



## STATE OF THE WORLD 2008

# Innovations for a Sustainable Economy

### Energy

- Corporate R&D spending on **clean energy technologies** reached \$9.1 billion in 2006. Venture capital and private equity investment in clean energy totaled \$8.6 billion in 2006, 69 percent above the 2005 level and 10 times the 2001 level.
- Average **auto efficiency standards** will soon rise to 47 miles per gallon in Japan and 49 miles per gallon in Europe. **Bio-fuel production** has grown by 20 percent per year since 2005.
- Australia, China, and California plan to phase out the use of most incandescent light bulbs, which would be replaced by **compact fluorescent bulbs** that are four times as efficient.
- The government of Germany announced plans to **shut down** its centuries-old hard coal industry by 2018.
- Global trade of **carbon allowances** has increased rapidly, from 328 million tons of CO<sub>2</sub> equivalent in 2005 to 1,131 million tons in 2006.

### Industrial Production

- Innovative companies are revolutionizing **production processes**. Chemical giant **DuPont**, which is committed to sharp reductions of greenhouse gas emissions, cut emissions 72 percent below 1991 levels by 2007 and saved \$3 billion in the process.
- EcoCover Limited of New Zealand has used **biomimicry principles** to develop a biodegradable mulch mat made from “upcycled” shredded waste paper bound with fish paste. The product, a substitute for black plastic sheeting, reduces the need for chemical garden care, conserves water, improves soil, and diverts fish waste and waste paper from landfills.
- Researchers at Sandia Laboratories have mimicked the internal processes of abalones to develop mineral/polymer-layered structures that are optically clear but almost unbreakable.

### Agriculture

- A 2003 Swedish study found that beef cattle **raised organically on grass** emit 40 percent fewer greenhouse gases and use 85 percent less energy to make beef than cattle fed on grain.
- A recent two-year study found that **sows raised in hoop**

**houses** had more live births than those in confinement facilities. Researchers found that group housing could reduce production costs by as much as 11 percent compared with use of gestation crates.

- In Norway, several large salmon farms have learned that **introducing “cleaner” fish into pens** dramatically reduces lice and feed wastage, and that the cleaner fish can later be harvested for fishmeal; salmon production remains the same while waste drops by more than half, the incidence of disease drops, and the farm harvests two or three additional crops. Another Norwegian study found that small-scale fisheries generate five times as many jobs per unit of landed value than large-scale fisheries.
- Farmers practicing **rice-field culture** in Bangladesh have managed to reduce production costs by 10 percent, and the average farm income has increased 16 percent in just three years.
- Smithfield announced in 2005 that it would only buy from suppliers who **did not use antibiotics** on their animals, and in 2007 Tyson Foods announced that the birds it sells to U.S. grocery stores and restaurants would no longer be treated with antibiotics.
- Wal-Mart announced that within three to five years it would be **certifying** that all its seafood for the North American market was raised sustainably.

### Species Conservation

- An estimated 400+ “**wetland banks**” throughout the United States handle more than \$3 billion per year in transactions, and more than 70 species banks (conservation banks) trade as much as \$370 million in species credits each year.
- Vulcan Materials Corporation in California set up a **conservation easement** on its land, prime habitat for the endangered Delhi Sands Flower-loving Fly, and opened a bank selling “fly habitat credits” to needy developers.
- In South Africa, Columbia, and the European Union, laws requiring or encouraging **biodiversity offsets** are either being considered or already implemented.
- China’s **Grain for Green program** redistributes tax revenues to farmers to keep hillsides forested; it aims to conserve watersheds and prevent floods, but also helps protect species.

## Property Regimes & Commons Management

- Economists generally argue that a resource not exploited under a **private property regime** is destined for overuse, but numerous commons management regimes, some centuries old, prove otherwise. On Bali, rice farmers coordinate their use of scarce water cooperatively through social networks, resulting in a near-ideal allocation in terms of farm productivity.
- Commons management ideas are rebounding and finding new applications. **Wikipedia**, which is based on a collectively managed social network, now has almost 8 million articles in English and 250 other languages.
- Collectively managed **community gardens** are increasingly popular, with an estimated 18,000 gardens in the United States alone. Likewise, the number of **farmers markets** grew 150 percent between 1994 and 2006, and today there are well over 4,000 in the United States.

---

## Investing for Sustainability

- The **Equator Principles** have been endorsed by 54 signatory banks and represent over 85 percent of global private project finance capacity. According to the U.N., global venture capital and private equity **investment in sustainable energy** totaled \$8.6 billion in 2006, up 69 percent from \$5.1 billion in 2005, with the number of deals increasing by 12 percent.

- There are now 575 **environmental and energy hedge funds**. Global “**clean-tech**” capital investment increased by 78 percent in 2006 to \$2.9 billion, making it the third-largest venture investment category (and the third largest such sector in both China and the United States).
- Currently about 2,500 of the nearly 15,000 sustainability reports on file at CorporateRegister.com comply with **Global Reporting Initiative’s guidelines**, the generally accepted accounting principles for disclosing environment, social, and governance info.
- More than 300 institutional investors representing over \$41 trillion in assets have signed onto the fifth iteration of the **Carbon Disclosure Project**, which asks 2,400 of the world’s largest companies to voluntarily report their carbon emissions and management processes.

---

## Measuring Wealth and Wellbeing

- Bhutan has made “**gross national happiness**,” not economic growth per se, its official goal.
- Interest in ways to promote **human wellbeing** is widening among policymakers, with wellbeing now a national policy goal in Australia, Canada, and the United Kingdom.
- A recent global assessment found **green accounting programs** in place in at least 50 countries and identified at least 20 other countries that were planning to initiate such programs soon.

---

To order a copy of **State of the World 2008**, visit [www.worldwatch.org/stateoftheworld](http://www.worldwatch.org/stateoftheworld)