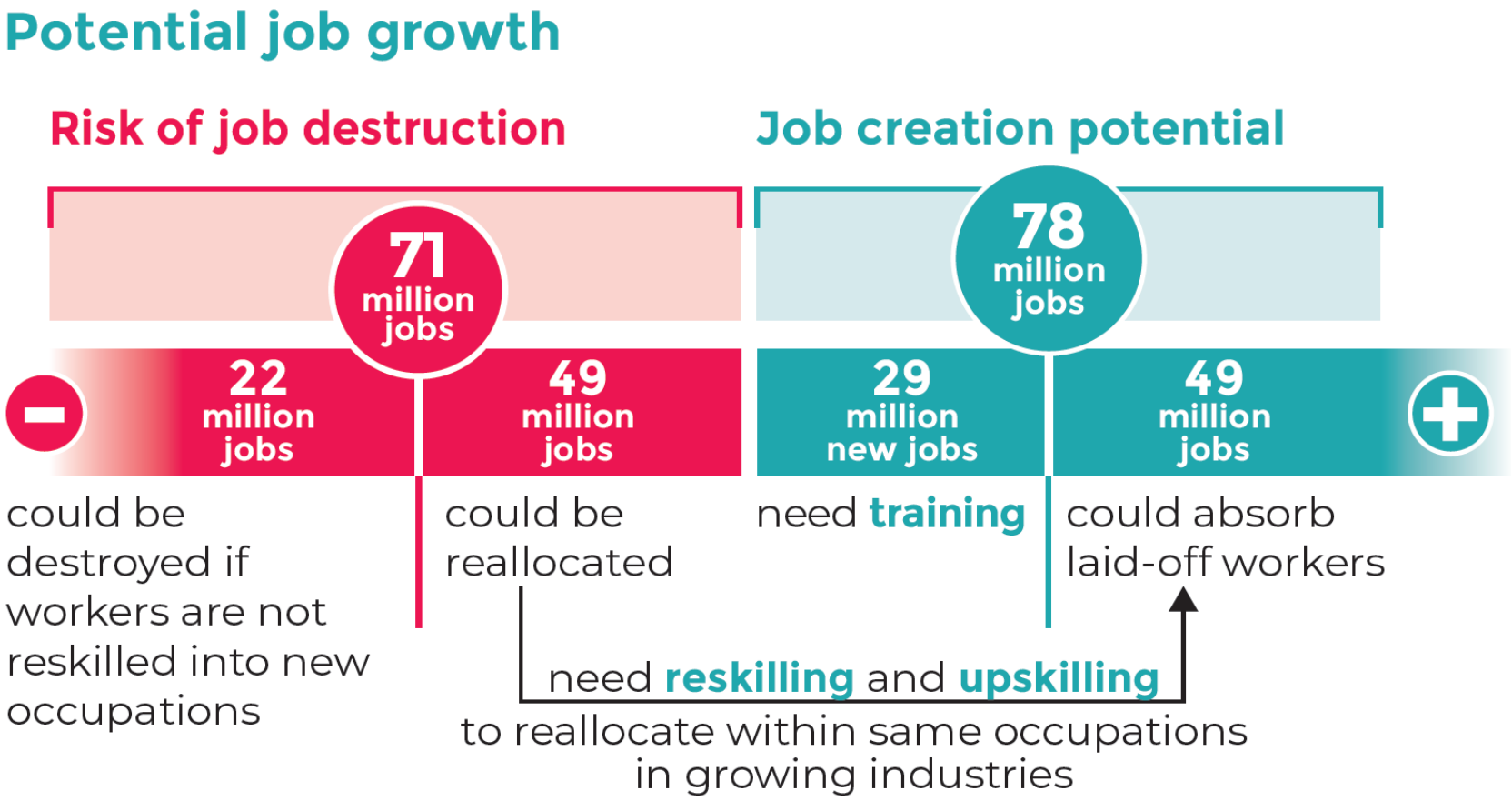
World Employment and Social Outlook 2018



A global circular economy scenario in a multi-regional input-output framework

Kirsten S. Wiebe & Richard Wood (NTNU IndEcol)
Guillermo Montt & Marek Harsdorff (ILO)

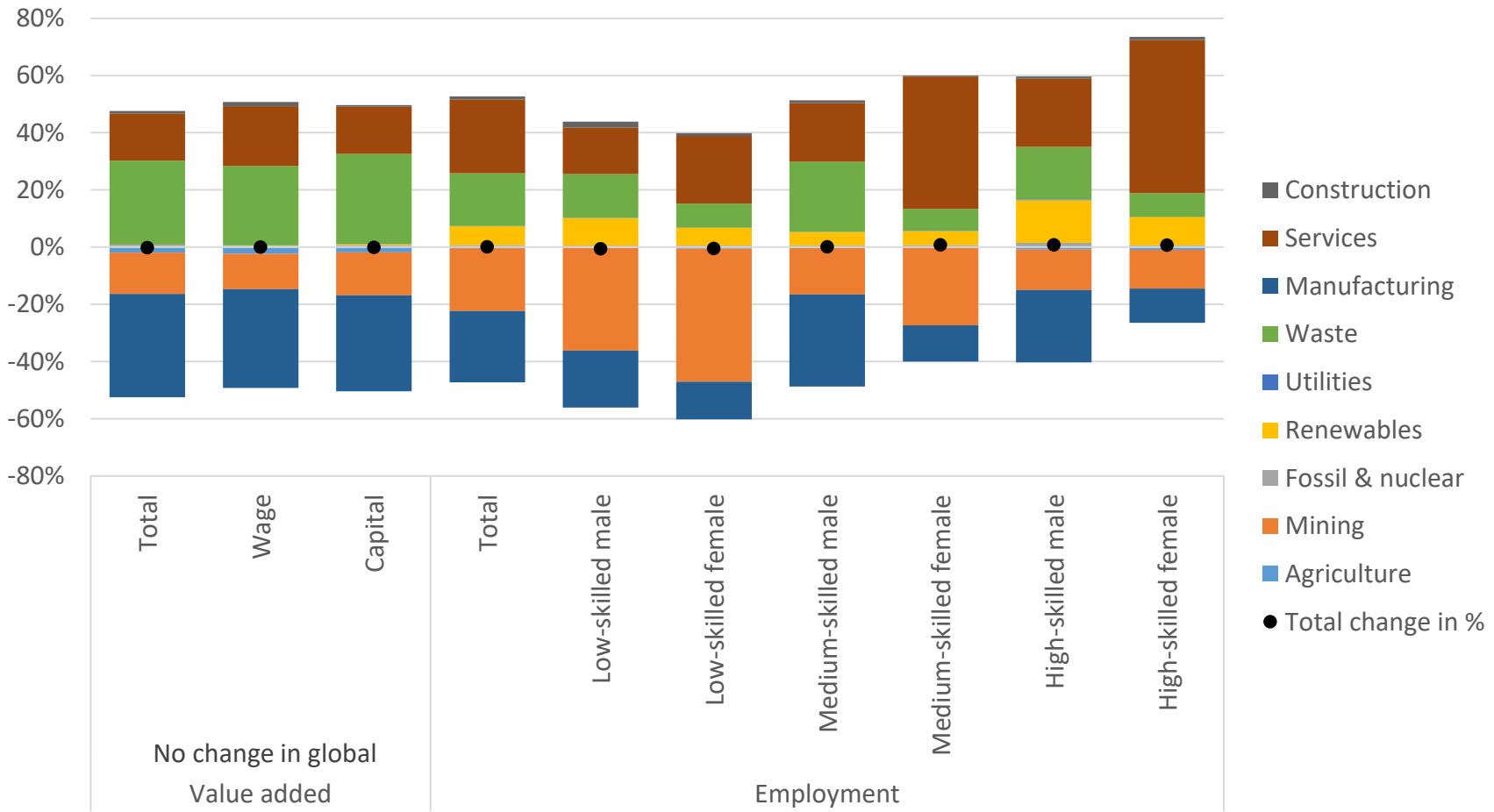
Global Circular Scenario 2030



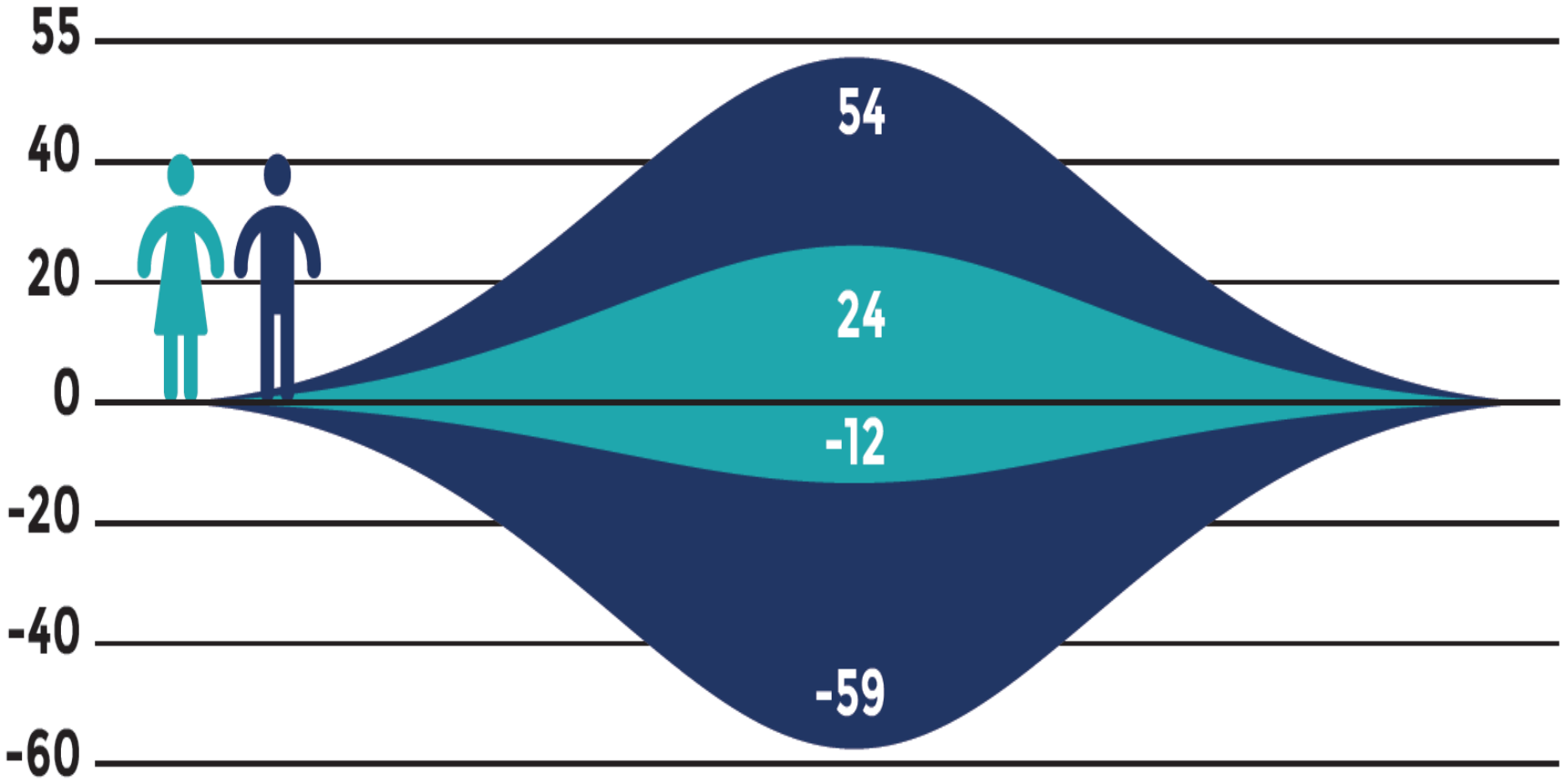
Job growth by occupations

15.6	Sales workers
10.4	Metal, machinery and related trades workers
4.3	Science and engineering associate professionals
3.7	Drivers and mobile plant operators
3.3	Electrical and electronic trades workers
3.2	Labourers in mining, construction, manufacturing and transport
2.9	Stationary plant and machine operators
2.8	Business and administration associate professionals
2.7	Building and related trades workers, excluding electricians
2.7	Science and engineering professionals
2.0	Refuse workers and other elementary workers
1.9	General and keyboard clerks
1.8	Market-oriented skilled agricultural workers
1.7	Food-processing, wood-working, garment and other crafts
1.7	Business and administration professionals
1.6	Numerical and material recording clerks

Sectoral contribution to total difference between scenarios



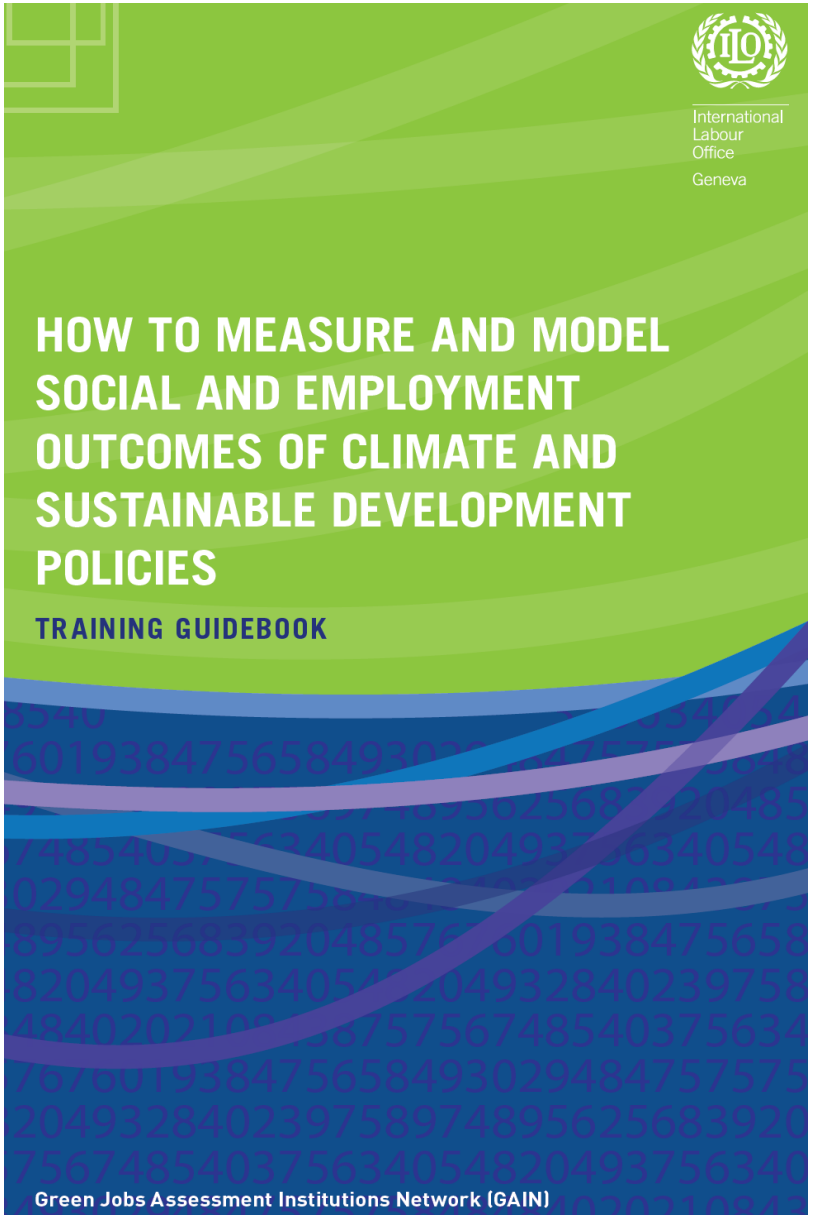
Job change by gender



First Step: Build your own national model!

- ✓ ILO open source Training Guide
- ✓ Based on national data and needs

- ✓ Capacity building to run national model
- ✓ <u>Enact fiscal tax reforms, skills, enterprise and social protection policies</u>
- ✓ <u>Ensure Decent Work</u>



Policy Recommendations

1. Fiscal policy tax reform: Reduce labour & increase material tax (double-dividend)
2. Social Recycling Policy: Contract COOP
3. Investment in Skills and Enterprise Development
4. Sector policies (Renewable, Green Ag, etc)
5. Social Protection Systems

Social Dialogue as basis of policy making

Just Transition Guidelines ILO

Example Brazil

- 2010 National Law on Solid Waste give municipalities responsibility to work through COOPs in waste picking and recycling and to ensure decent work

- 1,300 waste-pickers' cooperatives in Brazil
- COOPs do 90% of recycling in Brazil
- ILO support in Saftey & Heatlth in COVID response

Further reading : https://www.scielo.br/scielo.php?pid=S0104-12902014000100146&script=sci_arttext&tlng=en

Thank you

Annex

Transition to a green economy

- “results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities” (UNEP 2011)

- Modelling global economy-wide changes
  - Global multi-regional input-output model (MRIO)

- Scenario Analysis
  - Baseline: IEA Energy Technology Perspectives (ETP) 6-degree
  - Alternative Scenario: Circular economy
    - Recycling
    - Resource efficiency
    - Re-use and repairreusing and material efficiency

Modelling approach and data

- **44 countries + 5 regions**

- **Multi-regional supply-and-use tables**
  200products x 163 industries

- **Primary and secondary material producing industry**

1	Wood material	5	Steel	9	Copper
2	Pulp	6	Precious metals	10	Other non-ferrous metals
3	Plastic	7	Aluminum	11	Bottles
4	Glass	8	Lead, zinc, tin	12	Construction materials

- **1330 Environmental and socio-economic extensions**
  - Extraction of materials:
    7 forestry products, 11 fossil fuels, 12 metal ores, 8 non-metallic minerals
  - Employment: by gender and 3 skill levels
  - Value Added: Capital and Compensation of Employees

Modelling approach and data

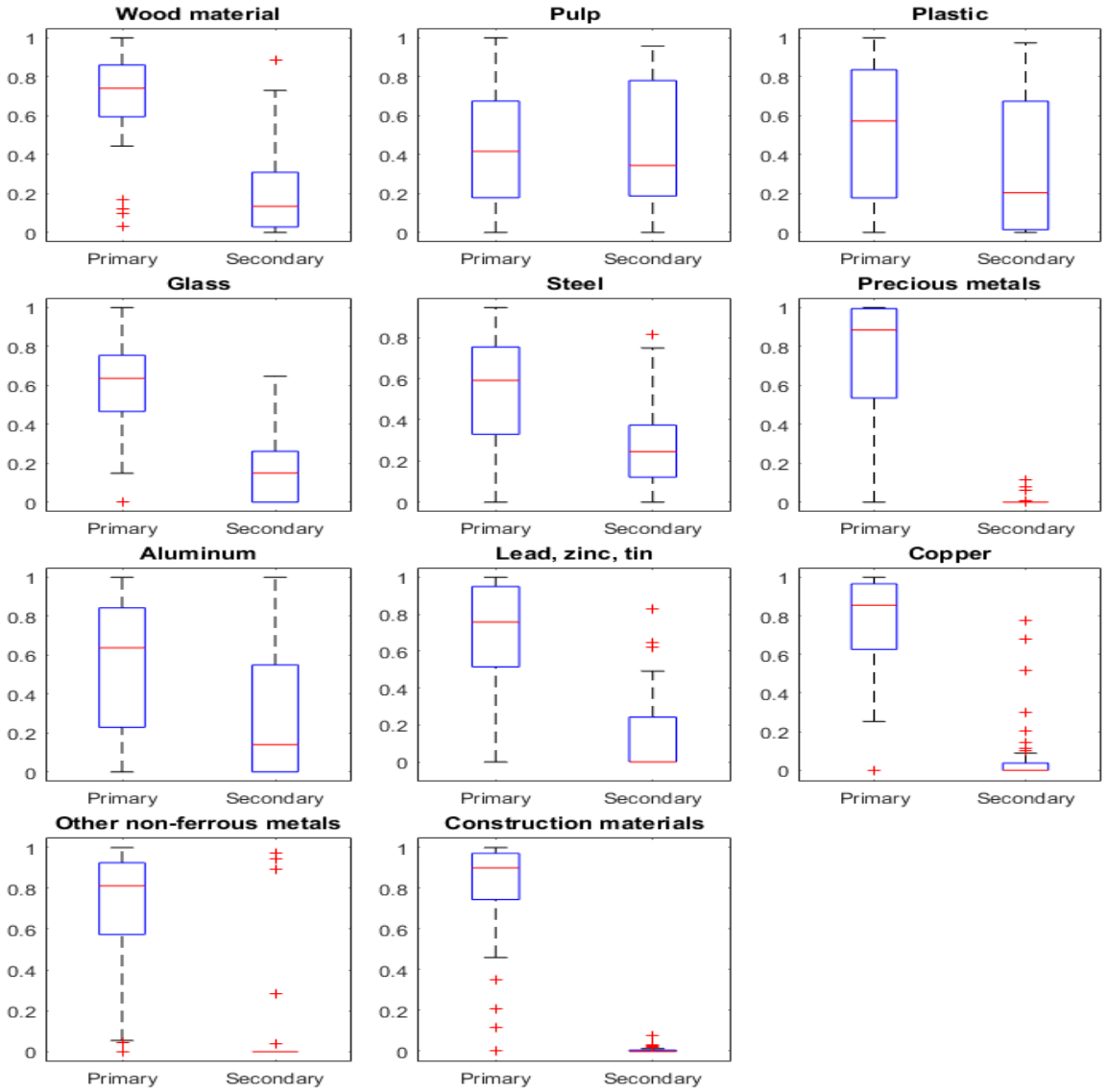
- A simple forward looking model of 

- Not a forecasting tool for the world economy
- MRSUT calibrated to meet the specifications of already existing scenarios e.g. IEA EPT, RCP or SSP
  - With more industry and product detail
  - Changing final and intermediate demand structure
  - Representation and calculation of direct and indirect effects
- Exogenous implementation of changes
  - Leontief et al (1977) The future of the world economy
  - Duchin (2015) The Transformative Potential of Input–Output Economics for Addressing Critical Resource Challenges of the Twenty-First Century

Scenario specifications

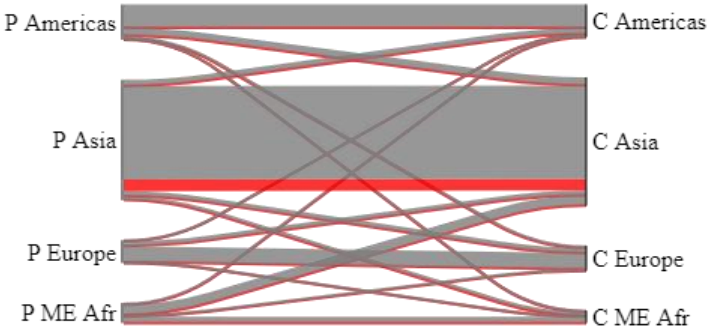
	BAU – IEA ETP 6 degree scenario	**Circular economy scenario**		
		Recycling	**Material efficiency**	**Repair, reuse and service**
Final demand	Household consumption according to AIDS model, Investment in renewable energy technologies	Assumption that production capacity grows commensurate to recycling levels and becomes available	Savings from material efficiency allocated to R&D	Reduction of final demand by 1% per year for all machinery products. Reallocation to services such that motor vehicle savings are allocated to repair services and other savings to retail trade and renting services.
Input coefficients of technology production	Machinery and equipment, electrical machinery and apparatus			
Input coefficients of technology use	Shares of electricity types and development of energy efficiency according to IEA ETP 6-degree scenario		Annual decrease of 1% in the use coefficients of both primary and secondary materials	
Market shares in supply table	Constant	Change in market shares from primary to secondary material producing industries (linear to a cap of 65%)		

Market shares of primary and secondary material processing industries

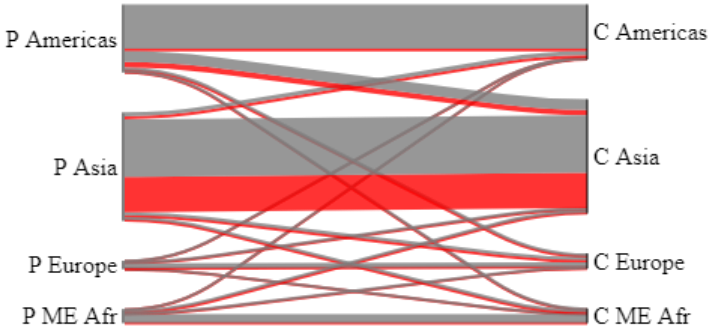


Reduction in trade in embodied materials

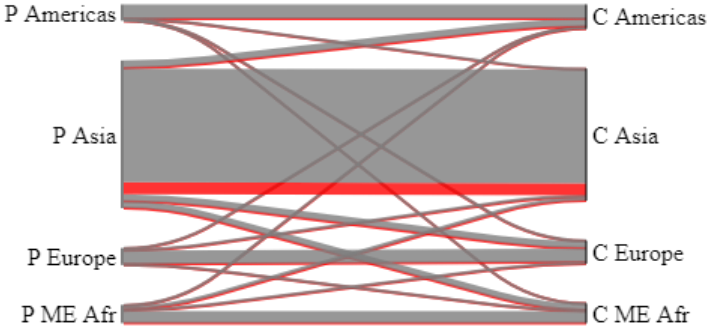
Fossil fuels



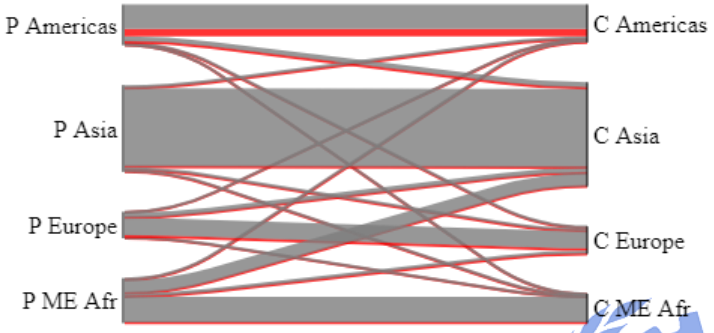
Metal ores



Non-metallic minerals



Forestry products



Limitations & opportunities

- Exogenous modelling of changes
- Introduction of dynamics
  - Development of theory corresponding to data availaibility
- Analysis of uncertainties
  - Indirect effects do not increase material extration → rather certain
  - Positive employment effect → quite uncertain (small overall effect, large variation across countries and industries)
- Future footprints strongly depend on trade modelling

- The circular economy (as modelled here) seems to at least as sustainable than the BAU