

Jobs and Inequality in a Changing Climate

Marek Harsdorff
Economist
Just Transition Program ILO

3 July 2024 Santander



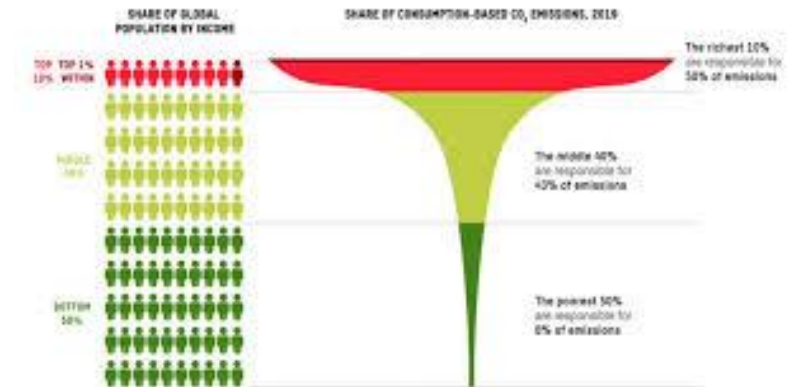
Outline

Climate impacts Jobs and Inequality through two main channels:

1. Physical



2. Policy impact



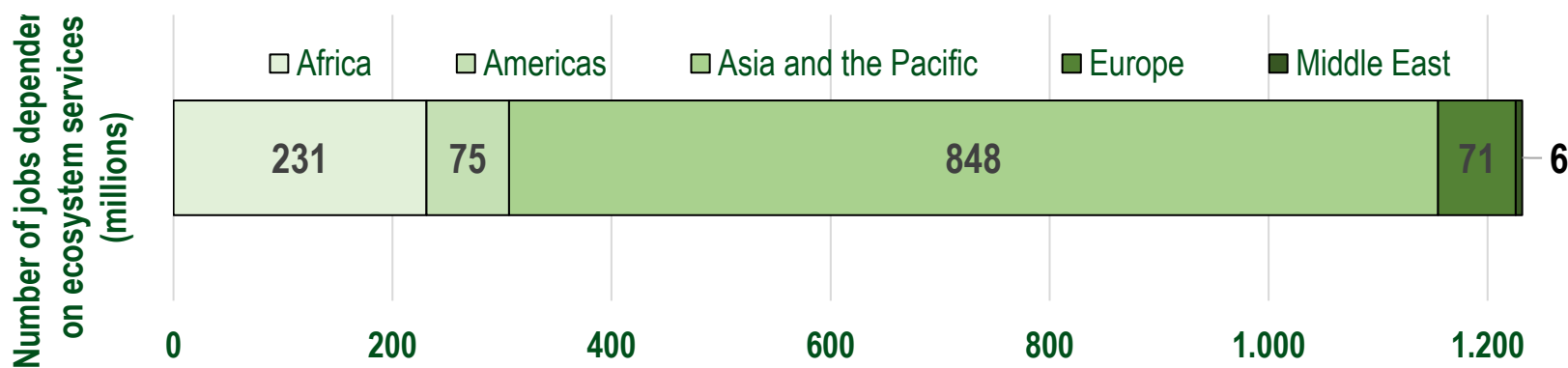
Physical impacts of Climate Change on Jobs



40% of global employment (1.2 billion jobs) rely on ecosystem services (majority are poor)



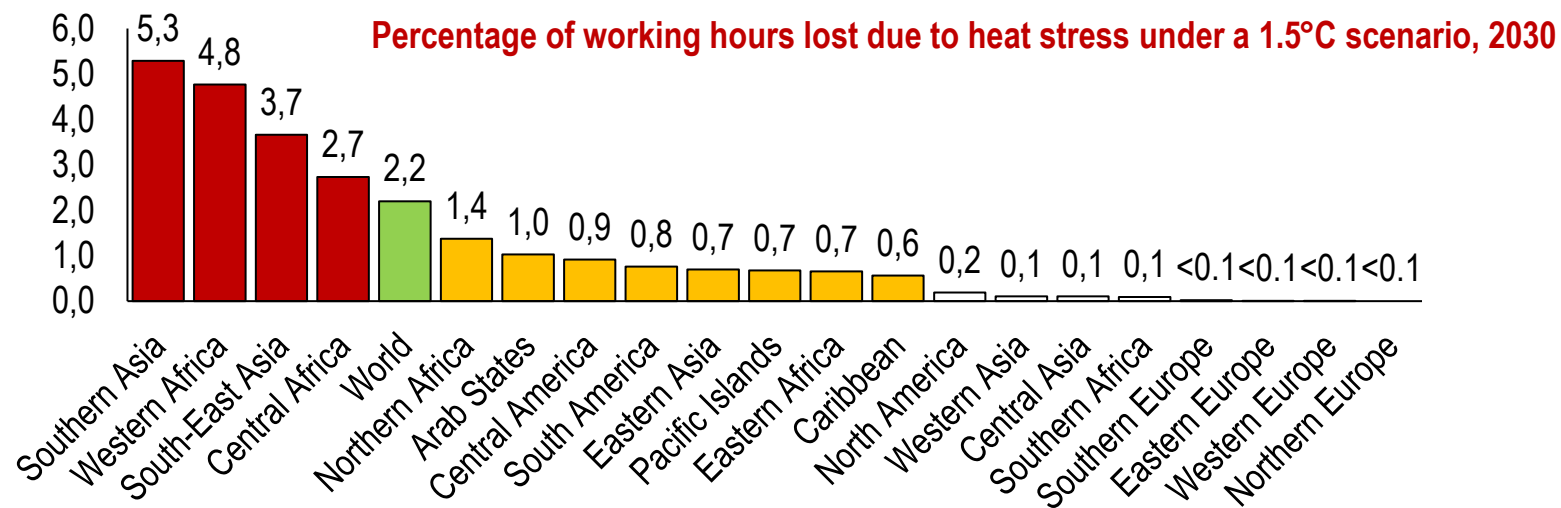
Jobs relying on ecosystem services, by region



- Spain Agri & Tourism Sector Employment 19%
- 2 million Jobs in Olive Agri-industry
- 50% harvest loss in 2023
- 60,000 Jobs less

Heat stress will lead to an equivalent loss

of 80 – 136 million full-time jobs (1.5 -2.7 °C Scenario)



Job loss due to heat stress as % of total working hours, 2030 in 1.5 and 2.7 Degree scenario

	Agriculture	Construction	Industry	Total
Spain	0.23 - 0.7%	0.23 % - 0.7%	0.08 - 0.3%	10,000 – 40,000

Occupational injuries due to heat in Spain 1994 to 2003

	Of total injuries (%)	Annual loss of workdays	GDP impact
Spain	2.7% of all injuries	42 (per 1000 workers)	0.03 % loss in GDP

Climate Policies' impact on Jobs



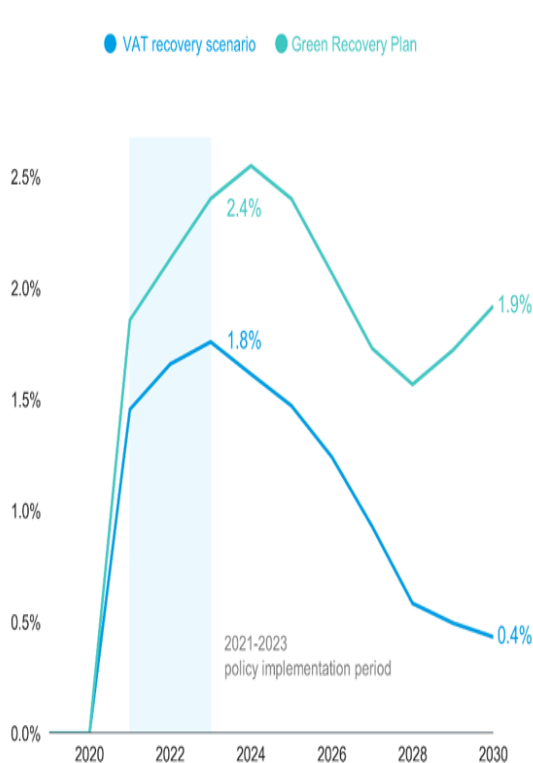
Global Jobs Assessment

Impact of Green growth scenario 2030

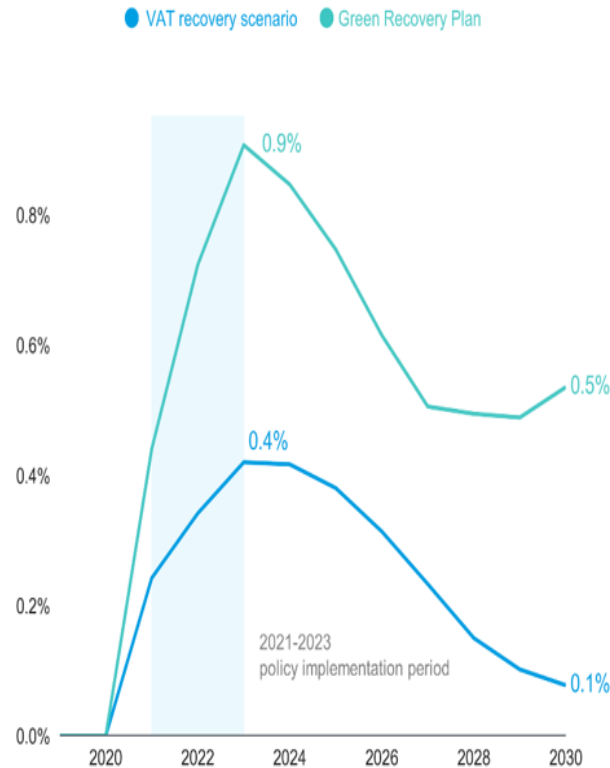
(per cent change from baseline)



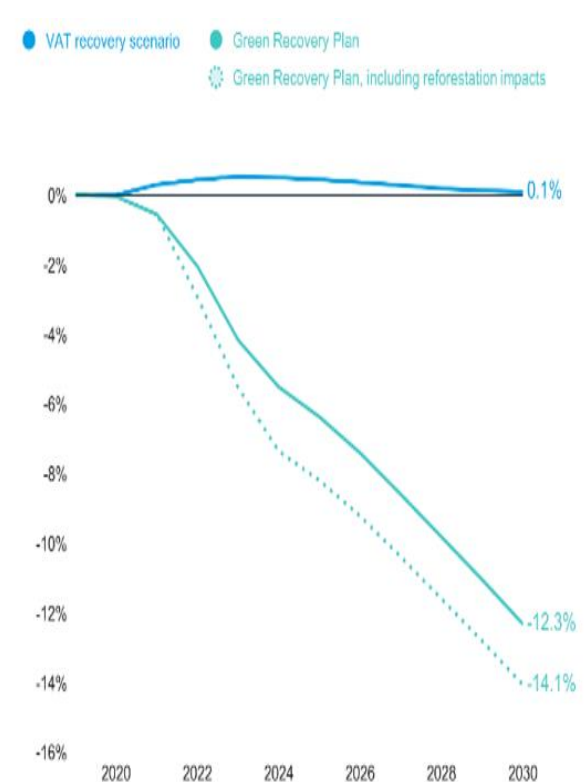
A. Impact on GDP



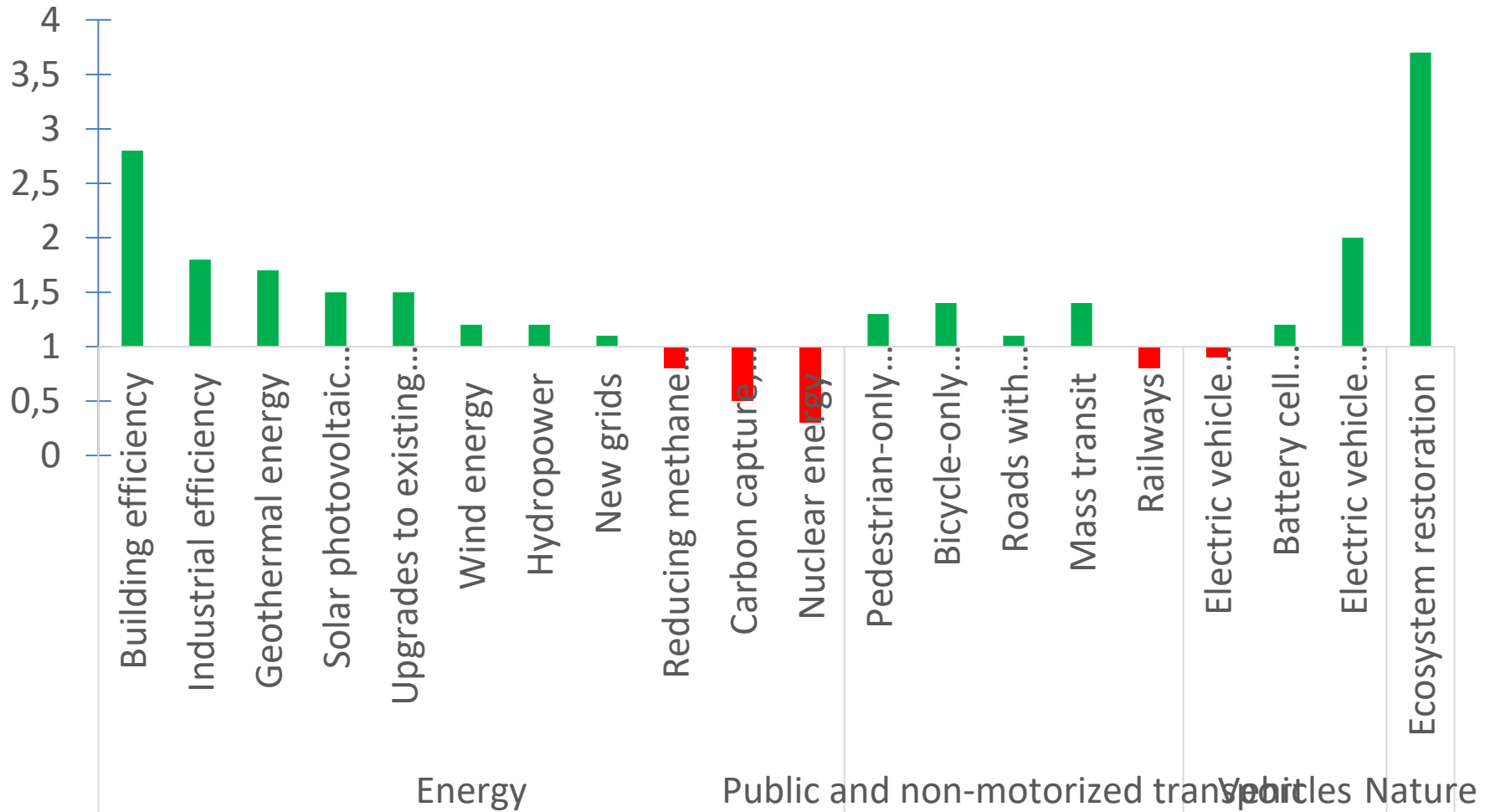
B. Impact on employment



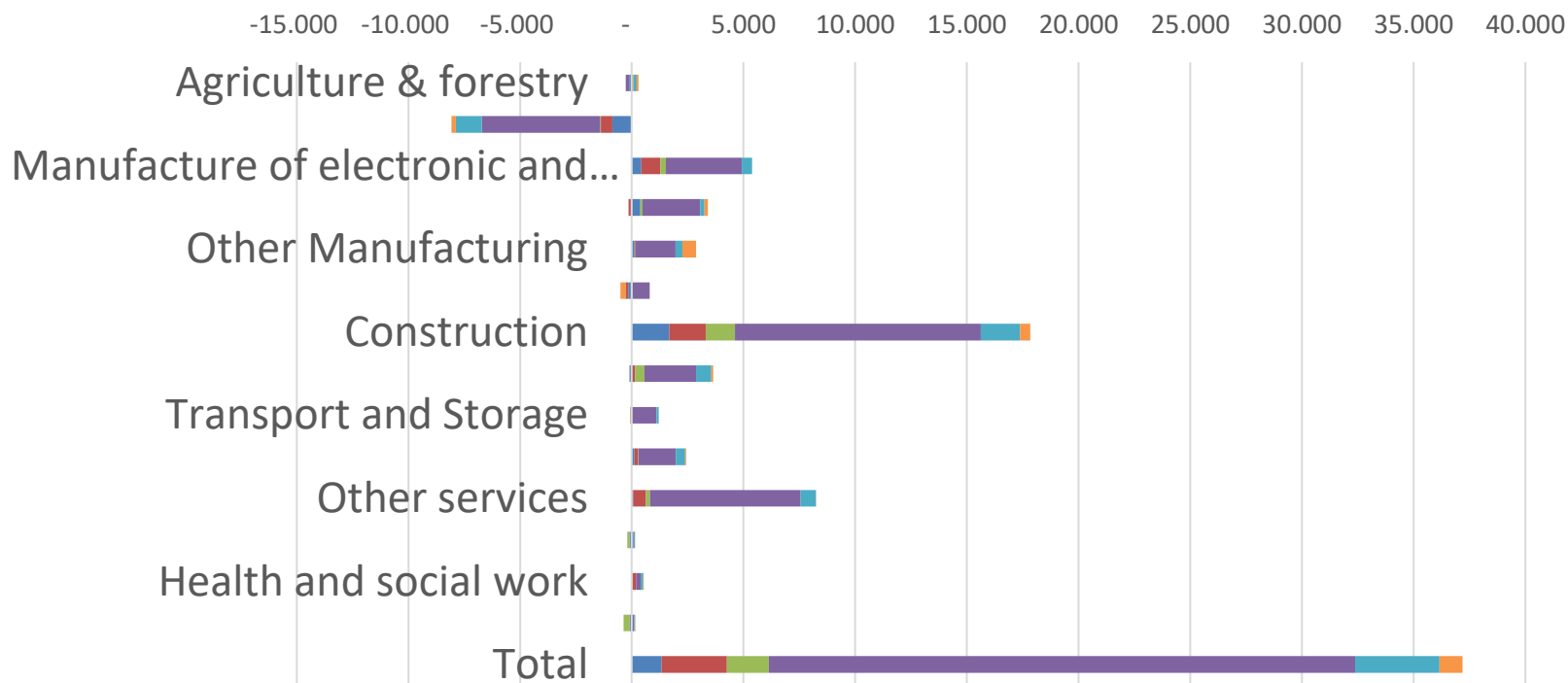
C. Impact on CO₂ emissions



Jobs created per green vs conventional investment



Green Structural Change is not a cost - Higher return on investment compared to conventional growth



■ Africa

■ Arab States

■ Europe and Central Asia

■ Americas

■ Asia and the Pacific

■ Rest of world



Global Race to Green - Macro & Industrial Policies



➤ China – 2000s

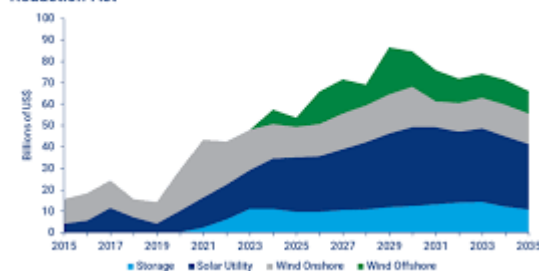
- 90% of PV panel manufacturing & battery supply
- Largest E-vehicles exporter in world, driven by \$30bn subsidy over past 10 years



➤ Germany - 2010s

- Car industry employs 1.3 million (288,000 jobs to change)
- Finance of Climate Transformation Fund (KTF) 177bn\$/3y
- Social Dialogue Commission on Growth Structural Change & Employment: Coal Phaseout 2038

Projected US renewable energy investment under the Inflation Reduction Act



Source: Wood Mackenzie

➤ US - 2020s

- Inflation reduction act \$370bn in tax credits
- 9 million jobs over 10 years



Regional Job Climate Assessment MENA for COP 28

Up to 10 million new & 2 million loss of jobs

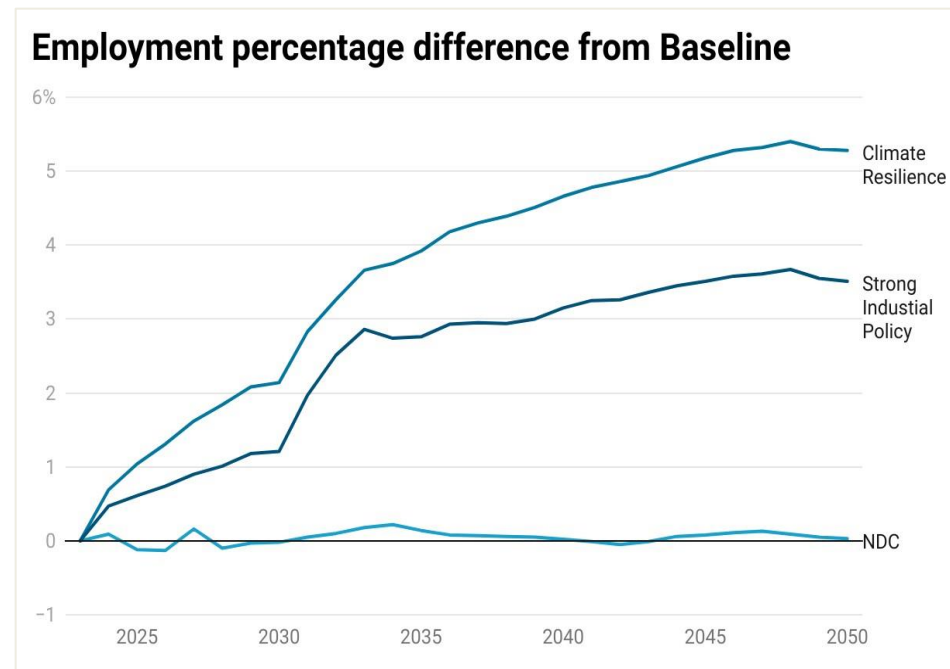
NDC: No impacts on jobs (*oil & gas capital intense*)

Strong Industrial Policy - 6.6 million new jobs

- Long-term positive job impact driven by *green-tech investments* and household consumption

Climate Resilience – 10 million new jobs

- Additional investments in water desalination and reforestation
- Financing of regional fund including for *skills (~5%)*



Job gains and losses by sector

Strong Industrial Policy Scenario

Job gains in hydrogen supply (2.8m), power generation, and construction

Negative impacts on Gas supply (360,000), Oil & Gas production (160,000) and manufactured fuels (125,000)

(Thousand jobs)

	NDC	Strong Industrial Policy	Climate Resilience
Hydrogen supply	0.3	2,867.5	2,802.1
Construction	229.6	1,034.8	1,913.5
Motor Vehicles	83.3	366.5	1,481.3
Electrical Engineering & Instruments	33.5	805	813.7
Electricity	391.5	462.3	779.7
Mechanical Engineering	67.6	192.6	551.4
Electronics	88	249.6	536.2
Other Manufacturing	192.4	499.4	513.5
Forestry	0	-1.3	405.8
Basic Metals	300.8	328	390.5
Health & Social Work	78.5	245.4	266.3
Distribution	-637.2	-377.5	248.7
Land Transport	21.8	151.3	240
Agriculture	97.3	328.1	199.9
Non-metallic Mineral Products	94.8	217.6	181.7
Food, Drink & Tobacco	44	190.8	152
Professional Services	11.4	44.1	96.9
Water Supply & Waste	4.1	1.4	77.8

Spain's structural change



Energy, Mining, Heavy industry, Agri-industry, Transport most impacted

- 130,000 in renewables (mainly solar & wind, mostly men, high skills)
- 100,000 mining in 1950s (today 300, most men, low skills)

Just Transition 2018

- Claim early retirement
- Training younger workers clean-energy jobs (medium- high skills)
- 250 m Euro Fund invested in communities 10 years

But:

- Not only coal industry: metallurgic, machinery, the tools for mines
- And services: Bars, restaurants, cinemas
- Life is dying: young people leave the region for jobs



Physical and Policies' impact on Inequality



Climate Inequality

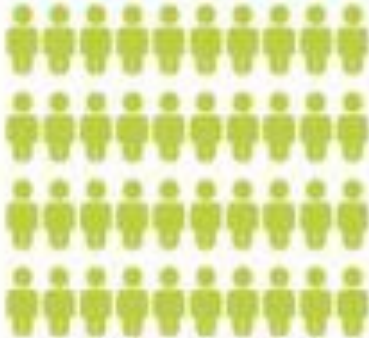
SHARE OF GLOBAL POPULATION BY INCOME

SHARE OF CONSUMPTION-BASED CO₂ EMISSIONS, 2019

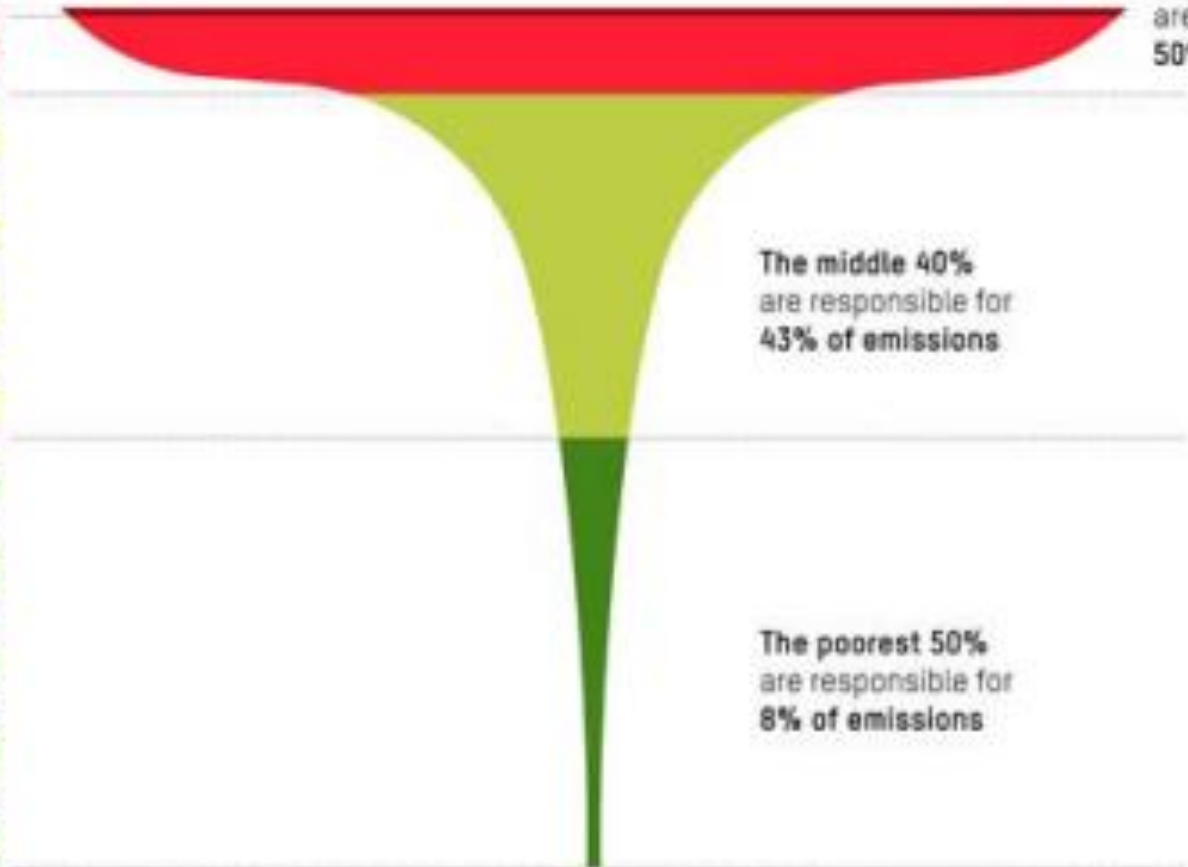
TOP 1%
WITHIN
10%



MIDDLE
40%



BOTTOM
50%

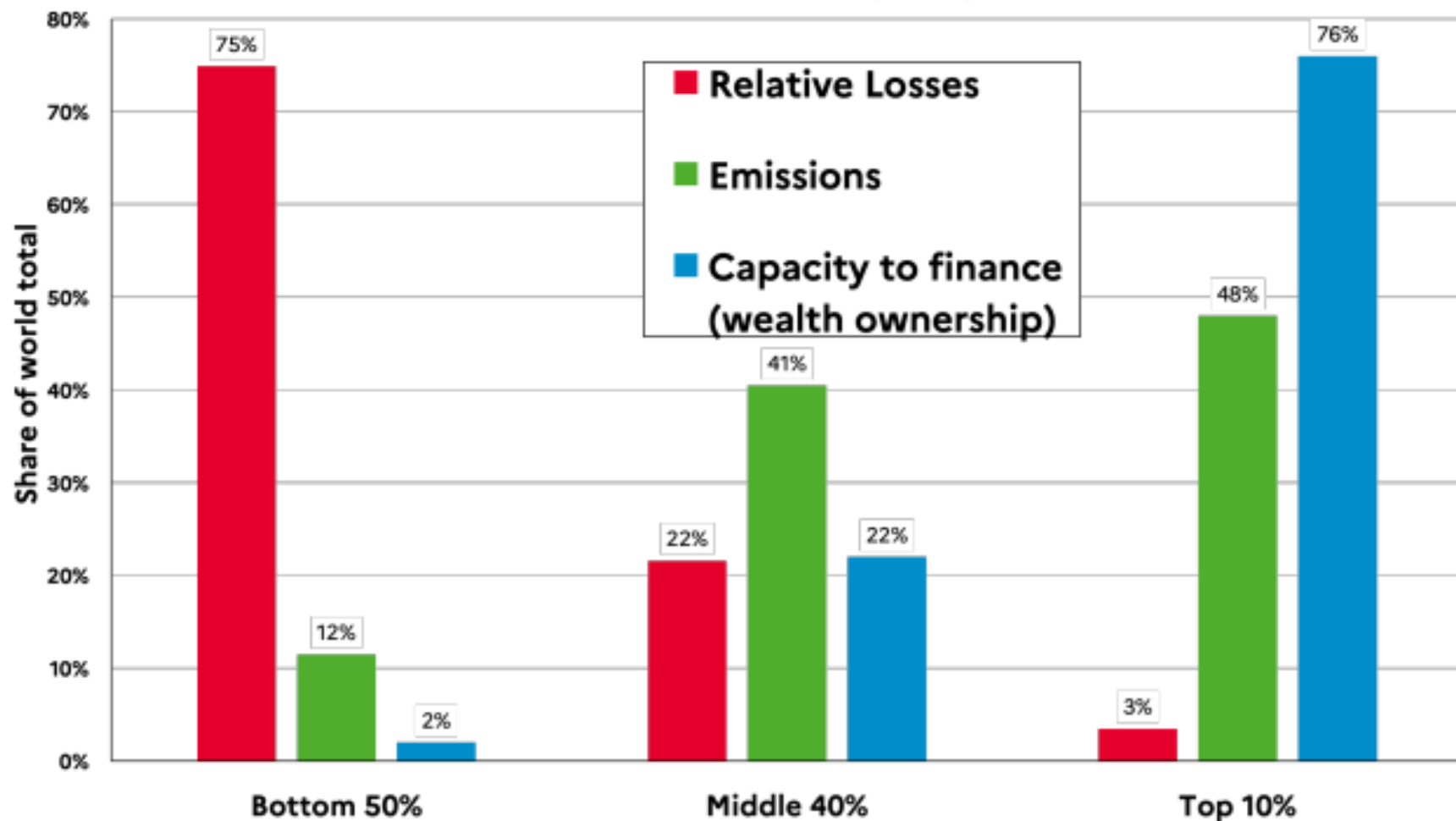


The richest
are responsible
for 50% of emissions

The middle 40%
are responsible for
43% of emissions

The poorest 50%
are responsible for
8% of emissions

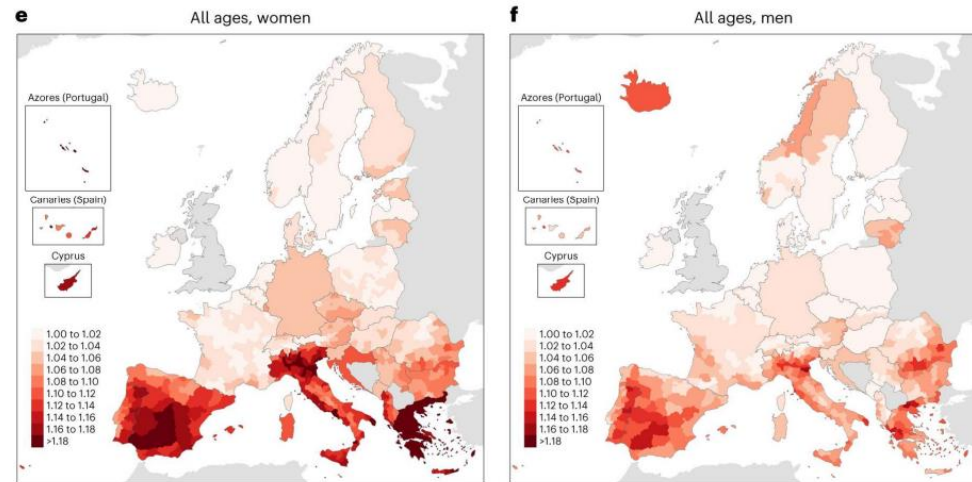
Losses vs. emissions vs. capacity to finance



The Poor, Children, Women, Vulnerable and Farmers most impacted (4bn live on less \$6.85)



Heat death EU 2022



Increase in Inequality
across & within countries

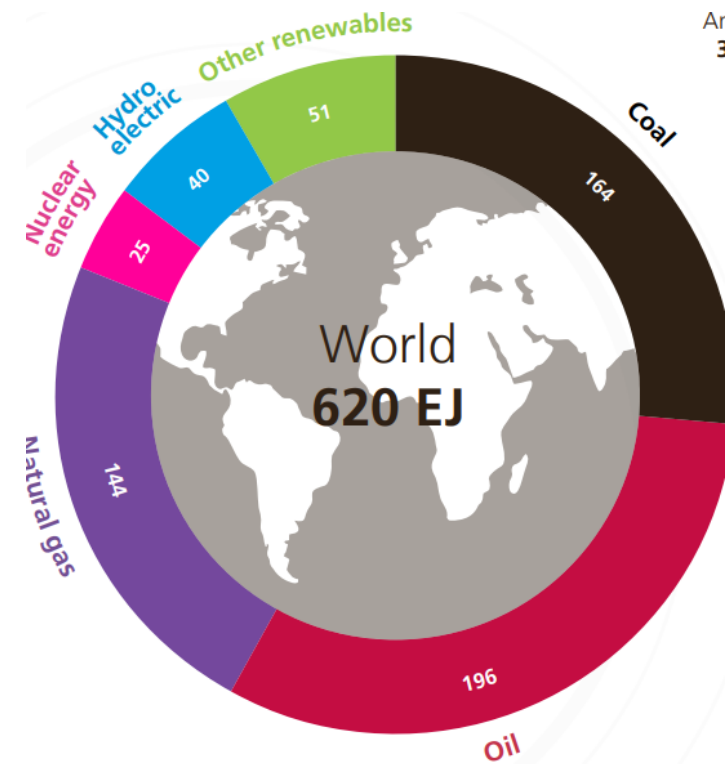


Most effective climate policy: Subsidy reform, Carbon and Energy tax

But this increases inequality because:

1. Poor households spend 50%+ on energy and remaining income on related food, transport, cooking and housing (high carbon intense sectors)
 2. The rich spend less than 10% on energy (more on low carbon services)
- A climate or carbon tax impacts the poor more than the rich!

Global Primary Energy 82% fossil fuels (same 1960ies)



Social Protest of the Poor against climate policy



Energy Poverty

Paradox

- The poor oppose climate and subsidy reform
 - The rich do not oppose (responsible for CO₂)
- Progressive carbon tax and social protection, cash transfer to poor alongside climate policy



Just Transition Policies

because

NO AUTOMATIC GAINS



ILO Guidelines for Just Transition

Social dialogue

South Africa 8.5 bn \$ Just Transition Partnership

- Government, business and labour engage in JT Council



Social Protection

Public Employment NREGA India

- Cost only ~ 0.4% GDP, benefit 59 m hh
- Adaptation, irrigation, reforestation

- ## Skills training
- **Germany Electric Vehicles Apprenticeship**
Car industry employs 830,000 1.3 m indirect
 - Digital & electric switchover up to 288,000



Conclusions

1. As a **by-stander** in the global green transition (with modest climate ambition) countries face losses in jobs & welfare.
2. Becoming an **active driver** in the green transition, countries gain advantage in GDP & job growth:
 1. Higher climate and biodiversity ambitions,
 2. Macro & fiscal reform and green industrial policies
 3. Just transition policies (key are skills and social protection)
3. **Green-tech industries** can diversify and replace coal, charcoal, oil & gas at a higher level of economic, social development.
4. **Finance:** Progressive carbon/energy tax to address increasing inequality (e.g Social Fund: ETS1 (power/heavy Industry) ETS2 (transport/heating))



Policy recommendations

Design Just Transition policies **ex-ante** to accompany climate policies

ONLY then social and job outcome positive

- Develop **skills training system**
- Extend **social protection**
- Fiscal neutral & **progressive climate tax**

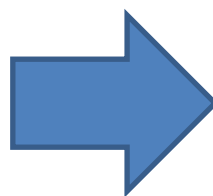


Thank you



The objective is to assess how climate policies impacts on...

...jobs, poverty, GDP, inequality & SDGs...



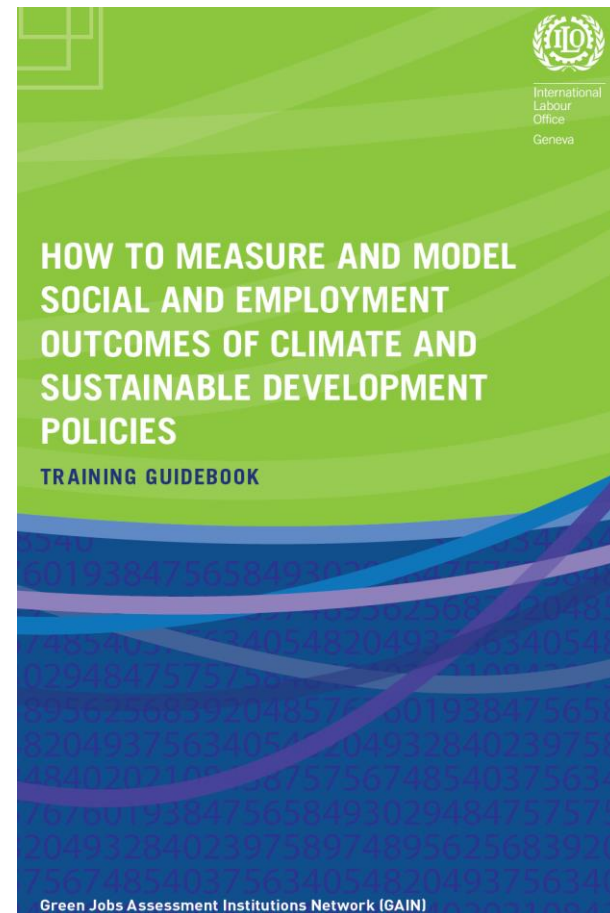
...to design better climate and Just Transition policies minimizing negative & maximising positive effects!



ILO country support and Research Network GAIN

Green Jobs Assessment Institutions Network GAIN

- ✓ Open source methodology Training Guide published
- ✓ GAIN Network of 30+ Research Institutions
- ✓ Capacity building of Government & national institutions
- ✓ GAIN Training Hubs in Pretoria and Abidjan
- ✓ To build national models for better climate policy



Olive Oil

- Spain produce 40% of the global crop
- Droughts have cut output by 50% of its usual 1.3 million metric-ton harvests
- The production of olive oil employs more than 2 million workers per year in Spain
- harvest in the fields, production in the “almazaras” (“oil mills”), and the “entamadoras” – i.e. companies dedicated to table olives.

