

# Green Jobs

.. and the skills needed for them

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# Content

- What are Green Jobs
- Why Green Jobs
- Where are the Green Jobs
- Skills for Green Jobs

# Green Jobs defined

*‘Jobs are green when they help reducing negative environmental impact...*

*...ultimately leading to environmentally, economically and socially sustainable enterprises and economies.’*

# Green Jobs are Jobs that:

- ✓ Reduce consumption of energy and raw materials
- ✓ Limit Green House Gas emissions
- ✓ Minimize waste and pollution
- ✓ Protect and restore ecosystems

## **.. and Green Jobs are Decent Jobs:**

- ✓ Productive and gainful
- ✓ Freely chosen
- ✓ Recognizing rights at work
- ✓ Ensure a minimum of social protection

# “Shades of green”

## Transport 1: ‘light green’

Lower-than-average environmental impact

e.g. Hybrid cars



## Transport 2: 'a darker shade of green'

### Hybrid cars powered by solar energy sources

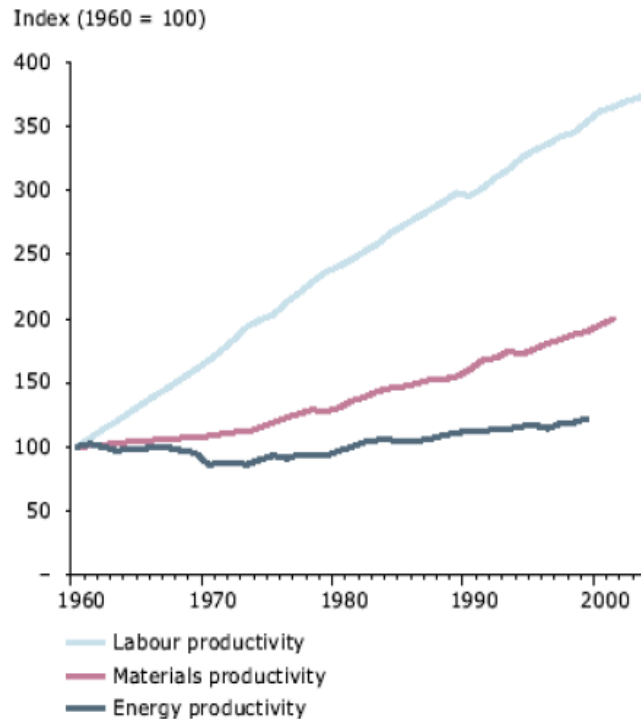


## Transport 3: 'dark green' Shared + eco-friendly vehicles



# Lagging energy productivity gains (1960 – 2002)

**Figure 4.2** Labour productivity, material productivity, and energy productivity, EU-15, 1960–2002



**Note:** Labour productivity: GDP per annual working hours (1999 USD (converted at EKS PPPs) per hour); material productivity: GDP per domestic material consumption (DMC) (EUR per kg); energy productivity: GDP per total primary energy supply (TPES) (thousand 1995 USD per toe).

Last 50 years  
productivity:

- Labour: + 400%
- Materials: + 200%
- Energy: + 20%

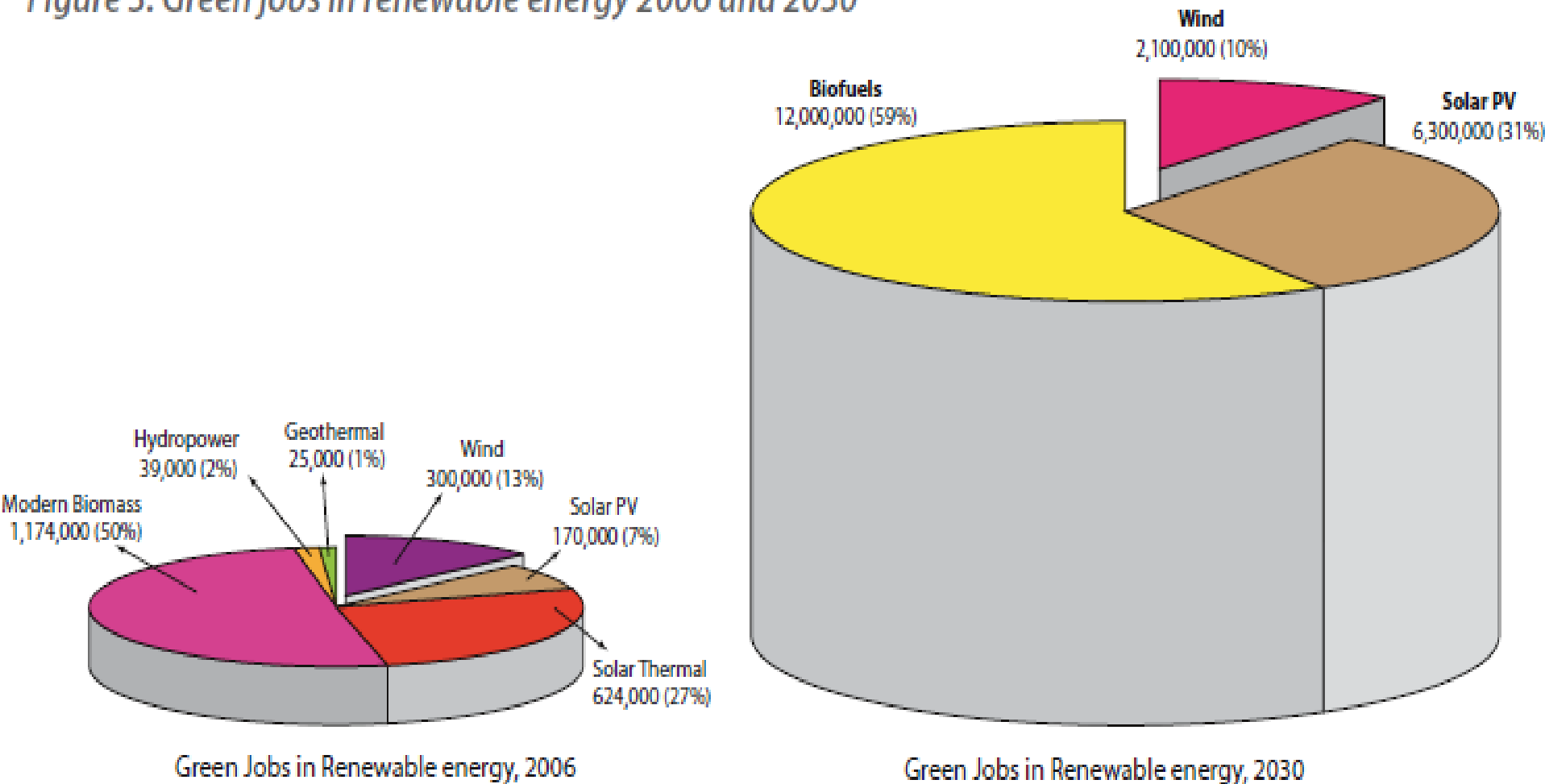
## High potential sectors for Green Jobs

- Mobility: mass transportation
- Energy I: efficiency in buildings, industry, transport
- Energy II: renewable sources (sun, wind, thermal, water, ...)
- Waste management: reduction, re-use and recycling
- Sustainable agriculture and forestry
- Environmental services

# Ex.: Renewable energy

## Projected Job growth 2006 - 2030

Figure 3: Green jobs in renewable energy 2006 and 2030





# Untapped potential: Greening the work places

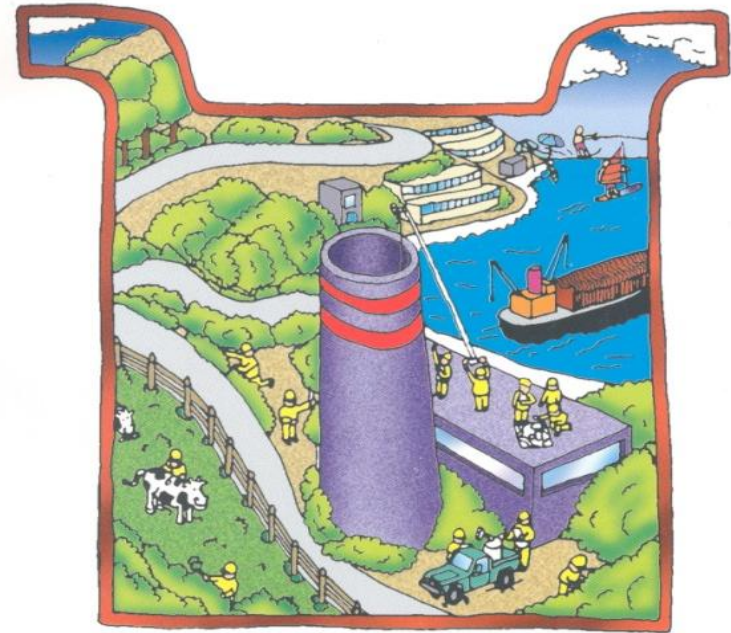
## Copper refinery Chile

- Sulfuric acid
- Heavy metals

**Joint initiative between management-union to clean up and save refinery**

COLABORACION: COMISION CHILENA DEL COBRE

**GESTION AMBIENTAL  
EN LA FUNDICION Y REFINERIA VENTANAS:  
UN PROCESO PARTICIPATIVO EN MARCHA**



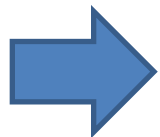
DISEÑO DEL SISTEMA DE GESTION AMBIENTAL  
según el estándar ISO 14.000

FORMULACION DEL PROGRAMA DE MEJORAMIENTO AMBIENTAL  
1997 - 1999

# Employment impact of moving to a greener economy

## In industrialized countries:

- Probably (modest) net gains in jobs from environmental policies
- Major gains and major losses, mostly within sectors (e.g transport, construction)



## **Transformation of most jobs and sectors**

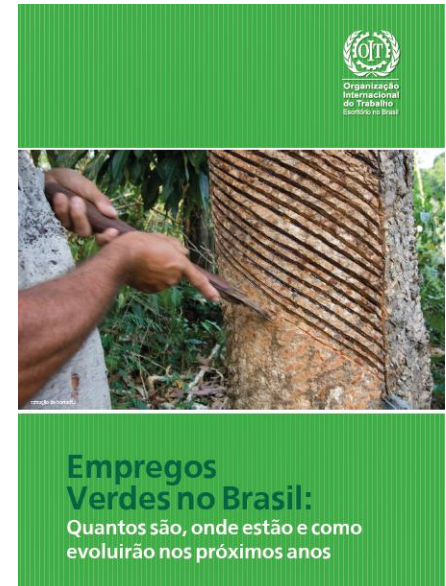
## In developing/emerging economies:

- Large potential gains from leap-frogging and inclusive development

# Green Jobs and Sustainable Development

## BRAZIL:

- 2.65 m formal green jobs
- 6.7% formal employment
- Growing faster than overall labor market
- Green stimulus: social housing



# Conclusions (1)

- **Widespread and growing interest**
- **Green crisis response:** effective if adequate implementation capacity
- **Beyond crisis:** restructuring economies and labor markets (net gains, major transitions)
- **New:** engagement of emerging economies and developing countries

## Conclusions (2)

- **Green jobs creation can be:**
  - **Systemic:** e.g. energy efficiency, eco-tax
  - **Targeted:** rural, local, poverty, low-skilled
- **Green jobs creation not automatic:**

Policy coherence:

  - Economy – energy – industry - environment
  - Employment - social development
  - ... with human resource and skills development

# Skills for Green Jobs: A Global View.



# The project

- Started in early 2009
- Partnership with Cedefop
- Standardised template for all
- Qualitative research. Methods varied.
- 148 case studies (107 by the ILO and 41 by Cedefop)



# Country coverage

**60% of world population**

**59 % of global GDP**

**64 % of global CO2 emissions**



# Drivers of change

- Changing natural or built environments;
- Environmental / climate change policy and regulation;
- Green technology and innovation;
- Markets for green industries and consumer habits



## Green structural change

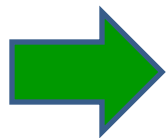


# Occupations change and new occupations emerge

Degree of skill change	Occupational change	Typical skills response	Examples
None	None or only quantitative	None or increased training in existing occupation	Bus driver in CNG driven buses; natural park ranger
Low	Changing occupation	On-the-job learning or short training courses	Welder in wind turbine production; Organic farmer
Medium	Changing or emerging occupation	Short courses or longer continuous training	Energy consultant in building; car mechanic for electric cars or CNG cars
High	Emerging occupation	Initial training, university degree or longer continuous training	Solar energy technician; eco-designer; biofuels technician

# Changes in existing occupations outnumber new ones

- Skill content for occupations to become greener is far from being uniform across countries
- Many changes relate to knowledge about regulation and new technologies, some to new markets and demand
- Emerging occupations more often require higher level qualifications
- Changes in existing occupations happen more often at the low and medium-skill level

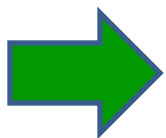


**Skills shortages already pose a major barrier to green transitions and job creation**

# Are there green skills?

- OECD classification: green skills are converging skills
- Countries develop their own definition (e.g. Australia) or list of green skills (e.g. UK)

Green per se?	Generic and core skills
Knowledge about environmental regulation; Skills to design, adopt, implement and maintain technology	strategic and leadership skills, entrepreneurial skills, environmental awareness, risk analysis skills, consulting skills etc.



New versus existing skills?  
Consider the context

# How to respond to skills challenge?

- Anticipate skill need (measurement, data, sectoral alone insufficient, tripartite participation)
- At different levels: enterprise, industry, government (national, regional, local), by universities, training providers, research institutes, NGOs and international donors
- Inside and outside existing education and training systems and mechanisms





**Thank you!**

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