



Featured Article from ISSSP Insight newsletter dated November 2008

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## Michael Renner with Worldwatch Institute on Green Jobs Trends

Michael Renner is a Senior Researcher at the Washington-based Worldwatch Institute. Having joined the Institute in 1987, his work has focused on a range of topics, including the linkages between environment, resources, and conflict, post-disaster peacemaking, and employment and environment. In 2007-2008, Renner coordinated a research project on environment and employment for the United Nations Environment Programme and the International Labour Organization, carried out jointly with the Cornell University Global Labor Institute. The resulting report, *Green Jobs: Towards Decent Work in a Sustainable, Low-Carbon World*, was released at UN Headquarters in New York on September 24, 2008.

Mr. Renner is a cum laude graduate of the University of Amsterdam, the Netherlands, where he received a master's degree in international relations.



By Darcy Hitchcock

*Darcy: Tell me about the Worldwatch Institute. It's best known, I think, as a respected source of data on environmental trends, but that may be only part of the picture. What does Worldwatch do? What are some typical efforts you undertake?*

**Michael:** The Worldwatch Institute is a private non-profit started by Lester Brown back in 1974, so we have a good track record. As you say, we've been best known for reporting on a wide variety of global environmental trends. In the last decade, we've made a couple changes. First, we are focusing more on particular issues. Climate change is a core topic for us, especially in relation to energy, agriculture and food, and the future of the global economy.

The other change is we are emphasizing solutions more than in earlier years. I think we were seen as putting out a lot of doom-and-gloom reports. Sometimes people look at that and say, 'There's nothing I can do.' So we are putting out reports that

provide more guidance for policy-makers. We're also trying to make better connections between environmental and social/economic issues. It's really important to pay attention to the global economy and its drivers, because it will have a massive impact.

*Darcy: An example of this new emphasis is your recent report Green Jobs: Towards Decent Work in a Sustainable, Low-Carbon World. What was the specific catalyst for you to look at that issue?*

**Michael:** Actually, I've been looking into this issue for a number of years. My first report appeared back in 1991. Back then, there were really few green jobs and they tended to focus on pollution control: how to reduce pollution from smokestack industries or cars. It was a reflection of how limited environmental policies were in those early years.

For this particular report, the UN Environmental Programme put out a request for proposal for a report on green jobs developments worldwide. It

was a happy coincidence because we had wanted to do additional work on this issue ourselves.

**Darcy:** *So what were your findings? What did you learn?*

**Michael:** We examined key sectors of the economy—energy supply, transportation, buildings, basic industries, recycling, agriculture, and forestry—in terms of their greening efforts and the resulting employment impacts. We struggled with the fact that there are still lots of gaps in the data. Companies and governments need to provide better information.

What is a green job? If you ask experts in the field, they’ll all have different answers. In concept, it’s easy but it’s hard to nail down specifically. Most people would say that jobs in the renewable energy sector are green, but beyond that, there is no clear

looked at recent models of European, Japanese and Korean cars and asked, “What share of their production meets that limit?” Among European manufacturers, 7.5 percent of vehicles sold met this benchmark. Among Japanese-made cars sold in Europe, the share was about 6 percent, and among Korean companies, it was about 4 percent. Then we applied these percentages to the auto industry workforce to arrive at a rough estimate of what could be considered green jobs.

In the US, the Environmental Protection Agency puts out a report breaking down sales in increments of 5 miles per gallon. The share of cars in the 2007 model year in the US that achieve 40 MPG or more (roughly equivalent to the EU carbon standard) is only 1.2 percent. (See the table below.)

	European Union	Japan	South Korea	United States
Passenger-car manufacturing workforce	2,000,000	952,000	247,000	1,095,000
Share of vehicles emitting ≤ 120 grams of CO <sub>2</sub> per kilometer (percent)	7.5	6.3	4.3	n.a.
Share of vehicles achieving 40 miles per gallon or more (percent)	n.a.	n.a.	n.a.	1.2

consensus. So we tried to be clear about the assumptions and distinctions we made.

You have to think in terms of shades of green. We tried to identify jobs that were significantly greener than traditional jobs, making a substantial, rather than marginal, contribution to reducing carbon emissions and avoiding full-blown climate change.

Take transportation. A 2007 U.S. study estimated the number of people involved in making more fuel-efficient cars. It used a threshold of 10 percent better than the Corporate Auto Fuel Efficiency Standard, the so-called CAFE standards set by the US government. But the CAFE standards are only about 27 MPG so if you add 10 percent, you’re only at about 30 MPG. In the global context, including Japan, Europe and China, that doesn’t compare well at all!

The European Union is proposing that new cars should not emit more than 120 grams of CO<sub>2</sub> per kilometer traveled. It’s a proxy for efficiency. So we

**Darcy:** *I can appreciate how hard it was to get this data. But assuming we all look at your numbers as rough estimates, what did you find about employment?*

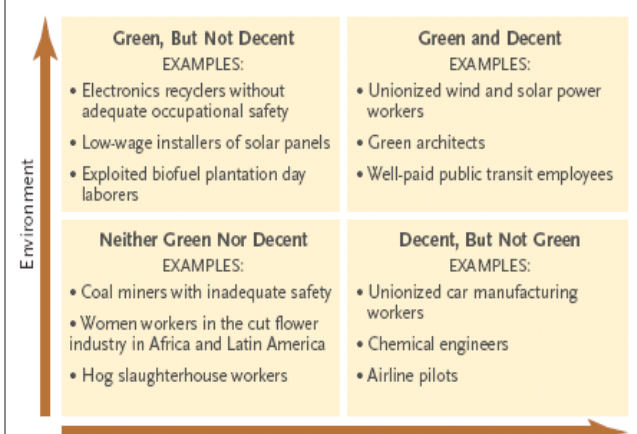
**Michael:** Renewable energy has the largest number of jobs, at this point about 2.3 million direct jobs worldwide. This includes solar, wind, biofuels, geothermal and small-scale hydro. About half of the jobs were in biomass and biofuels. For example, in Brazil, there are a lot of people working in the sugarcane fields for ethanol production.

**Darcy:** *Those are tough jobs.*

**Michael:** Yes, and that’s an important point. In our report, we talk a lot about ‘decent jobs.’ You could put employment on a chart with two axes: how green are the jobs and how good are the jobs.

Jobs are people’s livelihoods and they are also an important part of human dignity. So, as important as it is to get green employment, don’t lose focus on good jobs.

**Figure 1. Green and Decent Jobs? A Schematic Overview**



**Darcy:** *What about the other renewables?*

**Michael:** Wind energy employs about 300,000 people worldwide and solar photovoltaics offers about 170,000 direct jobs.

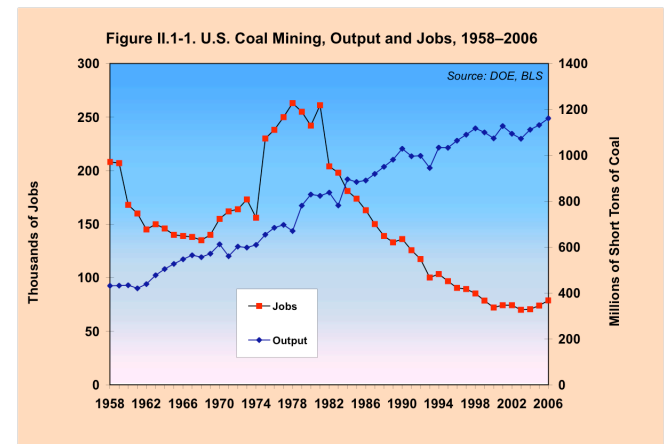
**Table 1. Estimated Jobs in Renewable Energy, Selected Countries and World, 2006**

Renewable Energy Source	World*	Selected Countries	
Biomass	1,174,000	Brazil	500,000
		United States	312,300
		China	266,000
		Germany	95,400
		Spain	10,349
Solar Thermal	624,000-plus	China	600,000
		Germany	13,300
		Spain	9,142
		United States	1,900
Wind	300,000	Germany	82,100
		United States	36,800
		Spain	35,000
		China	22,200
		Denmark	21,000
Solar PV	170,000	China	55,000
		Germany	35,000
		Spain	26,449
		United States	15,700
Hydropower	39,000-plus	Europe	20,000
		United States	19,000
Geothermal	25,000	United States	21,000
		Germany	4,200

**Darcy:** *Wow, that seems low.*

**Michael:** Yes, but it's growing very fast. There are also some real gaps in the data. Even though Japan is leading the world in solar electricity, their employment numbers as estimated by one study were very low—too low in fact compared with Germany, which has a PV industry roughly the size of Japan's.

That said, from a broad perspective the energy industry simply doesn't provide a lot of employment. However, renewables do employ more workers than oil and gas, coal, or nuclear. So they are a plus for employment. We looked at the coal industry in the US and even though production is going up, the number of jobs has been going down. The chart is like an X.



**Darcy:** *But given the nature of the work, how dangerous it is, that may be a good thing.*

**Michael:** These are not the kinds of jobs you would like to have, especially for underground mining where it's incredibly hard work and detrimental to health. But often, environmentalists gloss over these employment issues. In Appalachia, many people may not have much of an alternative and there's a family tradition of working in the mines. It can be hard for people to think about doing anything else. So there's a responsibility for government and business in those communities to work to diversify the economy, so that alternatives are available.

**Darcy:** *So we've talked about renewables and transportation. What other sectors did you examine?*

**Michael:** For other sectors, it's more difficult to quantify jobs. We looked at the building and construction industry. In Germany there's an

extensive weatherization program for apartments that received initial government funding and private investment. This led to an estimated 140,000 full-time jobs.

We also analyzed a range of basic industries: steel, aluminum, cement and pulp and paper. These tend to be very energy-intensive but are the lifeblood of modern societies. We looked at the degree to which they could be 'greened.' We're talking about shades of green at best, of course. In the steel industry, roughly 40 percent of world output is based on recycled scrap, which saves huge amounts of energy and can be seen as a proxy for a greener industry. Based on that figure, we estimate that there are about 250,000 green jobs in the steel industry.

China is the leading steel producer. They're trying to increase recycled content but their demand is growing so fast, there's still a lot of virgin production. And although China is now building some very modern and efficient factories, it has also bought up lots of old steel-producing equipment. For instance, thousands of Chinese workers came to Germany and dismantled an entire steel plant, labeling all the parts, and then reassembled the plant in China!

We also looked at agriculture and forestry. There are reasonably good overall job numbers for commercial forestry and pulp and paper. Beyond that, it's really complicated. There are no good statistics on small-scale logging and a broad variety of informal sector jobs and livelihoods, including people who rely on non-timber forest products, who don't cut the trees but scour the forest for food or medicinal plants. We focused on making some general observations. If we could increase reforestation rates, for example, we could in principle create a large number of new jobs or shore up existing ones.

*Darcy: Okay, I want to ask a tough, devil's-advocate question. If it's so hard to get good green job numbers, why should we bother? You're asking governments and businesses to provide better data. So what do we need these numbers for? What would we do with them?*

**Michael:** It's not just a matter of measuring green jobs versus non-green jobs. Examining employment trends helps to assess how far along we are in the difficult transition toward an economy that is sustainable both ecologically and socially. This is the

crux of the matter: you can do all the environmental good work you want, but if people don't have reasonably good prospects for jobs, incomes and dignified livelihoods, then they will not be supportive of what it takes to stabilize the climate and conserve nature. And it's not just about climate. In places like China, it's also a serious health issue related to urban air pollution from coal plants. This data helps us understand how far along we are. What else needs to happen in order to spread the best technology and best practices around the planet? How much more of the green potential can we realize?

*Darcy: So you're using green jobs as a proxy for industry productivity?*

**Michael:** Ideally, we'd start from the other end. To what degree is an industry relying on recycled materials or gaining efficiencies? Some data are available but to draw up a comprehensive figure, it's almost impossible. For many developing countries, they don't have the capacity to collect the statistics; and in the case of China, would they even release it?

*Darcy: Did you look at the rise of jobs with sustainability in the title, like sustainability directors and coordinators?*

**Michael:** No, we didn't look at sustainability directors per se. But there are other studies available that do attempt this. The American Solar Energy Society sponsored an input-output study for the U.S that included things like government jobs that monitor industry's environmental performance, administer subsidies and incentives for green ventures, and so on.

*Darcy: So what's next? What are you going to focus on in the next few years?*

**Michael** (chuckling): Good question. We may do a bit of follow-up work with UNEP on this project, try to fill in the data gaps and promote policies for green jobs creation. In some cases the data may exist, but perhaps from obscure sources or in languages where I'm not fluent. I want to form an international network to enable greater scrutiny of required information and insights. Of course, as with any NGO, it depends on successful fund raising.

*Darcy: It seems one of your biggest findings of this research is that the data are really hard to get. Other than fixing that problem—getting agreement on what a green job is and then*

*reporting the data—what else would you love to ask others to do?*

**Michael:** A key need is to boost investment in green technologies, which is still very limited. This is especially true in poorer communities and countries. We have to invest. And how can we best provide the workforce with the requisite skills? How do we increase the sharing of technologies and best workplace practices?

There's also a threat. Communities and industries that are dependent on oil and gas, on polluting industries, on making inefficient cars will probably be negatively affected in a green transition, especially if they hold out and resist greening their ways. They may lose jobs. So we need programs that will help affected communities develop new livelihoods consistent with a green economy. We will need to retrain workers and provide transition support. The trade unions are demanding this but so far, it's not been translated from rhetoric into real-life industry and government programs.

The other point I'd like to make is that environmentalists need to show we care about that. We care about people and jobs. We need a fair transition, one that helps people and communities adjust to new realities.

For a copy of the report, *Green Jobs: Towards Decent Work in a Sustainable, Low-Carbon World*, go to:  
[www.unep.org/PDF/UNEPGreenJobs\\_report08.pdf](http://www.unep.org/PDF/UNEPGreenJobs_report08.pdf)

For additional information go to:  
[www.worldwatch.org/node/5840](http://www.worldwatch.org/node/5840).

*Free Webinar (for ISSP members)*

**Alan AtKisson, Dec 16, 9am Pacific**

**Indicators, Systems, Innovation, Strategy:  
Putting "ISIS" to work to Accelerate Sustainability**



Alan AtKisson joins us from Stockholm, Sweden to share the insights from his latest book. "ISIS" simplifies, sharpens, and speeds up the process of doing sustainable development in practice, especially in teams and organizations. The method has been applied around the world, from UN training programs and NGOs in Asia, to planning processes in brand-name global companies and large cities. This webinar will provide you with an overview of the method through case studies and examples, and introduces you to specific tools and processes that help you put the method to work. ISIS helps sustainability change agents multiply their impact -- and multiply the number of sustainability change agents.

Presenter Alan AtKisson is founder and president of the AtKisson Group, an international sustainability consultancy. He is the author or co-author of several books, including a new one, *The ISIS Agreement: How Sustainability Can Improve Organizational Performance and Transform the World* (Earthscan, Fall 2008). He has over twenty years of professional experience in sustainable development, working with companies, organizations, and cities, from Seattle to Stockholm to Sydney. He will be conducting this webinar from his home in Sweden.

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