

PROCEEDINGS

May 2000

1st Meeting of the International Working Group On New Markets for Environmental Services from Forests April 11-12 Lilianfels - Katoomba, Australia

Background: The Working Group and the Conference

Global interest in markets for environmental services from forests is driven by growing recognition of two fundamental issues: (1) in general, forest degradation and the conversion of forest to alternative land uses is often more profitable – at least in the short-run, than forest stewardship; and (2) markets, in general, do not recognize or reward forest owners for the host of environmental services generated by forests that are beneficial to society, including carbon storage, watershed protection and biodiversity conservation.

If some of the value of these social benefits could be returned to forest owners there would be a double benefit: additional incentives for forest stewardship and conservation, and new sources of income for forest landholders. Although there are many new initiatives across the world to develop new markets and market-based instruments for forest services, these initiatives are dispersed and often isolated within particular disciplines, sectors, or countries. The valuable lessons generated from these initiatives are not readily accessible to the growing number of stakeholders around the world interested in this topic.

Recognizing the potential benefits of markets for forest services - for communities, for companies and for forests - and the value of exchanging information across disciplines, sectors and countries, Forest Trends, State Forests of New South Wales, and the Sydney Futures Exchange are sponsoring an international working group to spur development of markets and market-based instruments for forest ecosystem services. Its purpose is to build the collective understanding of how these instruments are constructed and the conditions in which they can work, facilitate strategic partnerships, and provide technical support to pilot projects of broad relevance. The group includes experts from forestry, finance, environmental research and policy, government officials and other private and non-profit sectors from all regions of the world.

The first meeting of the Working Group was held in Katoomba, Australia on April 11 and 12, 2000 and hosted by the State Forests of New South Wales and the Sydney Futures Exchange. Forty-two experts were in attendance at this first meeting and another 30 have expressed interest in joining the group. These 42 included experts in financial exchange, commercial bankers, forest ecologists, economists and policy experts as well as representatives from both developed and developing country governments, forest industry, oil and energy companies, and environmental groups. This meeting was held in tandem with

a one-day public conference entitled “A New Role for Forests in the Green Economy”. This public conference was designed to inform the broader Australian public of the fundamental changes underway in the forestry sector and the promise of markets for environmental services. It was conducted at the Taronga Zoo in Sydney on April 10th, 2000.

These proceedings attempt to capture some of the highlights of those two meetings. Summaries of each of the two events, the International Conference in Sydney and the first meeting of the Working Group in Katoomba, follow. Additional information is annexed, including a list of members of the Working Group (Annex 1), the agenda of the International Conference (Annex 2), synopses of the presentations at the International Conference (Annex 3) and synopses of presentations at the Working Group meeting (Annex 4).

International Conference A New Role for Forests in the Green Economy April 10, 2000 Taronga Zoo - Sydney, Australia

Purpose and Attendance. The purpose of this one-day conference was to disseminate cutting-edge knowledge and experience on markets and market-based instruments for forest services from around the world to the Australian finance / conservation community. The conference included presentations by government officials, private sector professionals, academic researchers, and non-governmental representatives that addressed the importance and value of forest ecosystem services and their potential economic benefit. (See the agenda attached as Annex 2.) Over 200 people were in attendance from around the globe, representing industry, local farmers, environmental groups and government.

Presentations. The Honorable Kim Yeadon, Minister for Forestry, Information Technology, Energy, and Western Sydney, welcomed the group with strong support and enthusiasm for this topic and its importance to Australia. Michael Jenkins, Executive Director of Forest Trends provided the keynote address, highlighting global trends in forest industry and conservation, identifying the social benefits of forests, the real challenges of capturing those benefits, and some promising cases of success. (See Annex 3 for summaries of each presentation.)

Gretchen Daily from Stanford University presented results from innovative research on forest ecosystem services, outlined the potential impact of markets for these services, and gave examples from around the globe where markets for these services have been established. Don Henry of the Australian Conservation Foundation outlined the conservationist perspective on services and markets. Stefano Pagiola of the World Bank brought the World Bank’s perspective to the meeting by sharing its experience with market-based instruments, drawing especially on innovations in Latin America. David Cassells of Iwokrama in Guyana, Ian Powell of Shell and Gerardo Segura of the Mexican Ministry of Environment gave specific examples of innovative work in the arena of market-based instruments in their respective countries, and described some of the special challenges of establishing such instruments in developing countries.

Leslie Hosking of the Australian Center for Global Finance described the complex challenge of developing and establishing markets for public goods, and described Australia's ambition to continue its demonstrated leadership in developing new commercial markets and new market-based instruments for ecosystem services. Bob Smith of State Forests of New South Wales described State Forests' innovative work on establishing markets for carbon, transpiration and biodiversity. Stuart Beil of the Sydney Futures Exchange described the economic and financial fundamentals of developing markets for externalities, and described the Sydney Futures Exchange's new mechanism for trading futures in carbon credits. Brian Walker of the Commonwealth Scientific and Research Organisation (CSIRO) described an interdisciplinary framework for researching the interactions between ecosystems and markets.

Questions and debate followed each presentation. The meeting was closed by John Kerin, Chairman of the Board of State Forests of New South Wales, who reaffirmed that the world of forestry and forest conservation is shifting from a purely product orientation, and the important potential contributions markets for forest services holds for Australia and the world.

International Working Group: New Markets for Environmental Services from Forests

Purpose and Attendance. Following the public conference in Sydney, members of the International Working Group traveled to the Blue Mountains, Katoomba, New South Wales for a two-day workshop. This was the inaugural meeting of the Working Group – now known as the **Katoomba Group**. The objectives of this particular meeting were to take stock of the status of markets and market-based instruments for key forest services, discuss an analytical framework for assessing the development of these markets, review the Australian innovations of credits for carbon sequestration, transpiration and biodiversity, introduce new cases where markets are being considered to advance conservation goals, and identify the next steps for the Group as a whole.

Presentations. Following the opening and introductions by David Brand, State Forests of New South Wales, and Michael Jenkins, participants began a series of informal presentations. Andy White, Forest Trends, described the key market and market-based instruments for biodiversity conservation proposed or in use around the world, and Carl Binning, CSIRO Wildlife and Ecology described the range of potential markets for biodiversity services. Nels Johnson, World Resources Institute described the status of water globally, the potential contributions of markets for water, and the range of issues associated with applying market instruments to water allocation.

Stuart Beil, Sydney Futures Exchange, described the process of establishing a commercial market for an environmental service, and then presented Sydney Futures Exchange plans to begin trading carbon by the end of 2000 within the context of Article 3.3 of the Kyoto Protocol. Andrew Petering, Commonwealth Bank of Australia, gave an introduction to financial instruments and of their application to ecosystem services. Sara Scherr, University of Maryland, described the results of a recent international workshop identifying local perspectives on the international carbon market. Eugene Linden, writer and

lead contributor to Time Magazine, discussed the media's perspective on global environmental issues and the media's criteria for interest in a new story. David Brand presented a draft analytical framework for assessing potential markets for environmental services. This framework guides consideration of a market or market-based instrument approach to dealing with a forest conservation issue. It includes questions such as: what would the particular commodity be, what would the units of measurement, who would buy it, who would sell it, what legal bases would be required, what would be the scope of impact beyond the particular site of development, etc. Questions and debate followed each presentation.

Working Groups. The meeting divided into three working groups to discuss three real cases where market-based approaches are under consideration. All were cases where particular services from forests had been degraded, and this degradation was causing harm to other resources valued by society offsite – i.e. a negative externality. The challenge in each case was to identify ways to provide incentives to landholders to maintain or restore those environmental services on a sustained basis.

These cases included: forest and land conservation to protect salmon fisheries in the US Pacific Northwest – led by Bettina von Hagen, Ecotrust; forest fire control in the Brazilian Amazon – led by Dan Nepstad, Woods Hole Research Center; and transpiration credits to control salinity in the Murray Darling Basin of New South Wales – led by David Brand, State Forests of New South Wales. Each leader gave an overview of the bio-physical conditions, the social and political environment, the regulatory context, and the reasons why a market or market-based instrument was being considered. The groups used the draft analytical framework to guide brainstorming over the different options in approaching the problem, and the advantages and disadvantages of each.

Groups reported their findings to the broader meeting. In general, all groups found their issues highly complex requiring the expertise of many disciplines and solutions tailored to specific local conditions. Each group also found that markets could not substitute for government regulations in dealing with such trans-boundary externalities, rather, that regulatory frameworks were required in order to enable a market mechanism to function. Group leaders found these sessions very useful in gaining additional insight and ideas for dealing with their particular cases.

Next Steps. Prior to closing the meeting, all participants were asked to evaluate the Working Group meeting and suggest next steps. The feedback was uniformly positive, with many participants remarking at the unusual richness of the meeting due to the great diversity of interests and experiences of the participants. All voiced gratefulness to State Forests of New South Wales and the Sydney Futures Exchange for hosting the event and support for a follow-on meeting within the next six months. Gary Bull, University of British Columbia Vancouver, Canada, invited the Group to convene in Vancouver in October. The following items synthesize the recommendations arising from this exercise.

- The process would benefit from the participation of more government officials and financial players;

- A future meeting should be held in a developing country to both test the emerging concepts and contribute to advancing market-based instruments locally;
- There is a need to explain different instruments being tested and define certain working terms such as “markets”;
- It would be useful to conduct an inventory of innovative market instruments currently being used for water and biodiversity protection, and to assess the “business models” associated with each one;
- The Group should explore the usefulness of the internet as a tool for product development and information dissemination;
- The Group should further develop the analytical framework for developing markets;
- The Group agreed to hold the next meeting at the beginning of October in Vancouver; and
- The Group agreed that Forest Trends would be the secretariat to coordinate the different inter-sessional work until the next meeting.

Annex 1

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Annex 2

International Conference on Forests in the Green Economy Agenda April 10, 2000 Taronga Zoo, Australia

- 08:30 am Registration and coffee
- 09:00 am David Brand to introduce Chairman, John Kerin
- 09:00 am Welcoming remarks from John Kerin
- 09:10 am Michael Jenkins, Executive Director
Forest Trends, Washington DC
- 09:40 am Gretchen Daily, Stanford University
- 10:10 am Opening Address – Hon. Kim Yeadon, Minister for Forestry
- 10:30 am *BREAK*
- 11:00 am Don Henry, Australian Conservation Foundation
- 11:30 am Stefano Pagiola, The World Bank, Washington DC
- 12:00 pm Panel Discussion – international perspectives
- 12:30 pm *LUNCH* (1 hour)
- 01:30 pm Les Hosking, Australian Centre for Global Finance
- 02:00 pm Bob Smith, State Forests of NSW
- 02:30 pm Stuart Beil, The Sydney Futures Exchange
- 03:00 pm *BREAK*
- 03:30 pm Brian Walker, CSIRO Wildlife and Ecology
- 04:00 pm Closing by John Kerin

Annex 3

International Conference on Forests in the Green Economy Synopsis of Presentations

Michael Jenkins

As the opening speaker, Michael Jenkins outlined global trends driving interest in environmental services from forests, identified issues and specific cases of established markets and market-based mechanisms that benefited forest conservation. He asserted that conservation activities need to be linked with commercial activity in order to shift the economic status quo from discouraging to encouraging biodiversity protection and sustainability. With two-thirds of all original forests gone and the implications of the Kyoto Protocol for carbon trade, the timing of this meeting is crucial.

In establishing this international working group on forests, the hope was to accelerate the pioneering of a market structure where the underlying ecosystems services are valued in the same commercial framework as the economic activities which they support. This breakthrough would lead to a complete re-invention of the meaning of the forest sector, and serve as a catalyst for similar transformation in other sectors such as fisheries, agriculture and water.

The three way sponsorship of this undertaking sends a strong message that we are committed to strategic marketplace change that builds on the intersection of interests from the markets, the forest sector and the conservation movement.

The Hon. Kim Yeadon

The Honorable Kim Yeadon, the New South Wales Minister for Forestry, Information Technology, Energy and Western Sydney, welcomed over 200 people to this meeting. He has witnessed the rapid change in our global economy and supports the alignment of forest services and financial markets to follow the direction of other economic sectors. Minister Yeadon noted that “all the old rules are changing.” Accounting for the triple bottom line is now becoming the norm for companies to stay competitive. Forests and their services, as “environmental engines of our planet” will “underpin trillions of dollars of benefits to our global economy every year.”

The Minister supports carbon forestry. He also sees the need for salinity credits. The Government recently hosted a meeting on the impacts of dryland salinity. New South Wales has a severe problem with dryland salinity, which must be addressed to ensure the future of the state’s water supply. With a pilot project in place, State Forests and the Macquarie River Food and Fibre Group will test the feasibility of a salinity control credit trade. Minister Yeadon also supports a market-based approach for biodiversity conservation. He closed by remarking “We need these environmental markets to rake our ecological footprint and ensure a sustainable world economy and environment.”

Gretchen Daily

Dr. Gretchen Daily, a research scientist in the Department of Biological Sciences at Stanford University, provided the conference with an overview of the importance of ecosystem services. The integrated services that make up the value of a forest must be managed such that they are accounted for, characterized, valued, and safeguarded. The services that a forest provides, other than timber, can be called natural capital. It is this natural capital that must be valued and incorporated into the policy-making process. She cited several interesting examples where ecosystem valuation has taken place - Costa Rica, New York City, and Madagascar.

Don Henry

Mr. Don Henry, the Executive Director of the Australian Conservation Foundation, spoke of the interplay between regulation and market-based approaches for forest conservation. Thus far, legislation has been responsible for conservation successes. Echoing Gretchen Daily, Don emphasized the need to account for natural capital. As Amory Lovins has stated, no one would run a business without accounting, however we do not account for the value of natural capital in the way we handle our forests. Moreover, current regulation focuses on what should not happen, but does not create incentives and opportunities to value natural capital.

Mr. Henry lays out four parameters of market design:

1. it must be linked to regulatory framework that ensures environmental goals are met
2. it must be designed with ground rules and minimum environmental standards
3. it should be efficient, transparent, and accountable
4. it must be designed with civil society and community participation

In order to improve the interplay between regulation and markets, national and international laws protecting forests need to be strengthened, and sustainability must become a central feature of policy.

Stefano Pagiola

Mr. Pagiola of the World Bank's Environment Department presented the World Bank's experience with natural resources conservation projects and market-based instruments for ecosystem services. Many of the World Bank – financed natural resource conservation projects have failed because there was a “fundamental misunderstanding of incentives by land users”. The Bank is now actively promoting new approaches to valuing and compensating landholders for ecosystem services in a number of countries in Latin America. Mr. Pagiola presented an analytical framework for designing institutional arrangements to pay landholders for environmental services generated by their land. If planners want local landholders to “grow” flood protection (or another service) for example, the landholders must be paid to provide this service. These payments, however, must be ongoing and targeted. With up-front single payments, there is a large chance that the project will be abandoned once the money stops. Mechanisms to pay landholders for the environmental services generated by their natural resource assets presents a promising new instrument for rural development and poverty alleviation.

Leslie Hosking

In his presentation, Mr. Leslie Hosking, the Chief Executive Officer for the Australian Center for Global Finance, aimed to define the product and give it credibility. His presentation considered "how a futures market would look at developing a new market for carbon sequestration". He presented the reasons that Australia is in an especially good place to introduce a carbon market. These reasons include political stability, efficient financial markets, a sound legal and banking system, and a society that values the environment. He advised the group to "keep it simple" and that the market would quickly evolve once the process of developing the product was started. It is important for a market to be transparent so it may effectively set a price. Not only can a carbon market provide necessary environmental benefits such as reduced soil salinity and soil erosion while protecting water quality and biodiversity, companies can also use it as a risk management tool before the Kyoto Protocol takes effect.

Stuart Beil

Stuart Beil is the Manager of the Energy and Environmental Products division of the Sydney Futures Exchange. He discussed the objective of creating financial markets for ecosystem services as similar to any business development: to achieve a better environment at least cost. Environmental problems exist because markets have not yet addressed them. Three factors contribute to the lack of market development thus far: the environment is a public good, there are externalities involved, and there is market failure. Government intervention is justified to correct market failure, and to achieve a socially optimal level of public goods by identifying the optimal approach to resolving environmental problems - particularly which market mechanisms to instigate.

Bob Smith

Mr. Bob Smith, the Chief Executive Officer of the State Forests of New South Wales, gave an overview of the progress the New South Wales government has made with environmental markets and forests. He stated that the forest sector is changing in Australia to the production of environmental 'commodities', which complements the shift to timber production from planted instead of native forests. As is the case for many economic sectors, globalization is creating more competition in markets and decreasing the price of commodities. Competitive advantage will arise from value adding and product differentiation. Environmental stewardship is becoming a key commercial dynamic in forestry. He then described the carbon sequestration credit being created in New South Wales forestry, and considered dryland salinity credits and other forest environmental services that may be amenable to market exchange.

Brian Walker

Brian Walker, the Biodiversity Sector Coordinator at CSIRO, and Program Director of the Resilience Alliance, an international research consortium, gave a presentation entitled "Incorporating Ecosystem Services into the Australian Economy". After outlining the suite of environmental problems in Australia, Brian discussed the causes, and the dynamic interaction between multiple ecosystem services as modeled for crop production, clean water supply and recreation. The recognition of ecosystem services in the marketplace requires 1)

systematic characterization of ecosystem services; 2) the integration of ecological and economic approaches to valuation; 3) the creation of institutions to incorporate these values into decision-making and to reward good stewardship. He described the project "The Nature and Value of Australia's Ecosystem Services", jointly conducted with the Myer Foundation, which will examine the value of four distinct regions in Australia.

Annex 4

Nels Johnson: Markets and Market-Based Instruments for Water

Nels Johnson, deputy director of WRI's biological resources program, described global trends in water production and allocation, identified key myths and issues associated with water and forests, and highlighted the potential role of markets and market-based instruments for financing the sustained production of water from forests. The increasing scarcity in both water and forests has increased their market value. Nels cautioned the group that ecological knowledge is absolutely essential to developing the right markets, and that ignorance in the role that ecosystems play in the water cycle would negatively effect their market development. Nels also cautioned the group that there were tradeoffs associated with altering forest ecosystems just to supply water. In such a scheme, one service is supplied at the expense of others.

Nels noted that successful market development requires:

- a large population or economically important industry that will benefit from the water
- good data and monitoring capacity
- strong local leadership and community institutions
- multidisciplinary capacity to manage land & water together
- a respected and informed legal and policy framework

On this latter point, group comments noted that markets can develop where the policy setting is imperfect, and that emerging markets can actually promote policy development. Participants noted that forest certification is an example where many hectares of forests have been independently certified in the absence of solid policy frameworks. Other participants noted that the market for certified wood is fundamentally different from that of water from forests, in which the water is often an externality or a public good, with either no, or unclear property rights. These rights often need to be defined and allocated prior to market development.

Andy White and Carl Binning: Markets and Market-Based Instruments for Biodiversity

Andy White, Program Director, Forest Trends, presented an overview of innovative financial incentive mechanisms for forest conservation – drawing on previous work by Michael Richards. These mechanisms range from “payment for services” schemes based on the “polluter pays” concept, to differential land use taxes, value added taxes, easements and tradable development rights, to timber certification and carbon trading. Each of these mechanisms have particular features and are useful in particular settings and address different problems. Each of these instruments can be seen as tools, with a new combination of different tools necessary to tackle every new problem.

Carl Binning, an economist at CSIRO described a range of different markets for biodiversity:

- Ecotourism – e.g. nature-based attractions
- Commodity markets – e.g. timber, bio-fuels, eucalyptus oil
- Private conservation – more common in the US, including commercialization of wild species

- Public investment – national park, multi-use forests, sustainable agriculture
- Donations – public, corporate, philanthropic.

Carl stated that the overall challenge is recasting ecosystem services as commodities. Because only as a definable, fungible unit can it be commercially valued and traded. He also stated that the value of biodiversity is likely to be best captured through the cumulative worth of multiple overlapping markets, such as water, carbon.

Eugene Linden: Public and Media Perspectives on Markets for Environmental Services

Eugene Linden, an independent writer who mainly works with Time Magazine, spoke about the context within which the public will view communications about market developments. While interest in environmental issues is increasing, the public will likely be uneasy about market-based incentives as solutions for environmental problems. Markets can and have accomplished the opposite to conservation, while being 'successful' in purely market terms.

Penalties are also important in developing markets, as the recent case with Rainforest Action Network's successful protests of Home Depot demonstrates. Eugene proposed use of the internet to disseminate and refine the concept of market-based incentives for environmental services. A simulation market game was suggested as a tool to generate new ideas and potential outcomes.

Sara Scherr: Local and Community Perspectives on Markets for Environmental Services

Sara Scherr, faculty member at the University of Maryland Department of Agriculture and Resource Economics, spoke about the implications of financial market development on local communities and livelihoods. While various positive opportunities exist for local people, such as new income sources, improved land productivity, familiarization with commerce, and local institutional development; there are also risks that must be taken into account. These risks include loss of land use and ownership rights, loss of rights to harvested products or environmental services, and loss of employment, all of which strongly affect quality of life.

These risks can be minimized in various ways: obtaining active community participation in project design; clearly defining and enforcing locals' land and resource rights; ensuring the locals understand why these services are commercialised, and to what they have agreed; tailoring the project to local conditions.

The combination of risks and opportunities suggests the following recommendations:

- social impact assessments should be used, but not required;
- there is a need to provide incentives to pursue multiple benefits;
- forest & land management that benefits locals are needed;
- there is a need to strengthen local capacity, to ensure that they are informed actors
- collaboration with intermediaries may help reduce local participants' transaction costs (piggy backing on other programs; bundling multiple services)

Sara emphasized that property rights evolve most quickly on assets with more value, and that when environmental services are valued, they can help finance the institutions within which property rights are developed.

Andrew Petering: Commonwealth Bank Perspectives on Markets for Environmental Services

Andrew Petering of the Commonwealth Bank of Australia gave an introduction to financial instruments. All financial structuring is about the allocation of risk. Capital is divided into debt and equity. He explained that the phrase “Show me the money!” in financial language would be “arrange and underwrite my corporate capital requirements!” Important factors in investment analysis include: the rate of risk versus the rate of return; the timing in the development cycle; the cash flow volatility. Andrew explained that there are no rules in new market development; therefore any first step is a plus. A fundamental disincentive to new forestry plantations is that they can have a negative return until the first rotation. The development of financial markets around ecosystem services may mitigate this initial negative cash flow by valuing ecosystem services. He stated that there appear to be three main constraints for private sector funding: a negative cash flow on a long term investment, lack of liquidity, and the difficulty of accurate valuation of new environmental markets during the early stages of development.

Stuart Beil

Stuart Beil, Manager for Energy and Environmental Products at the Sydney Futures Exchange, presented the status of carbon trading. The market for carbon trading stems from the Kyoto Protocol (to the 1992 United Nations Framework Convention on Climate Change)-articles 3.3, 3.4, 6, 12, 17. A 'grey' market already exists which has little transparency, variable prices, and includes intra-corporate trading. The Sydney Futures Exchange plans to start trading under article 3.3 by the end of the year 2000. Stuart also described the actual trading process. The carbon pool is identified and then verified by an independent agent. The SFE uses a private Australian technical group as the independent agent. The agent will check insurance, ensure sound financial backing, and perform annual audits of carbon stocks. Before an auction, buyers and sellers will place their money and carbon credits into a clearinghouse. The clearinghouse provides anonymity to the transaction, a forum for "fair price discovery", and reduces transaction costs. Once the transaction is made, the settlement takes place. Initially small amounts will be traded, with increases towards the end of the period. This process could allow a large 'pool' manager to coordinate and represent smaller suppliers.

David Brand

David Brand is the Executive General Manager of State Forests of New South Wales. David presented a draft analytical framework for developing markets for environmental services. Brand referred to the original chart with 4 circles from the concept paper. It identifies key steps in developing new markets: including defining the products and services, identifying measures to mitigate risk, assessing the legal and regulatory framework. In sum, these elements establish a reliable and credible process that leads to the transfer of ownership and finances, which in turn develops markets. Businesses will support a developing market as typically a more efficient method of regulatory compliance. They also thereby demonstrate innovation and attract investors, which is important to many companies in our “culture of innovation”.