Seminar

7

Forecasting and What's Next for Ecosystem Services

Speaker
Janet Ranganathan

2011 ECOSYSTEM SERVICES SEMINAR SERIES

GORDON AND BETTY MOORE FOUNDATION

Ecosystem Services Seminar 7: Forecasting and What's Next for Ecosystem Services

Presentation and Discussion Notes From Speaker: Janet Ranganathan

Seminar Series and Seminar 7 Goals:

The goal of the multi-session seminar is to educate the broader conservation community including practitioners and funders on the diverse aspects of ecosystem services – such as how to account for ecosystem services and to effectively measure, manage, and communicate them.

Seminar 7 and associated readings focused on the following goals:

- *Key lessons from the seminar series*
- *Forecast of promising ecosystem services opportunities*
- *Identification of key challenges*
- *Outline of next steps for ecosystem services implementation*

This document is a product of the Gordon and Betty Moore Foundation's Ecosystem Services Seminar Series that took place between March and November 2011. For more information please visit www.moore.org or request "ES Course Info" from Heather Wright at info@moore.org.

Disclaimer:

This document is a summary that includes PowerPoint slides from the speaker, Ms. Janet Ranganathan and notes of her talking points. Please keep in the mind that the following document is only a recap of the presentations and Blue Earth Consultants' notetakers have, to the best of their ability, captured the presentations. We hope that the following presentations and discussion notes will be used as resource to advance further discussions about ecosystem services.

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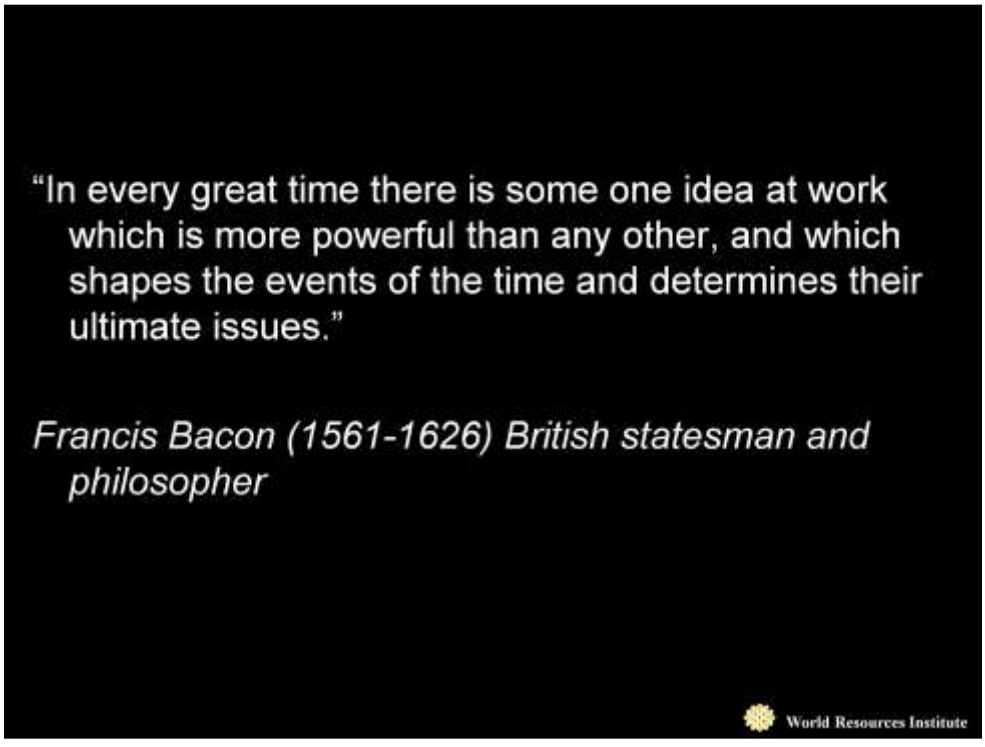
COASTAL QUEST

BLUE EARTH CONSULTANTS

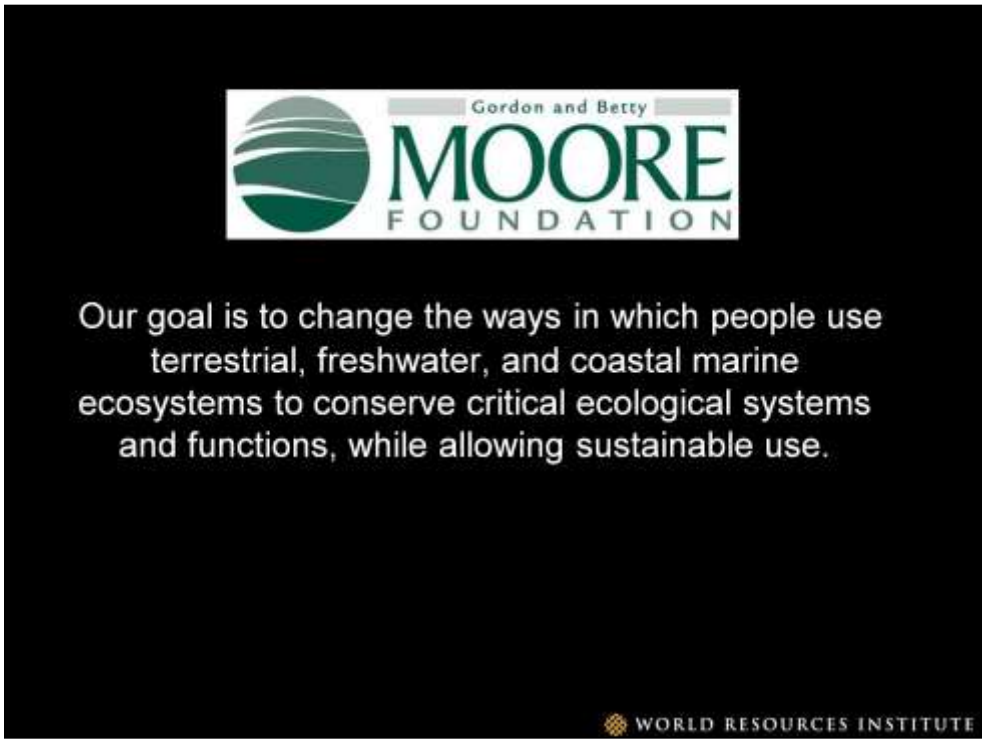
- Today's presentation will have a panel, but that panel will be all of you. This is the seventh and final session and I want you to think of it as the culmination of how ecosystem services (ES) can help you reach your conservation outcomes.
- We are not close to winning the war on reversing environmental degradation. We need to think radically about our approach, especially in a world of seven billion people. We need to be creative and using ES as a strategy can be a way for us to do that.



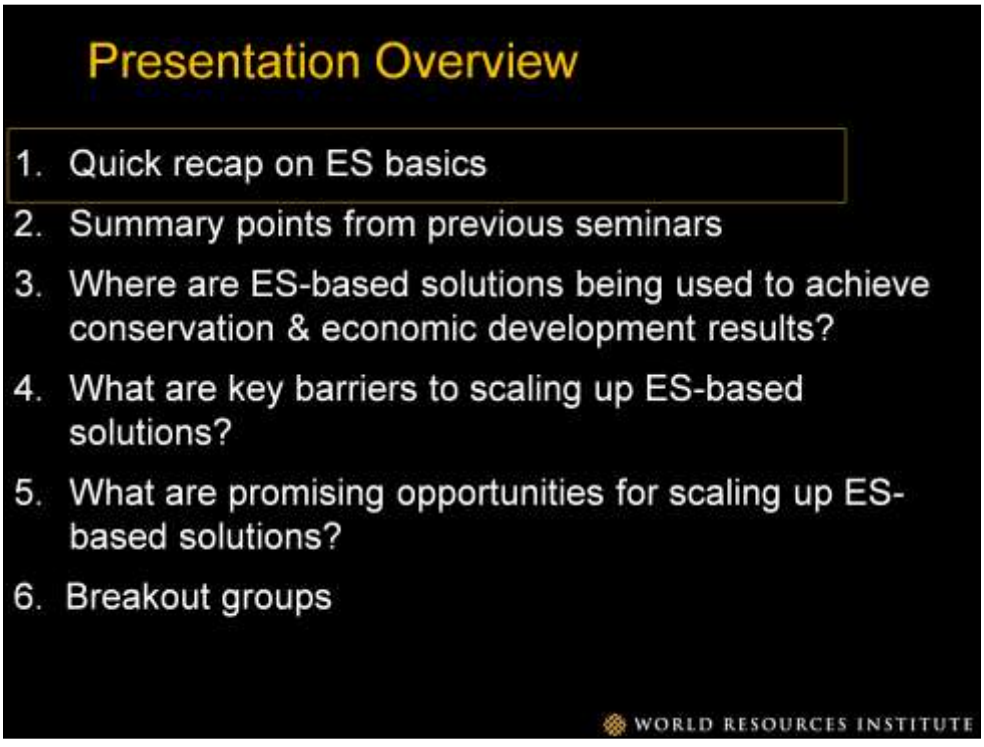
- How do we feed nine billion people ?
- How do we sustain the environment given the demand?

- I personally feel like ES may be a way to do that, but you will come to your own decisions.

- Here is a little bit of information about the World Resources Institute (WRI).
- The slide shows WRI's mission statement and I want to highlight the word "move." WRI is not just a think tank, we are about action.

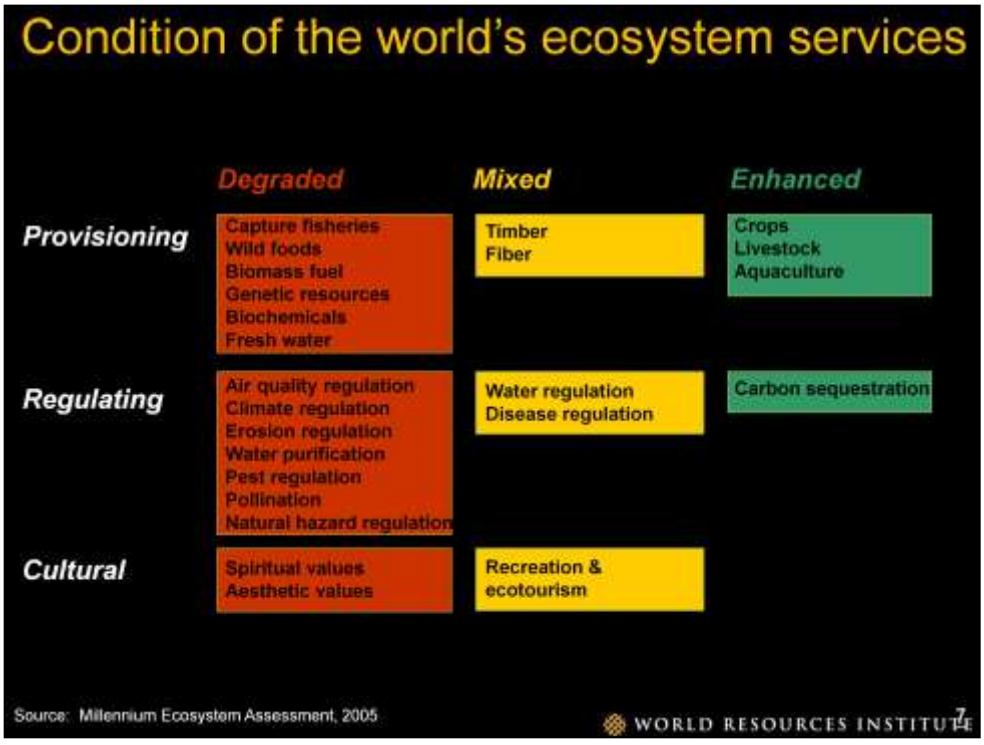


- Here is the Gordon and Betty Moore Foundation's (GBMF) mission statement. Notice that it has people in it!
- WRI and GBMF are not very different. WRI found ES very compelling to advance its own mission; ES is the bridge between people and systems.

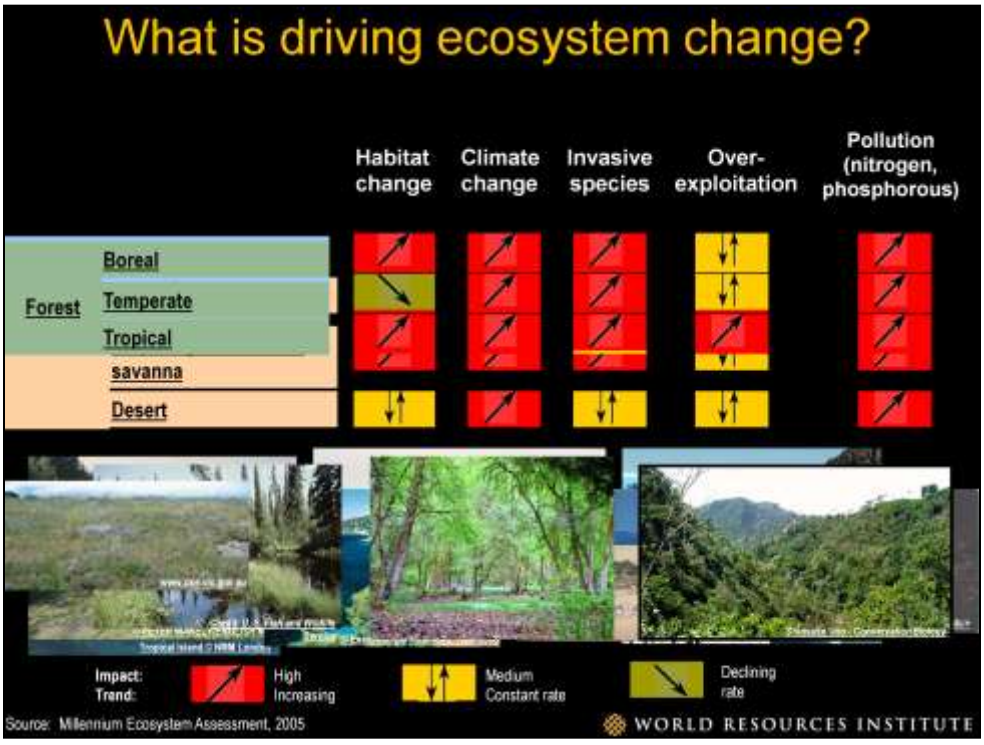


- Here is an outline of today's presentation.
- I will give you 12 examples of where ES-based solutions are being used, but I think there are many more ways to think about ES. My goal is to give you a lot to encourage you to think about it more.

- The Millennium Ecosystem Assessment (MA) was a global audit of the world's forests, wetlands, and other ecosystems, completed in 2005. It was commissioned by the United Nations and involved more than 1000 scientists worldwide. The MA assessed the condition of ecosystems in terms of ecosystem services, or the benefits ecosystems provide to humans. The MA codified four categories of ecosystem services: provisioning, regulating, cultural, and supporting.
- There are three types of ES: provisioning, regulation and cultural.
- Provisioning services are goods we receive from ecosystems. They include freshwater, food, and timber.
- Regulating services are benefits obtained from control of natural processes, including pollination, natural hazard protection, and air quality regulation.
- Cultural services are non-material benefits we receive from ecosystems such as recreation, ecotourism, existence value, and cultural identity.



- The Millennium Ecosystem Assessment found that about two thirds of the 24 ecosystem services assessed globally are degraded. This degradation will likely grow significantly worse in the first half of the 21st century.
- Thanks to the MA, we know that 15/24 ES are degraded, and only 4 have been enhanced.
- This is like a dashboard for ecosystems and if you were the manager, you might be in a panic. It depicts the problem, but it is also shows the opportunity; the scarcity issue is kicking in. Before, we could drain thousands of acres of wetland, but not we know there are limits.



- Now let us talk about the five drivers of ES change.
- If conservation strategies are not addressing drivers in your region, it will not be successful and the degradation will move somewhere else.

- Maximizing one service at the expense of others is common.
- Take the Chesapeake Watershed as an example. It is dying because there is a hypoxic zone from all of the waste from the upstream chicken farms and corn agriculture. We are optimizing agricultural productivity while water quality is declining.
- Another example about tradeoffs comes from Brazil. In Brazil, they are optimizing soya bean at the expense of many natural services.
- Models are determining at which point degradation reaches a tipping point. These models are looking at what percentage of deforestation will eliminate water regulation of the Amazon. If the great water pump shuts down, it would be detrimental to agriculture.

    - Who will benefit?
    - Certainly those who are driving the change?
    - Who pays the cost?

- Typically, it is the large agricultural companies that benefit (those driving change) while the poor bear the costs.

- Making the economic case for conservation is more than just making monetary investments. Other areas to invest include:
    - Policies;
    - Knowledge management;
    - Adjusting business strategies; and
    - Development policies.
- Today we will talk about ES solutions and how we can make investments to work on this.

Group Responses:

Participant

- I think there has been too much emphasis on making the case; a lot of organizations are busy making the case for pollination, watershed management, but there seems to be a need for making the link between people and community development. It comes down to the whole system. When you think about watersheds, what happens upstream is important, but downstream distribution among the cities is also important: infrastructure, etc. We need to address the whole system to be successful, which means we will have to put money into better managing watersheds and fixing the piping system. Policy makers are focused on more than just what conservationists think about and we need to fit into that thinking.

Participant

- Can you elaborate on what you think economic development benefits are?

Janet Ranganathan

- In my mind, it is wherever you are benefiting humans. Poverty reduction strategies can focus on the people side even though it is a conservation concept. Some economic development sectors have a more intimate link than others. In business, you can usually find the link in how products are made and used.

Participant

- How do you think about the spectrum of ES? For example, there are things that nature provides that have prices and markets; they have finite numbers. Some services nature does not renew over long periods of time, others renew quickly.

    - What services are in and what are out?

Janet Ranganathan

- I think very about the narrow MA ES definition. Services are those that we derive from nature. For instance, fossil fuel is a ES of millions of years ago.

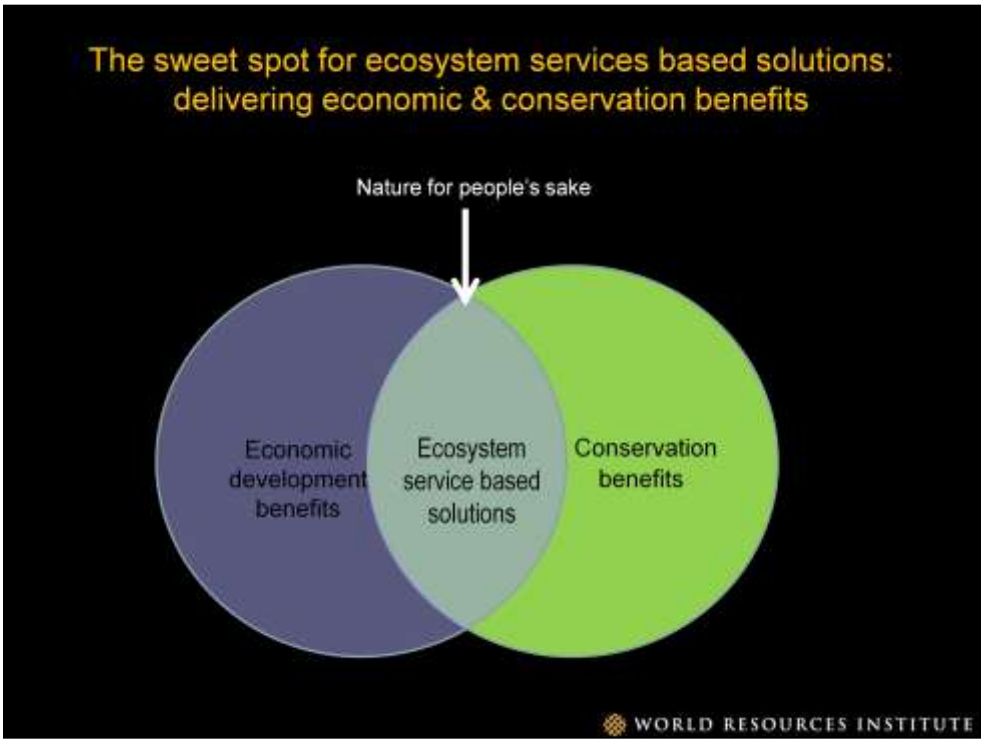
Participant

- I tend to think more about productivity of natural capital.

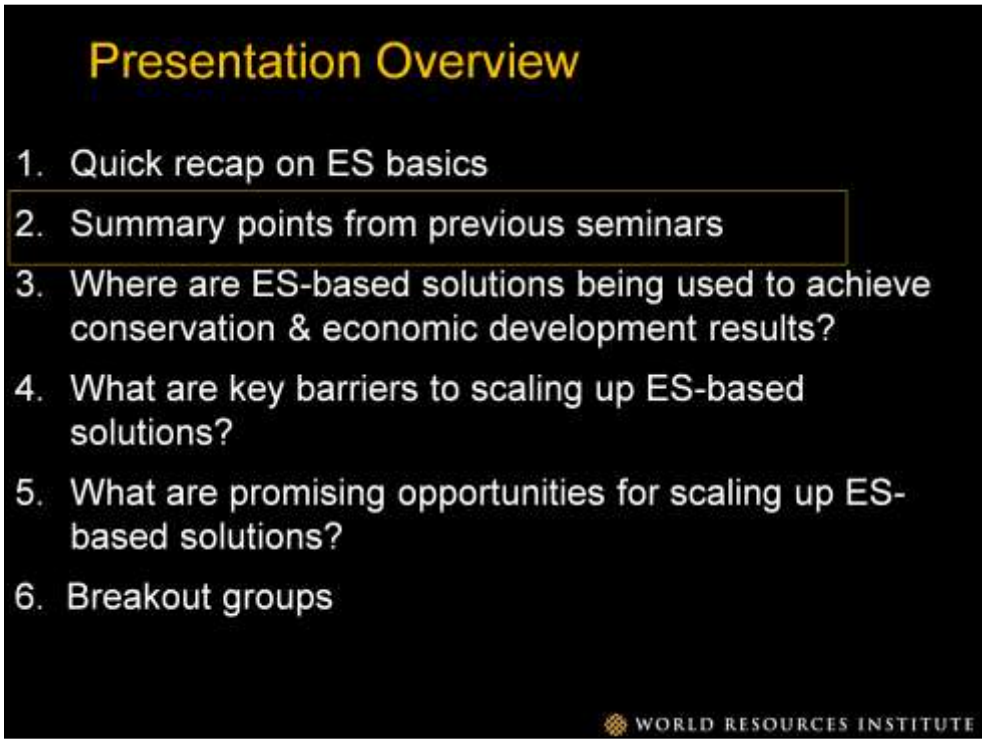
Participant

- When working with indigenous communities, cultural services are those that are most important. We do not always have to use the term ES, just something that fits and works with the audience.

- The ES approach is not a replacement for the biodiversity approach. Even this seminar frames it as the next wave, but it should not be one wave or the other. The concepts need to work together and reinforce one another.



- I think the sweet spot in this is making the case of nature for people's sake.
- I advocate that solutions go straight down the center.
- When I was in college I thought about nature as separate from people and how development threatened nature. Now I think the opposite; development is threatened by nature.
- Our generation is going to be known for the most intense and extreme degradation yet.


Presentation Overview
1. Quick recap on ES basics
2. Summary points from previous seminars
3. Where are ES-based solutions being used to achieve conservation & economic development results?
4. What are key barriers to scaling up ES-based solutions?
5. What are promising opportunities for scaling up ES-based solutions?
6. Breakout groups
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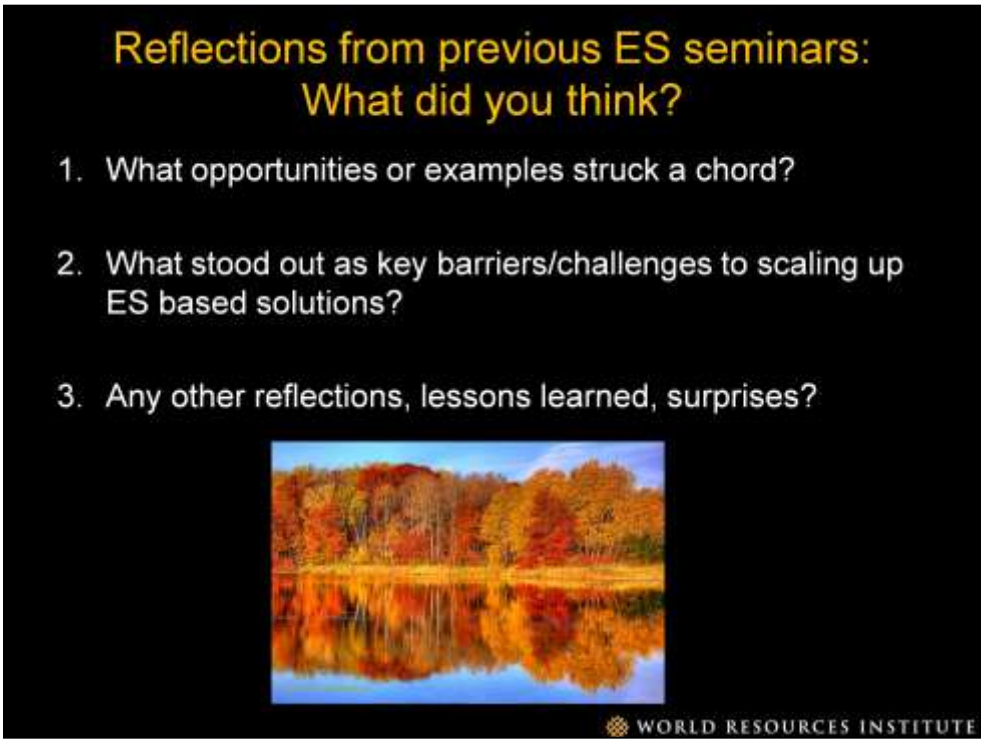


Group Responses:

Opportunities

- Science will improve with demand.
- Disasters and crises; they get people thinking and can be transformative.

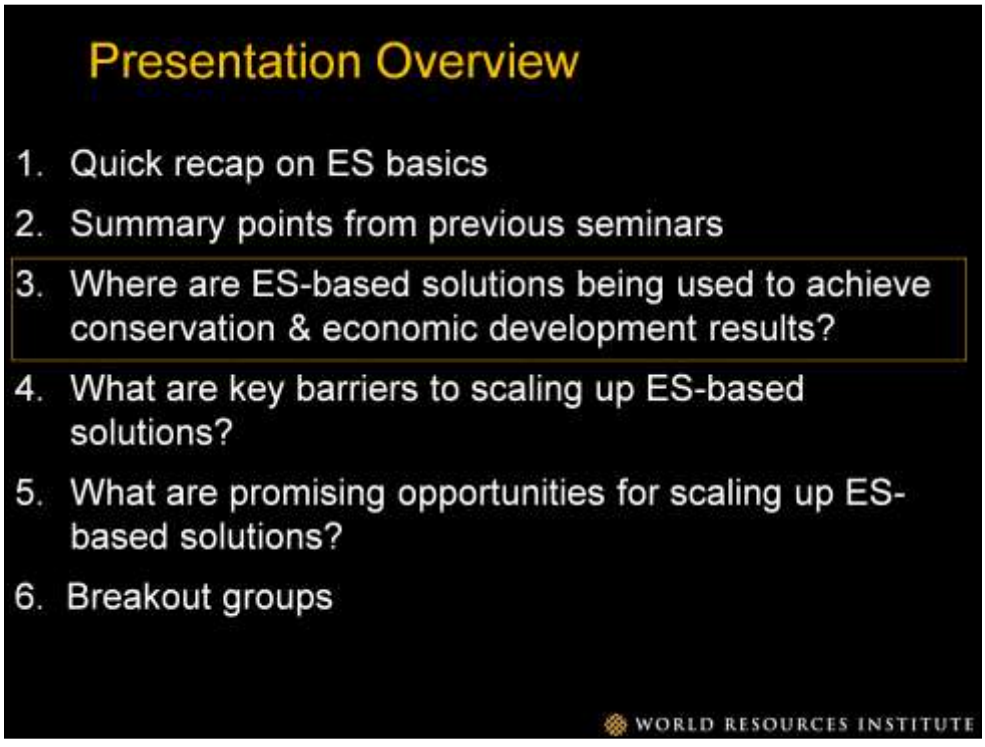
Barriers

- Multiple scales and multiple ecosystems.
- The many equity issues and determining who benefits and who does not.
- Institutionality that overlaps within the system.
- Science limitations - How much science do we have?
- Competition with alternative methods and tools.
- Redefining legal/contractual ownership.
- Lack of a common language.
- Developing/using generic tools that need to be fine-tuned and require additional modeling while still remaining transferable.

Reflections/Lessons Learned

- We should grapple with multiple ecosystems.
- Work for a proactive approach that is complimentary to current tools.
- Important to manage the context of risk.
- Need to understand that ES is a method for managing tradeoffs.

- Tools that will be used to inform decision-making, need to be agnostic.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ES-based solutions
12 examples from the field
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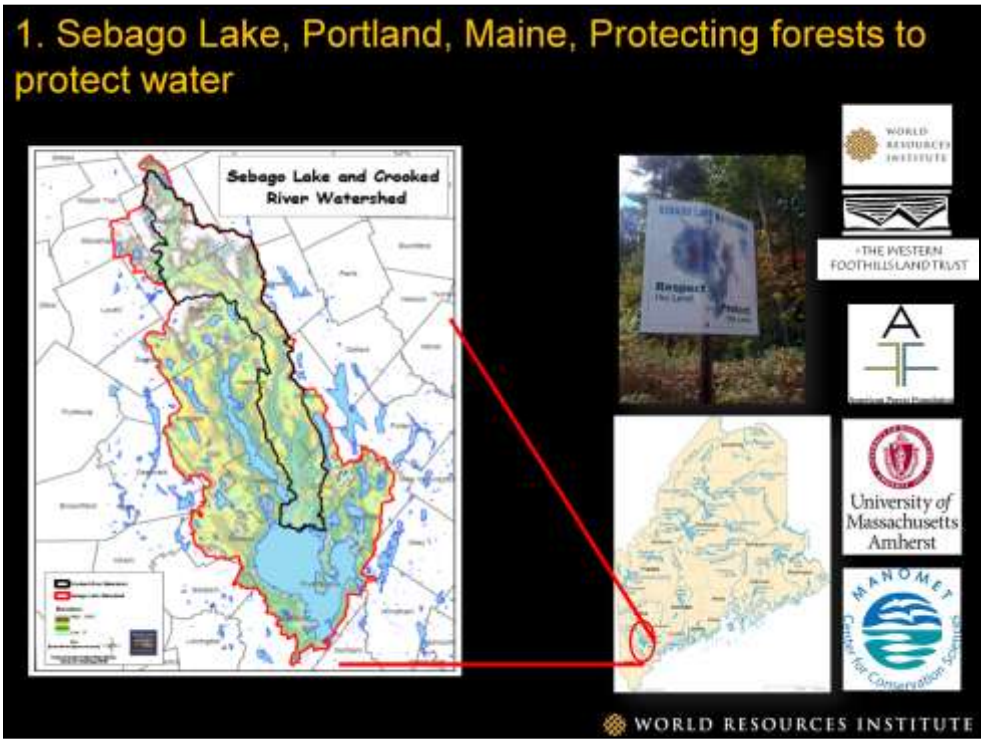
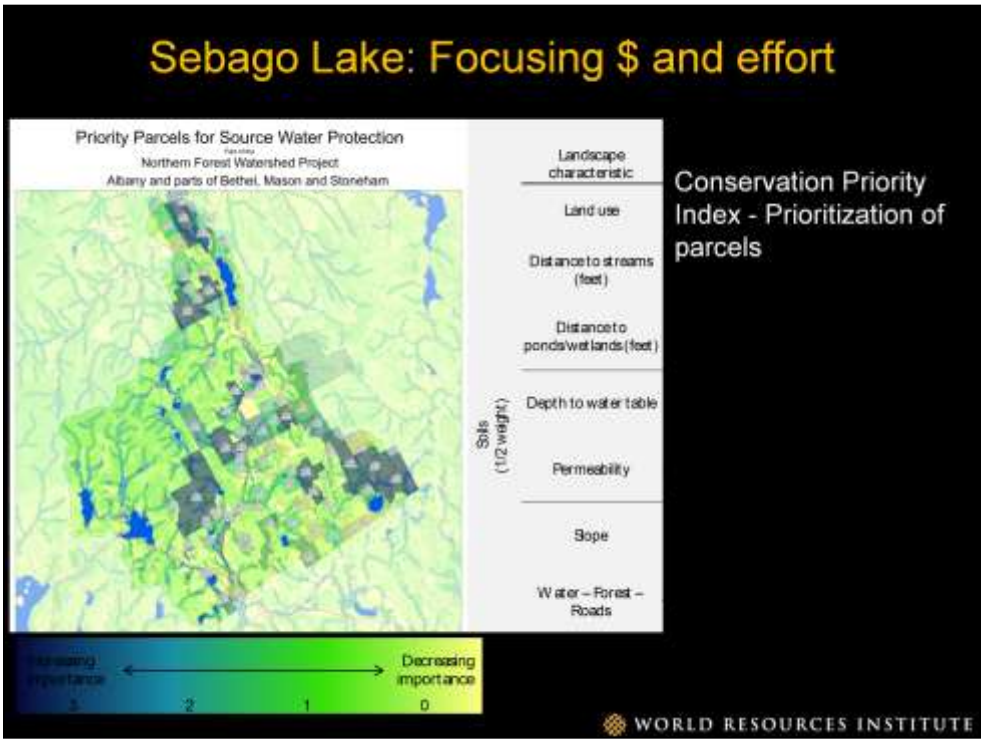


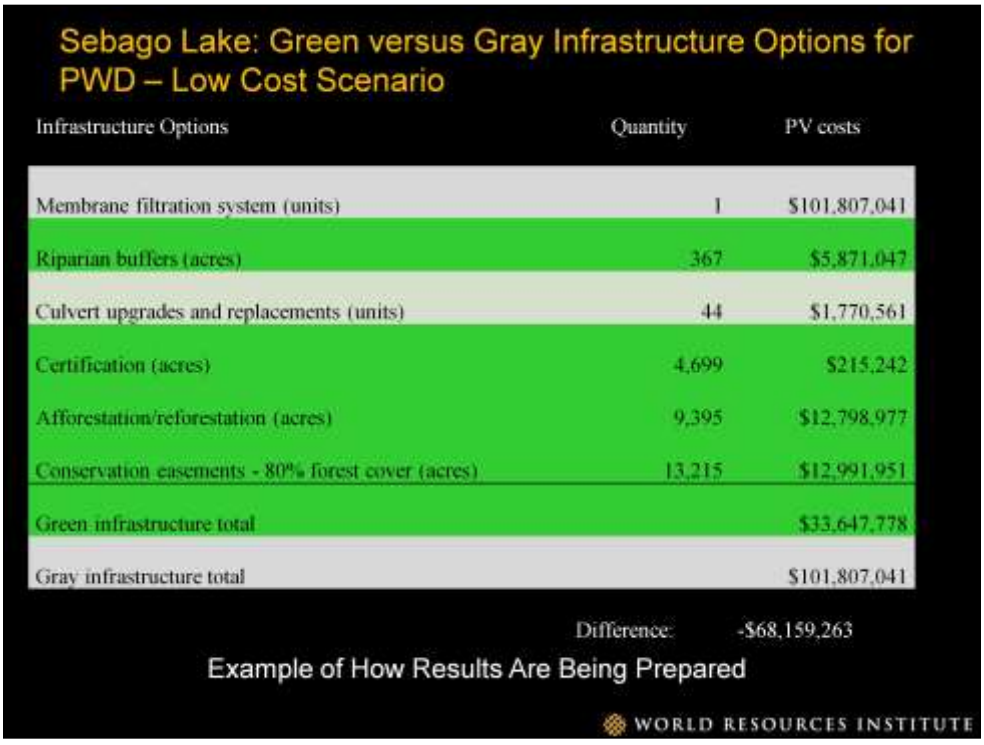
- Here is the first example of something WRI and its partners have been involved in.
- Two thirds of US forests are privately owned. Many of these owners are reaching retirement age and there is a wonder about the transfer of ownership.

  - During this transfer, how do we keep the forest a forest?

- WRI did an analysis of 20 northern states using an ES approach around water, downstream population, concentration of private ownership, and future development problems.
- From this analysis, we identified Sebago Lake as the ideal location to protect forest as it supports the population in Portland, Maine.

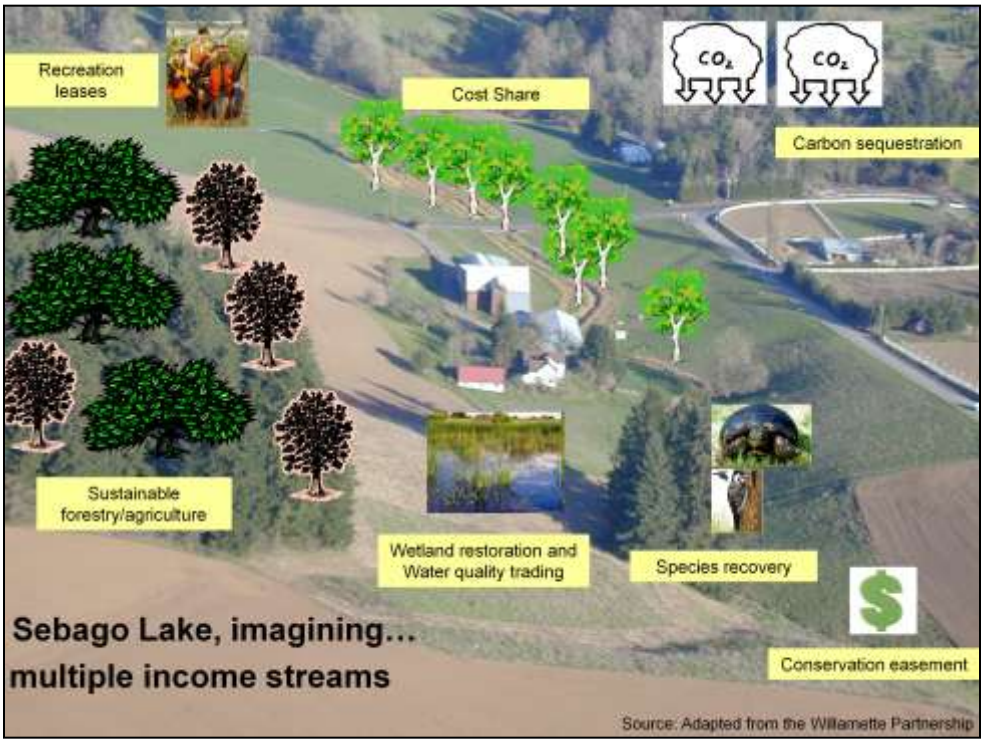


- We then sought to determine how to best target a fund to support this protection knowing that not all land provides the same ES.
- There are other variables as well, like slope, proximity to watershed, etc.
- It is important to select pockets of land for investment.

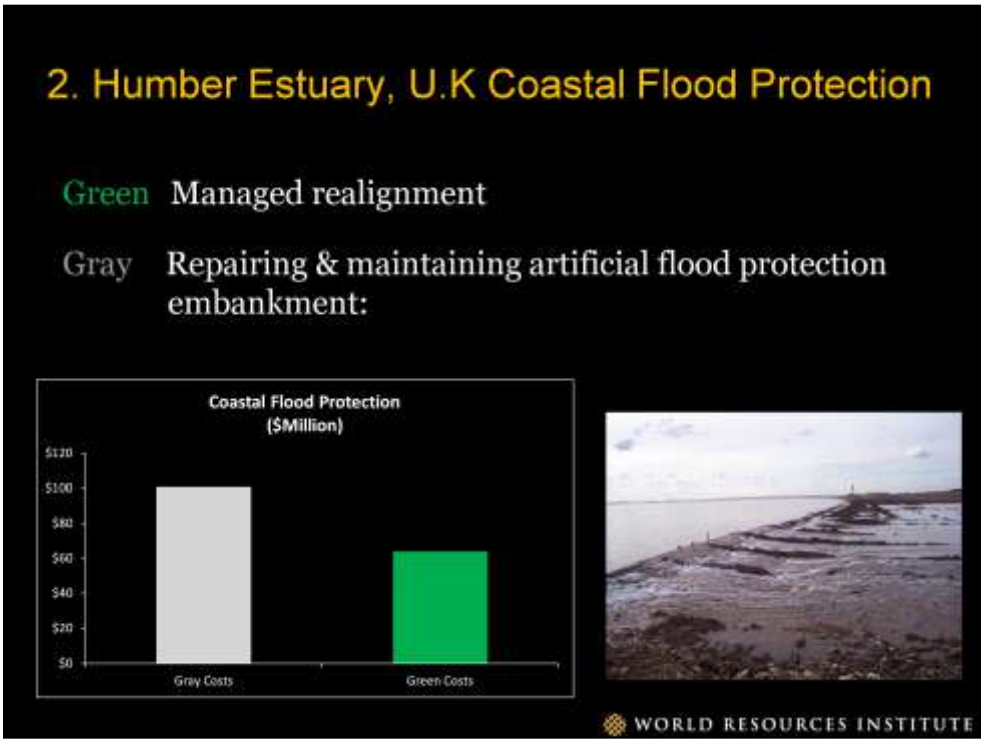


- We then did a cost-benefit analysis to see what it would cost to invest in being green.
- Portland, Maine has a filtration waiver, because it is assumed that the watershed is good enough to purify the water. But in the future, that could be removed so we looked at the cost of losing it.
- I think there is a real need to standardize this process when it comes to water.
- The green choice represents a lower cost, but it is one you have to pay upfront. The gray choice is eventually more expensive, but you pay later on down the road.

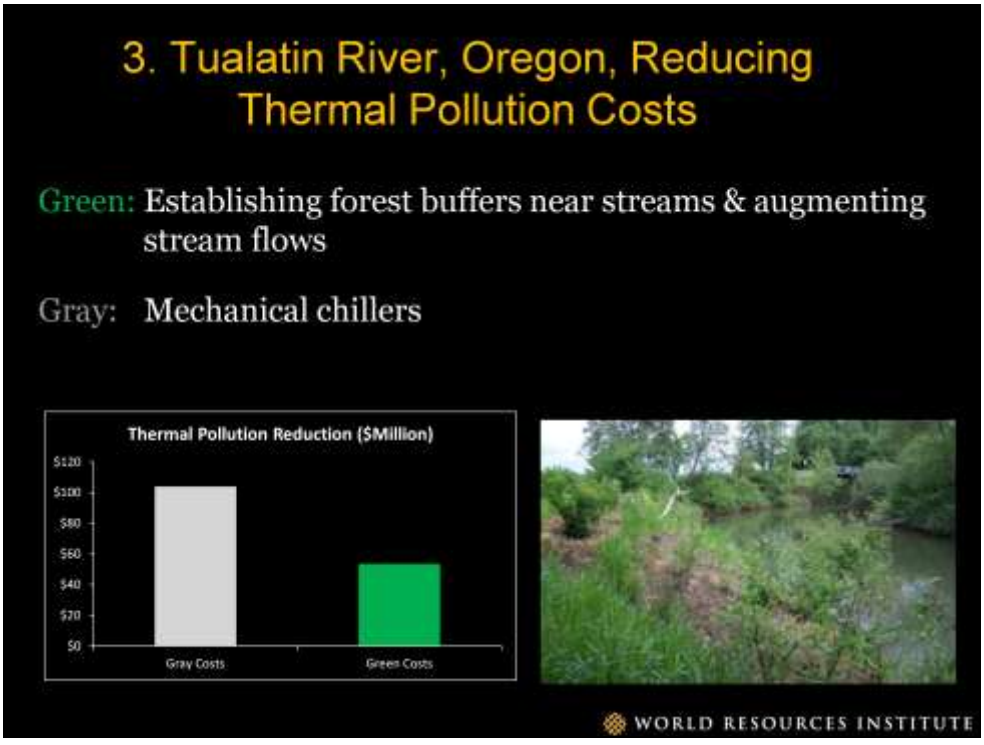
  - How do you get people to make the green choice?
  - Do you put it on a ballot?



- We are not going to make progress paying for one service. Progress will come from stacking ES. That way you can share the costs. Here you can bring in the United States Department of Agriculture (USDA) to help with cost sharing. Conservation easements can be another way to do this. There are lots of services and many ways to partner and package them together; it is still a work in progress.
- We are trying to go through it systematically to make this replicable and transferable to other locations.
- It is not compelling for WRI to tell a community that they need to invest in green infrastructure, but it is if the water company says they need to. The water company is in the business of development and they are more credible.



- Many of the flood defense structures along the English coastline are reaching the end of their design lives, and given concerns about sea level rise and increasing severity and frequency of storms on these structures, planners are considering alternative options, namely, managed realignment.
- Managed realignment involves the repositioning of an existing hard sea defense to a more landward location, thereby allowing more space for the creation of intertidal habitat. The study found that in several scenarios, managed realignment can be more economically efficient than holding the line over a period of 25 years. The authors estimated that for a scenario, greater emphasis is placed on habitat creation, the gray infrastructure option could cost up to $101 million while the green option would cost only $64 million.

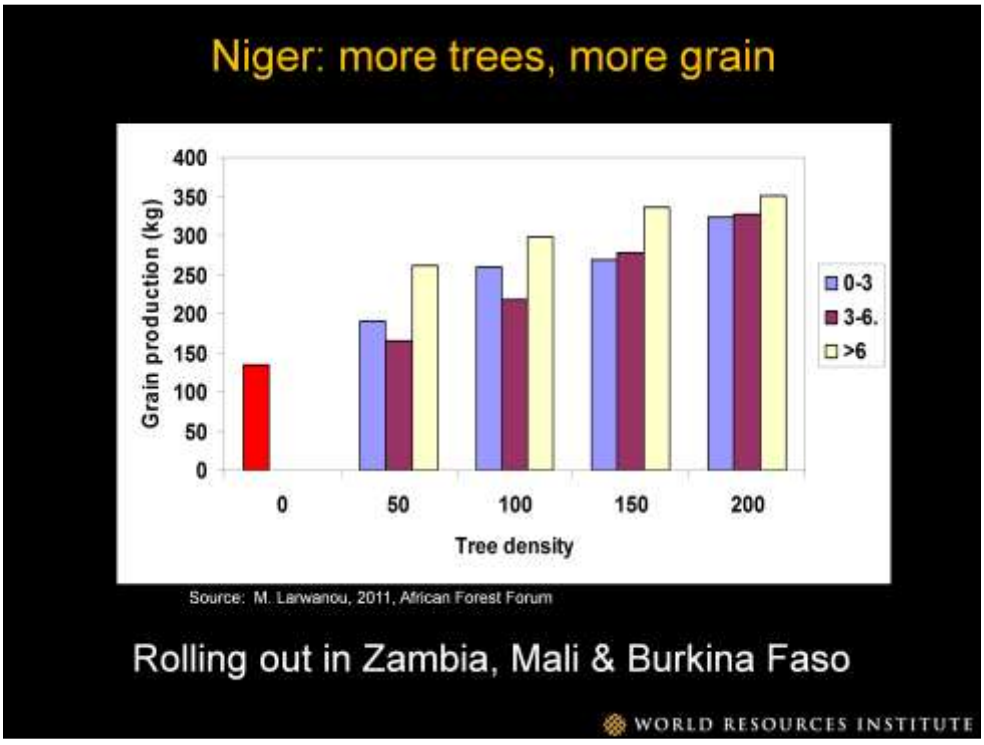


- Under the temperature total maximum daily load (TMDL) for Oregon's Tualatin River, Clean Water Services (CWS), a wastewater and storm water utility, faced the prospect of installing and operating a chiller at a twenty-year cost of approximately $104-255 million to reduce its thermal load.
- To lessen its costs, CWS developed an alternative plan to establish riparian forests that provide shade to water upstream of the wastewater facilities and to augment stream flows with releases of water from upstream reservoir. Establishing streamside forest will reduce its costs by about $50.5 million. In 2004, the Oregon Department of Environmental Quality (DEQ) approved this plan, the first of its kind in the U.S.
- The tree planting strategy has been tested on a large scale in the Tualatin River watershed in the Portland area. Cities along the river and CWS, a public utility, have planted more than half of a million native trees and shrubs since 2005. The project's "Tree for All" Community Tree Planting Challenge has involved volunteers, schools, nonprofits, and community groups.
- There is at least one other community trying to do this.

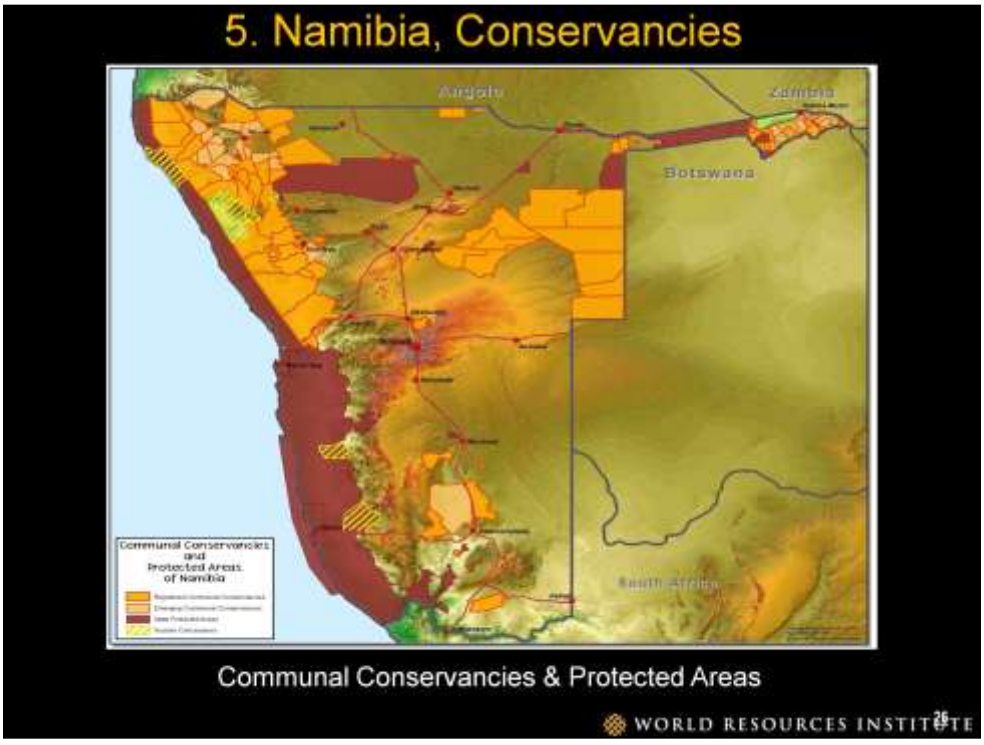
- Farmers have changed practices for clearing and cultivating fields and for managing trees and shrubs. The changes in practice have regenerated over 1.3 million trees per year in Maradi region alone.
- Niger was headed to desertification because of bad agricultural practices. When French colonists came to Niger, they changed agriculture practices to those less suited for the climate. They seperated the crop growth and did not appreciate the role of each one separately and collectively.
- In the 1980's, efforts began to regenerate trees. There was a unlikely champion, a missionary (Tony Renaldo), who worked with international agencies. Now the average farmer earns up to three times as much and they spend less time acquiring firewood.

    - What did it take to make this happen?
    - How can we replicate it?

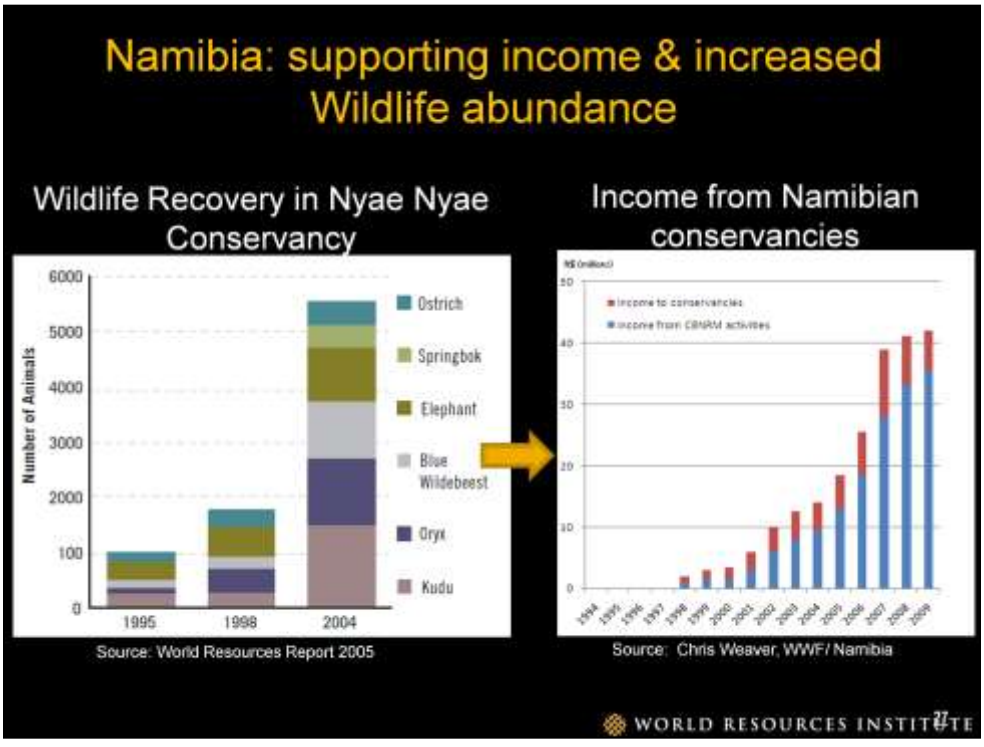
- When the French left Niger, the government kept ownership of the trees and fined people for doing anything to them. The government changed the law and gave farmer's the right to their own trees.
- To make this cost effective, they tried many different options to regenerate trees. They developed a methodology to regenerate trees from the underground stumps that remained. The trees were already adapted and could prosper in area, they just needed to get the chance to grow again.
- The success of this program spread from farmer to farmer; there was no development agency telling them what to do, it was their neighbor's advice.



- Farmer managed regeneration in Niger has led to better conservation and land management practices and improved livelihoods in Niger.
- If you conserve soil and water, there will be more trees in fields, and more grain produced.
- Trees produce multiple benefits including:
    - Products and income from wood;
    - Edible leaves and fruit;
    - Fodder, pods, and bark;
    - Nitrogen fixation in soils;
    - Carbon fixing in soils;
    - Controlling erosion; and
    - Improving micro-climate.
- The big message is that you do not have to wait seven years to see benefits, you start to see them in the first three years.



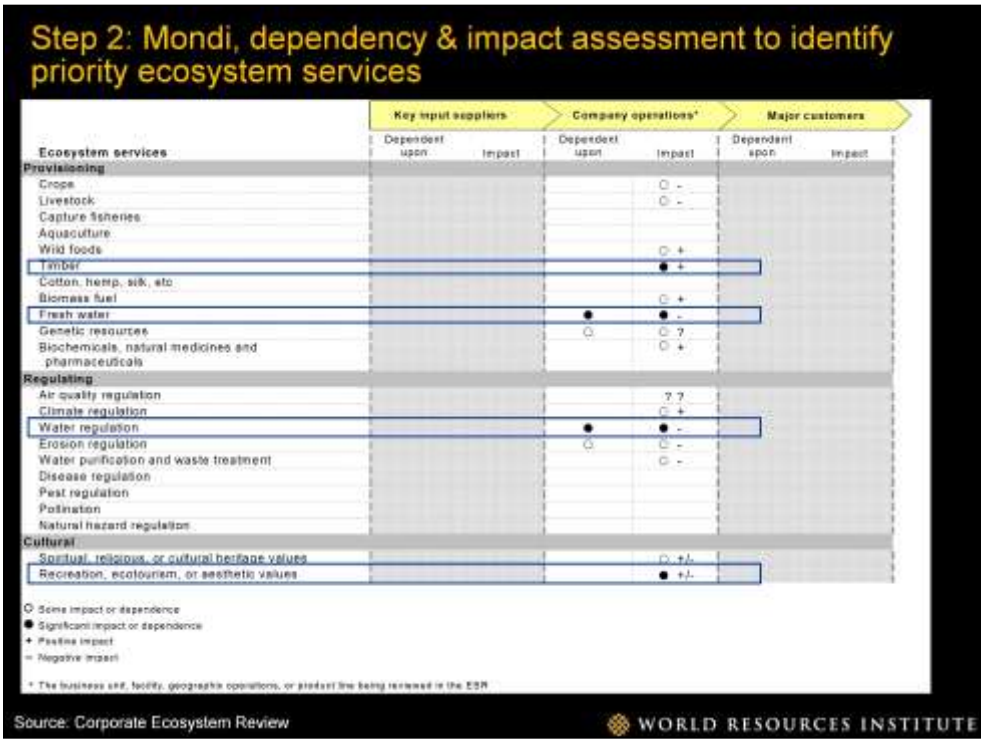
- From a modest start in the early 1990's with the adoption of progressive legislation granting local communities the right to benefit from wildlife, the Conservancy program has steadily expanded its geographic coverage to include more than 14 million hectares in 64 registered Conservancies, covering 17.6% of the country and involving 240,000 people or 12% of the population of Namibia.
- 31 of the Conservancies are immediately adjacent to national parks or key corridors between these parks, so the Conservancies have enhanced the viability of the protected area network by reduced poaching and promoting more compatible land use adjacent to the parks.
- Community-based natural resource management (CBNRM) empowered local people with user rights to wildlife (but not ownership rights).
- Changed management of wildlife - local community members set up conservancy committee to manage wildlife on their lands.
- There was strong support from both public and private sector. NGOs were dedicated to supporting conservancy committees.
- Previously, wild predators imposed significant costs on rural herding communities. With the introduction of CBNRM, local people could –for the first time – benefit from wildlife living on their communal lands.



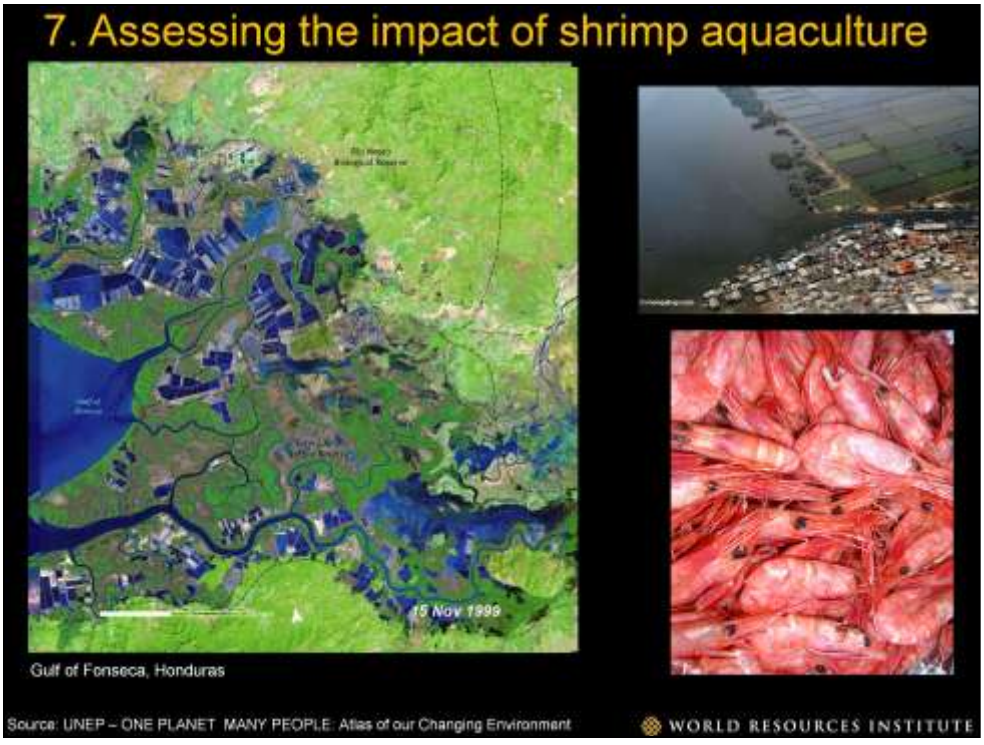
- As Namibia's Conservancy movement has spread and gained momentum across the country, landscape connectivity has occurred enabling an expansion of protected, monitored, and managed habitats for more effective conservation of a wide range of wildlife species, including lion, cheetah, leopard and hyena.
- As of May, 2011, the Conservancy program in Namibia had generated over N$241 million or $28 million in cumulative economic benefits since the program was launched in the mid-1990's.
- Direct benefits for community participants in 2009 amounted to N$42.48 million or US$5.05 million.
- Biggest contributor is joint venture tourism (57%), followed by hunting concessions (34.3%). Other income is earned from campsites, community-based tourism enterprises and crafts (6.1%); natural plant products (1.7%) and live game sales (0.8%).
- Other community benefits include community empowerment, particularly women empowerment.
- This example displays how you can get conservation and community benefits.

- *The Corporate Ecosystem Services Review* (ESR) is a structured methodology that helps managers proactively develop strategies to manage business risks and opportunities arising from a company's dependence and impact on ecosystems.
- This provides a methodology for companies to assess risk and has been used by a lot of companies.
- ALCOA examined its impacts in Canada and is now investing in ES as a result.
- In many ways, I think this did a better job getting ES on the business agenda than government has.

- There are five steps to the ESR.
- Important to realize that you do not have to do it for the whole company, just do it for where it is relevant.

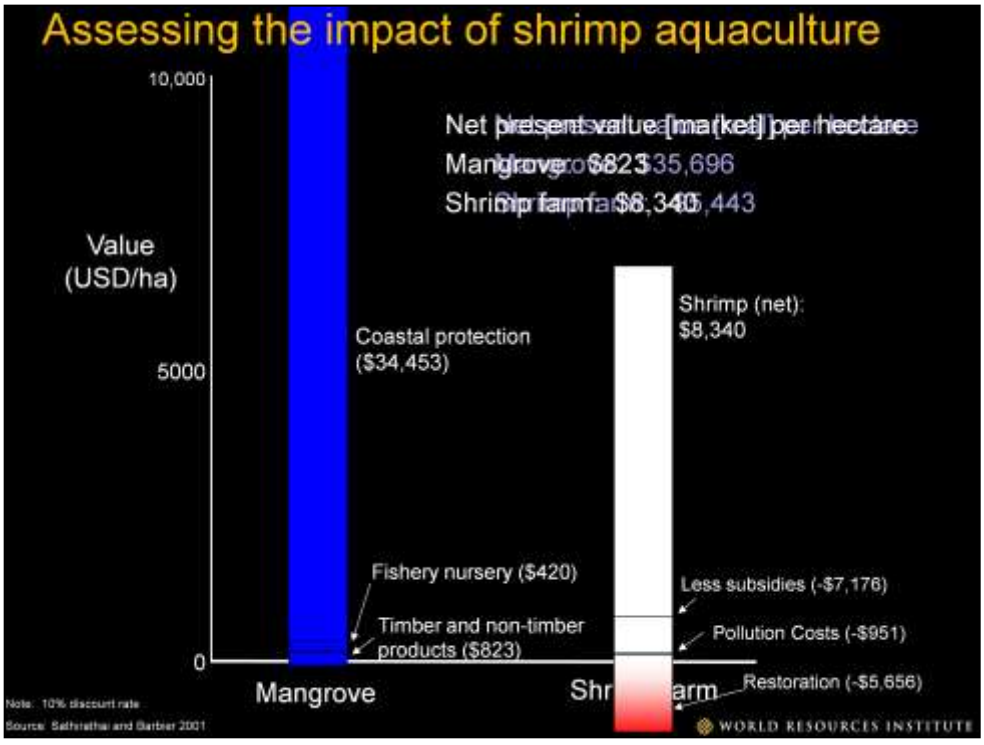


- Mondi looked at plantations in South Africa and realized that they did not need to deal with it all, just need to deal with the most important.
- The ESR helped to highlight how freshwater is important for Mondi, but also showed how they are having a negative impact on it.
- In this case, they used the clearing to produce biomass.



- Who likes shrimp? Do you know where it comes from?

- Nearly 35% of mangroves have been lost between 1980 – 2000.
- Honduras is second only to Ecuador in the production and exportation of cultured shrimp from Latin America. Shrimp farmers are depriving fishers, farmers, and others of access to mangroves, estuaries and seasonal lagoons; destroying mangrove ecosystems, altering the hydrology of the region, destroying the habitats of other flora and fauna and precipitating declines in biodiversity; contributing to degraded water quality; and exacerbating the decline in Gulf of Fonseca fisheries through the indiscriminate capture of other species caught with the shrimp post larvae that are used to stock ponds. There are both national and international enterprises in the region.
- Similarly to commercial agriculture, the conversion of mangroves have a cost which is often ignored in the market, but one that is no less important.



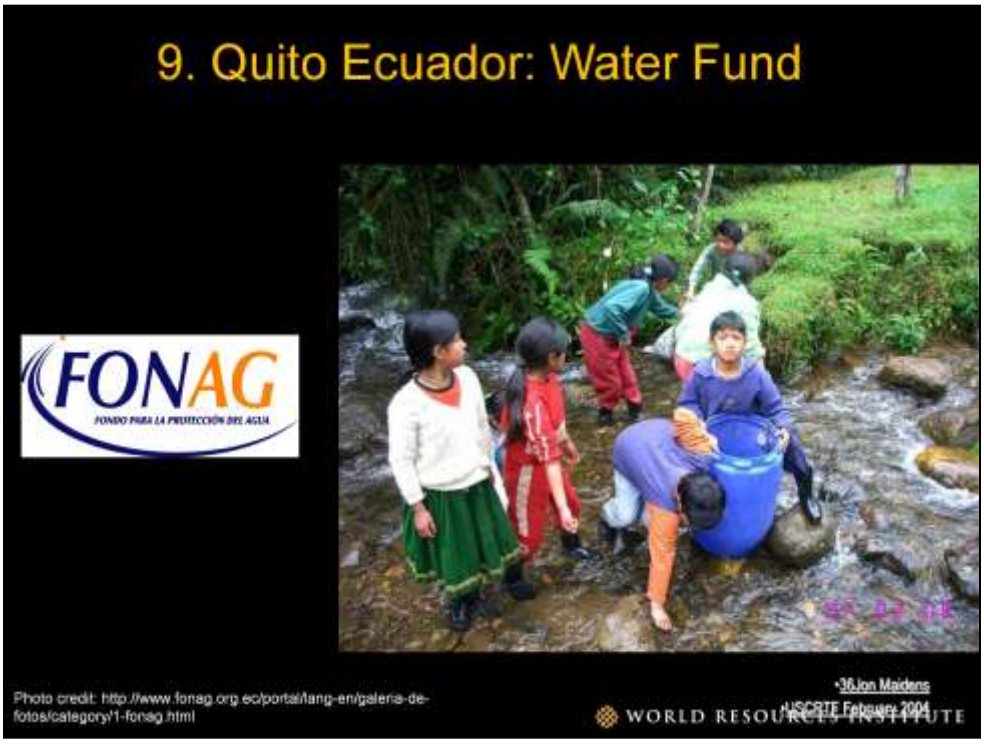
- In Southeast Asia and Central America, converting mangroves to aquaculture makes financial sense from the perspective of a shrimp farmer. One study in southern Thailand found that aquaculture had a net present economic value (using a 10% discount rate) of US$8,340 per hectare compared with only US$823 per hectare in economic value for an intact mangrove.
- If, however, the ES approach is taken into account, the social values of intact mangroves and shrimp farms reveals the net present value of intact mangroves to be in the region of US$35,696 per hectare versus negative US$5,443 per hectare for shrimp aquaculture.
- Even if the mangrove restoration costs are excluded, the mangrove benefits are still greater than aquaculture.
- To address these impacts, several policy options are available. Subsidy systems can be revised to reflect more accurate social worth of projects. Aquaculture strategies can be revised to include the use of certification programs. Government and large retailers can help drive certification by adopting sustainable procurement policies.
- Take into account all factors, subsidies, coastal benefits of mangrove, pollution costs, the cost-benefit analysis changes and the shrimp yield falls off. If you look at just the value of aquaculture, then there is a benefit, but if you look at the value of mangroves to commercial fisheries and the temporal scale it changes. Shrimp farms are degraded in seven years.
- Take the case of ethanol. If we had thought about it from a systems perspective, we would have realized the many other land-use change effects. Processing corn to fuel creates a big negative. WRI missed this in our analysis because WRI did not systematically think

through all tradeoffs.

- Here is an example from today's readings. The IFC revised their principles and now any IFC contribution requires investors to act in a certain way. This has influenced 72 financial institutions with $18 billion in 2010.

- Of course it is just a commitment. IFC is very competitive. They really want to do this because they want their performance standards to be the best of the best.
- What was really crucial was that we did work from the business council perspective. We have businesses come in and say “yes, we did it and here is how and what is required, which is not a lot.”

- Other organizations are starting to adopt similar strategies.



- Quito, Ecuador established a water fund in 2000 to protect upstream lands in order to maintain water flows and water quality.
- The fund's were principally raised by the city's water utility (via a levy), a local brewer, a bottler, and a hydroelectric company. The fund was established after being conceptualized and promoted by The Nature Conservancy.
- The principal funds were invested in stocks and other financial instruments and were allowed to grow before interest earnings were used to finance forest restoration projects, which are selected by an independent governing body.
- By late 2010, more than 2 million trees have been planted and more than 5,000 acres of land have been restored (Whelan 2010).

FONAG – the Fund for the Protection of Water:

- Launched in 2000 with $21,000 from TNC, USAID, & others.
- Regular cash flow from payments for water consumed—main contributors: water utility, local brewer, hydroelectric company.
- Interest earnings support conservation projects (selected by independent governing body).
- By 2010 > 2 million trees planted and 5,000+ acres land restored.

Photo credit: The Nature Conservancy: http://www.nature.org/photosmultimedia/photoofthemonth/photo-of-the-month-september-2010.xml

•Jon Maidens
•USCRTE February 2004

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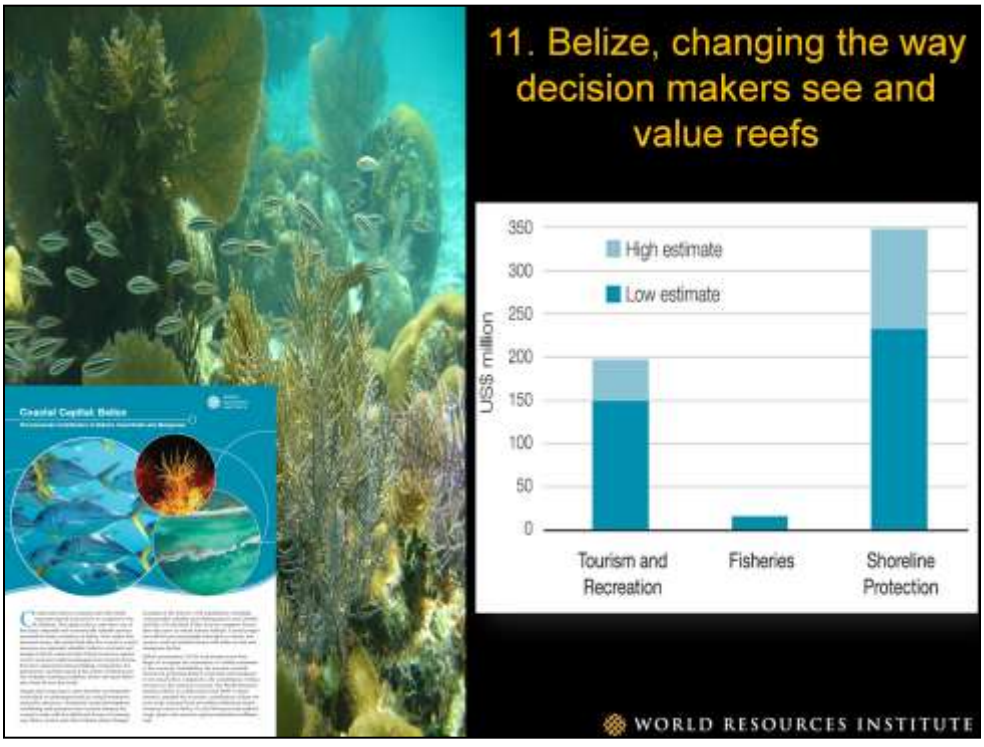
- U.S.-based electric utility, Allegheny Power, wanted to divest its 4,800-hectare Canaan Valley property in West Virginia.
- Traditional approaches appraised the real estate at $16 million. Believing that the property, with its pristine forests, marshes, and abundant wildlife, was worth more, the company commissioned an economic valuation of the marketable environmental benefits provided by the site, including its ability to sequester carbon and its wetlands. The eco-assessment boosted the total value to nearly $33 million.
- Allegheny Power subsequently sold Canaan Valley to the U.S. government, which merged it with an existing wildlife refuge, for the traditional appraisal price of $16 million. Using "bargain sale" provisions in the federal tax code, however, the company was able to claim a charitable contribution of $17 million for the property's environmental value, yielding several million dollars in tax-related savings.
- I do not know how we can recreate this, but it is an interesting opportunity.



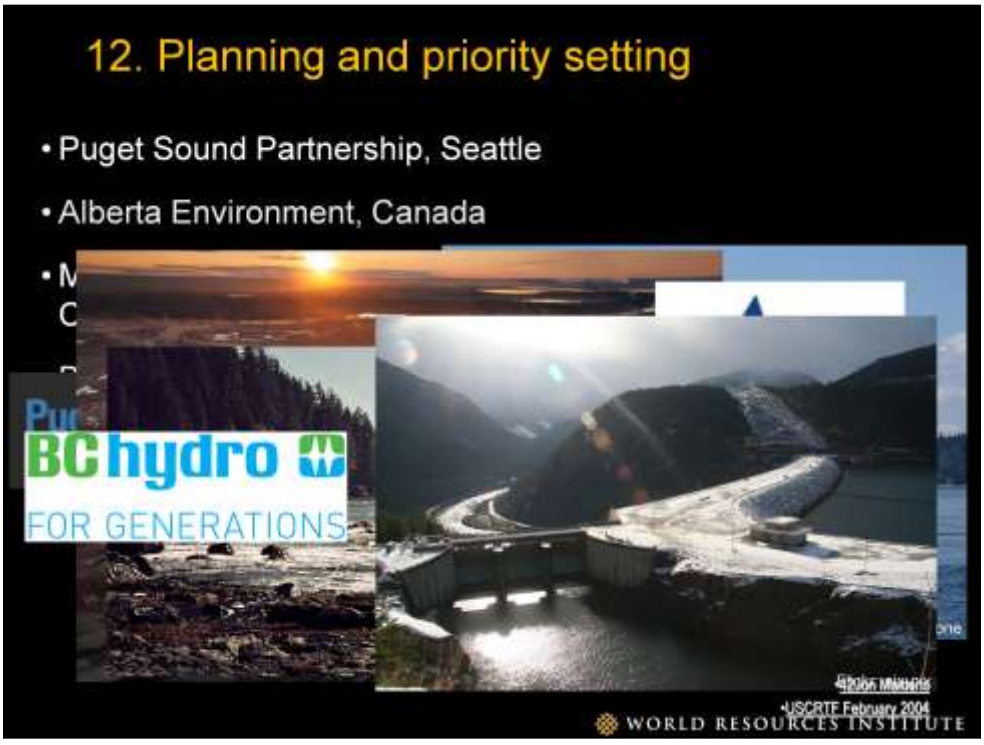
- I will share a story about our work in Belize to illustrate WRI's approach.
- Belize has some of the largest and most stunning coral reefs in the Caribbean, which are extremely valuable. They provide fertile ground for fishing, help protect the Belize shore, and are the backbone of tourism industry.
- The reefs are threatened even in the absence of a warming ocean. There are many threats to Belize's reefs such as overfishing, pollution, and poorly regulated coastal development.
- Part of the reason is that coral reefs are not fully valued by policy-makers. We developed a project with key partners to conduct an economic valuation of coral reefs and mangroves in the country.
- We found that benefits of fishing, shoreline protection, and tourism were significant, which has helped make the economic argument for greater investment in marine conservation.

    - ➢ What is the best way to communicate this to key decision-makers?

- There was active involvement of partner NGOs in the study. Together, we completed a strategic launch of the work through videos and organized a big gala that the Prime Minister attended.
- The Prime Minister noticed this report and changed his mindset. New regulations were put in place including:

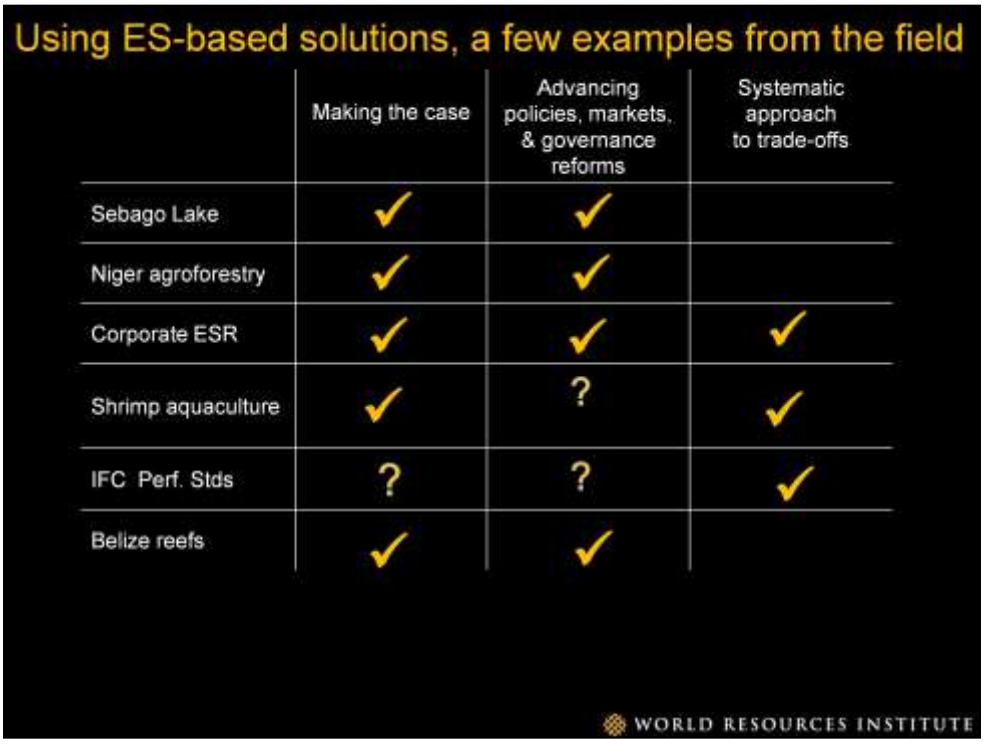
- Ban on Parrotfish fishing;
- Size limits on Grouper;
- Ban of spear fishing in MPAs; and
- Skin patch on fish filets.

- There were some unexpected outcomes related to our work in Belize as well. Our valuation informed the damage estimate of the Westerhaven grounding in January 2009. This was also the first time Belize had ever sued a ship owner for damages. The Belize Supreme Court recently ruled that the owners must pay US$ 6 million.
- The government used ES valuation to sue this person. I would like to say it helped, but the ruling was reversed, which makes me think something happened there. Maybe we did not win this one, but maybe we will win the next one.
- This sets an important precedent for Belize that we believe can help change how reefs are valued and therefore protected across the Caribbean.
- It nicely illustrates how we deployed strong analysis, partnerships, and innovative communications to create this change.

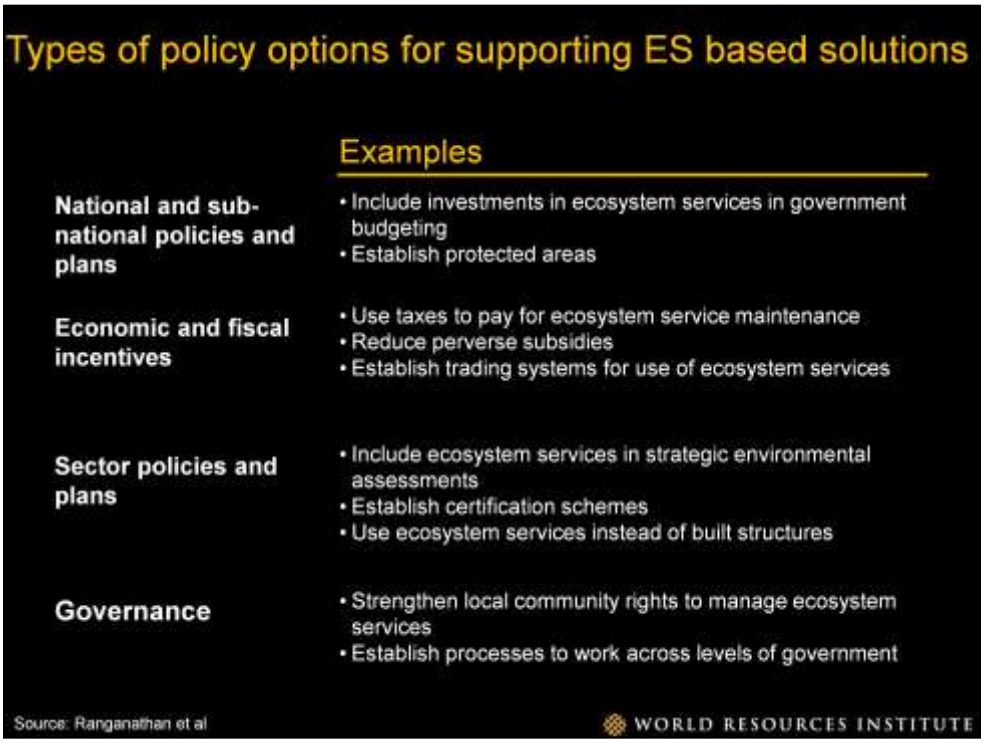


- Examples from Puget Sound and Alberta illustrate how people are using ES frameworks to think about design.
- The price tag of restoration will be large and residents of Seattle will have to pay the bill.
- Using ES argument was an effective way to show how it benefits the Seattle residents.
- Similar case with British Colombia Hydroelectric. It found itself operating a dam that was impacting a lot of people.
- They used an ES approach to model variables and impacts. They had representative groups come to the table, went through many iterations, and found a scenario where everyone could live with a particular operating plan.

- When I think about those examples I think they are doing some of these, not all of these but at least one.



- This table shows where I think the projects fall. For those that are too early to tell, there is a question mark.



- We do not have to rush to payment for ES (PES).
- Think about climate adaptation; it is not really a protected area, but it is protecting against climate change.
- Local communities need rights and empowerment so we can do a better job managing the tradeoffs.

Group Responses:

Participant

- You talked about winning the battle and losing the war and those were exciting examples that support that idea.

  - Is there one insight about one thing, that we can do to get ES on the mind of decision-makers?

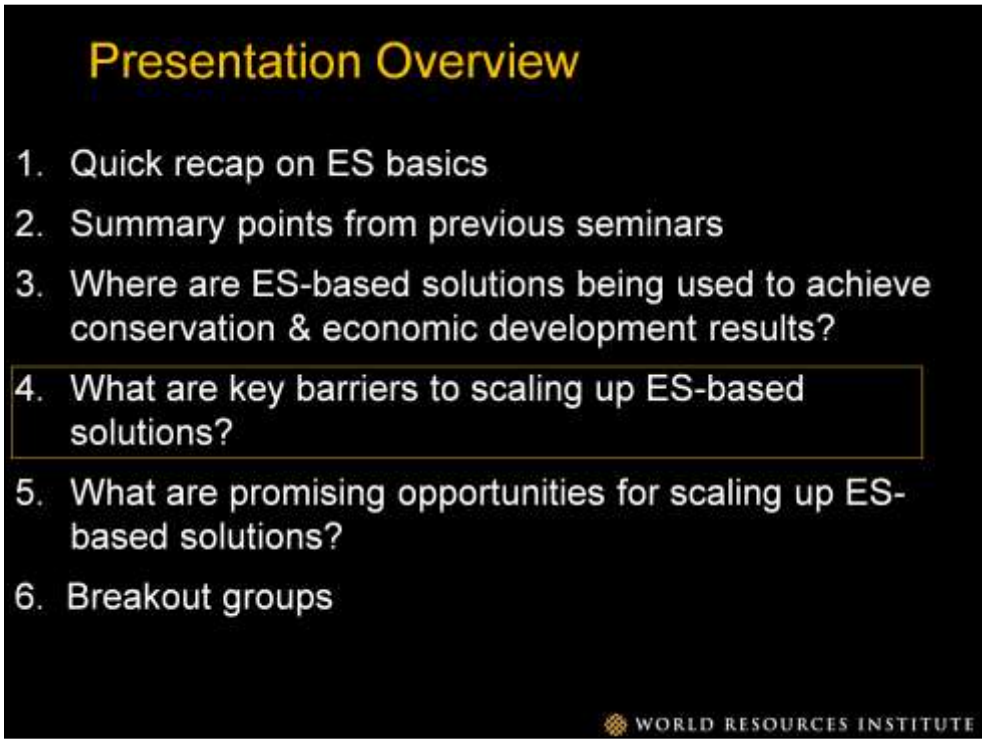
Janet Ranganathan

- I will answer that with another question:

  - What are those one or two key barriers to overcome?

- When you answer that, you will get that answer to your question. Let us talk about barriers, and get back to this question. The ES argument may not always make the case.

- In Ecuador, they discovered oil in some remote place and made a declaration that would not drill there. They wanted WRI to do a back of the envelop analysis to make the case to not drill based on nature's benefits. We could not make the ES argument that they wanted; there were plenty of services, but no beneficiaries.


Presentation Overview
1. Quick recap on ES basics
2. Summary points from previous seminars
3. Where are ES-based solutions being used to achieve conservation & economic development results?
4. What are key barriers to scaling up ES-based solutions?
5. What are promising opportunities for scaling up ES-based solutions?
6. Breakout groups
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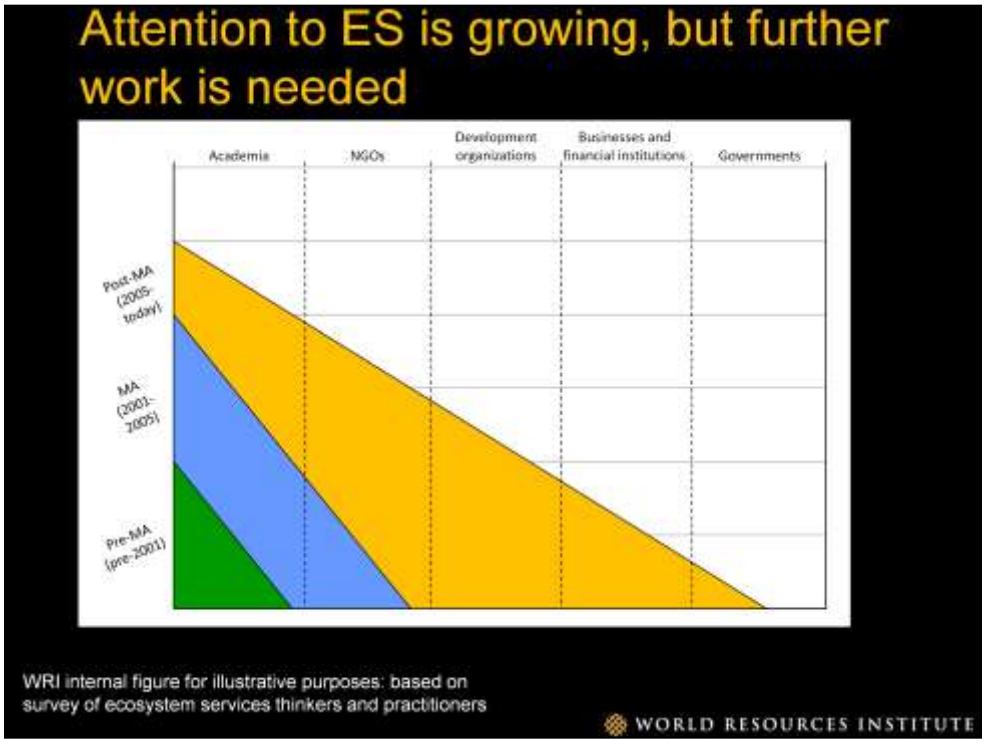


- The ES concept is becoming more mainstream; it is moving beyond environmental orgs to OXFAM and other development organizations like development banks and European bilateral organizations.
- The weakest of all is the government sector. This goes back to the comment about fragmentation in government.

<u>Group Responses:</u>

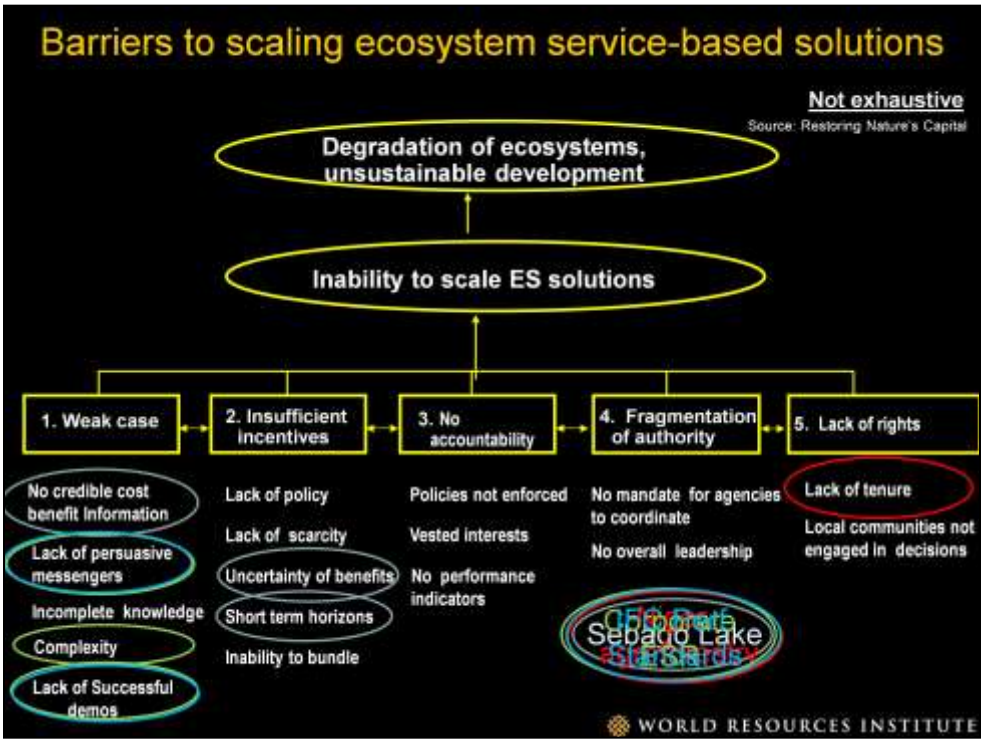
Participant

- I would argue that the two on the end tend to speak a very different language. Business like "Peter Rabbit English" that uses lots of numbers. Academics and NGOs are really good and making arguments in "non-Peter Rabbit" language. Constanza used language people could understand.

  - Is the reason for the slow uptake because of the volume on the other side?
  - Is there too much emphasis on the academic "non-Peter Rabbit English?"

Janet Ranganathan

- Yes, I think we need to move in that direction.



- The slide identifies five key lessons to take away from the MA:
  - The connection is being made, but it is weak.
  - Degraders do not pay; there are poor incentives to sustain services.
  - There is little transparency and accountability in decision-making.
  - There is a fragmentation of authority.
  - Property rights are critical issues in developing countries; in most places, landowners do not have rights to the land they work. It is different in the United States; here we need more “down steam” rights.
- Some organizations have not been conservation focused and it hurts their assessment and the movement. Al Gore may not have been the messenger for climate change; it was too political and focused on problems instead of solutions.
- We need to get mayors and municipalities to be the champions. We have to focus more on the local.
- We can start to manage risks by bringing in insurance companies.
- In the ESR, we did not just develop guidelines, we road tested it with six companies to rewrite guidelines in a more robust way. When we launched it, we got companies to talk about it to other companies. Similar to the example from Niger, the impact of your neighbor’s advice is much more powerful than an outside source.
- There is no silver bullet; each case has its own barriers.

Group Response:

Participant

- Can you say more about lack of scarcity?

Janet Ranganathan

- Scarcity is not all of it. It is political and biophysical too.

Participant

- What about short-term horizons? For instance, a municipality is looking at a 10 year plan while politicians look on a four year time scale.

Janet Ranganathan

- It is difficult and there is no easy answer. These things are very dependent on this but I am not certain. What do other people think about this?

Participant

- My only answer is to team up with people. From more of a policy perspective, sometimes you cannot compete alone and you need to find other allies to combine issues and become more persuasive.

Participant

- In general, at the local level, we are having a hard time getting investment because everyone is cutting back.

- Idea of investment still needs selling. How do we tackle that?

Janet Ranganathan

- It could work both ways. If you can show that being green is more cost effective, then you can garner support. These issues are not insurmountable, they are strategic problems.

Participant

- There is a strong sense that there is no shared community; latest EcoAmerican poll shows that there is a decline in shared solutions. If you do not believe there is some connection between you and your neighbor, you will not think there is a connection between you and the ecosystem.
- Really survey what your audience needs to make a decision. Ease, simplicity, relevant information, or whatever that be, find it and use it because you only have a limited shot and small window before they go back and retreat.

Participant

- Looking at this chart, it looks to me like it is specific to the international level. It seems to me we need to get it to a smaller level.

- Have you done this at a national level or a regional level?

Janet Ranganathan

- I have not done that; it may depend on what you are looking at, water or agriculture, etc.

Participant

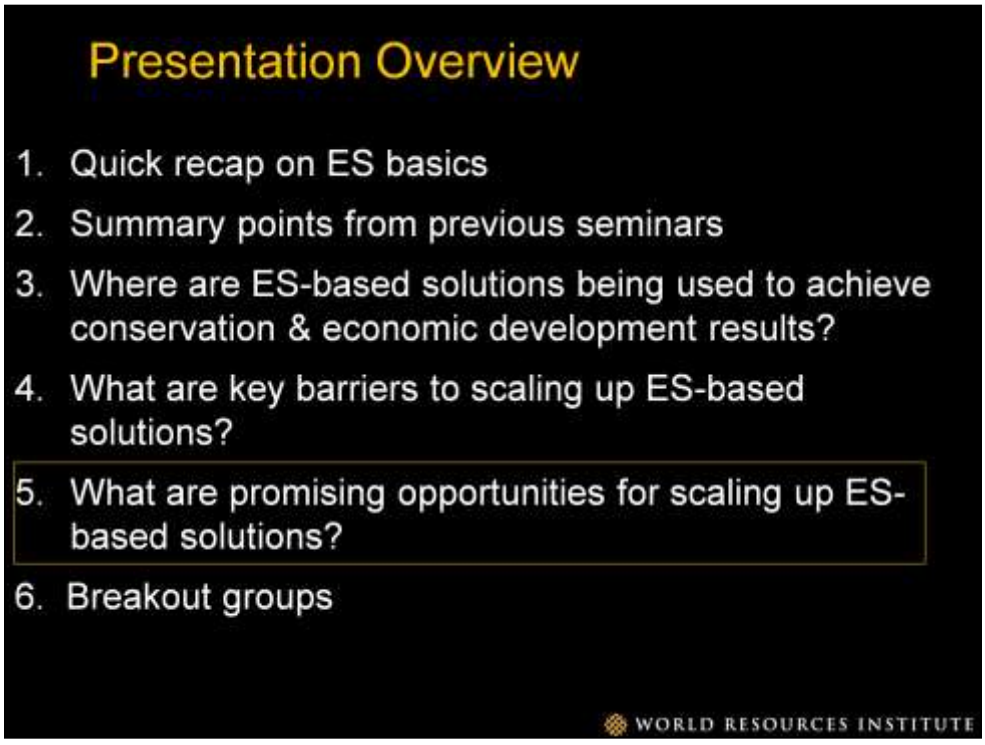
- If you did the inverse of this chart, it would show potentials. You could potentially use the inverse of this to select criteria of where to focus efforts.

Janet Ranganathan

- Focus on where can you make a strong case and then identify who your ideal messengers are.

Participant

- Focus on short-term horizons at a national level. Local governments are elected for a short-term and so they are only looking at the short-term. This demonstrates the lack of community, which is an important constraint.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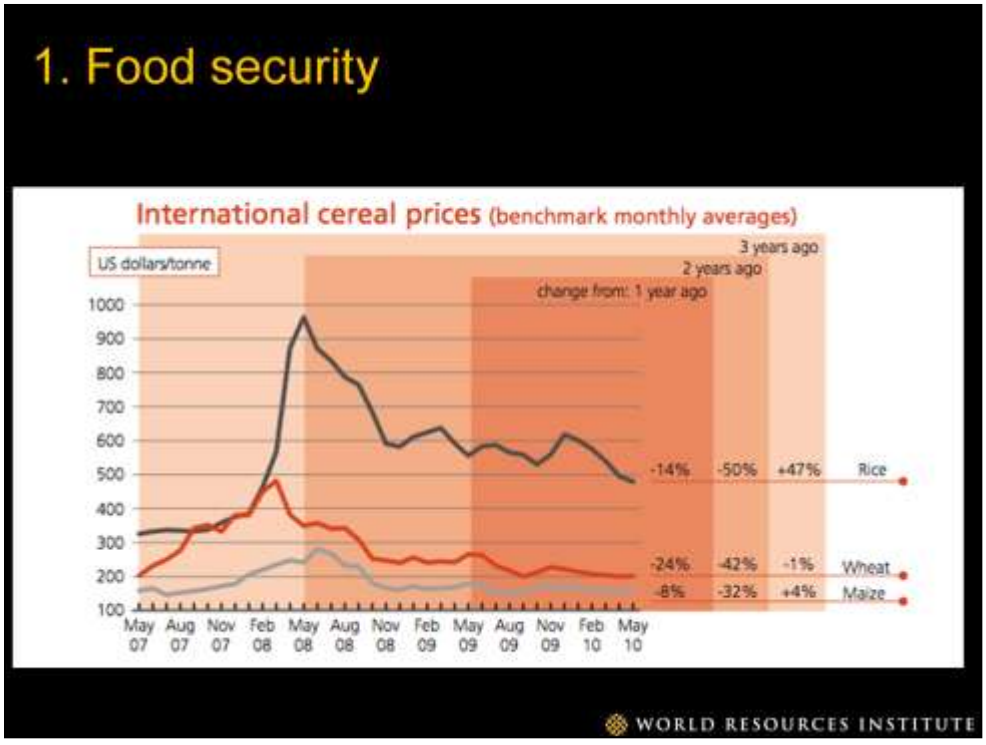
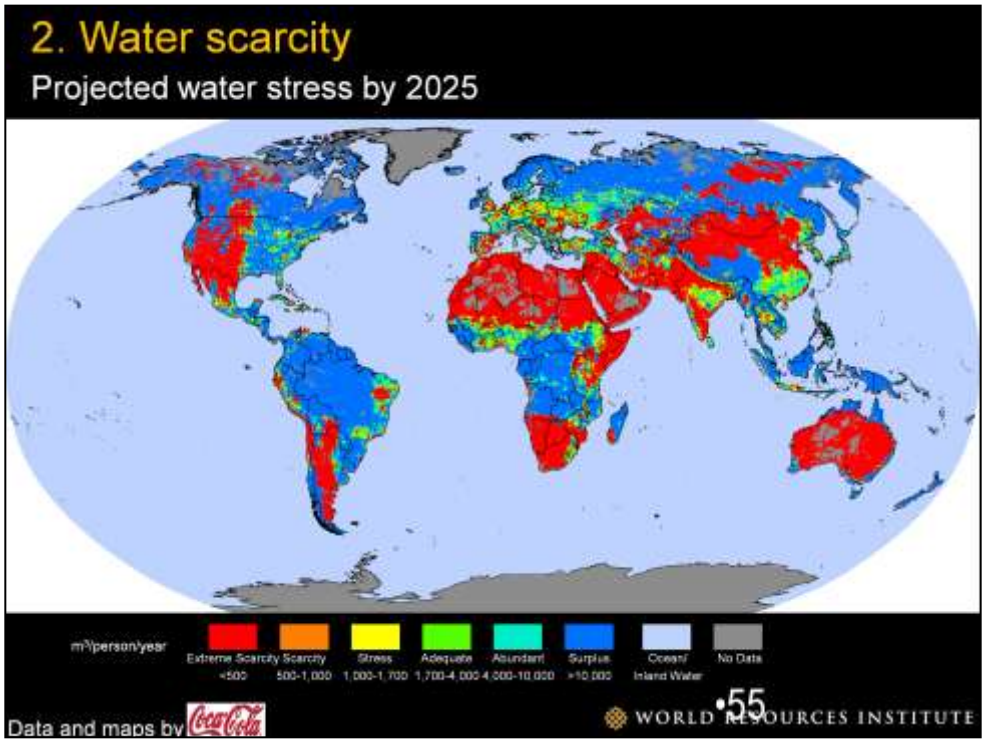
- One conclusion we came to was about how we need to be more strategic about our entry points in the next phase.
- We need to identify the existing priorities and where ES can assist is pursuing strategies.
- There are three areas that come to mind. For me, they are:
    - Agriculture/food security;
    - Water; and
    - Climate.
- These are already on the agenda so we do not have to make a huge case for their importance.

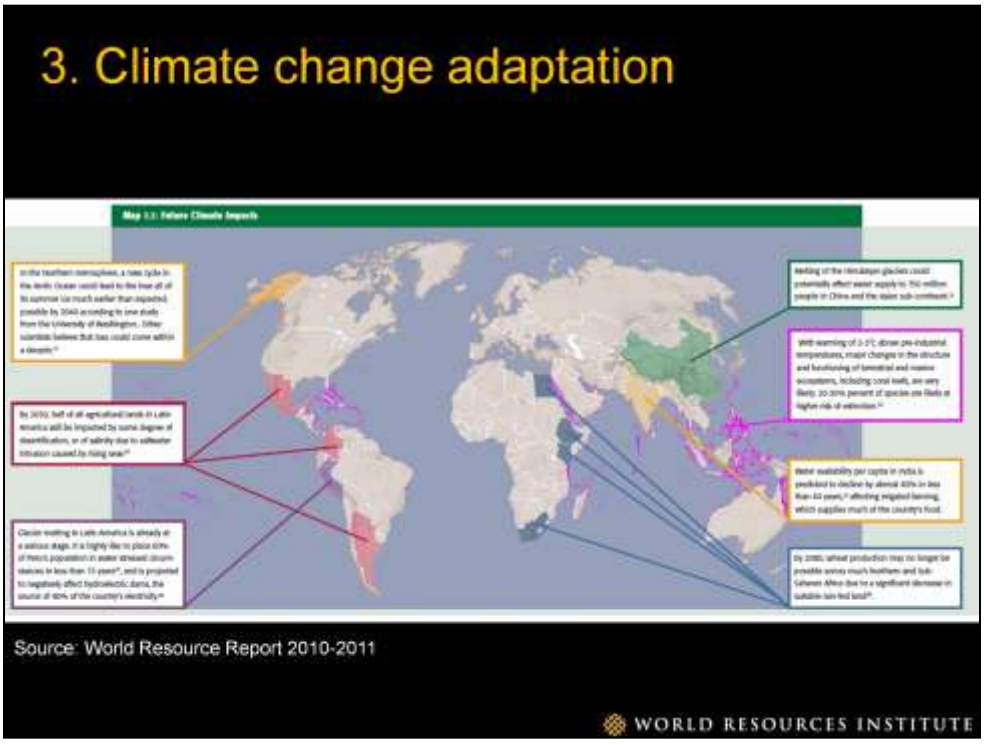


- If you think globally, the poorest people are usually farmers and overlap with water issues.
- Food security is a big deal; there are nothing like riots to get people's attention. Now countries are bringing ministers of agriculture to the World Bank to talk about goals.

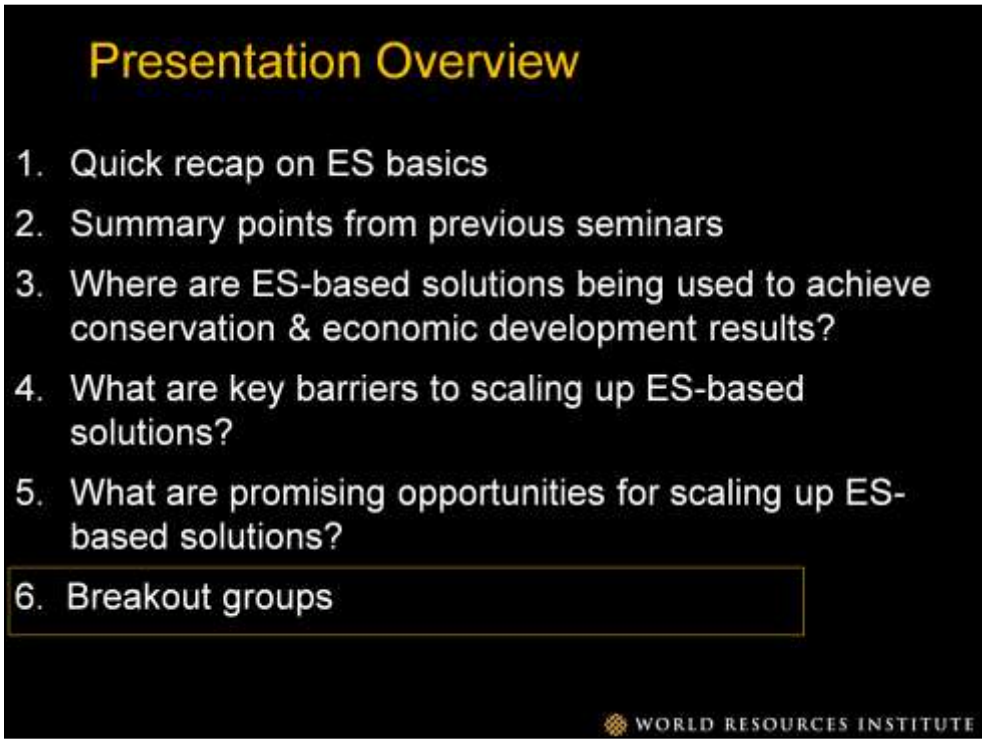
  - The United Nation's Millennium Development Goals end in 2015, what will replace them? Will we update them or will there be something else?
  - ES were not included in them the first time. Can we update them this time around to include ES to incorporate food security and the environment?



- A third driver putting pressure on food security is rising freshwater insecurity. This is particularly important given that about 70% of global human consumption of freshwater is for agricultural production.
- Our use is growing faster than population growth.
- As people move up the food chain in terms of diet (i.e., eat more meat), the amount of embedded water per calorie skyrockets.
- Inefficient water usage still persists worldwide.
- Water pollution further exacerbates the challenge by making less clean freshwater available.
- Maps like this one showing projected availability of freshwater for human consumption by 2025 paint a dark, or should I say “red”, picture.



- In Florida, where Tropicana grows oranges, they are dealing with more night time freezes. They pump out water and spray it at night to protect crops from night freezes.
  - Does this present an opportunity to make the case for climate change reversal as being more cost effective than spraying water?
  - How do you integrate ES into money going to climate change adaptation?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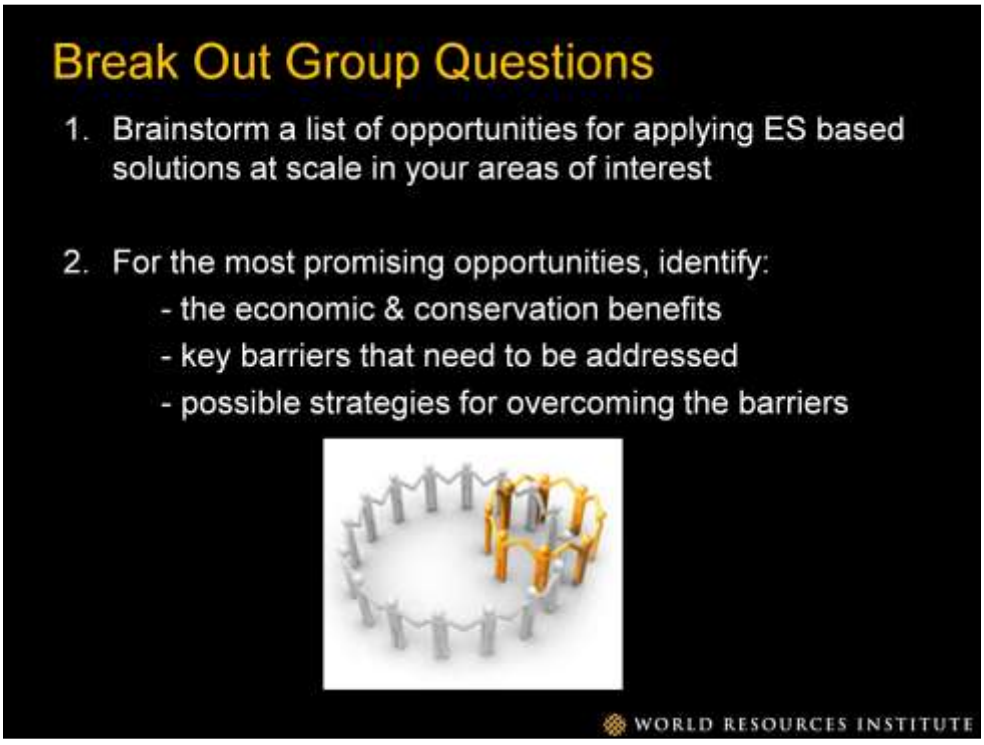


Group Responses:

Group 1

- Scales of interest
  - State
  - Regional
    - Needs
      - Connecting economic and conservation benefits.
      - Define audience and best way to reach them; the public community needs specific breakdowns that are credible while the voting community prefers to see the aggregate.
      - Communicate changes in the debate.
      - Different types of rights.
      - Find topics that cross barriers.
      - Evidence action with real numbers.
      - Benefit indicators.
      - Define change.
    - Barriers
      - Polarization from dialogue about government versus non-government.
  - South America
  - Private investment
  - Municipal linkages
  - Natural disaster related and risk of inundation (climate change)

    - Water fund investments
    - Government
    - Science implementation
    - Tools
    - Conservation economics
    - Communication
    - Watersheds
    - Foodsheds
    - Multi-Scale enabling conditions
- Communication
    - Needs to resonate with people; they need some sort of direct experience.
    - In each community, there may be a different vocabulary, but most want to discuss quality of life.
    - Define barriers and/or impediments to change: Who/what are they?
    - Showing certainty of benefits and debunking uncertainty are crucial.
    - Use demonstrations to ground ideas.
    - External actors need to work with internal actors in order to have an impact.
    - Need to find pathways to increase community understanding.
    - Use health and education and imminent threats.
    - Education vs. Self-interest to create rights-based change.
- Community-Engagement
    - Important to engage the community in all stages: prioritization, definitions, evaluation, etc.
- The end message is that we need to keep investing in this idea.

Group 2

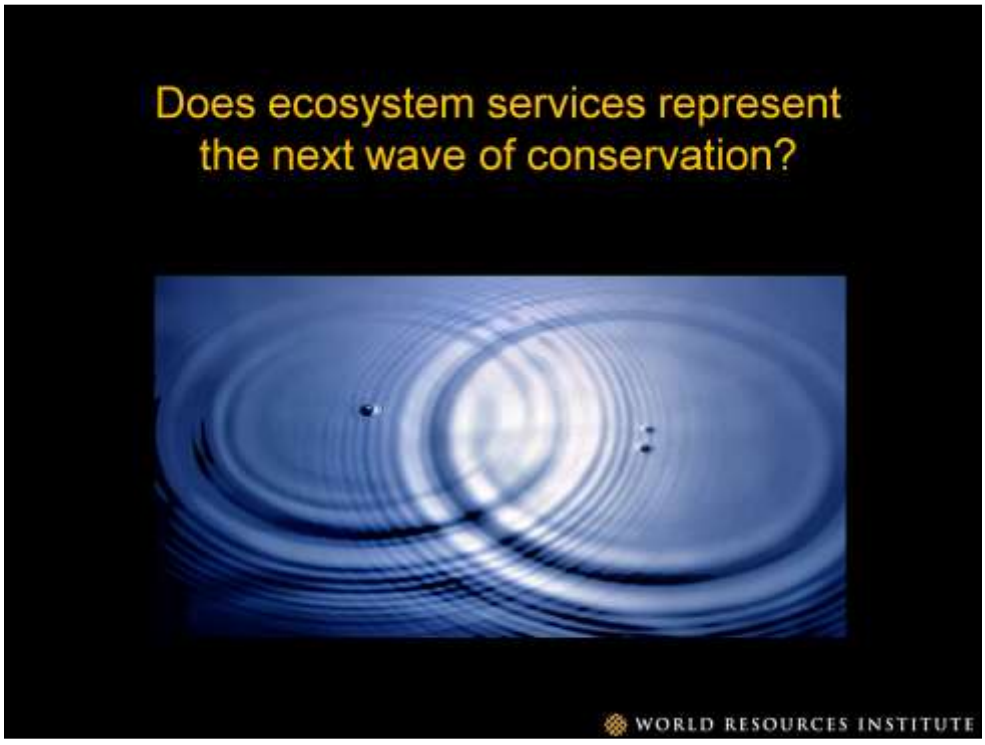
- Areas of Interest
    - Agriculture/Forest Transition
    - Fisheries (incentives, S.E. Asia)
    - Forests (Andes/Amazon)
        - Water, headwaters, carbon
    - Water/Sustainable Fisheries/Forest/Hydropower (British Colombia, Andes, Brazil)
        - Biodiversity values
        - Link to fisheries
        - Forests
        - Beyond local level functions

- Fresh Water
    - Opportunity Scales
        - Watershed
            - Look at key development imperatives in flood control, energy development extractive industry, fisheries, wildlife, habitat, access and control over resources, i.e., fisheries, resource/land tenure, and water quality.
        - Implementation jurisdictions
        - Local level
            - May have stronger case when working at the local level.
- Promising Opportunities
    - Develop forum to identify and develop agreements on tenure and create a vision.
- Barriers
    - Understanding value of externalities
    - Legal framework and land tenure issues
    - Insurance framework and policies
    - Increasing accountability in development
    - Assembly of different resources
    - Integrating ES into existing governance structures and making ties to economics and markets
    - Understanding poverty
    - Fractioning different values at different scales

Group 3

- Opportunities
    - We should focus on building the case through other issues and be more comprehensive. Some issues to focus on include:
        - Malawi
            - Carbon project/REDD;
            - Landscape scale; and
            - Food security.
        - California AB32
            - Cap and trade and
            - REDD.
        - Managing risk
        - Hazards

- Economics
- Land tenure and rights
    - More opportunities exist outside of the United States.
- California
    - Outcomes of investment
    - Need to recognize that there is enough science and we just need to start doing it.
    - Regulating review process is good for permit coordination.
- Assets
- National accounting
- Data accessibility
- Sierra Nevada, which could be a good pilot case.



Participant

- I am concerned about this becoming a bandwagon issues. ES is not mutually exclusive from other conservation tools.

Participant

- I would put a flag on the word conservation and change it to "Does ecosystem services represent the next wave of development?"

Participant

- ES is not a new idea; that is one idea we have discussed a great deal throughout this seminar.

Participant

- We need to focus on mainstreaming the concept not just the term.

Janet Ranganathan

- We need to focus on building constituencies and increasing demand for ES solutions. We can work on this and developing supply with examples, but we also need to work on the demand side.
- There is a challenge of working across scales where government and businesses do not have a mandate.

  - Can we create bridging organizations to help with this?

- These types of bridging organizations are sorely missing. We need to get people together and deal with tradeoffs that present themselves and not build more ivory towers.

    - Can we leverage investment more effectively to move beyond conservation to include issues that are important to the areas where people are working?
    - Can we leverage different kinds of funders to work together for more dynamic aspects?

- We should work to promote larger scale projects and move away from stand alone work. Let us encourage experimentation in all focus areas and all scales.
- Let us think outside the box to develop nature-based solutions.

    - How can we get venture capital into this space?

- Let us work on a bottom-up effort with active collaborative action between funder, grantee, and communities (local leaders etc..).

    - How can we all work together and create real beneficial change?


Thank you
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Annex
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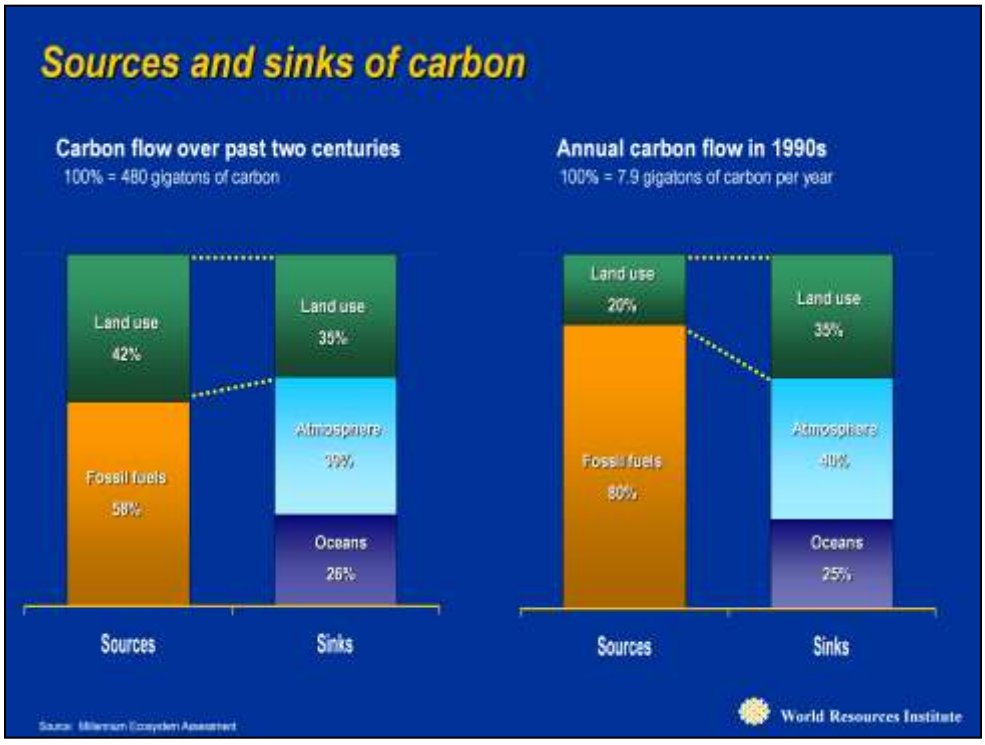
Sources and sinks of carbon
Carbon flow over past two centuries
100% = 480 gigatons of carbon
Land use
42%
Fossil fuels
58%
Land use
35%
Atmosphere
39%
Oceans
26%
Sources
Sinks
Annual carbon flow in 1990s
100% = 7.9 gigatons of carbon per year
Land use
20%
Fossil fuels
80%
Land use
35%
Atmosphere
40%
Oceans
25%
Sources
Sinks
World Resources Institute

- Examples: Niger, Bangladesh fisheries (2007 WRR), USDA conservation reserve program.

- Water fund, catskills, Dwardi village (2007 WRR).


Climate change Adaptation – Illustrative activities
✓ Land use planning
✓ Zoning e.g., "Protected adaptation zones"
✓ Grey versus green e.g. mangrove & wetland restoration
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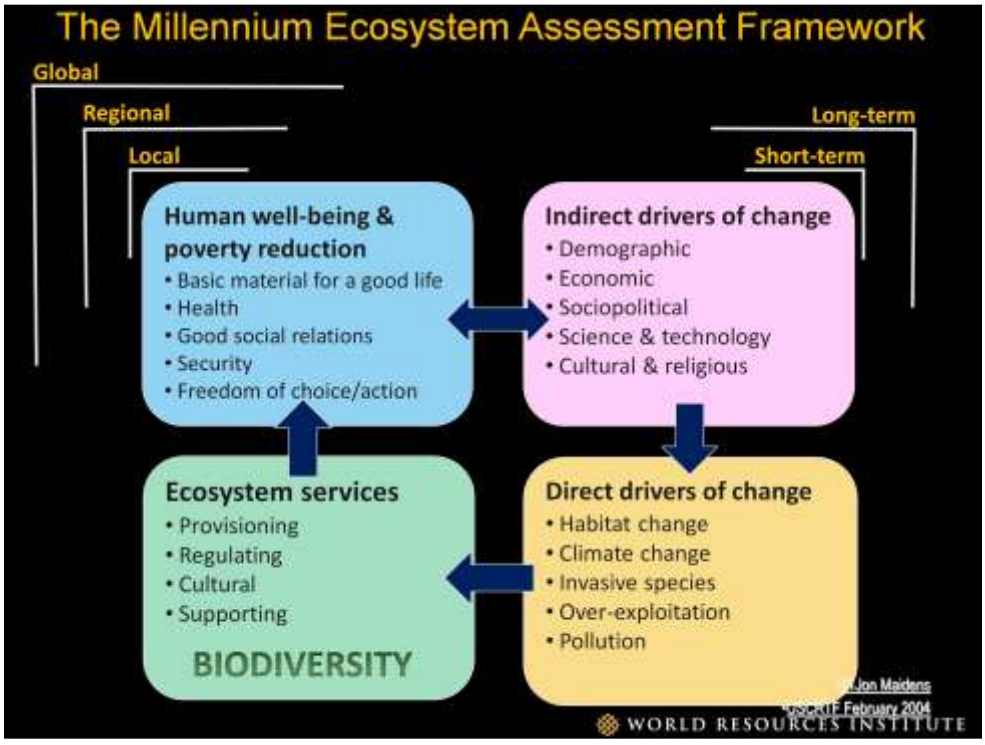
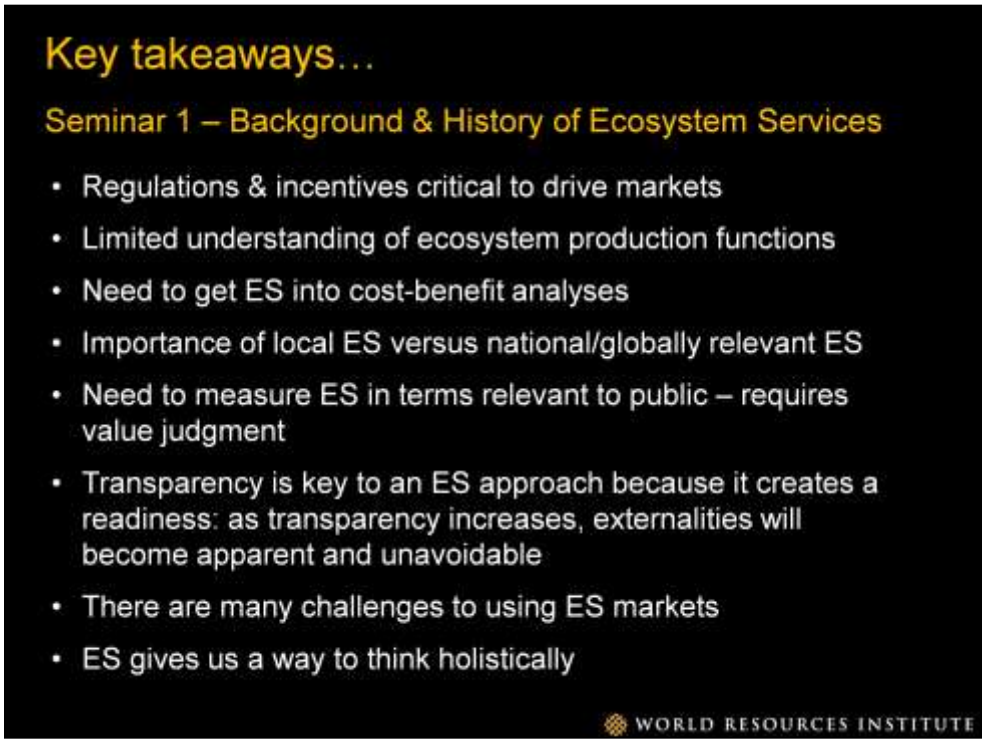
- WRI's assessment is that the "ecosystem services movement" has gained traction among influential pockets of the business, academic and NGO communities. Awareness of the concept of ecosystem services has grown. National and sub national ecosystem service assessments are being conducted. Ecosystem service-based markets are emerging. A variety of actors are now paying attention to ecosystem services, much more so than in the past. And yet, much remains to be done to mainstream investments in ecosystem services by national governments and the economic development community.


The Millennium Ecosystem Assessment Framework
Global
Regional
Local
Long-term
Short-term
Human well-being & poverty reduction
• Basic material for a good life
• Health
• Good social relations
• Security
• Freedom of choice/action
Indirect drivers of change
• Demographic
• Economic
• Sociopolitical
• Science & technology
• Cultural & religious
Ecosystem services
• Provisioning
• Regulating
• Cultural
• Supporting
BIODIVERSITY
Direct drivers of change
• Habitat change
• Climate change
• Invasive species
• Over-exploitation
• Pollution
Jon Maidens
RISCRTF February 2004
WORLD RESOURCES INSTITUTE


Key takeaways…
Seminar 1 – Background & History of Ecosystem Services
• Regulations & incentives critical to drive markets
• Limited understanding of ecosystem production functions
• Need to get ES into cost-benefit analyses
• Importance of local ES versus national/globally relevant ES
• Need to measure ES in terms relevant to public – requires value judgment
• Transparency is key to an ES approach because it creates a readiness: as transparency increases, externalities will become apparent and unavoidable
• There are many challenges to using ES markets
• ES gives us a way to think holistically
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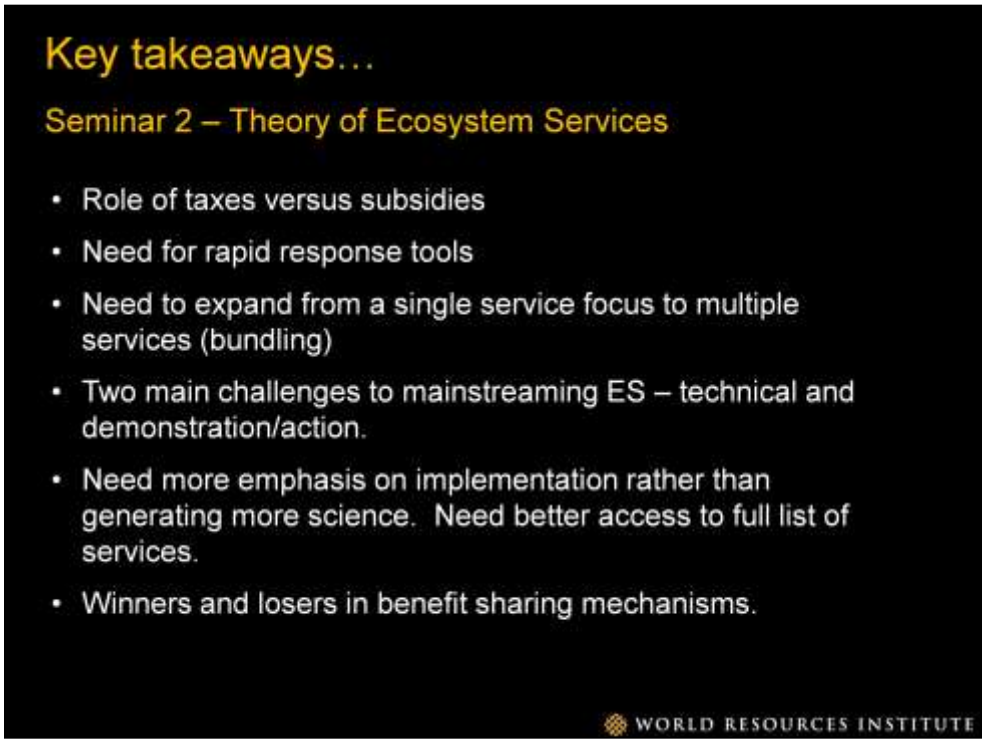
Key takeaways…
Seminar 2 – Theory of Ecosystem Services
• Role of taxes versus subsidies
• Need for rapid response tools
• Need to expand from a single service focus to multiple services (bundling)
• Two main challenges to mainstreaming ES – technical and demonstration/action.
• Need more emphasis on implementation rather than generating more science. Need better access to full list of services.
• Winners and losers in benefit sharing mechanisms.
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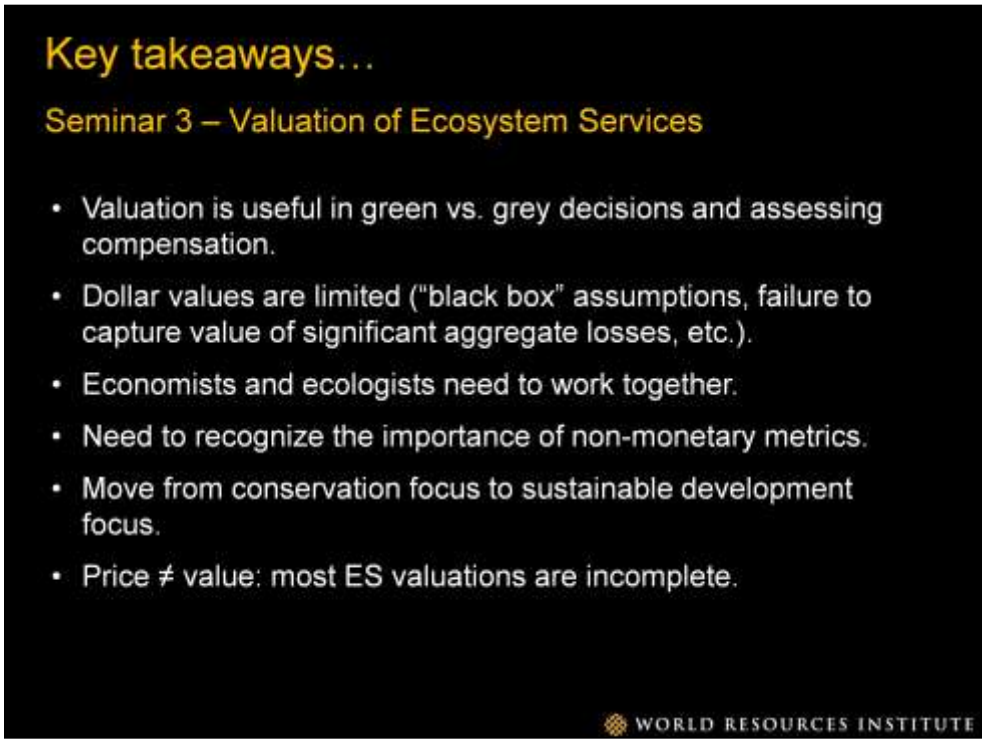
Key takeaways…
Seminar 3 – Valuation of Ecosystem Services
• Valuation is useful in green vs. grey decisions and assessing compensation.
• Dollar values are limited ("black box" assumptions, failure to capture value of significant aggregate losses, etc.).
• Economists and ecologists need to work together.
• Need to recognize the importance of non-monetary metrics.
• Move from conservation focus to sustainable development focus.
• Price ≠ value: most ES valuations are incomplete.
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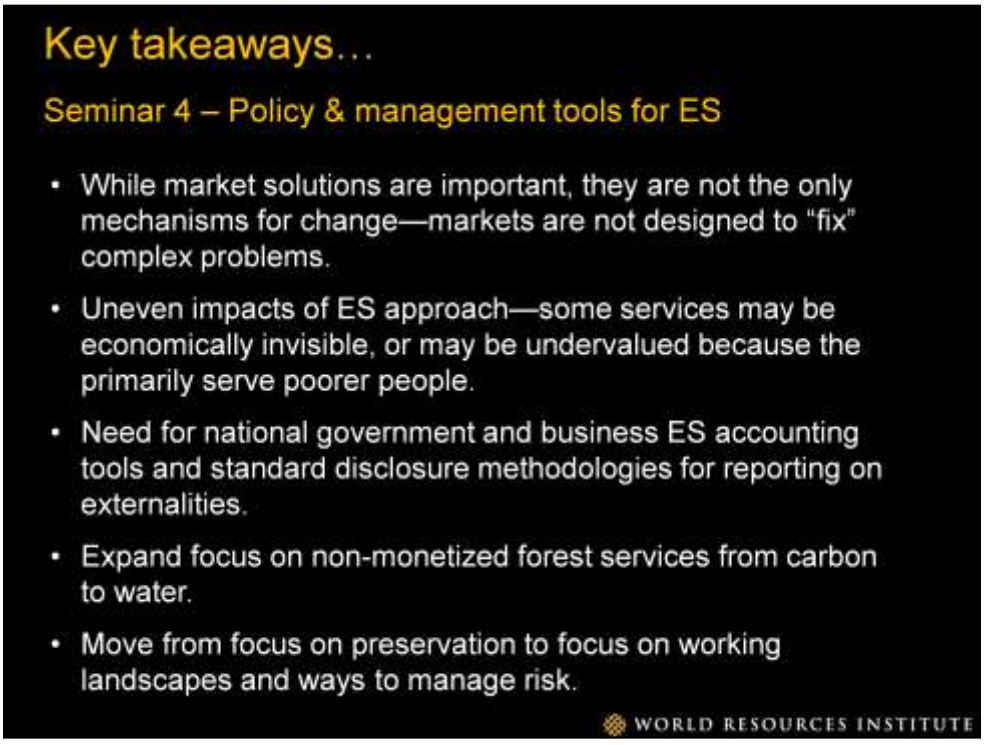
Key takeaways…
Seminar 4 – Policy & management tools for ES
• While market solutions are important, they are not the only mechanisms for change—markets are not designed to "fix" complex problems.
• Uneven impacts of ES approach—some services may be economically invisible, or may be undervalued because the primarily serve poorer people.
• Need for national government and business ES accounting tools and standard disclosure methodologies for reporting on externalities.
• Expand focus on non-monetized forest services from carbon to water.
• Move from focus on preservation to focus on working landscapes and ways to manage risk.
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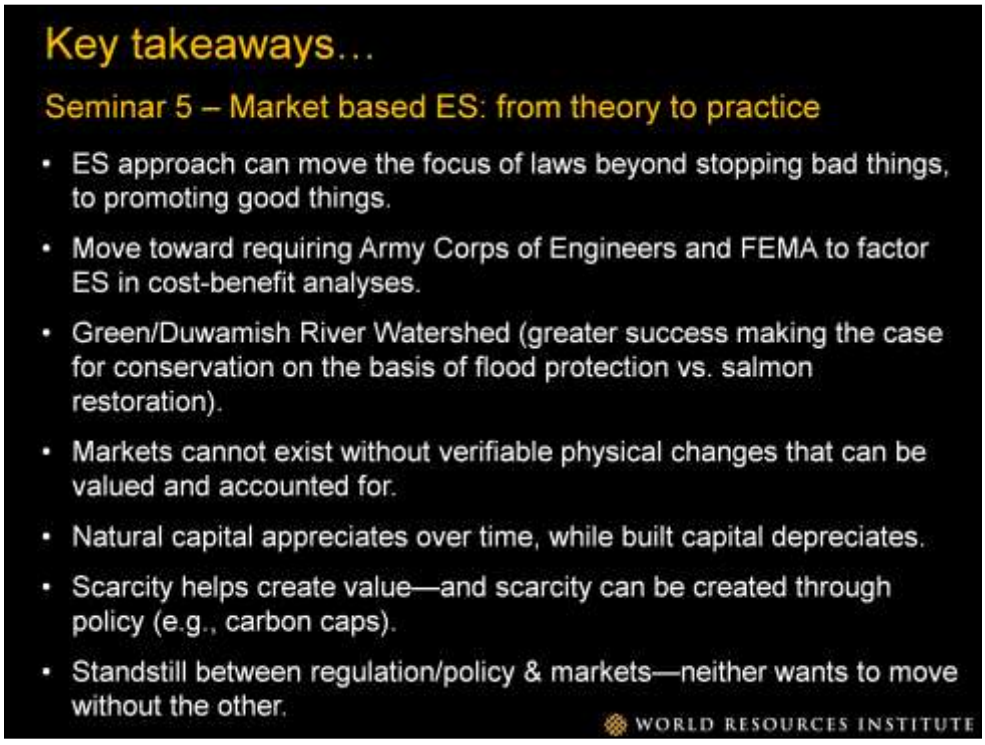
Key takeaways…
Seminar 5 – Market based ES: from theory to practice
• ES approach can move the focus of laws beyond stopping bad things, to promoting good things.
• Move toward requiring Army Corps of Engineers and FEMA to factor ES in cost-benefit analyses.
• Green/Duwamish River Watershed (greater success making the case for conservation on the basis of flood protection vs. salmon restoration).
• Markets cannot exist without verifiable physical changes that can be valued and accounted for.
• Natural capital appreciates over time, while built capital depreciates.
• Scarcity helps create value—and scarcity can be created through policy (e.g., carbon caps).
• Standstill between regulation/policy & markets—neither wants to move without the other.
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Key takeaways…
Seminar 6 – Management decisions in the public sector: theory to practice
• Need to make ES operational – move beyond the conservation community into application.
• Investing in ecosystems to achieve development goals.
• Need to produce more info that is relevant to and useable by decision makers.
• Methods to link science with management decisions need to include risk, resilience, and vulnerability elements.
• Regulatory mitigation is just one tool. Approaches should be about avoidance first—minimize second, and mitigate last.
• Systems/processes not perfect; need better performance measures. Processes should be simple, replicable, transparent, and communicable.
• Replacement should be last line of defense – move toward policies that avoid damages and enhance services.
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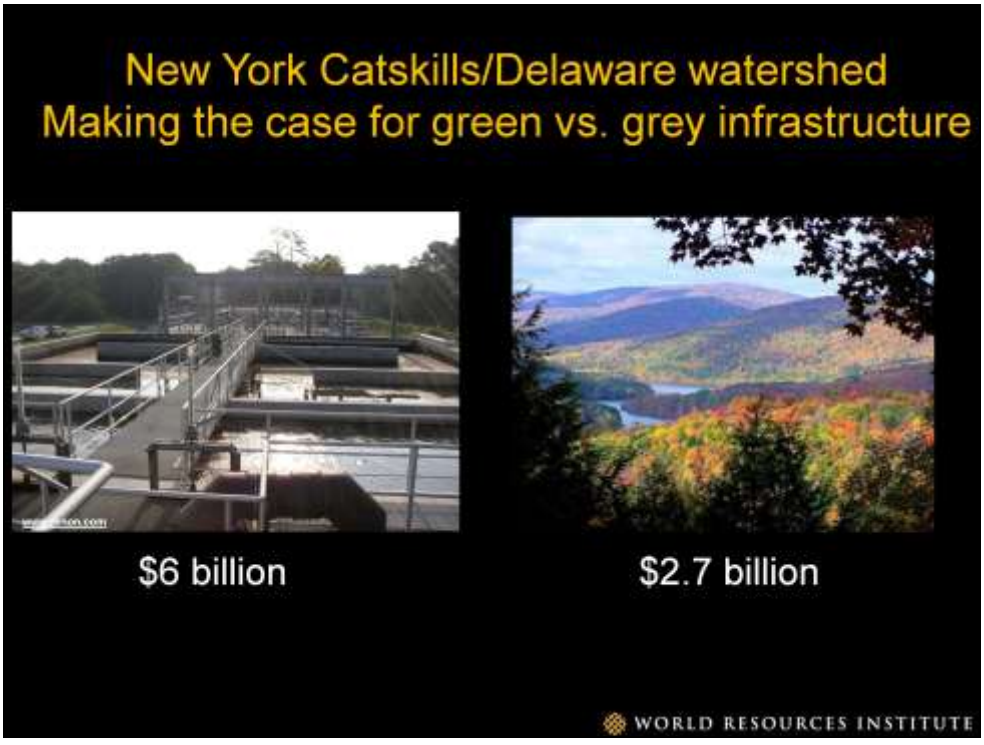

- New York City's (NYC) tap water has never passed through a filtration plant. The Catskill/Delaware watershed provides NYC and surrounding areas with 90% of their water supply (an average 1.3 billion gallons of drinking water per day), which is filtered naturally through the ecosystem's wetlands and waterways. In the late 1980s when the watershed was severely degraded by development, NYC considered building a filtration plant. Instead of building a US$6–8 billion plant (estimate does not include operating costs) as initially proposed, they decided to spend $1.5 billion to restore and conserve the Catskill Mountains watershed.
- This example highlights how economic and financial incentives can be aligned with goals that support both development and ecosystems. In the case of the Catskill/Delaware watershed, the payment for the natural water purification services also provides other services - carbon storage and recreational and cultural services at no additional cost.