MARKETS FOR ECOSYSTEM SERVICES

Katoomba

The Ecosystem Marketplace's Daily coverage of the 2006 meeting of the Katoomba Group in Portland, Oregon (June 7-9)

Thursday, June 8, 2006 **Volume 1, Issue No. 2**

BBOP Jazzes Up Conservation in Curitiba

by Erik Ness

The recent Convention on Biological Diversity meeting in Brazil took a hard look at the intersection of business and biodiversity around the world. The Ecosystem Marketplace finds out about one of the hottest topics on offer: biodiversity offsets.

"Despite the recent bloom in green business, fraternizing with the private sector is still warily practiced in environmental circles."

It was not business as usual this year at the 9th meeting of the Convention on Biological Diversity.

The original treaty—signed at Rio in 1992—seeks to protect biological diversity by linking it to sustainable development. It mentioned business only twice. This year's meeting, held in the model Brazilian city of Curitiba, took a very different approach.

The International Chamber of Commerce and the World Business Council for Sustainable Development took turns at the podium. Businesses observed, joined state delegations, or showcased their ways and wares. Informal dialogues churned about the mechanics of business and biodiversity, and, for the first time in the history of the convention, an official decision focused exclusively on business engagement.

A Cautious Courtship

Despite the recent bloom in green business, fraternizing with the private sector is still warily practiced in environmental circles. The rationale for getting down to business in Curitiba was simple enough: by 2010 the

Conservation in Curitiba

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convention wants to reduce the global rate of biodiversity loss significantly. The goal is admirable but impossibly difficult. "There is now a clear appreciation that unless you can mobilize the private sector—the main engine of wealth creation—in this debate, then not a lot is going to happen," says Richard Caines of the Environmental and Social Development Department at the International Finance Corporation (IFC).

IFC leads the world in multilateral financing for private sector projects in developing nations. As the private sector arm of the World Bank, the institution was pressured for years to incorporate environmental standards into its lending practices. The Bank relented in 1998; standards have been periodically upgraded since, though enforcement has been inconsistent. On April 30, IFC ratcheted its guidelines higher with new environmental and social performance standards, including a requirement that companies protect and conserve biodiversity in proportion to their opportunity and risk. Forty-one financial institutions follow IFC's lead, covering 85% of global development project finance.

Caines says that the pressure for better environmental standards is increasingly coming from within business where, not so long ago, the extent of business interest in biodiversity was risk management. While recently developing a business guide to biodiversity, Caines saw a move towards "a much more business led inquisitiveness. If we're going to really tackle biodiversity, it's not just about risk management, it must be about creating value from biodiversity. How do we do that?"

"Although no one wants biodiversity to simply be a commodity, altruism and philanthropy will not suffice to ensure its conservation," argued Catherine Cassagne, the head of IFC's biodiversity team, in Curitiba. "There must be more creative and market based ways to value biodiversity and to create incentives for its protection."

Biodiversity Offsets

Among the more intriguing and advanced tools discussed in Curitiba is biodiversity offsets: conservation meant to compensate for the residual and unavoidable harm to biodiversity caused by development. Imagine an environmentally responsible company needing to build a pipeline or a mine in a fully transparent political environment. Even with state-of-the-art design and mitigation, completing that project will diminish biodiversity in the affected area.

"No matter what an operation does, it's going to destroy a piece of habitat," explains Mira Inbar of Forest Trends, a project manager for the Business and Biodiversity Offsets Program (BBOP) run jointly with Conservation International. "The concept of an offset is to create conservation projects somewhere else in the country--nearby or far away--that will bring that loss back up to zero or to create a net gain of biodiversity," she says.

"Although no one wants biodiversity to simply be a commodity, altruism and philanthropy will not suffice to ensure its conservation,"

Offsets could take many forms: a parcel of land donated as a park or indigenous reserve, funding for conservation programs or resource protection, habitat restoration or a species reintroduction. Ideally, an offset project represents the last step on a rigorous mitigation hierarchy that requires a developer first to consider development options avoiding the damage altogether and second, to reduce any unavoidable impacts as much as possible. Mitigation offsets should represent a last resort, not a go-to strategy.

Rough models of the offset concept have been practiced in the US through wetland and conservation banking; in Brazil through tradable conservation obligations; and in Australia, Canada and the EU through various habitat compensation schemes. But BBOP aims to raise the performance bar considerably higher. The program grew out of a report commissioned by IUCN and Insight Investment of the UK. (The report was co-authored by Ecosystem Marketplace director Ricardo Bayon and Insight's Kerry ten Kate, who also directs BBOP for Forest Trends. Ecosystem Marketplace is also a project of Forest Trends.)

The report identified three key business needs for a viable offset program: First, of course, is proof—practical experience showing that the concept actually works. Second, because measuring and compensating for biodiversity loss is not something most companies can do, they need tools and guidelines. Finally, companies need compelling laws and regulations to make biodiversity offsets work.

Defining and measuring biodiversity lies at the center of all these challenges. The grand definition—nothing less than the sum of all life on earth—is too broad to inform local management decisions. And scientists have been arguing about how to measure biodiversity for years. While they're getting closer, they're not likely to settle on a metric as economically friendly as a ton of carbon. "With carbon you have a unit that is quantitative and it equals the same thing no matter where it is, whether in the atmosphere or on the ground, in Cambodia or Cameroon," explains Inbar. "Biodiversity is much more complex. There is the species context, the functional context, the socioeconomic context."

We know how to measure an ecosystem's structure, we're so-so at measuring its worth to human communities, and we're not so good at understanding function, says Assheton Carter of Conservation International. Once these questions are worked out, tough challenges still remain. "How should we be asking companies to compensate? How much?" Carter asks. Against a backdrop of an overall decline you can't make progress if you only replace what is lost. "It's always got to be more than one to one." The offsets also need to be strategically located in places where they can do the most good.

In all, it's a tall technical order. BBOP's plan over the next 2 years is to develop tools and best practices for biodiversity offsets through a scientific working group and a portfolio of pilot projects. "We're cautious optimists," says Inbar. "We're going through a rigorous process to figure out a methodology for making sure that there are really robust conservation and livelihood outcomes from biodiversity offsets."

Breaking Ground in Qatar

Only a few people in the world so far can appreciate the nuts-and-bolts challenges of biodiversity offsets, and Sachin Kapila is one of them. Group biodiversity advisor for Shell Oil, Kapila is supervising the design of an offset for a

proposed refinery in Qatar. The $6 billion facility for converting natural gas to diesel spans a variety of ecosystems, from its terrestrial footprint in an industrial city to offshore drilling platforms. With pipelines winding through salt marshes, inland waterway, and near-shore coral reefs (including some turtle habitat), the project could get the go-ahead this summer.

Qatar has no environmental regulatory framework, but Shell plans currently include a biodiversity offset. The company joined the BBOP initiative because of the collective thinking offered by the various pilots. Because biodiversity offsets are still a controversial idea, the combination of additional technical and scientific expertise is appealing, while the program's ultimate transparency could provide credibility for a controversial topic.

"Impact mitigation can only take us so far," says Kapila, citing an "increasing recognition that we may need to look beyond our footprint and address residual impacts better than… industry has in the past." Because the Qatar facility will produce a clean diesel fuel, it will undoubtedly be treated to greater market scrutiny in an increasingly complex fuel market.

The company has undertaken offset projects in the US and Canada, but none of them approach the scientific rigor of the Qatar project. The idea is not to create a cookie-cutter offset based on the operation's footprint, but "to look at our whole ecological impact and see if we can develop a composite offset," says Kapila. The biggest challenge is replacing the ecosystem function of the impacted real estate, because you can't really replace the services and functions of that land. "That's impossible to do," explains Kapila. "That replacement will provide services and functions in its own right. But can you answer the question: 'is it a like-for-like replacement?' I don't know. Nobody knows how to do it. I don't think it's even possible."

And here lies the core of the debate over wetland mitigation in the US: if the replacements are sub-standard, society will end up trading good habitat for bad. When benefits are dubious, the whole transaction falls under a shadow. Because of the nature of biodiversity resources—either unique species or unique assemblages of species—any loss is more likely to look like a trade-off than a trade. "Is it really an offset? It's an offset but it's not a tradeoff? It starts getting really confusing what the 'it' is," says Marta Miranda, senior program officer at WWF. "If it is a tradeoff, who gets to decide what's traded and what's not?"

Furthermore, for offsets to work well, a lot of conditions need to be met: laws need to be enforced, benefits should be distributed equitably, and elites and politicians must be kept from running away with the money.

Offsets could also perversely affect the permitting process. "As soon as the idea that a company might be able to provide an offset comes into play, that always starts entering into the configuration at the environment ministry," says Miranda. "They start thinking ah, they might contribute X number of dollars to protect this other national park, so maybe we should think about that as part of the benefit package of this particular project, because we get this as an addition. Then there is the tendency to start to overlook the potential problems with the project itself."

Wait and See

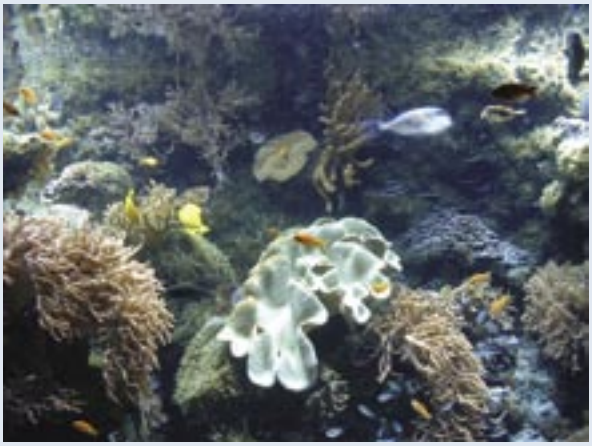
Ultimately, the delegates in Curitiba chose neither to constrain nor to endorse offsets, giving countries license to explore and develop the tool further. Several nations are currently exploring regulatory frameworks, and enabling policy could be forthcoming within the year. "People are looking for new mechanisms of conservation other than sequestering large areas of land and big time funding from global organizations," says CI's Carter. "The science is there for some things, it's not there for other things. That shouldn't stop us from still looking at biodiversity offsets eyes wide open."

"We have to try to articulate clearly the reasons why business should get involved. What are the benefits to business. Most of that is going to be around access to resources and the reputation they gain," he concludes. "I think it behooves us to show that there is serious science integrated into our attempts to promote biodiversity offsets."

Could biodiversity offsets ultimately become a unit of ecosystem services, traded in a marketplace harnessing market forces for conservation? "We're not at the stage where we can talk about markets," says Inbar. "I think that the market is the vision and possibly we can get to it, but before that we have to create the methodology and we have to really create the foundation before we can even start to think about trading."

"Right now there is net loss of biodiversity and no countries are meeting their target. We see this as a potential tool for mainstreaming conservation into standard development," she concludes. "Our vision is that one day, every time there is a development project, there will be an offset component, so there will be a net gain, perhaps, of biodiversity."

Erik Ness (http://erikness.com) writes about science and the environment from Madison, Wisconsin.



"Our vision is that one day, every time there is a development project, there will be an offset component, so there will be a net gain, perhaps, of biodiversity."


Ecosystem Marketplace
Mitigation Mail

From The Editors

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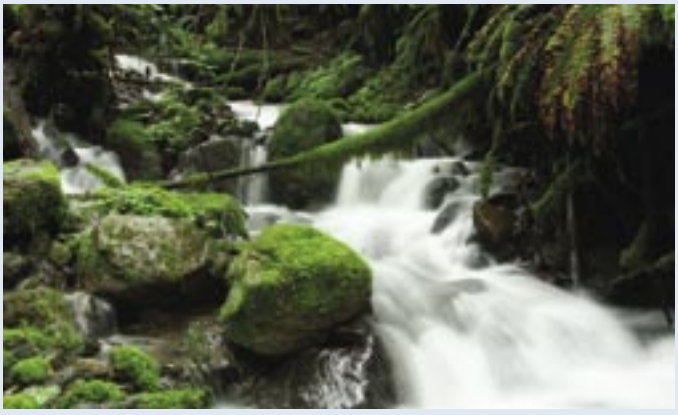
Profiting from the Rise of Environmental Markets

by David Brand

David Brand, managing director of New Forest Pty Ltd, tells the Ecosystem Marketplace why he thinks it is important to tell the world there is big money to be made in emerging environmental markets.

For those of us who think that evolving to a sustainable global economy will involve pricing of ecosystem services, it is often frustrating to see the lack of understanding and interest in this area by the mainstream business and investment community. It seems, then, that we need to demonstrate that investment in ecosystems and environmental markets is a compelling story, especially for those with a medium to long-term investment horizon.

The implications of the trajectory of our economy and population growth over the next 50 to 100 years are quite staggering. Think about what the world will be like with a Gross World Product of four times our current global economy in 2050, and 16 times our current GWP in 2100. Yes that's right--- 16 times the current Gross World Product. If we have an average 2.8% per annum growth in the global economy this century, that's the number. Given our current global GDP of $USD40 trillion, that's a global economy of about $USD640 TRILLION per annum[1]. Even if we use a 2.0% growth forecast it represents a global economy of approximately $USD300 trillion.



"The implications of the trajectory of our economy and population growth over the next 50 to 100 years are quite staggering. Think about what the world will be like with a Gross World Product of four times our current global economy in 2050, and 16 times our current GWP in 2100."

Given that the US economy is about 25% of global economic output, at $USD10 trillion or so, does anyone really think that those numbers would be sustainable under our current economic system of natural resource consumption? How could you put the demand and consumption of between 30 and 64 current US economies on the planet and expect to square that with the carrying capacity of ecosystems?

The WWF "Living Planet Report" estimates that we already use about 1.3 times the carrying capacity of the earth[2], Scientists estimate that we divert about 40% of the gross primary productivity of photosynthesis on earth to human use[3]. We have already increased global atmospheric carbon dioxide concentrations by about 35% since pre-industrial time[4]. The Millenium Ecosystem Assessment concluded that approximately 60% of ecosystem services are being used unsustainably or are in decline[5].

If we try to play this movie forward, what kind of world would we have in 2050 and 2100?

The price of a Megalitre of freshwater will be quoted on the evening news every night much like West Texas Intermediate Crude is quoted today. There will be little or no tropical rainforest left, as it all will have been converted to genetically engineered oil palm, soybeans and other com-

modities. Nature as we know it will be largely gone, aside from limited reserve areas, and the global ecosystem will be totally dominated by human systems. The wild species left will be generalists like sparrows, foxes, rabbits, surviving in ecosystems dominated by weed vegetation. I could go on about the spread of diseases, natural catastrophes, etc, but I won't.

My objective is not to preach doom and gloom. Instead it is to point out that the status quo is not just unsustainable, it is fundamentally infeasible. Therefore the economy will be repositioned, and those who understand the process of repositioning will do better than those who try to operate in the status quo.

I work in a business that aims to profit from the transition toward the pricing of environmental externalities related to greenhouse gas emissions, biodiversity and freshwater. We are helping investors position themselves in assets that will operate in our existing economy, but which will appreciate in value as prices for carbon, water and biodiversity increase. We are only one of a growing number of new businesses pursuing this area of investment.

I've been at this for about 10 years now, and can tell you that the last 12 months have witnessed a sea change. If we look around the world, we now have a carbon market that is worth $USD11 billion in turnover per annum in 2005[6], and likely will triple or quadruple this year. Some $USD3.7 billion is now invested in carbon funds that did not exist one year ago. Agricultural water rights in Australia are already worth more than $10 billion, and we are seeing endangered species and wetlands banking firms in the USA now generating revenues of $1 billion per annum.

"the economy will be repositioned, and those who understand the process of repositioning will do better than those who try to operate in the status quo."

Why is this transition suddenly occurring?

In some cases it is just a process of issues finally reaching a kind of tipping point, where the political cost of supporting the status quo exceeds the political cost of regulation. In other cases the underlying environmental or ecosystem assets are finite, and when they are finally fully allocated, the price snaps like a rope pulled tight. Once an asset like water becomes valuable, then the price signal pushes into land management forcing a rationalization of cropping, land use, vegetation management, fertilizer use, and soil conservation.

Once carbon becomes valuable, we will see energy conservation, re-engineering of industrial processes, a focus on fugitive gases, changes in building management, forest conservation and reforestation, etc.

Once biodiversity becomes valuable we will see national parks becoming augmented by private biodiversity banks, a substitution of technology for land in the agribusiness sector, increasing urban population density versus suburban sprawl, and an emphasis on organic produce in grocery stores.

I'm not some kind of futurist, but it is patently obvious to me that there will be spectacular growth in industries that specialize in environmental commodities like water banks, biodiversity banks, carbon pools, and land funds. There will also be big growth and profits in waste management, recycling, water efficiency infrastructure, renewable energy, land rehabilitation, building re-fit businesses, organic agriculture, environmental certification processes, and private registries and accounting services for ecosystem services.

Most of the readers of the Ecosystem Marketplace are already in the game. We are entering a new and exciting era, but we need to focus on an orderly transition to the full pricing of environmental services, environmental externalities and environmental commodities.

The key to the transition is investors. There are huge pools of capital being deployed today—for example there is about $USD20 trillion in US institutional investment---and those investors are increasingly coming to dominate many asset classes. These investors must come to understand and believe that there is greater growth and opportunity in areas of the economy that conserve or replenish the environment, than there is in those that consume it.

To me the investment community is like a food chain of risk return profile. At the front end, where this stuff is now happening are the private equity firms, hedge funds and speculators. They are willing to take early positions in water, carbon and biodiversity markets. And we are already seeing this. I was in NYC recently and met with companies who are buying a spectrum of environmental asset positions. The same is happening in London.

These companies create liquidity in the market and then sell to the institutional investors, often at a handsome profit, as these environmental assets and the businesses controlling them are revalued. Institutional capital then bulks up the market and replicates business models as price signals emerge. Companies with substantial environmental externalities and impacts become less profitable as their margins are eroded to pay for their impacts. Investment allocations shift, and new businesses exposed to environmental markets gain value and market share, and outperform the status quo.

If you look back 100 years, there are very few companies who have maintained a position in the Dow Jones—I think that GE is about the only one. It is interesting to note that GE is now re-positioning itself into the arena of environmental technologies like water and renewable energy. I wonder what the Dow Jones will look like in the next 100 years. Will companies controlling and developing water, carbon and biodiversity assets replace mining companies, automotive manufacturers and energy companies?

The Economist published a review of Sustainable Development a couple of years ago. The Author, Vijay Vaitheeswaran titled the survey, "The Great Race'[7]. His central premise was that the drawdown on natural capital to promote economic development was in a kind of race against the demand by affluent societies for environmental security. A world in poverty is unable to focus on environment, as short term needs for subsistence overwhelm any altruistic concern about environment. We now see major economies such as China and India transitioning through the process of economic growth to the point where they will evolve from centers of ecological impact into major markets for ecosystem and environmental services.

There is opportunity for both business and national governments to be part of the leadership in this area. Michael Porter of Harvard University, the global commentator on the competitiveness of nations has suggested

that countries who learn how to fix their problems first end up exporting the solutions, and then become world leaders in the business opportunities that follow[8]. I believe that our environmental problems – greenhouse gas emissions, waste and degradation of freshwater, and continuing biodiversity impacts---- are in fact an opportunity for investors.

Of course it has been frustrating over the recent past as key industry sectors have lobbied for continued ability to avoid paying for environmental externalities. But the winds of change are upon us and, as more and more countries step up to the plate and begin to regulate emissions, water, landclearing and biodiversity, we will see a pent up entrepreneurship emerge.

Playing off our strength of having an Australian background, where greenhouse emissions, water usage and biodiversity are acute issues, our company is already working with governments, business and industry internationally. We are seeing a rapid expansion in understanding the opportunities that arise from environmental and ecosystem markets. Surprisingly Australia is seen as an innovator in this area. It had the first greenhouse gas market in the world in NSW and is moving steadily to allow the full tradability of water rights. The country also boasts a series of innovative programs around biodiversity.

I suppose that the key message we must communicate is one of commercial opportunity. Let's think about the environment as natural infrastructure. Infrastructure investment has been an area of enormous growth in recent years, and has profited from significant innovation as investors piled in. Why shouldn't investors be leading the world into carbon pooling, water banking and biodiversity banking? It all comes down to convincing politicians and business leaders that this is an opportunity rather than a threat.

David Brand is the Managing Director of New Forests Pty Ltd. He may be reached atinfo@newforests.com.au

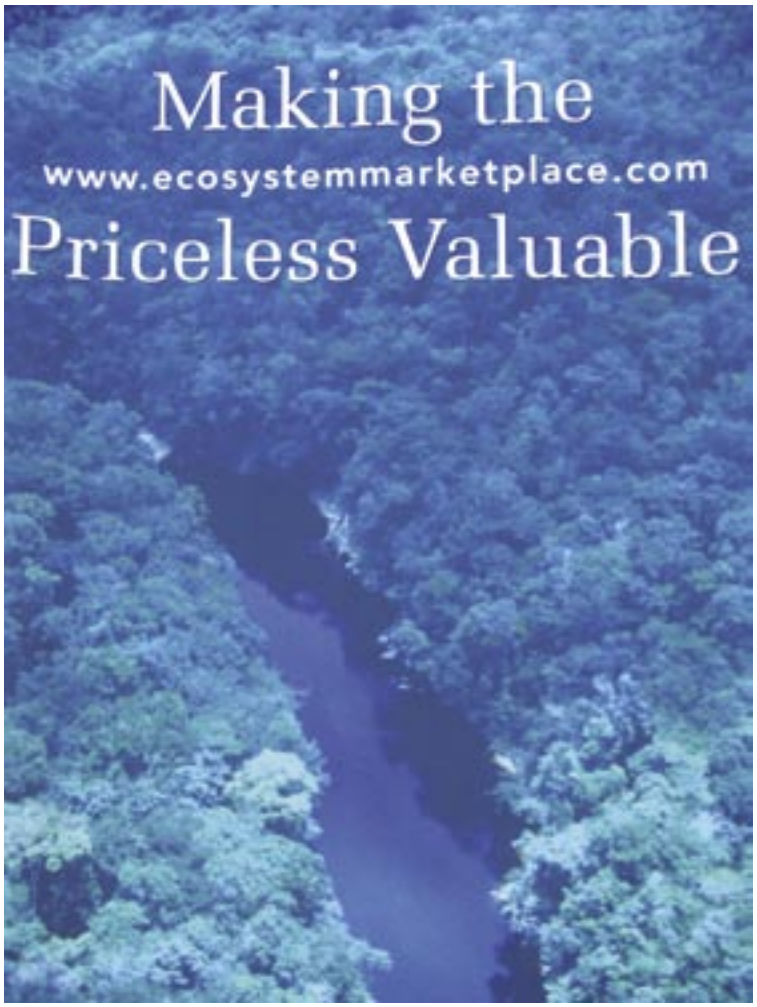
[1] See IMF 2004 statistics at: http://www.imf.org/external/pubs/ft/weo/2004/02/data/index.htm

[2] See Humanity's ecological footprint over time at: http://www.panda.org/news_facts/publications/key_publications/living_planet_report/index.cfm

[3] Vitousek, P. M., Ehrlich, P. R., Ehrlich, A. H., and Matson, P. A. (1986). Human Appropriation of the Products of Photosynthesis. BioScience 36, 363-373.

[4] As stated by Joan Kleypas and Chris Langdon in "Overview of CO2-Induced Changes in Seawater Chemistry"

"I believe that our environmental problems – greenhouse gas emissions, waste and degradation of freshwater, and continuing biodiversity impacts – are in fact an opportunity for investors."



The conference motto, displayed prominently to greet all participants upon arrival.

The Welcome Presentations

The Ninth Annual Katoomba Conference Kicks Off in Portland

by Cameron Walker

At Portland Katoomba's opening yesterday, some 280 people gathered at the World Forestry Center to discuss issues surrounding environmental markets. Ron Sims, Executive for King County in the neighboring state of Washington started the welcome presentations with an image: One of the Pacific Northwest's most recognizable features, the snowcapped peak of Mount Rainier. Sims explained how he was literally "roped" into a mountaineering trip to the summit. He recounted his experiences during the climb– eliciting laughs from the standing-room only crowd-- and drawing parallels to the collaborative effort needed to create ecosystem services markets.

On the mountain, Sims worked with a rope team every step of the way. This same group effort, he said, has helped King County, the 12th largest in the nation, approach environmental issues in the face of climate warming.

Recent studies, he explained, peered into the county's future, creating a picture of what the stronghold of corporate giants like Starbucks and Amazon.com will look like by 2050 under global warming's influence. The results: other key Pacific Northwest residents, salmon and whales, near extinction; rising temperatures; and a shrinking snowpack that could away at Mt. Rainier's snowy vistas and the county's water resources.

Traditionally, governments turn to regulations as a cure-all solution, Sims said. But in King County, "we saw it as a challenge." The county set to work using a host of innovative approaches-- from developing a "greenprint" map of the county to preserving 1600 acres of forestland in the city of Black Diamond through conservation easements.

Working our way up the mountain of environmental issues with markets requires even more of these innovative solutions and intense efforts, he said. "We can be nothing less than great thinkers and great doers," Sims said. "It would be a tragedy – a tragedy – if we don't apply everything we know."

Next, Michael Jenkins, Forest Trends' founder and president, then talked about the Katoomba

Group's origins as a small meeting of ecosystem services markets aficionados in Australia.

Initially, he explained, the Katoomba Group focused its work on key forest areas and strategic markets to encourage interest in harnessing markets for the environment.

Now, Jenkins said, the first U.S. meeting of the 250-member group is trying to bring a regional element into ecosystem markets. From Sims' work in King County to water markets in Oregon to mitigation banking along the west coast, the Pacific Northwest has become a hotbed of ideas and innovation.

The meeting, Jenkins said, provides a chance to transfer knowledge between different types of ecosystem services markets. While carbon markets have surged ahead of the others – the first year of carbon trading has generated $11 billion in carbon transactions -- "carbon's not going to save the day by itself," Jenkins said.

The voluntary carbon market, which has exchanged approximately 10 millions tons of carbon, and other voluntary markets are the ones that we can help to shape, Jenkins said.

"We have to think of ourselves as the builders," Jenkins said. These markets need to truly aid conservation and succeed in helping people as well as the economy, he said.

Jenkins was followed by the conference's co-host, Bettina von Hagen, vice president for the Natural Capital Fund and for Forestry at Ecotrust, who charged attendees of all stripes to take action, while stressing both the limits and the excitement behind ecosystem markets. While an ecosystem market system is not the solution to every environmental issue, she said, "it finally is the opportunity to allocate resources effectively."

As these markets release capital to address the environment, she said, they could also inspire an outpouring of entrepreneurial zeal to address ecosystem needs.

This zeal will have to come from all sectors, von Hagen said. Nonprofits like Ecotrust, she said, can test mechanisms and pave the way for private operators to move into ecosystem services markets, while regulators can increase their involvement by allocating more funds and developing legislation for markets. Regulators, she explained, may gain the most, noting that letting markets enforce regulation can often be easier than direct enforcement. "The benefits of ecosystem services markets will accrue to us all," she said, but the greatest benefits will go to those who help develop market structure.

Von Hagen then outlined the next two and a half days of the conference, which will combine regional examples of market-based approaches with examples from around the world.

The World Forestry Center, the conference's venue, got its own introduction from president and CEO Gary Hartshorn. The center's roots, he recounted, extend back to another celebration of exploration into uncharted territory. In 1905, as Oregon celebrated the first centennial of Lewis and Clark's expedition, the timber industry constructed the world's largest log cabin.

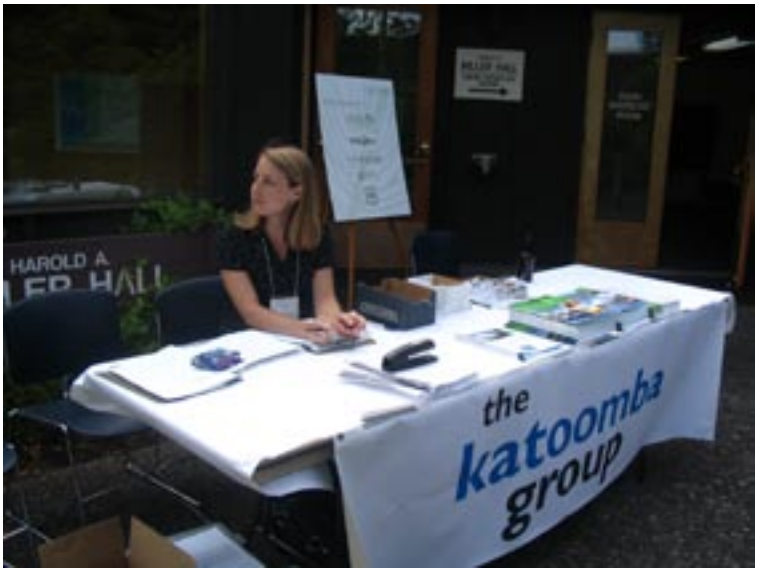
After a fire decimated the cabin in 1964, public interest in rebuilding led to the creation of the Discovery Museum and founding of the Western Forestry Center, now the globally-inclined World Forestry Center. The museum, which reopened last June after renovations, has 40 new exhibits, and Hartshorn encouraged attendees to explore the fun side of sustainable forestry. (Hartshorn said that the new museum has brought all sorts of accolades, including the ultimate seal of approval: "Even our teenagers loved it.")

Recently, Hartshorn led a World Bank team to Costa Rica to look at the country's ecosystem services projects. He said he went in skeptical, but came away impressed. "There are a lot of lessons out there, particularly abroad, for how we take a more integrated approach," Hartshorn said, "and reach out and really involve a critical mass of interested, participatory people."

Photo Gallery

Howard Silverman, Sydney Mead, and Greg Robillard, all Ecotrust staff, pose for a moment at the end of the afternoon session.

Welcome train to the World Forestry Center.



Laura Ford of Ecotrust at the Katoomba conference registration table.

Participants at the Katoomba conference gathered in Miller Hall.

Daniel DiFonzo, Jr., Director of Communications, Forest Trends.

The Dickel Brothers perform at the rooftop reception.

Al Appleton, who used to run New York City's water and sewage system, sprawls out in the back as questions line up in the queue.

A mix of panelists and audience members take the stage for postevent discussion.

Dana York talking shop on the rooftop garden.

Tom Darden and Beth Egan

Opening Plenary: The View from 30,000 Feet

By Amanda Hawn

The cross-fertilization of ideas between different sectors has always been a fundamental aim of Katoomba Group meetings. Wednesday's introductory plenary was built around this goal, and the three speakers advanced the conference toward it admirably.

Walter Reid, director of the conservation and science program at the David and Lucile Packard Foundation, opened the plenary with an overview of the recently completed Millennium Ecosystem Assessment (MA), a project he directed from 1998 until the release of the findings in March 2005.

Reid, an ecologist with over two decades of experience studying natural systems around the world, said the patterns of global change revealed by the MA were "really quite striking, even for those of us who have been involved in this field."

The maps, photos, and charts Reid presented helped illustrate how the planet's diverse ecosystems changed during the latter half of the 20th century. "By the year 2000, fishing fleets had basically swept across the entire ocean," he said. Changes on land were striking too: Watersheds scoured of vegetation by deforestation are losing their ability to filter water, wetlands chomped up by new developments are no longer able to control floodwaters when heavy rains hit, and the loss of natural habitat is decimating wild pollinators essential to agriculture.

Reid's message wasn't completely doom and gloom. The global changes of the past century also brought tremendous gains to humanity, he said. The problem, however, derives from the fact that the benefits of converting natural systems to human-dominated landscapes have been front-loaded, while the costs largely lie ahead.

The ecological problems now looming on the horizon "can't be solved as long as ecosystem services are treated as free and limitless," Reid said. The good news, though, is that new markets, incentive programs, business models and technologies are emerging to help give value to ecosystem services. Much of the money needed to fund restoration efforts on private land could come from redirecting agricultural subsidies toward conservation payment programs (OECD countries paid some $324 billion in agricultural subsidies in 2003). And private sector capital is beginning to flow into some burgeoning environmental markets as the scarcity of ecosystem services begins to increase their value.

Mark Tercek, managing director at Goldman Sachs, picked up on the last of these observations in a talk entitled "The View from Wall Street." Tercek took the audience through Goldman's new environmental policy, stressing, "We believe that the things we are doing on the environmental front are completely consistent with our obligations to our shareholders."

While Tercek acknowledged that the MA was a "sobering assessment" of the state of the global environment, he offered four reasons for optimism about the future. First a wall of money is rising to chase opportunities in the renewable energy sector, an area in which Goldman has promised to invest at least a billion dollars. Second, sophisticated cap-and-trade markets are emerging to trade environmental derivatives. "Wall Street likes huge markets," observed Tercek. "The carbon market could shape up to be the largest commodity market in the world."

Third, Tercek noted increased corporate commitment to environmental issues. "Corporate America wants to figure this out and get this right," he said, noting recent environmental initiatives from huge companies such as GE and WalMart. "When WalMart makes up its mind to do something, it gets it done and it does it in a powerful way."

Last but not least, Tercek pointed to some movement from institutional investors toward socially responsible investment portfolios. A growing minority of institutional investors, he observed, are beginning to pressure companies to look at their exposure to environmental risks such as climate change. In general, Tercek concluded, "you should be encouraged by where money is flowing."

Tercek, not wanting to sound "too Pollyannaish," did point to some challenges in further integrating environmental concerns into the wheeling and dealing of Wall Street firms. Specifically, he noted that many of the transactions currently taking place in the realm of ecosystem services were too small to attract much attention from the world's large financial institutions. Tercek also stressed that while voluntary efforts are important learning tools for those interested in environmental markets, regulatory drivers (and a measure of regulatory certainty) are necessary for robust, mature markets to develop.

The focus on regulation continued as Mark Rey, under secretary for natural resources and environment at the U.S. Department of Agriculture, stepped up as the third and final batter in the conference's first inning. For most of this country's conservation history, the public sector's role has been to protect the environment from markets. But this, said Rey, is beginning to change: "We have every reason to be proud of our progress and optimistic about our future in this area."

Specifically, he placed his agency's interest in payments for ecosystem services within the context of cooperative conservation and said that the Administration is actively investigating the appropriate role for government to play in facilitating market-based approaches to conservation. "There are new legislative initiatives that are pending or are being considered," Rey said. "We are intrigued by the opportunities available."

Rey pointed to the 2007 Farm Bill, in particular, as an instrument through which new incentive-based approaches to conservation might be introduced in the United States. Without revealing any details of a paper on agricultural conservation programs due out today, Rey left the audience with a cliffhanger. "The 2007 Farm Bill will, I am certain, provide a fertile field for discussion."

Waves of Change: Q & A with Dr. Walter Reid

By Andrew Bell

The United Nation Foundation calls the Millennium Ecosystem Assessment (MA) "the most comprehensive assessment on the links between ecosystem health and human wellbeing ever undertaken." Assembled by more than 1,300 experts in 95 countries, the 4-year endeavor concluded that humans have significantly degraded the environment in the last 50 years, but that it is still in our power to reverse these trends. And so the million-dollar question now becomes: How is the information being used? The Ecosystem Marketplace gets the scoop from the man who led the charge – Dr. Walter Reid.

EM: What impact has the MA had on the policy agenda?

The MA, explains Reid, brought attention to the conceptual framework by which we think of the indirect and direct drivers of ecosystem change, and their effects on human wellbeing. For many groups of people, he says, reframing these concepts as ecosystem services is a big advance in its own right.

Groups looking at wetlands, for example, were in search of a new framework. The findings of the MA helped them retool their ideas around the framework of ecosystem services. "On the convention on wetlands (RAMSAR)," Reid says, "that was the biggest advance."

EM: What kind of product results from the work of 1380 experts?

Gaining consensus from such a large group, Reid says, makes the product conservative, and this, he thinks, is a good thing. The documents in the MA are written in such a way that the levels of certainty scientists have regarding the statements they are making are clearly specified, from low to high.

Estimates of species extinction rates are a good example. Looking at historic and predicted patterns of habitat loss between 1970 and 2050, the MA predicts a drop in the equilibrium level of biodiversity of 5-15%, but notes that this statement has a low level of certainty. By qualifying predictions with estimates of certainty, the MA avoids the common pitfall of making environmental predictions that then turn out to be false. Rather than weakening the paper, Reid says, "we believe this is a strength. That's what gives [the numbers] power."

EM: A more general question – what do you feel are some differences in the way developed countries and developing countries can make use of the MA as a knowledge product?

Reid's explains that his bias was always toward the MA being useful for developing countries. This was partly for political reasons, but also because these are the areas where ecosystem change is affecting people most immediately.

How have the developed countries made use of the MA? Some NGOs, like the World Wildlife Fund and The Nature Conservancy, are big proponents of making sure the findings of things like the MA get heard. They recognize that the numbers coming out of such assessments are helpful to them in making the case for why their interests matter. Outside of these groups, however, there has been little response to the MA in the US. It doesn't seem to have been relevant to work that many of the NGOs have on their agendas, nor to issues that state-level governments are tackling. At the federal level, the MA just failed to connect.

While few in the US may have heard of the MA, there has been a remarkable impact in Europe. There is a strong European focus on development issues, and the MA was helpful for them. It was even helpful for issues within Europe, where there may be sensitivity to the need for policy reforms. The European Environment Agency now has a section specifically focused on ecosystem services.

EM: Now that you have moved on, what are your goals/plans with Packard?

Among the big foundations in this area, Packard was the only US donor to the MA. Most foundations don't think science has a role to play in solving environmental problems – its job is only to frame them. Packard has a focus on science, dating back to the values set forth by David Packard himself, and has made grants to strengthen the voice of science in public policy.

With respect to ecosystem services, Reid is now focusing on coastal and marine areas, where markets for ecosystem services remain poorly developed.

Agenda for Today (Thursday, June 8, 2006)

Plenary sessions and Katoomba Dialogue at the World Forestry Center.

7:30-8:30 AM Breakfast

8:30-10:00 AM
New Carbon Opportunities
Jump Starting Carbon Markets in New South Wales, Australia
David Brand, Managing Director, New Forests

Developing a Quality Carbon Offset Market in the Pacific Northwest and Beyond
Mike Burnett, Executive Director, The Climate Trust

Carbon and Energy Connection
Mark C. Trexler, President, Trexler Climate + Energy Services, Inc

Establishing a Carbon Registry in California and Its Role in Stimulating Early Action
Michelle Passero, Director of Policy Initiatives,The Pacific Forest Trust

Moderator
Ricardo Bayon, Director, Ecosystem Marketplace

10:00-10:30 AM Break

10:30-12:30 PM
Biodiversity: Message & Markets
Biodiversity and Public Lands
Sally Collins, Associate Chief, USDA Forest Service

Development of Ecosystem Markets from the Timberland Owner Perspective
Dan Spethmann, Leader New Business Development, Temple-Inland

US Habitat Mitigation Banking
Craig Denisoff, Founding Partner, Environmental Business Partners

Australia's Auctions and Banking
Mark Eigenraam, Principal Economist, Economics and Policy Research Branch, Department of Primary Industries

Biodiversity Offsets Around the World
Kerry ten Kate, Director of Investor Responsibility, Insight Investment

Moderator
Jessica Fox, Director, Eco-Assets Program, EPRI Solutions

12:30-1:30 PM Lunch

1:30 – 3:15 PM
Watersheds Markets: Upstream & Downstream Links
Water Markets around the World
Albert F. Appleton, Senior Fellow, City University of New York Institute for Urban Systems

Paying Agriculture for Ecosystem Services
Bruce Knight, Chief, Natural Resources Conservation Service

Willamette Basin Water Quality Trading
Bill Gaffi, General Manager, Clean Water Services

Oregon Water Quantity Trading
Fritz Paulus, Executive Director, Oregon Water Trust

Developing Watershed Payments
Mark S. Kieser, Senior Scientist and Principal, Kieser & Associates, LLC

Moderator *Dr. Barton ("Buzz") Thompson, Director, Woods Institute for the Environment at Stanford University*

3:15-3:45 PM Break

3:45-5:30 PM
Investing in Green Infrastructure
Ecotrust Forests LLC
Spencer B. Beebe, President, Ecotrust

New Forests
David Brand, Managing Director, New Forests

Sustainable Land Fund
Fred Danforth, Sustainable Land Fund

Smith Barney
Bruce Kahn, Investment Management Consultant, Smith Barney

Global Environment Fund
John E. Earhart, Chairman, Global Environment Fund

The Generations Global Equity Fund
Colin le Duc, Partner and Head of Research, Generation Investment Management

Moderator: *Bettina von Hagen, Vice President, Forestry & Natural Capital Fund, Ecotrust*

5:30 PM Cocktails

6:15-7:15 PM
Katoomba Dialogue: Ecosystem Services: Who Owns the Rights and Who Benefits?
Pati Ruiz, Director, Sierra Gorda Biosphere Reserve

Terry Williams, Tulalip Tribes

Dennis Martinez, Chair, Indigenous Peoples' Restoration Network

Peter Barnes, Senior Fellow, Tomales Bay Institute

Kerry ten Kate, Director of Investor Responsibility, Insight Investment

David Brand, Managing Director, New Forests

Facilitator
Ricardo Bayon, Director, Ecosystem Marketplace

About the Ecosystem Marketplace

The Ecosystem Marketplace seeks to become the world's leading source of information on markets and payment schemes for ecosystem services; services such as water quality, carbon sequestration and biodiversity. We believe that by providing solid and trust-worthy information on prices, regulation, science, and other market-relevant issues, markets for ecosystem services will one day become a fundamental part of our economic and environmental system, helping give value to environmental services and thereby helping conserve them.

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"Go straight until you get to the Body Shop. Then there's a path to the right that leads to the Gap. A little farther along, just past the Limited, there's a clearing. Victoria's Secret is right there."