Skilling for Green Jobs: Best practices from a Global View

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Outline

• Drivers of change
• Green structural change & sectors affected
• Key skills challenges
• Role of skills
• Skills responses and skills change
• Changing skills and occupations
• Country examples: Some best practices
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

- Additional jobs will be created.
- Some employment will be substituted.
- Certain jobs may be eliminated without direct replacement.
- Many existing jobs will be redefined.

- New jobs created will offset those lost.
- But those who will get green jobs are not necessarily those who will have lost their jobs.
Sectors affected and retraining needs

- Agriculture, forestry and fisheries
- Extracting industries and fossil-fuel energy generation
- Emissions intensive manufacturing, in particular:
  - Automotive sector and related supply chains;
  - Ship-building and related marine engineering activities
Asia green jobs index

Source: Asia Business Council, report on Addressing Asia’s new green jobs challenge, 2009 pp.6
Skills shortages can hamper transition to green economies.
Skills & environmental policies need to come together, but it may take some time.
Green structural change will be profound in certain sectors.
Occupations will change at different rates and in different ways, changing the composition of occupations.
Key Skills Challenges

- Skills required in a greener economy need to be identified
- Appropriate training needs to be put in place promptly adjustment in curricula, standards at all levels of training
- Vocational education and training is catching up less efficiently than higher education
- Effective responses are targetted at industry level, through PPPs, and coherent multi-level cooperation
- Key role for identification and anticipation of skill needs!
Role of Skills

- Green jobs and skills for green jobs form a feedback loop
- Gaps open up when one of the two changes
- Causes pressure for the other to change too
  - Changes in green markets create a need and incentive to bridge gaps in skills and capability
  - Skills for green jobs move green practice forward, as people seek jobs and opportunities for their skills
- Green strategies need a skills component
Changing and emerging occupations

<table>
<thead>
<tr>
<th>Degree of skill change</th>
<th>Occupational change</th>
<th>Typical skills response</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>None or only quantitative</td>
<td>None or increased training in existing occupation</td>
<td>Bus driver in CNG driven buses; forester</td>
</tr>
<tr>
<td>Low</td>
<td>Changing occupation</td>
<td>On-the-job learning or short training courses</td>
<td>Welder in wind turbine production; Organic farmer</td>
</tr>
<tr>
<td>Medium</td>
<td>Changing or emerging occupation</td>
<td>Short courses or longer continuous training</td>
<td>Energy consultant in building; car mechanic for electric cars or CNG cars</td>
</tr>
<tr>
<td>High</td>
<td>Emerging occupation</td>
<td>Initial training, university degree or longer continuous training</td>
<td>Solar energy technician; eco-designer; bio-fuels technician</td>
</tr>
</tbody>
</table>

Changing skills and occupations

**Occupations**
- Industry electrician/energy technologist
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- Industry electrician/energy technologist

**Core Training**
- VET qualifications/tertiary engineering qualification
- VET qualifications/tertiary engineering qualification
- VET qualifications/tertiary engineering qualification
- VET qualifications/tertiary engineering qualification

**Upskilling**
- Knowledge of energy sources to integrate energy systems, project mgt
- Knowledge of energy sources to integrate energy systems, project mgt
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**New occupation**
- Manager in Renewable Energy
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Skills for Green Jobs
Country Examples
Country coverage
ILO Study

- 60% of world population
- 59% of global GDP
- 64% of global CO2 emissions

- 21 countries study:
  - 148 case studies
  - 8 countries in Asia

[Map showing countries covered by the study, with some countries marked in green: U.S., Costa Rica, Brazil, U.K., France, Spain, Germany, Egypt, Mali, Uganda, South Africa, China, Bangladesh, India, Thailand, Indonesia, Philippines, Republic of Korea, Australia, and others.]
Environmental and skills policies’ coherence

Source: ILO (2011) Skills for Green jobs: A Global View: Figure 3.9
Green plumbing initiative
Australia

• Main plumbing association and trade union concluded a multi-stakeholder agreement

• Launched the GreenPlumbers—an initiative to develop training programmes and certification on environmental considerations associated with plumbing

• Same initiative has been exported to New Zealand and the USA
Set up Sector Councils HRD(SCHRD): 23 in total, and the following are newly established

1) New Renewable Energy,
2) Green Finance.

SCHRD: conducts skills surveys to assess skills changes, needs and resource gaps

Both councils provide short training courses, the first on solar energy technology and the CDM,

Second on green industry trends, risk analysis, green finance and social accounting, and sustainability assessment.

- Education & skills policies: restructuring higher education to meet needs of greening occupations: middle level technicians
- New programme 2009: Vocational Education & Training Reform Centre” provide VET identified by SCHRD e.g. automotive: skills training in devt of eco-friendly automobiles
- Korean Employment Information Service: published a list of 55 “new generation” occupations
- Transportation & construction: 2 main sectors
New skills councils and new occupations in the green technology industry: Republic of Korea

New occupations in the green technology industry

- Solar photovoltaic researcher & developer
- Marine bio-energy researcher
- Geothermal system development Engineer
- Wind Power researcher and developer
- Carbon Capture and Storage researcher
- Greenhouse Gas Auditor
- Seawater Desalination researcher
- Advanced water treatment researcher

- LED device engineer
- LED lighting system engineer
- LED Thermal Protection system engineer
- Hybrid Fuel Cell researcher and developer
- Hybrid Power System developer
- Maritime environmental regulation specialist
- Developer of Alternative fuels for ships
- Eco-friendly Ship designer
- U-city (Ubiquitous City) planner
- U-city Infrastructure Operator
Low carbon cities
China

- Chinese cities characterized by heavy polluting energy consumption, low energy efficiency & growing CO2 emissions
- Cities aim to contribute to national target of a 20% reduction in energy density
- City government to promote best practice on regulation and policy, low emissions technologies and business expansion & raising awareness amongst general public
- Some cities have begun low carbon development: Baoding, Beijing and Shanghai
- Baoding a solar energy demonstration city with industrial park of wind & solar technology & releasing low-carbon urban construction paper to develop low-carbon living & behavioral characteristics; has low-carbon development plan
Environmental & Skills responses
France

• Environmental strategy response: national adaptation strategy to climate change and Grenelle Round Table (major government initiative-2007) launched to address energy efficiency improvements & other environmental issues

• Committed to a 4-factor reduction in GHGs by 2050

• Full-pledged skills strategy launched (2009) after Grenelle with Mobilization Plan for Green Jobs to mobilize relevant sectors of economy & regions to develop occupations for green growth

• Adapt existing training programmes & qualifications & create new ones in line with 600,000 green jobs that Grenelle Round Table could generate: identified relevant occupations; define training needs & set qualifications; recruit sustainable development-related jobs; promotion & development of professions for green growth
Recycling Training Centre in Dhaka – Bangladesh

Waste Concern Group is a Social Business Enterprise in the waste management sector in Bangladesh. It established a Recycling Training Centre at Dhaka with financial support from the Ministry of Environment and Forest and UNDP.

They train local governmental officials, NGOs and community-based organizations.

Courses focus on community-based solid waste management and resource recovery.

Training centre also trains trainers to enable farmers to improve composting and utilise produced compost. Training is provided through in-house or foreign experts.
Diversification of existing sectors into low carbon industries: United Kingdom

Structural change policies: increase value added activities
- Shipbuilders can pursue a product diversification strategy to enable them to build components for wind turbines.
- Low-carbon vehicles such as battery powered electric cars offer opportunity for automotive industry to develop new cleaner products & create jobs.

Belfast Shipbuilders Harland & Wolff: retraining ship building/oil rigs workers for employment on wind turbines manufacture & installation through company’s own training structures.

OneNorthEast (Regional Development Agency): in partnership with automotive manufacturers such as Nissan to develop workforce skills for electronic vehicles and battery manufacture.
Navarre’s successful shift to renewable energies
Spain

- Economic crisis linked to high oil prices in Navarre in the 1980s/90s
- Government decides to expand its renewable energy sector by taking active industrial policy measures including workers’ training
- CENIFER was established. First RE programmes launched at the Public University in Navarre
- By 2007, 100 companies created in renewable energies
- Employment in renewable energies increased by 183% in Navarre (2002-2006)
- Nowadays, Navarre produces 65% of electrical energy consumption from RE sources, has the second lowest unemployment rate in Spain and it is the first region to have a positive GDP growth rate after the crisis
Greening Existing occupations
Indonesia

- **Climate Field School for farmers** (Sekolah Lapang Iklim-SLI)
- Climate change heavily affects agricultural sector (40% of labour force)*
- **Ministry of Agriculture** initiated Climate Field Schools for Farmers in 2002. Since 2009, SLIs also cooperate with the Indonesian Meteorology Office.
- SLIs use an existing network of field instructors and **pest monitoring officers** of the Ministry of Agriculture that operate through Field Schools for water saving and pest control.
- These **instructors train farmers** on the ground, and since 2002 also include climate related information in their courses.
- SLIs take place once a year before planting season
- **Course content:** Planting strategies for arid and for irrigated land, calculating water needs, estimate flood probability, understand flood and drought control, etc.
Wind Power Technicians
USA

- Jobs under wind energy generation: manufacturing jobs; installation jobs; and maintenance & operations jobs
- Operation & maintenance job: require skills in new and emerging occupations----classified as “Wind Tech” occupation
- Estimated growth of jobs in which wind technicians are classified estimate at 41,000 by 2018
- 50 education programmes developed for wind technician and general technicians by Department of Energy
- Programmes by: community colleges; and four-year colleges and universities with collaboration with industry and technical schools
Skills responses to train solar energy technicians
India & Bangladesh

- In India, the Barefoot College has been providing training in solar technology by promoting the use of solar equipment.

- College has trained the illiterates building on traditional knowledge and imparting modern skills, and also extended their services to international participants.

- In Bangladesh, Grameen Shakti, has trained more than 1000 women technicians through 20 Grameen Technology Centers to install, maintain and assemble crucial components of the Solar Home Systems. The training provided by this NGO is delivered on the job.

- Pilot project by the ILO in Bangladesh aiming to link the training provided by Grameen Shakti to formal training centres run by the Bureau of Manpower, Employment and Training. *
Skills responses – Toyota Philippines

Example of upskilling:
• Key environmental personnel are required to participate in more specialized and technical trainings

• Greening of companies and HR require full support of CEOs and managers (in terms of investments/policies).
Greening existing occupations: One Tambon One Product : Thailand

Initiated by former PM for employment creation for agriculturists & villagers in TAMBON (sub-district)

Green skills training with villagers in their areas of interest: woodwork, ceramics, traditional massage, spa, food processing, etc.

Innovative ideas: product devt; design & packaging; marketing; logistics

Use of Herbal medicines and skills training

Hydroponic vegetables: grown in mineral solutions instead of soil; do not contain chemical residues and are highly nutritious; new skills required in preparing mineral solutions for seedlings and further nurturing through the plant life cycle
THE END

THANK YOU FOR YOUR ATTENTION

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