



PROMOTING SAFETY AND HEALTH IN A GREEN ECONOMY



International
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Office



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AND HEALTH AT WORK
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OUTLINE

I- A safe and just transition? Global challenges for sustainable development

II- The green debate and its social dimension

III- The shades of green in green jobs

IV. Green jobs and occupational risks

A- Occupational risks in renewable energies

1. Solar energy
2. Wind energy
3. Hydropower
4. Bioenergy

B- Waste management and recycling
1. Shipbreaking

C- OSH risks in the greening of traditional sectors

1. Mining and extractive technologies
2. Agriculture
3. Forestry work
4. Construction and refurbishment

V- The way ahead

I- A Safe and just transition?

- Global challenges for sustainable development
 - climate change + deterioration of natural resources
 - built on economic growth, social equity & environmental protection
- Green Economy → Green Jobs → Decent & Safe Work

II- The green debate and its social dimension

- ILO Focus for RIO +20 (UNCSD 2012):
 - economically efficient, socially just, environmentally sound transition to a green economy
 - green jobs creation
 - a framework for a “Just Transition”
 - social protection in green economy policies
 - inclusion of workers and employers in governance & implementation



III. The shades of green in green jobs

- ❖ Protection of biodiversity and the environment
- ❖ Resource efficiency and low-carbon development in “green sectors”
- ❖ “Greening” industries



- ❖ renewable energy
- ❖ construction
- ❖ transport
- ❖ recycling
- ❖ forestry, &
- ❖ agriculture

IV- Green jobs and occupational risks

A. Occupational risks in renewable energy

1. Solar energy
2. Wind energy
3. Hydropower
4. Bioenergy



1. Solar Energy



- Converted to electricity using PVP¹ or CSP²
- PVP occupational hazards
 - manufacturing (> 15 hazardous materials+ toxic cleaning agents)
 - installation (Physical hazards: Falls from height, manual handling, high temp, confined spaces, electrocution)
 - end of life electronic waste disposal of PVPs
- CSP hazards in construction and maintenance of installations

2. Wind Energy



- Types of jobs
 - project development, turbine component manufacturing, construction, installation, operation and maintenance of wind turbines
- Worker exposure
 - chemical hazards and solvents
 - harmful gases, vapours,
 - physical hazards
 - dusts and fumes

➔ health related consequences

 - dermatitis, liver & kidney damage, blisters, chemical burns, and reproductive effects & MSDs

3. Hydropower

- Important renewable energy for electrical power production
- Small-scale hydropower vs. large hydropower stations
- Hazards during construction, operation + maintenance
 - Electrical, water and moving machinery hazards
 - Chemical exposure

4. Bioenergy

- Fast development of bioenergy
- Impact of using land to grow energy crops
- Same OSH & environmental concerns as in fossil fuels
 - during thermal processing: Exposure to carcinogens, heavy metals & gases, particulate matter, CO, SO, lead, VOC, mercury & dioxins.

B. Waste management and recycling

- Fastest growing source of green employment
- Hazards and risks from
 - recycling technologies
 - waste to energy process
 - landfill mining
 - electronic waste
- Involves workers in the informal economy



The waste hierarchy

Moving up the waste hierarchy



B. Waste management and recycling (Cont'd)

- **Shipbreaking**

- found 90% in Bangladesh, China, India, Pakistan & Turkey
- green job? → recycles metal, reduces need for mining
- Hazards
 - exposure to hazardous substances & wastes (asbestos, oil & oil sludge, toxic paints, PCBs, isocyanides, sulphuric acid, lead & mercury)
 - physical, mechanical, biological, ergonomic, psychosocial

C- OSH risks in the greening of traditional sectors

1. Mining and extractive technologies
2. Agriculture
3. Forestry work
4. Construction and refurbishment



2. Mining and extractive technologies

- Environmental impact:
 - ❖ green-house gases, soil and water contaminants
- Occupational risks:
 - ❖ fires & explosions, electrocutions, exposure to silica dust, mercury, other chemicals & heat
- Mine project design:
 - ❖ optimize mine planning, processes, operations, technology & equipment
 - ❖ incorporation of OSH into performance criteria

2. Agriculture

- Sustainable agriculture promotes the elimination of agrochemicals through organic agriculture
- Common hazards for both traditional and organic agriculture
- Need for research on the OSH implications of production, handling, processing & storage of GMOs



3. Forestry work



- Deforestation & forest degradation contribute to greenhouse gas emissions
- OSH hazards are similar between conventional and sustainable forestry
- Green jobs in this sector is dependent on inclusion of decent work in sustainable forest management
- OSH guidelines and local community concerns to be integrated in certification standards

4. Construction and refurbishment

- Energy-efficient construction & sustainable refurbishment
- The ILO 7 principles for sustainable construction & renovation

- **reduce resource consumption**
- **re-use resources**
- **use recyclable resources**
- **protect nature, eliminate toxics**
- **eliminate hazardous chemicals**
- **apply life-cycle costing**
- **focus on quality**



- OSH competences should be incorporated in the greening of the building sector

V. The way ahead



- The transition to a green economy
 - Decent employment + environmental protection
 - Social-equity and well-being
 - OSH as an integral part of the strategy:
 - green job creation policies
 - risk assessment and management from design phase to life-cycle analysis implementation & monitoring
 - Enforcement of OSH quality standards in green jobs
 - Social dialogue and participation of employers organizations, trade unions and other stakeholders in policy making & governance

**For an environmentally sustainable
and socially inclusive green economy,**



the **Safety** and **Health**
of **workers**
is indispensable

