



Green jobs and social inclusion

1. Introduction

This note provides a brief introduction to the green jobs debate and reviews commitments made by Governments in terms of employment and green jobs.

2. Why green jobs?

The world faces several sustainable development challenges which require coordinated action, as evidenced by the recurring food, fuel, climate and financial crises. These multiple crises need to be addressed at the same time. The concept of green jobs¹ is an attempt to look for synergies in simultaneously addressing employment, energy and environment issues.

Energy use and environmental stresses have reached a scale at which planetary boundaries are being reached, increasing the probability of catastrophic environmental change.^{2,15} Despite many efforts, the declared goal of establishing a renewables-based low-carbon energy system on a global scale remains elusive. Modern renewables jointly account for only about 1 per cent of primary energy, and CO₂ emissions growth has been accelerating.³

3. What are green jobs?

There is no generally agreed definition of “green jobs”. In view of this, the current brief looks at the net employment impacts economy-wide of policies and measures taken to “green” the economy rather than focusing exclusively on “green jobs” per se.

While many of the estimates of job impacts of “green” policies are global in nature, derived from model-based scenario work, most commitments in this area are at the national level. The job benefits are often a main political “selling point” for “green” policies, even though most actions consider green jobs creation as a co-benefit and do not focus on it as a primary goal.

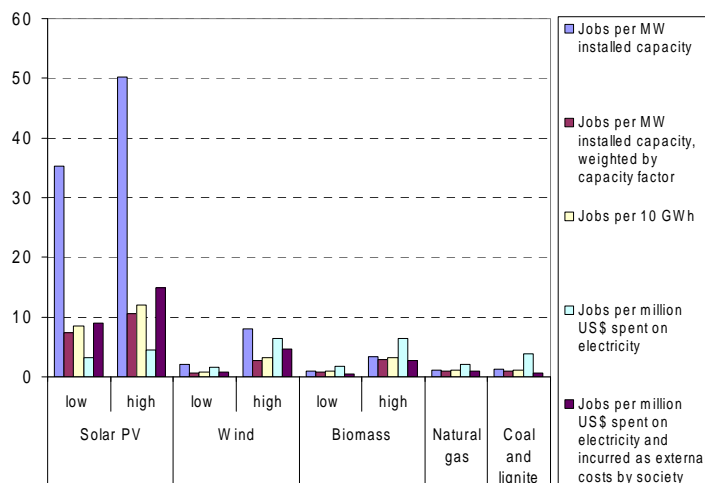
4. Making sense of green jobs estimates

The debate on green jobs has focused largely on the energy sector and has drawn on technical and macro-economic estimates of employment factors of energy technologies. The politicisation of the debate is evident in the selective choice of performance metrics by many analysts. Results differ greatly mostly on account of the use of different performance metrics⁴, using the same underlying data (figure 1).⁵

Advocates of renewable energy typically emphasize the fact that renewable electricity is associated with 5 to 40 times more *jobs per MW* than fossil-fired technologies.⁶ When adjusted for the smaller capacity factors of intermittent solar and wind power sources, the differences in job creation potential are much reduced. Solar PV is still associated with about ten times more *jobs per GWh* than fossil-fired power, but the ranges of estimates for wind and biomass-fired power are very large and the absolute

values not that different from those for fossil-fired power.⁷ Policy makers should be interested in getting as much benefit (such as jobs) for each dollar spent and thus take into account the different power generation costs. In terms of *jobs per dollar spent*, wind power and biomass-fired power are more attractive than the higher-cost solar PV and more attractive than most but not all gas and coal-fired power capacities.⁸ The green growth perspective suggests “getting prices right” through internalizing external costs.⁹ Solar PV turns out to be most attractive in terms of *jobs created per dollar spent on electricity by consumers and incurred as external costs by society*.^{10 11}

Figure 1. Employment creation performance of power sector options



Data sources: Kammen et al. (2006); Huntington (2009); Hirschberg (2009).

Governments typically provide subsidies and additional incentives for clean technologies that reduce resources that might otherwise be available for other sectors. Government support for higher cost renewable energy might lead to significant net job losses, in view of the fact that typical employment factors of 1.6 to 6.5 jobs per million US\$ for renewable energy are smaller than for most other expenditure items (e.g., US household bundles (17), construction (12), fast food (31), US economy average (10)). Also, what happens to jobs economy-wide if an expanding renewables’ share alters electricity bills depends on how consumers adjust expenditures not just to relative price changes but to the change in their real incomes. In reality, the overall jobs impact is rather uncertain.

In summary, the employment benefit of green solutions is not evident across the board, but some options stand out: cost-competitive energy efficiency, public transport, biofuels and pro-poor solutions. Reducing technology cost and improving quality of clean energy technologies increases their jobs creation potential. Large-scale pro-poor programmes have employment

factors of around 1,000 jobs per million US\$ spent,¹² which is much higher than those typical for clean energy programmes of 2 to 10 jobs per million US\$.

5. Green stimulus and jobs

In response to the financial crisis, many large economies had adopted green stimulus packages by 2009. The “green” share in overall stimulus packages ranged from 3% in Japan to 81% in the Republic of Korea. Much of the stimulus was allocated to energy efficiency of buildings, railway networks, and power grids, with only a small share for renewable energy.¹³ The green stimuli are likely associated with the creation of about 4 million jobs. It should be noted, however, that most of them were debt-financed and thus might reduce future consumption and jobs creation, unless the investments provide an adequate productivity boost.

5. Global estimates of green jobs creation until 2050

A widely quoted UNEP/ILO green jobs report¹⁴ suggested that the number of green jobs in the world might increase from 2.3 to 20 million from 2006 to 2030, which implies creation of 750,000 green jobs per year (59% in biofuels, 31% in solar PV). China alone would have 4.5 million jobs in wind and solar power by 2020.

With all due caveats, coordinated global action and investments of about US\$1.8 trillion to achieve a series of sustainable development objectives¹⁵ might lead to 13 million new green jobs per year until 2050.¹⁶ Considering that higher costs in energy supply would replace other jobs through lower consumption, net global job creation would be less, possibly substantially so. The overall estimate and future patterns of employment are highly uncertain and depend on a number of future trends most of which indicate significant future overall job creation, but also a rapidly growing labour force (table 1). Under no conceivable assumptions will green jobs alone be an answer to the global employment challenge to create on the order of 63 million decent new jobs per year until 2050.¹⁷

Table 1. Stylized factors and likely future employment patterns

Factor	Likely trend until 2050	Likely employment impact
Population	+2 billion	Large expansion of developing country labour supply
Energy demand	+50-100%	More energy jobs
GHG mitigation	Renewable supply at high cost, less on end-use efficiency	More energy jobs, but long-term job creation below potential
Technical characteristics	Intermittent sources	Back-up needed, leading to more energy jobs
Technology origin	Technology transfer to poor countries, development & manufacturing elsewhere	Most new green jobs in large emerging economies
Technology costs	Reduced significantly	More jobs, but not necessarily in energy
Int'l production networks	Increasingly complex and global	Job benefits accrue to relatively few countries and companies
Pro-poor employment programmes	In an increasing number of middle-income countries	Very high short- to medium-term employment impact

6. Winners, losers, and adjustment measures

While green growth is most likely leading to a global net employment increase until mid-century, some countries are expected to benefit more than others from it. Net job creation will depend, inter alia, on a country's production and R&D capacity, natural resource endowments, labour supply, energy and trade policies.

Major changes are expected not only in the energy sector, but across sectors and countries partly as a result of the changes in the energy sector.

In addition to low-carbon energy supply, investments in green industries are likely to increase significantly with global demand for their products. Countries will benefit most who cultivate green RD&D and production jobs. While many of the future green RD&D jobs will continue to be in high-income countries, most of the production jobs and a growing share of RD&D jobs will be created in emerging economies. In fact, in 2008 public and private energy RD&D in BRICS countries was US\$18 billion, or three times that in the United States of America.¹⁵

Overall employment in resource extraction sectors will continue to decline, irrespective of the extent of green growth policies. Thus, adjustment and retraining measures are essential.

7. Existing international commitments

The preferred emphasis of this note would be on committed goals with time-bound targets, in view of note's objective to inform discussions on possible outcomes at Rio+20. However, qualitative commitments that are not time-bound or well defined are also considered, in view of the paucity of time-bound targets on employment matters and even more so on green jobs. The following documents were consulted: Agenda 21 (1992); Johannesburg Programme of Implementation (JPOI, 2002); the Millennium Development Goals (MDGs, 2000, and the 2008 update); the outcome document of the UN Summit on the Millennium Development Goals (2010); the World Summit for Social Development (WSSD, Copenhagen, 1995).

Only two time-bound global commitments related to employment or green jobs have been identified (table 2): (i) New MDG target 1B was included following work by the UN Commission for Social Development and an interagency expert group (IAEG): “Achieve full and productive employment and decent work for all, including women and young people” by 2015¹⁸ (four indicators were added under MDG 1 and one under MDG 3); (ii) JPOI calls for an “increase [of] decent employment, credit and income for the urban poor...” by 2020 as a means to improve the lives of at least 100 million slum dwellers. Many outcome documents of global summits contain only general commitments regarding employment, income-generation, green jobs, and skills. One example is Agenda 21 in which such commitments are included in a total of 12 chapters (table 3).

Para 70(d) of the outcome document of the MDG Summit in 2010 provides a synthesis of most of the reviewed commitments on green jobs: “We commit ourselves to accelerating progress in order to achieve Millennium Development Goal 1, including

through: *...Pursuing job-intensive, sustained, inclusive and equitable economic growth and sustainable development to promote full and productive employment and decent work for all, including for women, indigenous people, young people, people with disabilities and rural populations, and promoting small- and medium-sized enterprises through initiatives such as skills enhancement and technical training programmes, vocational training and entrepreneurial skills development. Employers and workers' representatives should be closely associated with these initiatives;*"

Table 2. Summary of time-bound commitments

Source	Goal and Target	Delivery
MDG update 2008	MDG 1B: "Achieve full and productive employment and decent work for all, including women and young people"	2015
JPOI	11(c) "Increase decent employment, credit and income for the urban poor, through appropriate national policies, promoting equal opportunities for women and men;"	2020

Table 3. Summary of commitments that are not time-bound. Those relating directly to "green jobs" are highlighted in green.

Source	Goal and Target
Agenda 21, chapter 3	3.3 "...direct action in eradicating poverty by strengthening employment and income-generating programmes."
	3.4(c) "To develop for all poverty-stricken areas integrated strategies and programmes of sound and sustainable management of the environment, resource mobilization, poverty eradication and alleviation, employment and income generation;"
	3.8(a) "Governments, with the assistance of and in cooperation with...international, nongovernmental and local community organizations, should establish measures that will directly or indirectly: a. Generate remunerative employment and productive occupational opportunities...on a scale sufficient to take care of prospective increases in the labour force..."
	3.10 and 3.10(a) "The United Nations system...should make poverty alleviation a major priority and... [S]upport and special emphasis on employment and income generation... should be given particular attention in this regard;"
Agenda 21, chapter 5	5.46. "Nationally determined policies for integrated ...programmes...women's employment should, as appropriate, be included among other factors."
	5.48 "...Empowerment of women is essential and should be assured through education, training and policies to accord and improve women's right and access to assets, human and civil rights, labour-saving measures, job opportunities and participation in decision-making..."

Agenda 21, chapter 7	7.16(b)(i) "...All countries should...undertake the following activities...Accelerating efforts to reduce urban poverty through a number of actions, including: i. Generating employment for the urban poor, particularly women, through ...urban infrastructure and services and the support of economic activities in the informal sector, such as repairs, recycling, services and small commerce;..."
	7.16(d) "Developing local strategies for improving the quality of life and the environment...thereby promoting employment generation that is environmentally sound and protective of human health."
	7.20 and 7.20(d) "...'green works' programmes should be activated to create self-sustaining human development activities and both formal and informal employment opportunities for low-income urban residents;"
	7.54 and 7.54(a) "...all countries should... a. Provide on-the-job and other training of government officials, planners, traffic engineers and managers involved in the energy - service and transport section;..."
	7.60 and 7.60(i) "To promote a 'culture of safety'... the following activities should be carried out:Restructuring of the economic activities and promoting new job opportunities in environmentally sound sectors..."
	7.69 (e) All countries should... Promote the use of labour-intensive construction and maintenance technologies which generate employment...for the underemployed labour force"
Agenda 21, chapter 11	11.22 (g) and (h) "Governments...should undertake the following activities...promoting value-adding secondary processing for improved employment, income and retained value;...Promoting and supporting the management of wildlife, as well as eco-tourism, including farming...for improved rural income and employment..."
Agenda 21, chapter 12	12.48(c) "Prepare rural projects for providing short-term rural employment to drought-affected households."
Agenda 21, chapter 14	14.27(b) "Create non-farm employment opportunities through private small-scale agro-processing units, rural service centres and related infrastructural improvements;"
Agenda 21, chapter 18	18.31 "Water resources assessment...Education and training programmes designed to ensure an adequate supply of these trained personnel should be established or strengthened...In addition, the provision of attractive terms of employment and career paths for professional and technical staff should be encouraged. Human resource needs should be monitored periodically, including all levels of employment. Plans have to be established to meet those needs through education and training opportunities and international programmes of courses and conferences."

Agenda 21, chapter 24	24.3(f) "Governments should take active steps to implement the following...Programmes to support and strengthen equal employment opportunities and equitable remuneration for women in the formal and informal sectors with adequate economic, political and social support systems and services, including child care, particularly daycare facilities and parental leave, and equal access to credit, land and other natural resources;
Agenda 21, chapter 25	25.9(e) "Governments, according to their strategies, should take measures to:...develop and implement strategies for creating alternative employment opportunities and provide required training to young men and women;"
Agenda 21, chapter 29	29.5. "Governments, business and industry should promote the active participation of workers and their trade unions in decisions on the design, implementation and evaluation of national and international policies and programmes on environment and development, including employment policies, industrial strategies, labour adjustment programmes and technology transfers."
Agenda 21, chapter 32	32.6(b) "National Governments should...Promote pricing mechanisms, trade policies, fiscal incentives and other policy instruments that positively affect individual farmer's decisions about an efficient and sustainable use of natural resources, and take full account of the impact of these decisions on household food security, farm incomes, employment and the environment;"
Agenda 21, chapter 36	36.12. "Training is one of the most important tools to develop human resources and facilitate the transition to a more sustainable world. It should have a job-specific focus..."
	36.17 "...New training approaches for existing environmentally sound practices should be developed that create employment opportunities and make maximum use of local resource-based methods."
	36.22. "...National and regional environmental labour-market information systems should be developed..."
JPOI	7(e) "Develop policies and ways and means to improve access by indigenous people and their communities to economic activities and increase their employment through...measures such as training, technical assistance and credit facilities."
	10(b) "Provide assistance to increase income-generating employment opportunities, taking into account the Declaration on Fundamental Principles and Rights at Work of the International Labour Organization;"
MDG 2010	48. "We stress the need to create full and productive employment and decent work for all and further resolve to promote the Global Jobs Pact as a general framework within which each country can formulate policy packages specific to its situation and national priorities in order to promote a job intensive recovery and sustainable development. We call on Member States to take effective measures for promoting social inclusion and integration and incorporate these into their national development strategies."

	70(d) and (e) "We commit ourselves to accelerating progress ...to achieve Millennium Development Goal 1, including through:... (d) Pursuing job-intensive, sustained, inclusive and equitable economic growth and sustainable development to promote full and productive employment and decent work for all, including for women, indigenous people, young people, people with disabilities and rural populations, and promoting small- and medium-sized enterprises through initiatives such as skills enhancement and technical training programmes, vocational training and entrepreneurial skills development. Employers and workers' representatives should be closely associated with these initiatives; (e) Improving opportunities for young people to gain access to productive employment and decent work through increased investment in youth employment, active labour-market support and public-private partnerships, as well as through the creation of enabling environments to facilitate the participation of young people in labour markets, in accordance with international rules and commitments;"
	72 (d) "Ensuring that women benefit from policy measures to generate full and productive employment and decent work for all..."
WSSD 1995	Commitment 3: "We commit ourselves to promoting the goal of full employment as a basic priority of our economic and social policies, and to enabling all men and women to attain secure and sustainable livelihoods through freely chosen productive employment and work."
	Commitment 8 "We commit ourselves to ensuring that when structural adjustment programmes are agreed to they include social development goals, in particular eradicating poverty, promoting full and productive employment, and enhancing social integration."

8. Delivery on commitments

A review of the overall, global delivery of the employment and green jobs-related commitments is sobering (table 4). While judgment is needed to assess delivery against the not so well defined commitments, there is ample evidence to suggest that progress has been slow and in some cases even contradictory to the stated goal. It is impossible to say whether delivery of commitments specifically relating to "green jobs" has fared better or worse than those generic to employment as a whole.

In terms of the most prominent goal – MDG 1B – to achieve "full and productive employment and decent work for all, including women and young people", the actual trend has been in the wrong direction. Exacerbated by the global financial crises, labour markets have recently deteriorated, more workers have been forced into vulnerable employment, and more workers find themselves and their families living in extreme poverty.

Table 4. Issues, commitments, and their delivery to date. “Green jobs”-specific elements are highlighted in green.

Issue	Commitments	Recent trends	Delivery
Full and productive employment and decent work	MDG 1B, MDG 2010 (48 and 70(d)), WSSD 1995 (commitments 3 and 8)	Some progress before 2008, thereafter worsening. In 2010, more than 180 million people were formally unemployed, and 1.3 billion people were in the informal sector.	No
Pursue job-intensive, sustained, inclusive and equitable economic growth and sustainable development	MDG 2010 (70(d), 48)	Since 2009, more than US\$400 billion has been committed to a green stimulus, mainly in high-income and middle-income countries. Yet, the stimulus has been far from equitable (within and across countries), nor job-intensive. The stimulus has created an estimated 4 million which corresponds to an employment factor of about 10 jobs/mn US\$ spent.	Partial
Decent employment for the urban poor (including through infrastructure and informal sector)	JPOI 11(c), Agenda 21 (7.16(b), MDG 2010 (48))	Significant progress in some cities, but far from achieved on the global level	Partial
Strengthened employment and income-generating policies and actions for the poor (in line with ILO principles)	Agenda 21 (3.3, 3.4(c), 3.10), JPOI 10(b)	Some progress in terms of income-generating policies, but ILO principles have not always been respected.	Partial
Generate sufficient employment in line with future increase in labour force	Agenda 21 (3.8(a))	The labour force is expected to increase by about one billion until 2050. To deal with only this increase, at least 25 million new jobs need to be added each year.	No
Improve women’s access to equal employment opportunities and remuneration	Agenda 21 (5.46, 5.48, 24.3(f)), MDG 2010 (72(d))	Significant improvement in many countries since 1992, but large differences persist among and within countries.	Partial
Improve access of indigenous groups to employment and training	JPOI (7(e)), MDG 2010 (72(d))	Slow progress, except for few countries.	No
Training/skills for a sustainability transition, including in environment, energy, transport, water, and construction sectors	Agenda 21 (7.54, 7.69(e), 18.31, 36.12, 36.17), MDG 2010 (72(d))	Increased training in many countries, but no systematic approach to supporting workers in danger of being replaced.	Partial
Local strategies and “green works” for green jobs (for formal and informal sectors, and urban poor)	Agenda 21 (7.16(d), 7.20(d), 7.60, 7.69(e))	Selected good practices, but not in line with the magnitude of the challenge.	No
Rural employment generation in wildlife management, eco-tourism, and farming.	Agenda 21 (11.22 (g) and (h))	Progress in some countries in terms of employment in wildlife management and eco-tourism, but less so in farming. In those resource-intensive developing countries of Africa and Latin America where employment in agriculture has increased, it is primarily due to increased poverty and lack of alternative opportunities.	Partial
Rural employment programmes, including through agro-processing, rural service centres and infrastructure.	Agenda 21 (12.48(c), 14.27(b))	Significant progress in some middle-income countries, little progress in low-income countries.	Partial
Alternative employment opportunities for young men and women	Agenda 21 (25.9(e)), MDG 2010 (72(e))	In many countries, youth unemployment has increased in recent years.	No
Participation of workers and their trade unions in policy decisions	Agenda 21 (29.5), MDG 2010 (72(d))	Progress in some countries, regression in others.	No
Green policies and economic instruments to consider employment impacts	Agenda 21 (32.6(b), 36.22)	While employment impacts are typically featured in political statements, they are typically not a key factor in the design of green policies and economic instruments in many countries.	No
Structural adjustment programmes to include social development goals, including full and productive employment	WSSD 1995 (Commitment 8)	Where these programmes exist, some progress has typically been seen. However, there is a need for structural adjustment programmes also in many of the low-income countries where they typically do not exist.	Partial

9. Green jobs-related goals proposed recently

This section mentions goals related to green jobs that have been put forward recently. Many other ideas for goals and associated targets have been proposed by think tanks, NGOs, and others.

Proposal by Colombia and Guatemala on Sustainable Development Goals (SDGs)¹⁹

This proposal does not include an SDG relating to employment or green jobs. The first area of focus is poverty eradication but most other areas relate to other issues.

DPI/NGO conference²⁰

The declaration from CSOs has proposed several goals and targets that relate to employment and green jobs:

“...we call upon governments to...create green jobs and to green existing jobs with a special focus on youth, women and disadvantaged groups”

“SDG Healthy Forests:...Restoration of over 150 million hectares of cleared or degraded forest landscapes is achieved by 2020...”

“SDG Sustainable livelihoods, youth & education:...By 2015, governments incorporate within development frameworks as a priority, investments in the education, health and employment of young people, who... face disproportionate levels of poverty, unemployment, gender discrimination and ill health. Governments should support comprehensive policies, youth participation and multi-sectoral programmes that empower present and future generations to fully and freely exercise their human rights, fulfill their aspirations and be productive citizens.”

Major Group “Workers and Trade Unions”

In its submission for Rio+20, the major group “Workers and Trade Unions” suggested that the world’s leaders commit to “A country by country self-identified target on decent and green jobs to be reached in the next 5-10 years, accompanied by a package of decent work policies to secure jobs quality. This target should help at least doubling the number of ‘green and decent jobs’”.²¹ Furthermore, they suggest that “In any agreement on sustainable development goals, governments should agree on a commitment to ensure that at least half of the workers of the world have decent jobs by 2020, accompanied by a second goal ensuring all governments have...a Social Protection Floor in place by 2020.”

10. How to structure a discussion on employment and green jobs goals?

There are only two time-bound goals and targets related to employment and green jobs, and their delivery date has not yet expired:

MDG 1B: “Achieve full and productive employment and decent work for all, including women and young people” by 2015.

JPOI 11(c): “Increase decent employment, credit and income for the urban poor, through appropriate national policies, promoting equal opportunities for women and men” by 2020.

In this context, discussions might want to focus on accelerating progress towards these goals and the role of secondary education; social inclusiveness; large-scale public works programmes; research, development and demonstration; and other measures.

The purpose of the Rio 2012 Issues Briefs is to provide a channel for policymakers and other interested stakeholders to discuss and review issues relevant to the objective and themes of the conference, including a green economy in the context of sustainable development and poverty eradication, as well as the institutional framework for sustainable development.

For further information on this Brief, please contact R. Alexander Roehrl (roehrl@un.org).

¹ Jacobs, M., (1994). *Green Jobs? The Employment Implications of Environmental Policy*. Brussels: World Wide Fund for Nature.

² Rockström, Johan, and others (2009). *A safe operating space for humanity*. *Nature*, vol. 461, No. 7263 (24 September), pp. 472-475.

³ van Vuuren, D. P., and Keywan Riahi (2008). *Do recent emission trends imply higher emissions forever?* *Climatic Change*, vol. 91, No. 3, pp. 237-248.

⁴ Huntington, H., (2009). *Creating Jobs With ‘Green’ Power Sources*. United States Association for Energy Economics, Dialogue Vol. 17, No. 1, March, p.12-15.

⁵ Kammen, D.M., Kapadia, K., Fripp, M., (2004). *“Putting Renewables to Work: How Many Jobs Can the Clean Energy Industry Generate?”* RAEL Report, University of California, Berkeley.

⁶ Greenpeace and the European Renewable Energy Council published technology-specific estimates of person-years per MW in construction, manufacturing and installation, together with operation and maintenance jobs per MW and fuel-processing jobs per GWh, but excluding fossil fuel extraction, transportation and trade, and inter-industry effects, such as steel inputs. Their data are also in line with those used here.

⁷ This would be even more so, if we considered also the jobs at the stage of fuel production which are not included here.

⁸ Using levelized electricity costs from a widely cited study: Metcalf, G.E. (2006). “Federal Tax Policy Towards Energy,” National Bureau of Economic Research, Working Paper 12568, October.

⁹ External costs are not paid for by power producers but are eventually borne by everyone.

¹⁰ External costs are taken from the most comprehensive such assessment to date, using a life cycle approach: the EU’s NEEDS project.

¹¹ Hirschberg et al., (2009). *Final report on sustainability assessment of advanced electricity supply options*. Deliverable D10.2 RS2b. New Energy Externalities Developments for Sustainability (NEEDS), Project No. 502687. European Commission’s 6th Framework Programme. April.

¹² For example, India's Rural Employment Guarantee Act provided an estimated 10 million jobs (FTE) associated with an investment of US\$8 billion in 2009/2010.

¹³ Strand and Toman (2010). *'Green Stimulus', Economic Recovery, and Long-Term Sustainable Development*. World Bank Policy Research Working Paper No. 5163.

¹⁴ UNEP and ILO (2008). *Green jobs: towards decent work in a sustainable, low-carbon world*. ISBN: 978-92-807-2940-5.

¹⁵ UN (2011). World Economic and Social Survey 2011, http://www.un.org/en/development/desa/policy/wess/wess_current/2011wess.pdf

¹⁶ This is based on a review of investment needs contained in the World Economic and Social Survey 2011, and conservatively assumes employment factors of 5 for energy supply and 10 for end-use and energy appliances.

¹⁷ Roehrl, R.A., (2011). *Green jobs - does green growth lead to a net employment increase?* Draft DESA working paper, UN-DESA, September 2011. [Complementary information note to the current Issues Brief.]

¹⁸ http://www.ilo.org/empelm/what/WCMS_114244/lang--en/index.htm

¹⁹ *Rio+20: Sustainable Development Goals* – Proposal by the Governments of Colombia and Guatemala for consideration by the participating countries; Meeting of the member countries of the Rio de Janeiro Platform for Action on the Road to Johannesburg 2002: Latin America and the Caribbean in preparation for Rio de Janeiro 2012; Santiago, 7-9 September 2011; http://www.eclac.org/rio20/noticias/paginas/9/43799/2011-613-Rio+20-Note_by_the_secretariat-Rev-1-30-08_Prop._Col_Guat.pdf

²⁰ <http://www.uncsd2012.org/rio20/index.php?page=view&nr=273&type=230&menu=38>

²¹ <http://www.uncsd2012.org/rio20/index.php?page=view&type=510&nr=42&menu=20>