

Draft Report



**GREEN
JOBS
AND
WOMEN
WORKERS**

*Employment,
Equity,
Equality*

SUMMARY

Achieving sustainability depends on equal attention to economic, environmental and social factors and their integration through sustainable development strategies. Green economy initiatives which aim at creating more environmentally-sound economies may not fully incorporate fundamental social requirements such as income equity, job quality and gender equality. If they do not take account of these social factors, they may maintain or even aggravate the negative social and distributive trends of the traditional economy including existing inequalities and gender gaps.

The financial and economic crises have prompted a new emphasis on the transition to lower-carbon economies and increased investments in environmental infrastructure through economic stimulus packages. This has led to employment opportunities in the form of green jobs to reduce the energy intensity of economies, protect and restore ecosystems, and minimize waste and pollution.

The sustainability of green jobs depends not only on their environmental benefits but also on their social content, particularly their contributions to increasing social equity. The income gap between rich and poor is widening both within and between countries due to increasing unemployment and the poor quality of many jobs. Green jobs offer the possibility for a more equitable sharing of revenue between capital and labour and restored growth with greater distributive justice. But these positions must accord with the ILO Decent Work Agenda and have four basic attributes if they are to contribute to sustainable development: adequate

pay (equal remuneration), accessibility (upward mobility), accountability (social protection), and advocacy (social dialogue).

Women may be excluded from the green economy due to gender-segregated employment, discrimination, and traditional attitudes. The lack of gender equality is decreasing the access of women to green positions in the primary, secondary and tertiary sectors. Although they are the foundation of sustainable households, women agricultural workers in poor countries are a marginalized group. Most green jobs are expected to be in the secondary sectors of construction, manufacturing and energy production, where women are significantly under-represented. Women may fare better in the tertiary sector where most are now employed. However, men dominate the better paid jobs in engineering, financial and business services, where the bulk of green service positions are likely to be created.

Government and union action is required to raise the proportion of green jobs filled by women and to ensure the quality of those jobs. Steps should be taken to increase the number of women who are:

1. **Employed:** through anti-discrimination laws and family-friendly mandates;
2. **Recruited** for non-traditional jobs: through quotas and targeted schemes;
3. **Trained** in green jobs skills: through specialized apprenticeship and training initiatives;
4. **Paid equitably:** by reducing gender-based job segmentation and wage gaps; and
5. **Organized:** through increasing the union membership of women in potential green sectors.

DRAFT REPORT
GREEN JOBS AND WOMEN WORKERS *Employment, Equity, Equality*
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INTRODUCTION

Addressing social issues is key to mitigating climate change and putting countries on the path to sustainable development. Green strategies which focus on the transition to low-carbon and environmentally-sound economies will not succeed without fuller attention to the social dimension. Growing income inequality, rising unemployment and marginalization of women workers are blocking progress on ecological aims. But these social issues are politically sensitive, making them the hardest to address and the most difficult to rectify, thus jeopardizing the overall achievement of sustainable development.

The current financial and economic crises have highlighted the political threat of the lack of corporate responsibility and rising unemployment. This is compounded by growing public concern about climate change. While green economy strategies can also generate green jobs, they have paid scant attention to the quality of these jobs (in terms of labour standards and wage levels) or the widening gender gap at both the national and international levels. Green economy strategies will not be an engine of sustainable development without the full integration of the social pillar of sustainability in terms of pay equity and gender equality.

This paper examines trends in the creation of green jobs (employment), their social quality (equity), and their access to women workers (equality). Case studies of the experiences of women in green sector jobs in developed and developing countries are cited to illustrate the main arguments. At the end, proposals are made for recruiting, training and retaining women for the sustainable jobs of the future.

EMPLOYMENT: Green Job Creation

Growing environmental awareness, linked primarily to climate change concerns, is fueling hope for a new generation of green workers. Green jobs are those in existing and new sectors which use processes and produce goods and services aimed at alleviating environmental threats (UNEP, 2008a). In general, they are middle-skill positions in the main sectors of the economy –agriculture, manufacturing and services. Newer environmentally benign processes in sectors such as renewable energy should create a higher ratio of jobs per unit of investment and industrial output than more polluting alternatives, although in the longer term employment ratios may be equivalent to those in other mature sectors. However, green jobs will only be created if the right policies and framework conditions are in place.

A lack of public and corporate governance has led to a massive sustainability failure in terms of economies, societies and the environment worldwide. Economic growth is at its lowest level, unemployment is rising in all countries, and climate change threatens the future of the planet. The green job phenomenon is being driven by governments in their quest to restore economic growth in an environmentally-sensitive way with greening strategies proposed as the way out of these interlinked crises.

To this end, a green component is being included in economic stimulus packages. In the United States, the US\$800 billion spending initiative allocates US\$142 billion to environmental investments in transport infrastructure, renewable energy and other green projects, which are forecast to create 5 million new jobs (Jones, 2008). In Europe, economic recovery packages totaling €490 billion include €42 billion of environmental spending, ranging from 1% of the total in Italy to 11% in Germany. Close to 60% of the cross-cutting stimulus contributions of the European Commission are characterized as green including spending on energy-efficient buildings and “factories of the future”, with high expectations for green job creation (OECD, 2009a).

Thousands of existing jobs are being greened in sectors such as motor vehicles. In the United States, the US\$80 billion rescue of the large automobile companies –General Motors and Chrysler– has led to government ownership and requirements to produce smaller, fuel-efficient vehicles as well as

hybrids and electric cars. European governments rescuing their automobile sectors are extending tax breaks, soft loans and investment credits to spur the production of more energy-efficient engines and cars. Subsidies and incentives to consumers are increasing demand for less polluting vehicles.

If these policies are continued and the appropriate regulations and framework conditions are put in place, millions of green jobs will be created worldwide in the next twenty years. According to a joint UNEP/ILO/IOE/ITUC study on Green Jobs, it is projected that an estimated 20 million jobs will be created in the renewable energy sector alone by 2030 (UNEP, 2008a). As the potential for green job creation has grown in different sectors, further studies have put forward additional estimates and predictions. These relate to jobs that reduce energy consumption and the carbon intensity of the economy, protect and restore ecosystems and biodiversity, and minimize all forms of waste and pollution. It would comprise new positions in sectors such as renewable energy, but also involves greening of existing positions in industries such as vehicle design and production, construction, electronics, appliances, transportation, and agriculture.

Most green jobs will derive from the transition to low-carbon economies, including the development of renewable energy sources, production of fuel-efficient vehicles, investments in public transport infrastructure, and retrofitting buildings. It is estimated that over 40% of green employment will be linked to investments in renewable energy –wind power, solar, biomass, small-scale hydropower, and geothermal (EmployRES, 2009). Carbon taxes, emissions trading systems, and government directives are driving up the price of oil and gas making alternative energy sources more competitive.

For example, the 2008 EU Renewable Energy Directive, which set the goal of reaching a 20% share of renewable energy in total consumption by 2020, is projected to create 2.8 million jobs in Europe (EmployRES, 2009). In Spain in 2007, there were 89,000 people who were employed by 1,027 companies in the renewable energy sector. Estimates from a study on Renewable Energy and Job Creation indicate that in Spain by 2020, there could be between 228,000 and 270,000 jobs in the renewable energy sector by

following the EU Renewable Energy Directive (ISTAS-CCOO, 2007).

A third of green jobs are projected to be created in the construction sector as efforts are made to reduce energy waste through the retrofitting and upgrading of residential and commercial buildings. Green construction represents an integrated approach to planning, designing, building and maintaining commercial and private structures. It will involve a range of new trades such as solar heating and cooling and the greening of existing jobs from skilled technicians installing thermal insulation and energy-efficient windows to electricians upgrading lighting and air-conditioning systems with higher energy-efficiency standards.

Lowering the carbon intensity of transport systems –particularly through fuel-efficient vehicles, new infrastructure and public transport– is expected to contribute substantially to green job growth. In the manufacturing sector, numerous green jobs will be linked to the production and use of clean processing techniques and pollution control equipment. This includes equipment, technologies and advanced materials for air pollution control, waste water treatment, waste management, soil remediation, noise and vibration control, environmental monitoring and instrumentation.

Reducing waste generation and developing approaches for the safe and clean handling, transfer, storage and disposal of waste will provide new business opportunities. Recycling and green processing of a variety of materials –metals, paper, textiles and plastic– will employ millions of people worldwide, while remanufacturing operations will produce new goods and save on raw material and energy inputs.

Lastly, green jobs will be created in resource-based sectors including agriculture, fisheries and forestry, particularly in developing countries. A range of positions will be devoted to conserving ecosystems such as forests, wetlands, estuaries, soils and coral reefs as well as climate-related tasks such as carbon sequestration through forestry. Bio-diversity businesses will use the products and services provided by nature to provide employment in, for example, organic agriculture, non-timber forest products, and eco-tourism.



EQUITY: Green Job Quality and Decent Work

The sustainability of green jobs depends on their social content as well as on their environmental benefits. Although these jobs may be found in ecologically-sound sectors and provide environment-relevant services, they will be of low quality if they are not accompanied by four basic attributes –living wages, upper-mobility pathways, core labour standards, and the right to representation (**Box 1**). The ILO Decent Work Agenda includes not only employment but also workers' rights, social protection and social dialogue (ILO, 2009). Government and union action is needed to ensure that the shift from brown economies to green ones helps narrow the growing income gap within and between countries.

Box 1: Ensuring the Quality of Green Jobs: Four Attributes

- 1) Adequate pay:** green jobs should receive adequate remuneration and equal pay.
- 2) Accessibility:** green jobs should guarantee high labour standards in terms of contracts, hours, & benefits.
- 3) Accountability:** green jobs should guarantee high labour standards in terms of contracts, hours, & benefits.
- 4) Advocacy:** green jobs should ensure the right to union representation and collective bargaining.

Green jobs represent a new type of employment which is not yet caught in the history and inertia of pay inequity. In this, there is an opportunity for a more equitable sharing of revenue between capital and labour. In developed countries, the gap between rich and poor has widened over the past 20 years and is being exacerbated by the economic crisis. Countries such as the United States and the United Kingdom have some of the highest inequality and poverty rates among OECD countries, where many workers fail to earn a living wage while corporate executives are granted disproportionate pay and bonuses (OECD, 2008b). Adequate remuneration should be a requirement of green jobs in rich as well as poor

countries as part of a new consensus for distributive justice based on restored growth with equity.

Green jobs should be an opportunity to move low-income workers into higher-skilled occupations through programs for career paths and upward mobility. This could move men and women from unemployment, or under-employment, to sustainable job options and provide them with the skills and support they need to succeed. In all countries, poorer communities with high unemployment rates can be targeted for green job hires. These opportunities may particularly help more women into career paths that will allow them to become economically secure and support themselves and their families.

The green job opportunity should establish fundamental labour standards, social protection and decent work as global prerequisites. Working hours which are supportive of family life, health benefits and maternity leave, and supervised health and safety conditions should be fundamental requirements. The tenets of Fair trade should be not just an option for consumers but a requirement set by global trade rules for international business operations. Without standards for green job sectors, solar sweatshops and slave labour on bio-plantations could predominate. All countries committed to uphold these labour rights when they signed the ILO Declaration on Fundamental Principles and Rights at Work in 1998.

Social dialogue and the right to associate and have union representation should be a mandated aspect of all green jobs. Unless they are adequately represented, workers will be deprived of opportunities to improve their livelihood and status. Corporate Responsibility to formulate legal work contracts, pay decent wages, adhere to labour standards, and guarantee union rights is still voluntary in many countries, particularly in the poorer regions of the world. Multinational enterprises working in less developed nations are at present not required to follow these rules for many brown and green sectors.

Unions will need to organize the new green sectors in developed and developing countries in order to ensure that green jobs are equitable and decent. Union support and advocacy for increased investments in new clean technologies and green production should have as a counterpart the respect of corporations for unionization processes. The decent work agenda and the green jobs agenda are complementary and mutually supportive and should be linked in the minds and actions of unions, companies and governments.

EQUALITY: Green Jobs for Women

The green economy can be an opportunity for women to gain their rightful place in the workforce through better-paid, non-traditional jobs –defined as those where women represent less than 25% of the workforce (ILO, 2007). Theoretically, women can perform all categories of green jobs in the primary, secondary and tertiary sectors of the economy. Despite perceptions that most green work involves heavy labour and that this is a barrier to female participation, automation has reduced the need for greater physical strength.

In addition to more manual positions in the agriculture, energy and construction fields, the green economy should create a range of administrative and service employment opportunities. However, the majority of green jobs are expected to be in the construction, manufacturing and engineering fields where woman are significantly under-represented (**Table 1**). As a result, the green economy may unintentionally exclude women.



Primary sector

Primary sectors, including agriculture and forestry, are expected to be major beneficiaries of the transition to a low-carbon economy. However, women comprise less than 20% of the global workforce in primary sectors. This share ranges from 2% in developed countries, where few women work in large-scale mechanized agriculture, to as high as 60% in some African and Asian countries, where many low income labourers are women working in small-scale farming and forestry-based activities (OECD, 2008a). However, female contributions to household subsistence are generally not counted in official statistics and not considered formal work. Despite their importance to world food production and household support, women agricultural and forestry workers in poor countries are a marginalized group.

The shift to greener economies offers potential job opportunities for women in the primary sector. Women can run resource-based businesses and engage in water and land management, bio-fuel production based on small-scale low-input agriculture, and environmental maintenance of nurseries and forests. However, the female contribution to greening resource-intensive sectors, where they already tend to be most active in developing countries, may not be realized due to gender inequalities. Policy interventions are needed to overcome discriminatory attitudes and increase the ability of women to profit from activities and enterprises based on primary production (**Box 2**).

Table 1. Women in Green Job Sectors

SECTOR	Components	Estimated share of female employees (2009)
Primary	Farming/fisheries/forestry	20%
	Natural resources	8%
Secondary	Manufacturing	24%
	Construction	9%
Tertiary	Engineering services	12%
	Financial and business services	15%
	Eco-tourism	20%
	Administrative services	68%

Source: Estimates based on ILO, 2007.

Box 2:
Women in the Forestry Industry in India

Agriculture and forestry are the dominant economic sectors and the main employers in many developing countries. In India, nearly 400 million people are dependent on forests for their livelihoods. In their informal subsistence contributions to these resource-based sectors, women play an important role in rural communities and are the main source of income in many rural households. Whereas men are engaged in commercial forestry, women are more concerned with biodiversity conservation and sustainable forest management which ensures a regular supply of firewood, fodder, water, and other products for basic human needs. The ability to identify and use forest plants, trees and shrub species is higher among women, who also have a special interest in planting trees as an alternative to walking long distances to gather firewood.

As the principle harvesters of forest products, women are among the worst affected by forest degradation and deforestation due to increasing urbanization. However, due to the traditional patriarchy of Indian society, women are subjected to gender-biased treatment in terms of their social and political rights, inheritance rights, access to and use of household resources, and right to education. The female contribution to the primary economy is exacerbated by socio-economic stresses including seasonal unemployment, unplanned motherhood, poverty, and illiteracy.

In 1990, the Indian government initiated the Joint Forest Management Regime where communities manage forests in partnership with government forest departments. Recognizing that forest policies were gender insensitive and ignored the synergistic relationships between women and forestry resources, the new forest management framework requires that 50% of the oversight board and one-third of community committees be composed of women. Due to this mandate, women are becoming active participants in the co-management of forests and programs to reduce their vulnerability to urbanization and climate change. Women are also managing small green businesses based on forest and agricultural products allowing them to participate in the workforce both as labourers and entrepreneurs. However, women are not reaping the full benefits of their work owing to exploitation by middle men and others who take a share of the profits. Further government action is needed to realize the ability of green forestry jobs to provide a better way of life for women workers and sustainable livelihoods for Indian households.

Source: Jadhav, 2009.

Box 3:
Women in the Construction Industry in the United States

The construction industry will play a major role in the transition to sustainable economies and is predicted to provide more than 30% of green jobs in countries such as the United States. Construction jobs provide the skills, good wages and benefits to move workers into a “middle class lifestyle,” characterized by homeownership, access to education for the next generation, and secure retirement. However, such gains have been available only to male workers in an industry from which women have been systematically excluded. Thirty years after the US government mandated 6.9% female participation in the construction industry, the share of women among labourers and carpenters is 2.6% and 1.1% respectively.

Gender segregation in construction can be traced to institutional sexism and the craft model of unionism. The modern construction industry retains the insularity and nepotism of its ancestral medieval European guilds. The construction trades have made few efforts to recruit women to their apprenticeships where the share of women has declined to below 3%. Studies also document the obstacles that women face on construction sites including physical intimidation, sexual harassment, discriminatory training practices and non-family friendly employment practices

More ambitious targets and quotas for the employment of women in construction are needed as well as greater access to training systems. Changes in technology, family norms and women’s expectations make it theoretically possible for the US construction industry to be 50% women. The national 6.9% quota for female participation in construction should be raised and enforced. For example, New York City initiated a 2005 agreement with developers, contractors and unions to set aside 10% of apprenticeships for women and hire 15% women on major construction sites –with both targets being met. Governments, business and unions should devise strategies and support groups to increase access to green construction jobs for women based on set targets and quotas.

Source: Moir, 2009.

Secondary sector

At least 80% of global green jobs are expected to be in the secondary sector, including construction (e.g. retrofitting buildings, transport infrastructure), manufacturing (e.g. fuel-efficient vehicles, pollution control equipment), and energy production. But in all regions of the world, the female share of employment in the secondary sector is far lower than that of men.

In the construction sector worldwide, the few jobs held by women are generally administrative and secretarial (Box 3). The more skilled building positions –sheet metal workers, insulation specialists, cement masons, plumbers and pipe fitters, carpenters, electricians, heating and cooling experts– are male-dominated in all countries. Similarly, women are estimated to have less than 25% of world manufacturing jobs (ILO, 2007), serving primarily as workers on mass production lines and in export processing zones, where the lack of rights and enforcement of labour legislation is common practice and their working and pay conditions are well below any standards. Skilled manufacturing jobs such as computer-controlled machine tool operators are generally held by men.

Energy and electricity are secondary sectors expected to generate a large share of green jobs as renewable energy becomes more competitive with fossil fuels and attracts investments in wind, solar, geothermal and bio-fuel production. However, throughout the world, men dominate the energy industry. Most managers as well as employees of energy and electricity companies are male. In developed countries, the share of female employees in the energy industry is estimated at 20%, most working in non-technical fields such as administration and public relations (ILO, 2007). Qualified women with technical expertise tend to encounter obstacles deterring them from engaging in energy enterprises. As a result, the share of female technical staff in the energy industry is at most 6%, in decision-making positions it is about 4%, and in top-management the share is less than 1% (BPW, 2009). Targeted policies are needed to increase the share of women in the many new positions –technical and non-technical– opening up in green energy sectors (Box 4).



Box 4:**Women in the Photovoltaic Industry in Southern Italy**

Agriculture and forestry are the dominant economic sectors and the main employers in many developing countries. In India, nearly 400 million people are dependent on forests for their livelihoods. In their informal subsistence contributions to these resource-based sectors, women play an important role in rural communities and are the main source of income in many rural households. Whereas men are engaged in commercial forestry, women are more concerned with biodiversity conservation and sustainable forest management which ensures a regular supply of firewood, fodder, water, and other products for basic human needs. The ability to identify and use forest plants, trees and shrub species is higher among women, who also have a special interest in planting trees as an alternative to walking long distances to gather firewood.

The growing photovoltaic sector –which converts sunlight directly into electricity– offers substantial future employment opportunities. Photovoltaic production has doubled every 2 years since 2002, making it the world's fastest-growing energy technology. However as shown in the case of southern Italy, gender gaps in employment and traditional attitudes may block these green opportunities for women workers.

The photovoltaic market in sunny southern Italy is exploding, partly due to a new building code requiring that a portion of electricity be generated by solar energy. The Italian photovoltaic capacity is expected to grow from 100 MWp in 2007 to 600 MWp in 2009. Job opportunities will be provided for solar system designers and installers as well as architects for Building Integrated Photovoltaics (BIPV). With regard to the latter, over 51% of architecture graduates from southern Italian universities are now female.

But less than 30% of women in southern Italy are employed largely due to a lack of family-friendly services, particularly childcare. The share of children aged 0-2 in day care centres in the southern region is less than 6%, far lower than the national average of 11.3% and the European target of 33%. The burden of unpaid family work falls largely on women thus limiting their participation in the labour force. For women to realize their work potential in the photovoltaic and other green sectors in regions such as southern Italy, family support services must supplement the targeted recruitment of women and specialised job training.

Source:Barboni, 2009.

Tertiary sector

Globally, more than 50% of employed women are providing services, primarily in sectors associated with their gender roles such as household, social and administrative work. Although women are engaged in many skilled jobs in the tertiary sector including teaching and nursing, they tend to be concentrated in administrative support tasks such as clerks, secretaries and customer service representatives as well as in the household sector.

Men dominate the better paid service sector jobs in engineering, financial and business services, where most tertiary green positions are likely to be created. Although more women are acquiring engineering and business skills, they confront barriers to their full participation in better-paid service sectors due to gender discrimination and lack of workplace flexibility. However, there are emerging green service fields such as ecotourism which are providing greater opportunities for women, particularly in developing countries (**Box 5**). The UN World Tourism Organization (UNWTO) is joining forces with the UN Development Fund for Women (UNIFEM) to enhance the role of women in sustainable tourism, which could be the ultimate green job opportunity for females.

**Box 5:****Women in Ecotourism in Developing Countries**

In all regions of the world, women are finding jobs and careers in the growing field of ecotourism. In 2007, the theme of UN World Tourism Day (27 September) was "Tourism Opens Doors for Women." Coincidentally, the eco-friendly travel company Responsible Travel reports that over 67% of people who book ethical and environmental holidays are women rather than men.

Ecotourism is defined as "responsible travel to natural areas that conserves the environment and sustains the well-being of local people." The UN World Tourism Organization estimates that ecotourism now generates about 7% of all international travel expenditure and is increasing at an annual rate of between 10% and 30%. The major beneficiaries are poorer countries rich in natural resources and scenic areas. Viewed as an important alternative development strategy, investment in ecotourism is promoted by the World Bank, the International Monetary Fund and other development agencies. It also attracts large multinational companies which invest in hotels, resorts, real estate, transportation and other supportive infrastructure.

Women have been highly involved in ecotourism-related businesses built around preserving fragile environments such as lakes, rivers, forests and coastal zones. They have thrived in creating responsible nature enterprises, teaching communities how they can sustainably utilize resources from fragile ecosystems and at the same time earn a living from them. Examples include women in the coastal Kenyan town of Gazi who have established a community-based tourism venture that profits from the scenic beauty of Mangrove forests; the indigenous women of the Yorkin community in Costa Rica who run an ecotourism program based on their region's natural beauty; and women in Thailand organizing ecotours of northern forested regions as a basis of community development. However, gender-sensitive development assistance programs and micro-credit initiatives are essential to realizing the female potential in ecotourism.

Source:UNWTO, 2009.

**POLICY RECOMMENDATIONS:
Increasing the Green Female
Workforce**

Increasing the proportion of green jobs filled by females and ensuring the quality of those jobs is a five-step process to get more women:

- 1. Employed** – by overcoming barriers to greater female participation in the workforce through combating discrimination and implementing family-friendly policies;
- 2. Recruited** – by hiring women for non-traditional jobs through special programs and quotas;
- 3. Trained** – by providing women with green job skills;
- 4. Paid equitably** – by reducing gender-based job segmentation and gender wage gaps;
- 5. Organized** – by increasing the unionization of women in potential green sectors.

A combination of traditional and innovative strategies is needed so that women as well as men can benefit from the green economy. This involves a paradigm shift to link the environmental and social consciousness of women with the wide range of jobs, including manual labour and technical positions, expected to emerge from the shift to a green economy (**Box 6**).

Box 6:**The Green Sensitivity of Men and Women**

Women should take their rightful place in the green economy due to their higher environmental awareness. If women were in more productive and decision-making roles, we would be moving faster and more assuredly towards low-carbon growth. But because men dominate in areas related to industry and energy as well as politics, the focus of environment and climate policies tends to be more technological than behavioral, more political than economic.

Surveys show that women are more sustainable consumers than men and more likely to buy recyclable, eco-labeled and energy-efficient products. Women more than men support government intervention in the marketplace to promote environmental goals including bans on unsustainable products and lower prices for environmentally-friendly goods. Females want government grants to make green energy choices cheaper, higher investments in renewable energy, more climate-friendly manufacturing processes, and tougher carbon reduction targets. The environmental gender gap is most pronounced with regard to carbon taxes – women far outnumber men in advocating carbon levies to account for the true environmental costs of production and transport.

Source: OECD, 2008a.

Employing women

Economic growth in all countries depends on more women joining the labour force and fuller use being made of their skills. The rate of female participation in the workforce is significantly lower than that of men –about 60% of eligible women work in developed countries and about 40% in developing countries (OECD, 2008a). Since the economic crises, the impact on women's position in the labour market in developing countries is often stronger than in more economically developed parts of the world. It is widely accepted that the negative consequences of recessions in developed countries impact overall more strongly on male than on female employment levels–, while in developing countries women workers are more prone to be made redundant than male workers (ITUC 2009), and women are far less likely to benefit from governments' stimulus packages and the related green job boom.

Variations in gender-related socio-cultural values across the world also play an important part in the understanding of how a recession affects women's positions in the labour market differently across the globe. The idea of the male breadwinner is still a widespread stereotype, but more so in developing countries than in developed ones.

Additionally, in poorer countries, discrimination against women is largely responsible for gender gaps in education, health care and economic participation. Customs, traditions and social norms hold the key to understanding the roots of gender inequalities. Women generally do not have the same access to capital and resources as men or equal rights of inheritance and ownership. A prerequisite for increasing women in green jobs is addressing the underlying causes of discrimination through changes in legal structures governing property rights, inheritance and family codes, and ensuring that women are active players in the economy. Development assistance efforts should be targeted to maximizing the economic contributions of women to both the formal and informal economies.

Although women have greater job access in richer countries, they still work less than men and in lower-paying sectors and positions. Women bear most responsibility for childcare and households, causing them to suffer from time poverty, intermittency in employment and lack of mobility. In addition to anti-discrimination laws, increasing the female workforce depends on providing affordable childcare, paid parental leave and flexible work arrangements.

Developed countries with mandated family-oriented practices (e.g. the Nordics and France) have more working women than countries without such approaches (e.g. Germany, Japan, Korea) and have realized net benefits in terms of work performance, productivity and economic growth. Since most women would prefer to work and also have children, provisions for childcare help fight declining fertility rates in rich nations. Government policies which require companies to provide equal employment opportunities and adopt family-friendly work practices are necessary for sustainable growth in both economic and environmental terms.

Recruiting women

Labour market policies which address gender discrimination and facilitate female employment must be accompanied by programs to recruit women into non-traditional jobs. Women are not fully engaged in green job sectors, such as construction and engineering, and are not employed in the more skilled green positions opening up in agriculture, manufacturing and services. Women tend to work in less-skilled and lower-paying jobs in certain economic sectors which are gender-segregated in all countries.

Part of the problem is the fields women typically choose to enter. In secondary and tertiary education, women tend to prefer subjects relating to health, education and humanities, while males chose mathematics, science and engineering. Women thus end up in female-dominated positions such as nursing and teaching which are characterized by lower status and pay. Rectifying this gender divide depends on school systems that give information, counseling and financial incentives to female students to enter more technical fields of study. During their education, girls can also be given training and work experience in industrial, scientific and managerial positions which are now male-dominated. An early start is needed to increase the number of women in more skilled areas of the green workforce.

Governments must also work with business and unions to recruit and retain women in non-traditional occupations. Mobilizing female labour supply through targeted programs and gender quotas is potentially the most effective way to increase green jobs for women. For example, the placement provisions of the US Women in Apprenticeship and Nontraditional Occupations (WANTO) Act are helping to integrate women into male-dominated professions in the United States (**Box 7**).

Training women

A shortage of appropriate skills is cited as a leading barrier to green growth, making it important to provide relevant training for both men and women. But special efforts will be needed to provide access to green job training for women. Government-funded training and apprenticeship programs as well as business initiatives should address the under-representation of women in green industries through targeted initiatives and quotas for female participation.

In general, technical training and apprenticeships should be designed so that they are more sensitive to women's needs, e.g. offered at times and locations compatible with family roles, adapted to women's levels of skills and confidence, and directed to filling knowledge gaps. For jobs in areas relating to ecotourism, natural resources and climate change mitigation, women will need more knowledge of environmental sciences. For many green construction and engineering jobs, women will need pre-vocational training such as tool identification and safety. Occupationally-specific training should also be offered such as in solar panel installation.

Government programs for providing green job training as part of economic stimulus packages and restructuring should explicitly target female participation. The European Social Fund, created in 1957 to support employment and skills training in Member countries, is financing training for the environmental jobs of the future in areas such as renewable energy and ecotourism. But greater efforts are needed to increase the participation of women in ESF programs, which is now below 10%. Similarly, the US Green Jobs Act of 2007 authorized US\$125 million per year to create an Energy Efficiency and Renewable Energy Worker Training Program, but this has failed to attract women. The 2009 US Economic Recovery and Reinvestment Act allots US\$4 billion for training, including for green building trades and weatherization assistance, but has no specific gender dimension.

However, there are emerging efforts to help women acquire green skills. Australia is funding apprenticeship programs that offer training for women in environmentally-friendly building practices, such as installing solar energy panels and water recycling systems. In South Africa, women constitute the majority of students in the Working for Water program which gives on-the-job training in a variety of green skills (**Box 8**). Non-profit organizations such as Solar Energy International are initiating schemes

Box 7: The US Women in Apprenticeship and Nontraditional Occupations (WANTO) Act

The Women in Apprenticeship and Nontraditional Occupations (WANTO) Act became law in the United States in 1992 providing for technical assistance to employers and labour unions in the placement and retention of women in apprenticeships and non-traditional jobs. Funded at a level of US\$1 million per year, the program awards competitive grants to community-based organizations which work with unions to start training and placement programs. Studies show that when a WANTO-funded program is implemented in an area, local women are 25% more likely to hold and retain a nontraditional job. WANTO programs include pre-job training programs, support networks and mentoring to shape workplaces to better receive and retain women.

Source: WOW, 2009.

Government spending through stimulus packages and public procurement can also attack workplace gender segregation. Contractors for public agencies should be required to adopt affirmative action goals to correct the under-representation of women in their workforce at the same time that their activities are being greened. Green stimulus spending should come with strings attached: to require employers to recruit women for non-traditional green jobs.



to teach women how to design, install and maintain renewable energy systems in their communities. Many regional and local governments are mounting e-learning platforms on the Internet which give equal access to men and women for learning basic green skills.

Box 8:

Training Women for Green Jobs in South Africa

Since its inception in 1995, the Working for Water program of the South African Department of Water and Environmental Affairs has cleared more than one million hectares of invasive alien plants providing jobs and training to approximately 30 000 people per annum, of which 52% are women. South Africa is a water scarce country and these plants pose a direct threat to both biological diversity and water security.

The Keiskammahoek Working for Water project is in one of the poorest areas of South Africa and a major site of apartheid under-development. The selection of workers is done by a community panel made up of ward councilors, local church leaders, and representatives of local organizations. A requirement is that 60% of workers must be women, 2% disabled and 38% youth. The selection process targets the poorest of the poor in that employment is limited to one person from each household where there is no individual working. The workers are organized in a cooperative at the start of the two-year employment period. Women may be re-employed but men are restricted to a five-year cycle. Wages depend on the type of work, such as slashing plants, applying herbicides or acting as a section leader, and men and women are paid equally.

The emphasis on skills development includes on-the-job training in environmental education, tree planting, species identification, chainsaw operation and herbicide application. Training in life skills is provided by the South African Department of Labour including HIV/Aids information, personal finance, first aid and diversity. Another focus is small scale initiatives to develop entrepreneurial skills and to create alternative jobs for women in ecologically sensitive sectors. For example, there is an attempt to add value to the biomass that is being cleared, such as for the production of charcoal and affordable eco-coffins made from black wattle. Some participants are trained in budgeting and business management to help them start their own activities. A small number of women also leave the program for permanent employment in forestry.

Source: Cock (2009).

Paying women equitably

Green jobs offer the chance of higher pay and upward mobility for many women. Gender wage gaps are persistent in all countries due to both gender segregation in employment and pay inequities. Women almost always earn less than men, even when working the same hours. In developed countries, men earn an average 18% higher pay than women in full-time jobs, which increases to 20% in countries such as Germany and the United States and to 33% in Japan and Korea (OECD, 2008a). Gender wage gaps are highest in management positions where the educational background and work experience of women and men are very similar. Pay inequities are far greater in developing countries.

Organizing women

In order to make green job opportunities real for women, unions should implement targeted campaigns to organise female workers in potential green sectors. In traditionally male-dominated sectors which are going green such as construction, new approaches are needed to increase the recruitment and retention of women and to integrate them into unions as well as companies. Women are joining unions in increasing numbers and now account for about 45% of union members in countries such as Canada and the United States, an all-time high. In addition to promoting the ILO Decent Work Agenda, unions should take steps to ensure that the emerging green economy is gender neutral.

Unions will also need to be more active in organizing women in female-dominated sectors which could be greened, such as informal agriculture, horticulture, forestry or eco-system restoration in developing countries. The lack of labour representation in these sectors results in little social protection. Because jobs are not adequately remunerated and lack full labour rights, women are deprived of opportunities to improve their livelihood and status. Other deficiencies include long and irregular working hours which are destructive to family life, lack of health benefits and maternity leave, poor health and safety conditions, and lack of legal employment contracts. Greening existing jobs which are female-dominated should go hand-in-hand with improving working conditions and ensuring labour rights. As a side benefit, the greening process could reduce occupational health and safety hazards, such as reproduction risks, thus providing greater female access to a wider range of jobs.

The result of the absence of unions is female working poverty in potentially green sectors, the profits of which are reaped by actors further up the supply chain. By organizing women in green sectors in poorer regions, unions can pressure multinational corporations to cease selling goods which have been produced by underpaid female labour or environmentally-damaging processes. A union presence can push corporations to go beyond voluntary guidelines and reporting to the actual implementation of environmentally and socially responsible practices. The success of Fair Trade sales illustrates the economic gains which can be realized through highlighting the environmental and social dimensions of goods, including their contributions to improving the status of working women. Starting with coffee, tea and bananas, Fair Trade now covers some 2000 products and has taken almost 50% of the banana market and 20% of the coffee market in

Gender segregation in employment, where the value of jobs and their earnings vary according to whether they are mainly male or female occupations, is a major source of inequalities. For example, in the European Union, less than one-third of occupations are "mixed" with the remainder dominated by one gender. In all countries, female-dominated jobs are characterized by lower pay, precarious employment conditions, and fewer training and career opportunities. Women also usually work in sectors with less unionization. For these reasons, women would benefit significantly from gaining access to male-dominated jobs in green sectors that could have union representation and pay decent wages. In the United States, for example, the average wage for carpenters, 99% of whom are male, is US\$18 compared to the average wage of US\$11 for preschool teachers, 98% of whom are female (IWPR, 2009).

Gender discrimination starts when assessing the skills and knowledge needed for certain job categories. Many jobs occupied by women require levels of skills, responsibilities, task variation and complexity similar to those of higher paid jobs held by men. But male dominated positions tend to be rated as more complex and of higher value than skilled female occupations including nurses, teachers and secretaries. In both green and non-green sectors, women in nontraditional occupations have a 50% better chance of attaining male wage levels than those in traditional jobs (IWPR, 2009).

Green jobs can be a mechanism for better remunerating women's work but this depends on concerted action. Governments, business and unions must together emphasize greater equality in job status and pay for men and women. Job evaluations which assess the content and skills of different positions must be gender-neutral to correct biases which result in lower pay for female-dominated occupations. This will lead to the professionalization of female jobs as well as more men entering into what has been traditionally women's work. Equal pay legislation should mandate equal pay for work of equal value by both sexes and ensure that female wages reflect their work tasks and skills. Mandating pay equity plans for firms will ensure that green jobs pay a living wage for both men and women.



European countries. Female consumers, who are more likely to buy sustainable products than men, are particularly attracted to gender considerations in production and the Fair Trade mark which guarantees sustainable livelihoods for women workers (OECD, 2008c).

As women increase their union membership in developing countries, they are powering the development of green sectors. In Latin America, the banana and coffee unions have been transformed as more women work in traditionally male jobs and push ecological and social concerns up the agenda. The work of the Self-Employed Women's Association (SEWA) in northwestern India shows how unionized approaches to organic farming and other efforts at greening livelihoods are reaping mutual environmental

and social benefits, including gains for women workers. They become self-reliant, both individually and collectively, and obtain social security for themselves and their families (SEWA, 2009). This is also seen in the unionized and female-dominated waste collection sector in India, where enlightened initiatives are simultaneously reaping economic, environmental and social benefits (**Box 9**).

Increased efforts by unions to organize women in the emerging green economy will contribute to the power and sustainability of the labour movement. It will simultaneously advance environmental and social well-being in the long-term interests of both men and women. Green jobs should be unionized jobs where concerted efforts are made to employ, recruit, train, pay equitably and organize women. ■

Box 9: **Women Waste Collectors as Green Workers**

A union in the Indian city of Pune has secured concrete improvements for waste collectors, who are mostly female, through promoting a socially viable and environmental model of waste recovery. It is estimated that there are between 9000 and 9500 waste collectors in Pune, 90% of whom are women. About 6500 or over two-thirds of these workers are affiliated to the Waste Collectors' Union KKP KP.

There are several types of waste collectors in India: 1) those who collect the waste in the streets and from public bins; 2) those who work in the landfills; and 3) those who go house to house with a trolley, buying waste that is worth a little more and that people do not throw directly in the bin, such as beer bottles, paper, etc.

The union has carried out a campaign with the authorities to integrate an ecological dimension into local waste management. In the past, all the waste was placed in bins on the roadside and the municipal trucks would regularly come to empty them and take the waste to the dump – a costly process. The union is promoting the separation of waste at the household level whereby families divide their waste into biodegradable and non-biodegradable. The waste collectors go from house to house to collect it and then sell what can be sold. What cannot be reused is sent to the dump, and the biodegradable waste is composted at the source.

The union carried out a study in 2007 to identify the types of waste that ended up at the dumps and it revealed that 90% of this waste was biodegradable. So 80 out of the 85 or 90 trucks collecting waste each day were doing so unnecessarily, constituting a huge waste of public money. Through such initiatives, empowered unions can generate economic savings and environmental benefits as well as social gains for women workers.

Source: Maitreyi Shankar, Waste Collectors' Union (KKPKP).



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