



Sustainable Development and Green Jobs: an overview

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Peter Poschen
International Labour Office (ILO)

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Why green jobs?

Asia-Pacific Region:

- economic growth 2x world average
- ~900 m poor
- 60% world population on 40% land
- lowest arable land/cap and water/cap
- loss of biodiversity and renewable resources
- growing pollution water, air, soil

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Enter climate change

Short-medium term:

- Increased variability weather:
- Agriculture: ~350 m subsistence farmers
- Storms and floods:
- Asian mega-deltas and coasts
- Pacific islands

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Climate change

Long-term:

- Rising temperature and sea-level
- Water shortages 1bn people Asia by 2050
- Existence of small island states

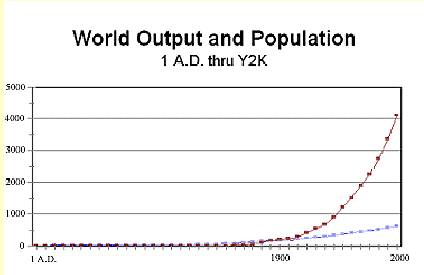
➔ 'Grow now, clean up later' self-defeating, unviable long-term

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Exponential growth in a finite world?

World Output and Population
1 A.D. thru Y2K



— Population (millions)
— Total GDP (billions of 1990 \$)

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Great transformation

'Green growth', 'clean development'

- Pollution control
- Fewer resources/output (eco-efficient)
- No pollution and degradation (eco-effective)
- Sustainable economies

➔ Profound impact on enterprises and workers
= Social effectiveness and sustainability?

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What are green jobs?

- Reduce consumption of energy and raw materials ('dematerialize economy')
- Avoid GHG emissions ('decarbonize economy')
- Protect and restore ecosystems
- Minimize waste and pollution

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Green Jobs defined

'Green jobs are decent work created in economic sectors and activities, which reduces their environmental impact, ultimately leading to environmentally, economically and socially sustainable enterprises and economies.'

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High potential sectors

- Energy efficiency: buildings, industry, transport
- Renewable energy
- Mobility: mass transportation
- Recycling, waste management
- Sustainable agriculture and forestry
- Environmental services


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Examples of actually or potentially Green Jobs

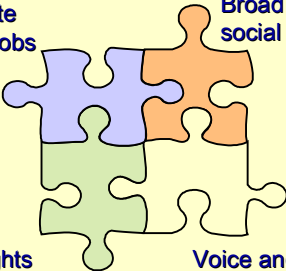
- Renewable energy: 2.3 m jobs
- Environmental industries US: 5.3 m jobs
- Solar thermal China: 1,000 manufacturers, 600,000 jobs
- Ethanol Brazil: 500,000 jobs

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Green jobs = Decent Work

Generate quality jobs



Rights at work

Broad social protection

Voice and Social dialogue

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Not decent = not green

- Recycling, waste: IT China, shipbreaking Bangladesh
- Renewables: biofuels highest employment potential

e.g. China

Renew:	wind	solar	pv	biomass
Jobs/bnY:	870	1,500	1,100	7,500

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Shipbreaking

Recycling IT waste

Green jobs and development

- Avert climate change and sustain poverty?
- Green jobs have to be decent work
- Green jobs for those who need them most: youth, women, SMEs, the poor

Green jobs: more than meets the eye

- **In perspective:** relatively small % of total employment (3%?)
- **Forward linkage greening:** clean energy, recycling (e.g. cars, IT)
- **Dynamics:** creation, substitution, elimination, redefinition of jobs
- **Job creation:**
Direct green jobs < indirect << induced job creation
- **Poverty:**
Food and energy expenditure poor households
Access to modern energy

Green jobs: substitution

USA jobs in energy sector:
renewable : fossil = ~ 2:1

USA	jobs/MW lifetime
Solar PV	9
Wind power	1.7
Biomass	1.8
Coal/natural gas	1

Green jobs: direct vs. indirect and induced

Ex 1: Venezuela [employment/1 tr Bs]

	Direct:	Total:
Agriculture:	126,000	196,000
Res. Constr.:	47,000	130,000
Non-resid. C:	41,000	142,000

Green jobs: direct vs. indirect and induced



Ex 2: Renewable energy Germany

- Direct and indirect jobs (50%)
- Energy/job substitution
- Budget effect (temporarily higher cost of renewables)
- Need to consider full economic cycle:
 - Gross: +170,000 jobs
 - Net: + 40,000 jobs

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2nd Great Transformation



- On balance: net gains employment
- Major gains and losses (typically within sectors)
- ➔ **Just transitions for enterprises and workers**
- Pathways for development in Asia?
- Contribution to poverty reduction?

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Decent work in sustainable enterprises



Policy instruments and programmes for development:

- Skills
- Small and medium enterprises, local development
- Just transitions
- Pro-poor: solar Bangladesh, India, urban upgrading South Africa

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Policy coherence and good governance



- Build green jobs into UNFCCC post 2012 + national strategies
- Better and more stable policies through dialogue: involve stakeholders - employers and workers in national and international policy making and implementation

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Thank you



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