THE BROOKINGS INSTITUTION

ENVIRONMENT, POVERTY, AND THE MILLENNIUM CHALLENGE CORPORATION:

LEVERAGING U.S. AID TO IMPROVE NATURAL RESOURCE MANAGEMENT

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P R O C E E D I N G S

Welcome and Introduction

MR. PURVIS: Good morning. If I could encourage everyone to take their seats as quickly as possible, so we can get started.

Good morning again. My name is Nigel Purvis. I am the vice president for Policy and External Affairs at the Nature Conservancy, but I am here today wearing a very different hat, and that is as a Non-Resident Scholar at The Brookings Institution, a part of the Environment and Energy and Development project that Brookings started a number of years ago and that I had the pleasure of leading with my colleague David Sandalow for a few years until I recently joined the Nature Conservancy.

I am here following up on a project that really began many years ago when the Millennium Challenge Corporation was first announced as an idea by President Bush, and Brookings was one of a number of academic institutions in this town that worked with the administration and with the Congress to develop ideas about how to shape a legislative proposal and eventually the actual corporation.

So it is personally satisfying for me to be continuing to be working on the Millennium Challenge Corporation and to be hosting this event in partnership with Paul Applegarth and Governor Christine Whitman who are now at the Millennium Challenge Corporation. It is a wonderful partnership between this academic institution and the administration on a very important topic.

Our subject for today is Environment, Poverty, and the MCC: Leveraging U.S. Aid to Improve Natural Resource Management.

Yesterday morning at sunrise, I was in Colorado at the great Sand Dunes National Park, this country's newest national park, and as I stood in the San Luis Valley, a really pristine beautiful wetland, I think the highest and largest wetland in this country at about 10,000 feet, it really occurred to me that there was a tremendous connection between the national park and the subject that we would be discussing today, oddly.

It is an incredibly beautiful place that has been managed sustainably by humans, by the Native American population going back several thousand years. As a result of public-private partnership between groups like the Nature Conservancy and the Clinton and the Bush administrations and the Congress, we have been able to piece together private lands and public lands to create this country's newest and one of the most interesting national parks in the national park system.

It is as a result of that kind of a partnership between government and the private sector and also the underlying laws and governance that we have in this country are incentives that we provide for individuals to donate land and to get tax deductions, the benefits that can be had through conservation easements that are also tax deductible that we were able to piece together several hundred thousand acres to create that park.

It is exactly that kind of a public-private partnership and an underlying governance that leads to the sustainable management of natural resources that we have an opportunity to try and carry forward into developing countries to ensure that there is

an appropriate set of institutions and laws and actions that allow them to manage their natural resources in the most sustainable and appropriate way possible that contributes to economic growth and poverty alleviation in particular, but it also maintains the pristine natural environment.

So our theme today is to expand on and address that challenge, how to leverage foreign aid into sustainable management of natural resources.

When the MCC began as an idea that the President put forward several years ago, it was a very innovative idea, but I have to say that the connection between the proposal and natural resource management and the environment was unstated or perhaps even unclear, and as a result of input by many of the individuals around this room in the broader conservation and environmental community working with the Congress that the statute that has now authorized the Millennium Challenge Corporation integrates environmental themes very clearly into the heart of the mission of the corporation.

Under Paul Applegarth's leadership, the MCC staff has put together some very concrete and interesting ideas about how to ensure that the program of the MCC advances natural resource management and promotes environmentally sound development.

So it is particularly gratifying to be here and to help address these complex questions. I know that the MCC staff and its leadership are very interested in the views of the conservation and environmental community and will be taking your thoughts here today into account as they try and address their policies.

So, with that, I would like to turn immediately to Governor Whitman and to the CEO of the MCC, Paul Applegarth, for their introductory remarks to help set the policy context for our work today.

So, Paul?

The Policy Context

MR. APPLEGARTH: Thank you, Nigel. Welcome, and I want to thank both you for sharing and help moderating today and Brookings for hosting this.

I think yesterday morning at 4:30, I was driving to Baltimore. I haven't quite got the link yet between that and this, but I am sure there is one.

I know many of you here this morning are very familiar with MCC, but some are not. So I am going to give a very quick overview before we move into the real substance of the day.

January 23rd of last year, 2004, MCC was established as a new innovative foreign assistance program by the United States under the initiative and sponsorship of the President to reduce poverty in some of the poorest countries in the world by promoting sustainable economic growth.

It was just last year, I must say many days. It seems a lot longer ago than that, but the MCC grew out of a commitment at the Monterrey Summit for financial development where President Bush said to provide greater resources. The purpose of the MCC is to provide greater resources for developing countries, those countries that take greater responsibility for their own development.

We are about reducing poverty. We are about more aid and more effective aid. Our mission is poverty reduction through sustainable growth, and we have been established and drawn the lessons that have been learned over a half century of foreign assistance, what works and what doesn't work. Particularly, we build on three of the core lessons, which is you need policy reform, you need country ownership, and you need accountability and a focus on results.

First, we believe that the emerging country governments themselves must create an enabling environment for poverty reduction and for growth. Good policies support growth, reduce poverty, and make assistance more effective.

MCC works with poor countries that have already demonstrated that they perform better than their peers in three broad categories of ruling justly, investing in their citizens' health and education, and encouraging economic freedom as measured by credible independent third parties.

Secondly, we believe that a country's poverty reduction strategy needs to be owned by the host government and tailored to local conditions, culture, institutions, technologies, and knowledge.

MCA partner countries pick their own priorities and develop their own programs for MCA assistance in consultation with civil society and the private sector.

Third, the success of the program must be measured not by inputs, but by results, not how much money you spend, but what do you get for it in terms of assistance. MCC integrates measures of success and how to monitor and evaluate them from the start, and it was called an MCA compact, which is an agreement between us and the country that defines MCA and host country responsibilities.

Consistent with these fundamental principles of country ownership and policy reform and focus on results, we encourage our MCA-eligible countries to focus on their development priorities as they see them, identify the impediments to growth and to poverty reduction within the country, and devise a coherent plan to overcome these obstacles.

As you may know, MCC countries compete. Countries compete for MCA assistance quite differently. There is no entitlements, and the MCC board evaluates the policy performance of 82 of the poorest countries of the world using 16 independent indicators in the three broad categories of ruling justly, investing in people, and economic freedom.

So far, the board has selected 17 countries out of the 82, roughly the top 20 percent, to receive MCC assistance in 2004 and 2005.

I am happy to report that MCC and its partner countries are making great progress in achieving our mission. We began to receive the first country proposals last August after we selected countries in May, and in the 10 months since, MCC has in total approved over $600 million in compacts and over $7 million in pre-compact agreements with at least eight different countries.

We have signed compacts with Madagascar and Honduras, and our board has just approved two more with Cape Verde and Nicaragua.

We have approved pre-compact agreements to assist countries in developing the proposals, doing environmental assessments, gathering baseline data in seven countries including Ghana, Lesotho, Senegal, and Georgia.

In the fall, we will select countries again to apply for MCA assistance in fiscal year 2006, and for the first time, Congress has expanded the number of eligible countries from the very poorest, to include lower- and middle-income countries, but equally important with these dollar-based achievements is the progress we are making on policy reform.

The World Bank reports it is already seeing what it calls an "MCC effect" on in-country policies, in good governance, reducing the burden of government on new business, and opening up economic opportunities to women and the rural poor, and it is that policy reform that we are here today to talk about.

For measuring a country's commitment to the measurement of natural resources is a measurement of its commitment to good government, to poverty reduction, and sustainable economic growth. So I am so pleased that Governor Whitman, who is one of our MCC board members, has agreed to help us search for an objective and quantifiable indicator of a country's demonstrated commitment to economic policies to promote the sustainable management of natural resources.

She will briefly review the legislative mandate as well as our criteria for selecting an indicator, and I would like to point out that after lunch, we will explain what we are currently using as an intermediate measure as we wait for a good indicator to be developed and how you can submit ideas as to what that indicator can look like.

The advantage of having such a diverse and highly qualified board of directors as MCC does is that, from time to time, we can really draw on the expertise of individual board members. Governor Whitman has the background and experience to lead this effort, and I know she will steer us all in the right direction.

So I am very pleased to turn it over to my fellow board member, the Honorable Governor Christine Todd Whitman.

GOVERNOR WHITMAN: Thank you, Paul, very much. I want to start by thanking you for your leadership of MCC and for the really outstanding staff that you have put together and the amount of work that has been done in what is a short period of time certainly for government, and that is something that I think we all have to recognize.

I wanted to focus my comments this morning on the importance of information to decision-making, and that is really what we are about here today.

We won't need to discuss how quantifiable systematic policy-linked indicators can be a positive force for natural resource management reform. You all understand probably better than many in the public community how objective and transparent indicators can alert citizens to issues that are out there, can help empower them in going to their government to have their voices heard, and provide a basis for a productive dialogue between donors and the recipient countries, forcing governments not just to rely on anecdotal evidence and what they perhaps might want to winnow out and only hear for themselves.

High-quality indicators also help the policy-makers target their reforms and gage the impact of their reforms, and as Paul indicated earlier, that is one of the important things that MCC seeks to achieve is measurable outcomes, things that continuously move us toward our charge of reducing poverty and encouraging economic development.

As I think all of you as well understand the mantra that most management experts will tell you is you measure what matters because what you measure gets done. Everybody looks for those measurements and how they do against the measurements.

Because the MCC's selection process is objective and transparent, it does create a very unique and powerful incentive for policy reform. Governments are constantly contacting the MCC staff, and you can talk to them about it, to determine ways that they can improve their performance on indicators. They want to be part of the mix, and they want to know how they can do a better job on those indicators in order to be able to qualify.

The president of one Sub-Saharan country, I was told recently, was delighted to come up to Paul and to say, "Look, here is our score card, and I want to show you how we have made real improvements on that score card in order to get us up a little higher in the ranking." That is good and positive movement. That is the kind of thing that we want to see through this program.

The independent third parties that provide our indicators have also pointed to a steady stream of government officials from MCA candidate countries who

have come to them to discuss ways that they can improve their performance on the indicators. These indicators become very important policy pushers as it were. They help move governments in directions to accept the kind of outcomes that people want to see.

This spurs improvements in policies that will have a beneficial effect on their economies and on their people, regardless of whether or not—and I think this is important to remember—regardless of whether or not they are selected as an MCC country. The fact that they are trying to improve on these indicators is having a positive effect in and of itself.

The growing competition for MCA funds can create a cycle of positive policy reform amongst the candidate countries, and we see that starting to happen already.

I believe Mr. Djankov will speak shortly on some of the changes that he has already seen from the MCC indicator on days to start a business and the kind of impact that is happening, real examples of effects on the ground as how it focuses on the sustainable management of natural resources, which is something about which we are very concerned.

Today, we want to discuss different indicators and indices to satisfy MCC's legislative requirement to incorporate a measure of natural resource management policies. MCC favors indicators that are developed by an independent third party, that utilize objective and high-quality data, which, of course, is enormously important for us, are analytical, rigorous, and publicly available that have broad country coverage and are compatible with other countries—and that is one of the challenges that you face with environmental indicators—that have a clear theoretical or empirical link to economic growth and poverty reduction, again, getting back to our main challenge, are policy-linked measures that are factors government can influence in a 2- or 3-year horizon, something that we actually can measure and show people what the results are, and that have broad consistency and results from year to year.

As many of you know and as I mentioned before, natural resource indicators have a unique set of problems and challenges. They are not the easiest environmental data, and its quality and availability remains extremely poor in most developing countries, and we are talking about the poorest of the poor countries which adds a real level of challenge to this.

According to the UN system-wide Earth Watch, the monitoring and data collection infrastructure of most of the developing countries is severely handicapped, if nonexistent, in many cases.

In our discussions and in the staff's discussion with many experts in the field, including many of you over the past years, they have learned some very important things. That persistent data gaps exist particularly for those least-developed countries and small island states, and that makes it very difficult to make reliable comparisons between one and the other. That many of the popular mega indices are difficult for policy-makers to interpret, and again, this needs to keep coming back to how policy decisions will be made based on the indicators that are developed.

Biophysical indicators are often influenced by the physical endowments of individual countries and, thus, are not compatible across countries, another one of those unique challenges in this particular area.

Other indicators exhibit a tenuous link to government policies which makes them less than useful for decision-makers, and again, we are focusing on the decision-makers.

So we face a tremendous challenge today, but we do have in this room some of the sharpest minds who have been focusing on these issues for some time now, and we certainly at the MCC are all very hopeful that this is the kind of group that, given this kind of opportunity to pool the general knowledge and experience, can make a real difference.

I really want to intrigue everyone today to remind yourselves and continuously bring it back and focus on how the measures that we may discuss today will inform decision-makers, how is it going to make a difference to them, how does it become a positive tool for them, how does MCC help and how does it help MCC in both instances select countries that are committed to ruling justly, investing in people and economic freedom, and how does it help the policy-makers in those poor countries figure out what concrete actions they need to take.

What we look forward to in learning from the speakers—and we do have some excellent panels that have been put together and then the general discussion period that will be held—is to find answers to some of these and direct this on our way. I want to thank all of you for being here. Your commitment just by walking in the room is an important one, but MCC really depends on your staying with us and helping us to complete these indicators, so that they really do make a difference in policy-making.

Nigel, thank you.

MR. PURVIS: Thank you, Governor Whitman, and thank you, Paul. Thank you for your leadership and your interest in this topic, and we are delighted that you will be able to stay with us for a good portion of our discussion this morning, which is I think a testament to the importance that you attach to this issue.

I would like to introduce our next two speakers who will continue this conversation and help set this policy context. Our next speaker is Christopher Flavin who is president of the Worldwatch Institute, an international resource organization focused on environment and sustainable development.

Mr. Flavin is a co-author of the institute's "State of the World" book which has been published in 36 languages and is perhaps the best-selling book on environment indicators in the world and certainly probably one of the most graphically enticing and interesting.

Chris is going to help us understand the policy context for environmental indicators and has a lot of experience in thinking about how to communicate and synthesize this information. He is also a board member of several leading environmental organizations and a real expert on this topic.

Chris?

MR. FLAVIN: Thank you. We appreciate it.

I want to focus on just the importance of what you are embarking on here today. I think it is terribly important that the Millennium Challenge Corporation is going to be developing and implementing the sustainable resource management indicators.

It is I think sort of widely misperceived that environmental protection is something that you wait to get to when you are already well developed, that it is, in effect, a luxury for the rich. I think a deeper analysis of ongoing trends in virtually all of the countries that are eligible for this program indicates that the reverse is actually true, that it is the poorest countries that are most dependent on having a strong sustained natural resource base in terms of being able to meet human needs.

In effect, I think we need to reverse the conventional logic because I think that in many cases poverty reduction or elimination, as we ultimately hope to achieve, is in many countries going to be literally impossible unless we in the process of putting together development plans integrate the sustainable long-term management of those natural resources.

Madagascar, the first country to receive a grant from the Millennium Challenge Corporation, is I think a real case in point. Madagascar is, of course, a very poor country. Four-fifths of the population lives on an income of less than $2 a day, and it has all of the various problems that are typically associated with that kind of extreme poverty.

Madagascar also has one of the most degraded natural resource bases in the world, which is to some extent a development tragedy because Madagascar started with one of the richest assortments of natural resources. It is, indeed, one of the biodiversity hot spots that has been identified. It has something like 14,000 endemic species, but at this point, many of the forests have been cut. The rivers are polluted. The fisheries have been depleted.

I think it is almost impossible to analyze the reasons for the extreme poverty in Madagascar today without understanding the kind of resource degradation and the fact that the vast majority of the people in Madagascar who have traditionally lived off the land, off of the rivers, off of the seas surrounding the country no longer have a healthy natural resource base to provide them not only with their food, with their cash income, but even things like the basic water that one needs to survive.

Unfortunately, of course, the grant for Madagascar was approved prior to the development of these new resource management indicators, and I think it remains to be seen exactly what the effect of the ongoing development programs under the MCC grant—what effect they have on the overall condition of the resources and their ability to support human development, but I think it is important to recognize that there is always the possibility that economic growth that is designed without a deep analysis and understanding of those connections to the natural resource base has the potential not only to not move forward as effectively as possible, but even has the potential to be counterproductive.

For example, if a development program ends up prescribing that you need to cut down all of the trees in order to gain a short-term cash income, but then that precludes the ability to develop an ecotourism industry or to even provide the resources that are supporting people that are living in poor rural areas, there is an obvious potential to actually set things back and potentially to increase poverty.

Hopefully, that is not going to be the case, but I think it is extremely important to recognize that failing to adopt these kinds of guidelines has the potential to turn well-intended development programs into programs that have unfortunate and unintended consequences.

Now, obviously, it is much easier to understand and to argue that sustainable management of resources is essential. It is a much more difficult task that you are embarked on here today to come up with specific quantitative guidelines.

I am fortunate to be in the position of not being expected to make specific recommendations, as are many of the speakers that follow, but I just want to issue sort of a simple warning which is that these issues are incredibly complex, interrelated, and overly simplistic. Quantitative indicators have the potential also to do harm as well as to do good. So I think the task is enormously important and has to recognize that some of the most important factors may in the end be very difficult to quantify, and there may, in fact, need to be qualitative judgments built into this exercise.

You also, I think, have to be aware of the fact that natural resource management cannot be dealt with in a narrow box. There are a variety of societal and ecological connections outside of any particular resource management box that you create that have the potential to overwhelm the resource management efforts.

Let me just mention three areas to be aware of. One is population growth. Rapidly growing population size in many of the poorest countries is a major factor in terms of increasing pressure on the natural resource base. So issues related to family planning programs, improving the relative role and power of women in societies, providing basic health care and other social services can all be crucial to sustainable resource management.

Secondly, land tenure issues, who owns the land, who controls the use of that land, what the rules and strictures are around that is extremely important and obviously relates to a number of the other bench marks that have already been established under the MCC guidelines.

Finally, trade and investment policies, what kind of economic development is encouraged, are their either tax incentives or subsidies or trade distortions that are, for example, encouraging the development of industries that are dependent on exploiting resources rather than those that are based on services, manufacturing, things that can provide economic growth with a lower impact on the natural environment.

I wish you the very best of luck in what is certainly, as Governor Whitman has very accurately said, a challenging difficult undertaking, but I think nothing can be more important to the success of the Millennium Challenge Corporation.

Thank you.

MR. PURVIS: Thank you very much, Chris.

Our next and last speaker for this introductory portion of our program is Simeon Djankov who is the manager of the Monitoring and Analysis Unit in the Private Sector Vice Presidency of International Finance Corporation.

Simeon leads the Doing Business Project which is responsible for producing and maintaining one of the indicators that the Millennium Challenge Corporation currently uses, and while that particular indicator has very little to do with natural resources, we thought it would be very instructive to our conversation here today to have Simeon explain to us how the selection of his indicator by the MCC has influenced his business and the facts in the world, the situation in countries, and the data that he has been monitoring because I think it would be very instructive about the kinds of results and changes that we might see when the Millennium Challenge Corporation moves forward with a definitive natural resource management indicator.

Simeon.

MR. DJANKOV: Thank you.

I would like to share some of the experience that my project has had, the Doing Business Project of The World Bank in constructing indicators, things that all of you seem to be thinking about in the environment field, and also some of the experience with the reform that we have had after the Millennium Challenge Account took one of our indicators, a days to start a business as part of the 16 main indicators, the initial 16 indicators of the Millennium Challenge Account.

The day to start a business is only one of about 10 sets of indicators that the Doing Business report has, which is generally on the various things that make it easier for businesses, domestic businesses around the world to grow, to expand their operations, to hire more workers and so on.

It is a very simple indicator. Here I am showing you basically the data for Serbia for January 2004. This is updated on an annual basis, and we asked the simple question, if I am a local entrepreneur in Serbia and I would like to start a new business, what procedures would I have to go through, which is the horizontal access, and then how long each of these procedures basically would take kind of a best-case scenario in practice.

So we collect this kind of information every year, 450 countries around the world, and you get some idea. The yellow book is basically the dates that it takes to do any one of these particular procedures. So, if you sum it up, you get to about 53 days that it takes for a simple firm to start operations in Serbia.

We do this exercise for many countries, including rich countries as comparators, and especially for today, we also did this exercise in New Jersey just to be able to report this, some actually as last year. The comparison is basically that it takes a day or a day and a half by our methodology to do this. So the comparison is 53 days in Serbia which is actually one of the better countries in the world in developing countries, and basically one, one-and-a-half days here, so a very simple indicator which would become important in the discussion later today.

What is interesting perhaps more on the indicator is since it was picked up by the Millennium Challenge Account about 18 months ago, if I remember, we have actually seen a number of reforms around the world in both rich and poor countries, but more interestingly, in many of the developing countries the reform has actually been primarily as a result of the inclusion in the Millennium Challenge Account.

So, in particular, 11 countries have reformed over the last 18 months, as I mentioned, and when we go back and say what triggered this reform, we always go back to countries with a reform base who say we are competing for the Millennium Challenge Account or we plan to compete for the Millennium Challenge Account in the future. So already 11 reforms have taken place.

We also are aware of seven other countries that are in the process of reform. I have given some examples like Burkina Faso and Paraguay where the governments came to us and said, "Look, we are in the preparatory phase of the Millennium Challenge Account applications. We would like to know what we can do, so we can meet the criteria," and we have worked with the governments, with the development organizations as well to basically get them ready.

So another seven reforms are in progress. Paraguay is expected to be finalized by October of this year.

Perhaps most interesting from my perspective is that another six countries that we did not have in the original database. Basically they are very small like Sao Tome, like Mauritius. The governments came to us and said, "We would like to be bench-marked as well." At first, we were puzzled, why would you want to be bench-marked. "Well, because we would like to qualify for the Millennium Challenge Account." In both cases, this is the first year that we are including these countries.

So, in a short span of time, having very simple indicators to start a business, you can see that the Millennium Challenge Account has affected two dozen countries. So 24 countries in one way or another have come to us and either have asked for ways to reform, have already reformed, or would like to be bench-marked so that they are considered for the Millennium Challenge Account.

To give you an idea of the magnitude of this, if you calculate another 45, which includes also OECD countries, some of the richer developing countries, but among developing countries, that is nearly 80 percent. So you can say that 80 percent of reform on this indicator has happened as a direct result of the Millennium Challenge Account. That is, in my view, quite a success.

So why that may be in this, not being an environmental specialist, I was trying to think what makes plain this link to reform, something that we would like to see in all of the other indicators, and I have been somewhat provocative here on some of the points.

To have the indicators, they have to be actionable, most importantly. So they have to lead to specific policy recommendations, something that the government now can actually do tomorrow, can do in the next 5 months or in the next year. So they have to be fairly specific.

A number of indicators on many issues, some on environment, some on others, either are too broad or are designed in a fairly complicated way. So it is not quite clear what is the plan, what should I do about it.

I will give one example with country credit ratings. Basically, what you can say is you need to get richer, and then you would have a better credit rating, roughly. So that is probably not good policy advice.

Those who have to be counted, meaning that you need to update them on an annual basis or close to an annual basis, so that the government now can have an incentive to reform and then to report this reform not only to the Millennium Challenge Account, but to the other development agency, to their constituency at home, and there are many indicators certainly in environment. The World Bank has its own indicators to assess countries. Many of them go back 3, 4 years.

So a government comes and says, "Why should I reform this if I know that 4 years from now you would have the indicators? I would like something more actionable now." They have to be easy to construct and to replicate.

You often get governments or think-tanks or researchers who come and say, "We would like to be able to replicate this independently to make sure the game is fair," so to speak, and there are a number of indicators that are based on expert surveys, on other surveys that essentially you cannot reproduce, and I think this is a big issue in this field where this is a political issue. So this is not just technocrats who come and want to reform. This is the prime ministers and the presidents of countries who come to us and I am sure to the Millennium Challenge Account and say, "We would like to improve."

Finally, which the Governor already mentioned, they have to be politically desired not only by the donors, but in the countries. So this has to be something that you can essentially run a political campaign and say we would like to improve this because poverty is going to be reduced, because the life of people is going to improve, and again, there are many examples in the area that I work with. I also picked one example from the environment where it is not something that you can get, I would argue, politicians or the government to be very inspired about having been in a different category.

So what is an indicator? One indicator from the ones that the Millennium Challenge Account is currently using—and it is probably only one—that I thought meets all of the characteristics is the percent of urban or rural population with access to improved sanitation.

You can run a political campaign with this. It is clearly related to poverty. It can be estimated or calculated every year, and you know that it is actionable. So there are ways to improve. So, if I know which rural areas or urban areas have less access to sanitation, I can make direct plans on how to improve this.

So these are just some thoughts from our experience in a very different area, in a very different topic, of how simple indicators, actionable indicators can lead to reforms in some sense beyond our expectations at least.

Thank you.

MR. PURVIS: Thank you very much, Simeon. I think that is a very hopeful and inspiring message about the potential impact of the issues that we are considering today and the potential effect of U.S. aid on natural resource policies in the developing world and some very thought-provoking and specific ideas which we will be taking up in the next session.

As we are moving from our opening remarks into our dialogue, I would like to just mention a few things about how the day is structured and to explain how we will be conducting our conversation.

We have three substantive panels organized today. The first is called the Designing and Building an Indicator, where we really hoped to have a discussion about the kinds of issues that Simeon just raised, the theoretical underpinning of our exercise, to understand, have a common consensus hopefully about the vision of what we are trying to achieve and the advice that we are giving to the Millennium Challenge Corporation.

After lunch, we will have a discussion about some of the difficult challenges that we would face in trying to implement that shared vision, and it relates to the technology and the data issues that we have. As Governor Whitman mentioned specifically, finding good data and reliable data in the environment area in developing countries is a major challenge, but technology may provide part of the answer. So we are looking at both of these issues.

The purpose of our third panel will be to go deep on a couple of specific approaches that have been taken, and we have asked a few of our colleagues to provide some concrete examples that relate to the work that they and their institutions are pursuing and to provide some actionable ideas and specific recommendations for the MCC to be thinking about.

Paul Applegarth will close our session with a summary of the thinking that he and his staff have at the moment about how to carry the advice that we will have given today forward and what the next steps are in the MCC's development of the indicator that we are discussing today.

So that is the structure. We are going to be going straight through to lunch, and of course, that provides some challenges for folks. I would encourage people to get up quietly and help themselves to coffee and to use the facilities. We are trying to preserve as much time as possible for discussion, so my apologies for that.

I would like to mention that today's session is being webcast and will be hosted and viewable for quite some time, I think at least a year. So that the potential audience for the discussion today is really much larger than the number of people who are in this room, and I would encourage you to invite your colleagues to participate in the discussion by viewing the webcast which will be hosted I believe on both the Brookings site and also on the MCC site. So it should be easy to find.

Also, please, as we have been doing, use the microphones that are before you as we enter into the discussion. No more than three microphones can be illuminated at one time. So, after you are done speaking and your particular part of the dialogue has ended, I would ask that you turn off the microphones.

Panel 1: Designing and Building an Indicator

MR. PURVIS: All right. So we turn now to our first interactive discussion which is called Designing and Building an Indicator, and we have three individuals who have done an enormous amount of thinking on this topic. I encourage them to provide their ideas. While I know they have very strong views on how this ought to be done and in some cases are, in fact, running some of the most widely known and used indicators internationally, I would like to ask them to, as I mentioned, address some of the theoretical issues, the big ideas that are embedded in our challenge.

I would like to just mention three and hope that they would touch on these issues as they go forward with their remarks. One question is we have is whether to have a single simple indicator or rather to have a complex index or indices.

The benefit of having a single approach, like the number of days it takes to start a business, is just the clarity of that and the simplicity of that message. On the other hand, the environment and natural resources are a very complex topic, and we might wonder whether any single measure would adequately capture a government's policies, the soundness of an approach to managing natural resources. So one could imagine an aggregated approach that looked at many specific areas and tried to roll them up into an index.

A second policy question that we face is whether to have a dynamic indicator that allows a country to be compared against its prior performance, so we see whether a country is improving or a static snapshot that would reward a country for having sound natural resource management relative to its peers. So an example there might be water quality. Are we looking at the rate of improvement in water quality, or are we looking at whether a country's water quality is good relative to its neighbors? If one looks at the existing indicators that the MCC is using at the moment, there is a mix of these static and dynamic and also a mix of these single and these complex aggregated indicators, and so we have some policy decisions to wrestle with today.

Thirdly, the third area that I would suggest we should cover is whether we are looking at endowment, the state of nature in a country, or whether we are looking at the policies as they relate to that nature.

Clearly, policies are important, but sometimes policies don't actually manifest themselves in having effect, and looking beyond the policies at the actual natural situation might be tempting, but on the other hand, that may be something that countries have very little control over if when we are looking, I think as was mentioned by Simeon, at forest cover, comparing Brazil and Chad. The natural endowment is rather different when on forests. So maybe it would be better to look at policies rather than endowment.

So these are three, I think, very difficult questions to wrestle with, and I have to admit that I don't have a clear view of what the right approach is, and I hope that our next three speakers will be able to address those issues in addition to the specific comments that they would like to make.

Our first speaker is Dan Esty. I have known Dan for a number of years, and I am just incredibly excited that he agreed to be here today. I know he has a number of professional commitments and is really a leader in this field and in environmental policy generally.

He holds dual appointments at the Yale Law School and the Yale School of Forestry and Environmental Studies. He is the director of the Yale Center for Environmental Law and Policy and the author of one of the probably highest-profile and best-known environmental indicators that he launches and carries forward in cooperation with the World Economic Forum.

Dan has had a distinguished career in government at the EPA as a U.S. environmental negotiator, and I am looking forward to Dan's comments.

MR. ESTY: Nigel, thank you very much, and I appreciate your efforts and all of the conference organizers' efforts to ensure that the really hot weather doesn't come until tomorrow. For those of us who left Washington some years ago and moved north, it is a pleasure to be back, but especially if it is not too hot and humid.

I want to talk this morning about the environmental sustainability index that I have been engaged in producing for now about 6 years with a set of partners, World Economic Forum, Center for International Earth Science Information Network at Columbia University, and a new partner in our most recent incarnation, the 2005 ESI, and that is the Joint Research Center of the European Union in Ispra, Italy. They proved to be enormously valuable as a cross-check on our effort. I will talk in a minute about the sensitivity analysis they did that allowed us to analyze the impact of our assumptions.

One of the critical efforts in constructing any kind of indicator or an index that is a combination of indicators, as the ESI is, is that you are going to make assumptions, and you want to know how much impact they have on your outcomes. This allowed us to quantify that and really gage it very carefully.

I want to also, just as I move forward here, say that this is really part of a broader effort. It is an effort, as Governor Whitman suggested, to provide information for decision-making. So we are practically focused. This is not an academic exercise. It is designed to shape policy outcomes.

I will tell you, it is part of a broader vision of a different approach to environmental policy-making, an approach that is data driven, that is empirical, that is based on facts and really tries to look at on-the-ground results. So I very much applaud the outcome focus that Paul spoke about and I think has been at the center of the MCC vision. It is truly essential and frankly has implications not just in the developing world, but back at home.

I think we are going to find—and I know Governor Whitman has been thinking about this a lot—if we are going to bring parties together again around the environment agenda, it is going to be because we have got facts on the table that people can look at together and agree on strategies going forward.

Just quickly in terms of the construction of our environmental sustainability index, we are looking at 146 countries selected because they have data. We would like more countries in the index, but there is not good data.

In fact, a terribly troubling thing is that the very poorest countries are often the ones who are not in the index and not able to be analyzed due to the lack of data.

So we are looking at 21 core issues. We call those indicators, and we develop them based on a very careful theoretical view, combining both a literature view, building on a very well-known pressure state response model, and then drawing together in a series of workshops over a number of years a set of experts from not only the United States, but from around the world to determine what the categories are that we should look at. That is how we have gotten to the 21 indicators that if you want to track as well in this blue document that is outside and some of you picked up are the core of our index.

For those of us who are over 45, you are not expected to actually read this chart, but it is meant to give you a frame for understanding 21 different categories that we are looking at. Each of those 21 indicators has beneath it between 2 and 10 datasets. So we are combining 21 indicators into a single index, and each of those 21 indicators is itself a combination of relevant measures.

Again, what you see is we have got these indicators that combine into the ESI score, but you could also group them in five core components that roughly correspond to the pressure state response model. So there is a theory there as well.

I want to talk to some of the issues that Nigel put before us because I think these are critical. We do add this up into a single environmental sustainability index. It is not simply a compilation of 25 indicators that we post, and we do that very intentionally.

There are lots of folks who have been in this matrix and indicator business for years. The OECD has done fabulous work over a decade on this kind of project, and they got very little attention of their effort. Why? Because they didn't add it up.

It turns out when you post 21 different numbers, you don't get any but the most sort of focused policy nerds to pay attention.

What we found is even if it is a rough cut, even if we know there are enormous theoretical problems with adding it up, it helps to provide a framing device that gets attention in the highest circles. By the highest circles, I mean in the media and frankly at the president, prime minister, or ministerial level.

Let me move forward and mention briefly that what makes this work is that it can be scalable. So you can look at that top-level number, and a president can think, "Gee, we are not doing well enough," or you can drive down to the 21 indicators, and an environment minister can say, "Gee, we are lagging on water," or you can pass it on to your air group and have them break down the details and really figure out what is going on, "Why is our air number not doing well?" I think that is quite critical.

Again, we do think the single number is useful. We think it is enormously valuable, though, to be scalable, to be able to go from the very highest level, snapshot at the national scale in our case, a societal scale really, not just government, but what a whole society is doing, and then drill down to specific issue areas to really understand what is going on.

A second issue that I think is important is to recognize that the environmental domain cannot be captured with a single number if you are looking at just one representative issue. So I think you are going to have a hard time finding a single issue to look at in the environmental realm like days to start a business.

We are in this field just inescapably dealing with a wide range of pollution control and natural resource management issues, and I think that requires a certain depth and breadth of approach to the data. I would urge that you not try to oversimplify.

We heard Chris Flavin say earlier there can be a danger in that. I agree. Oversimplification here leads people astray and really could distract from getting the kind of policy change you want.

The third issue that Nigel mentioned, I also think is important, and frankly, we think of it as a really serious issue in the environmental sustainability index, and that is are you looking at current performance or, as we started out doing here with the environmental sustainability index, looking at a broader concept of sustainability which inescapably, given the definition of the term, requires you to think about natural resource endowments, past performance and the legacy it leaves, current flows of pollution, current performance, as well if you are serious about sustainability the ability of a society to change its future trajectory, which gets you into a whole series of additional issues around governance and the robustness of the debate around the environment.

I think there is value in an environmental sustainability index that looks at all of those. That is why we launched this in the way we did, but you do have to recognize that there is a difficulty there. It is mixing, in some senses, apples and oranges, and there are some folks whose starting point is very troubling or very troubled.

In our case, the UK lags badly. It is down in sixty-sixth place. Why is it down so low? Current performance is pretty good, but it is the most degraded country in the world. It has cut down all of its trees on a 500-year time frame. It has killed off many of its species. It has had a several-hundred-year history of industrialization and huge amounts of waste left from that.

So the UK folks always fuss at us, "Gee, we are doing really pretty well on the current performance. Why do we look so bad?" Answer, legacy issues, natural resource endowments that have been run down and pollution legacy that has not been addressed.

So, just to share with you, we are going to move forward in the future not only an environmental sustainability index that continues in this model, but also developing an environmental performance index more narrowly focused on current

performance around issues that governments can be held accountable for really aiming to think about not only what the MCC needs, but really the Millennium Development Goals and really thinking about what core issues should be tracked in every country to understand whether you are moving towards environmental sustainability.

Our rankings are interesting, but should not be taken too seriously. I would be happy to say that I think Finland is doing pretty well and probably doing better than North Korea, and if you had to pick a place to live, I would recommend Finland and not North Korea.

[Laughter.]

MR. ESTY: Having said that, what we have really learned is that you can't look at fine differences, and you also need to understand that the real leverage here, the real policy benefit comes from identifying a peer group of countries against whom to bench mark yourself. That is our real innovation in the 2005 version of this exercise compared to the earlier versions.

We had always clustered people by income group. So, if you look in the back of our big document—and the 400-page full report is out on the table for those who want to get at it—if you look at the back, we give each country a page, and we compare them on our 21 indicators against a quintile of countries at the same level of development. That is important because, if you are Haiti, it is not interesting to know that you lag Finland. You don't even think about Finland, but what you might think about is Cameroon, why are you lagging Cameroon. That is an interesting question. They are at the same level of development.

What we also realized is that people think of themselves in a variety of different groups, and finding the right group is critical. So, in our 2005 index, we not only do income-based and a basic framework, what you see in this report that is looking at OECD countries versus not OECD, we not only do the quintiles of economic level of development, we also look at geography and cluster countries based on geographic connections.

We look at existing political groupings, like the Organization of American States. We look at trade blocks, and finally, we invite the statistical experts to use the 21 indicators to find which countries most closely connect to any one country. So it is a statistical grouping based on similarities across countries, and that is what this analysis is.

You can't quite see that Africa and the North America block are different colors, but that is meant to be seven different clusters based on breaking countries apart statistically by those that are most similar to them. What we found is this helps really identify a peer group that is relevant.

So, if you are the United States, you shouldn't be comparing yourself to Western Europe. This is actually a different group. We should be comparing against big, relatively low population density countries, with some degree of industrialization and high levels of wealth, and that is Scandinavia, Australia, and a small number of other countries. So the relevant peer group is critical.

[Side B of Audiotape 1 of 4 begins.]

MR. ESTY: Some people say these index efforts and indicators are a bad thing because those doing well will glide. Norway or Sweden or Finland at the top of this will say, "Hey, we are doing well. It is time to move on to something else. Let's think about health care."

Wrong. When we first released this, the Prime Minister of Norway asked for a briefing. I thought he wanted to call for a press conference to be congratulated for his excellent result in number-two performance. No. All he did for 25 minutes was ask what Norway had to do to overtake Finland to be number one.

[Laughter.]

MR. ESTY: Relevant peer group for Norway? Finland, Sweden, Norway, that is it. He is not thinking about the fact, he is 150 slots ahead of Haiti. So the relevant peer group is key. It is what drives this, and I think it is what gives enormous power to this new model of data-driven decision-making and bench-marking.

So why measure? I think there are lots of reasons. Several of them, I have identified already. It gives you a basis for policy judgments. It gives you some objectivity. It empowers citizens in the media. It provides a more transparent approach to issues. It shows what is possible by bench-marking against others who are in similar position, and frankly, it creates a competitiveness dynamic. No one wants to be lagging.

And on every single issue, every country has some issues it is doing pretty well on and some that it is not. Even Finland has a few issues it is not at the top tier on and can learn from others. Not only does it provide a signal to laggards, it identifies leaders and gives others a chance to ask what they are doing well, what are the best practices they are pursuing.

I think more than anything—and this is where the MCC has real potential to gain from this kind of exercise—where people are underperforming, it smokes it out. So, whether it is because of incompetence or inefficiency or corruption or just sub par political processes that yield bad choices, this reveals that, and people can then ask why. They can begin to over time say it is not good enough for us to be lagging.

I will just highlight one of the countries where this came out, and it is Belgium. Belgium in our first analysis, we found very low. We thought it must be a data error. We asked experts to help us check, and they said no. Belgium just does poorly.

In our index of 2002, they were in seventy-sixth place, just behind Albania. This was a shock to them. They were way behind all the other European countries, and I was invited to go. It caused a big stir there. There was a prime minister's inquiry and a parliamentary hearing on this, and they reran the whole analysis with their own updated data, which methodologically is unacceptable as I am sure you all understand. You can't update your own data and use everyone else's data from whatever international dataset it is drawn from.

Ninety percent of our data is from others, World Bank, UNDP, World Health Organization. They reran the analysis with their own best data. Everyone else held the same, and they jumped to fiftieth place. We said, "Wow. You are still behind 49 other countries. Why is that?"

Then the debate changed. They said, "Well, we have messed up our governance here. We have split our agency into a Walloon and a Flemish and a federal agency. We have under funded this and that," and it really got them into exactly the questions that you all want. That is, what is being done on the ground, what does the governance structure look like, are we investing well, and it turns out this did trigger that debate. I can assure you, it has been the same thing in a number of other countries as well.

I do think this has a lot of application in the Millennium Challenge Corporation context. I think it does provide a basis for thinking about what deserves support. It does move us towards more objective decision-making. It helps identify best practices. As we get better at this, the data can be analyzed to really understand what the key drivers are of policy success.

Just as a quick look at that, the last page of this little report highlights the 5 of our 76 variables that correlate most significantly with overall results, overall good performance, and lo and behold, they are all governance related. So, if you had an underlying theory that needed to be tested, this I think provides an enormously strong reinforcement for the vision of this entire exercise.

Again, it is not my theory, it is not my guess, it is not my idea. It is data demonstrating the principle that your governance systems do matter.

Now, having said that, there are some concerns, thoughts, qualifications that need to be put on the table. It is absolutely the case there is no objective way to add up the environmental picture of the world or of any country. You are going to inescapably emphasize some things more than others. We have 21 different things that we are looking at. We add them up in an unweighted fashion, but we do it transparently.

We publish all the data, and if someone wants to say, "You have underemphasized climate change," they can read it up. It gives 25-percent weight to that, but I can tell you, we have gotten huge positive feedback for not doing that, which is what a lot of traditional NGOs might want, but rather putting the 21 factors out there.

I remember when the first report came out, the Indian minister at Davos came up to me and said, "You know, this is the first time anyone has done an index that didn't put climate change at 25 percent of the picture, and I am grateful that you have got water all over this index because that is our issue and that is what we are tracking against." So it is not only you can add it up as you want. You can pick the pieces that you care about.

The data limitations are tremendously serious, and I would urge investment in that. Companies invest in accounting measures. There are standards that have been developed over time. MCC can help drive us toward a world of more appropriate data foundations for decision-making, and it is going to take some money and I hope you will do it.

You have got a lot of money you are putting out to the world. Invest in an appropriate foundation for those choices.

Companies spend 2, 3, 4, and 5 percent on management systems, accounting systems, tracking systems. It would not be inappropriate for you all to spend a similar percentage in developing those data foundations.

I would also urge that the perfect not become the enemy of the good. We do know how to do some of this. So let's not say we are going to wait until we have got a perfect system in place before we put money out there.

So my conclusions, I think what you want in terms of developing an effective and credible set of indicators or an index is strong theoretical underpinnings, openness about the strengths and weaknesses and limitations of the effort, transparency. Let people see what the numbers are and debate you on them, and we have really gotten a lot of positive feedback in our environmental sustainability index for doing that.

Publish the data. Put it out there. Put it on the website. Let people take it down, analyze it their own way, read it up as they want.

Cross-check. This is a basic principle of good science. You put your stuff out there. You put your idea out there, and then you let it be, in effect, peer-reviewed.

Finally, as I mentioned earlier, the sensitivity analysis, highlighting your assumptions and letting people understand the impact of those on the outcome is very valuable.

So, as the Millennium Challenge Corporation moves forward on its own effort here, I would offer just a couple of thoughts.

First, as you all know, the environment is multidimensional.

Second, there will be divergent priorities and values across different countries that need to be able to be managed within the context of the structure.

I do think investment in measurement is really important. You are going to do a great service not only for the developing world, but for our own world in helping to make that clear. I don't think this can be done on the cheap. I really do think it is going to take some effort, and I would urge that the kind of investments that are needed be made.

To answer again Nigel's questions or at least a couple of them, I do think outcomes, which I highlight first, is the key way to go, but you do need to track inputs, processes, and trends in order to understand who is going up and who is going down—that is the trend point—and the inputs and processes because it helps you get at the drivers of what determines good outcomes. So, if you looked at outcomes alone, you would not be able to go to the next step and help people figure out best practices.

I do think you want to as well be very careful as you move into this environment domain. There are important credibility questions that go to the success of the effort. I do think you want to have an operational set of indices. I would look for those that have got experience and track records, and I would look for the ability to really deliver a product that is useful in a short-term time frame, thinking about the issues, where are you going to get data from, how to check and verify that data, very important to do quality assurance, quality control, and then have a strategy for

continuous improvement. Again, we are starting at a low level of quality here in some respects. We do need that commitment.

I have mentioned this already. So I will move on and say that this is I think enormously promising as an effort that the MCC group is pushing on this front. I think it reinforces a broader trend towards data-driven decision-making in the policy domain generally, and I think it will give us an approach to environmental policy-making in particular that has promise not only in the developing world as a guide to aid, but more generally as a way to do policy-making in our own country. So thank you very much.

MR. PURVIS: Thank you very much, Dan. That was very clear and very helpful and thought-provoking.

I would like to ask you to stay exactly where you are, and I would like to invite Dan Tunstall, our next speaker, to come over, and that way make sure that you are in the view of our camera.

As we continue our discussion, we will have presentations from all three of our panelists and then turn for an open discussion. So I will ask you to hold your questions for Dan Esty while I introduce Daniel Tunstall.

Dan Tunstall is director of Information Programs at the World Resources Institute. He has a long and very impressive history in the issues that we are discussing today, environmental data and environmental indicators. He was instrumental in planning and developing WRI's flagship publication, World Resources, starting in 1983, and now with a staff of 14, he directs the work on indicators at WRI.

Dan has some very relevant experience in government working at both the Office of Management and Budget and also at the Council on Environmental Quality at the White House where he also worked on indicator issues. So he brings a lot of practical experience and a real rich history at WRI in gathering and analyzing data and making it public, and I look forward to his comments as well.

MR. TUNSTALL: Nigel, thanks very much, and thanks for inviting me and giving us an opportunity to talk about some of the work that we are doing.

This is a project that we started in the last 2 to 3 years, and it will be quite different from what Dan Esty has talked about and what John Dixon will talk about. So you are going to get three very different approaches toward building and designing indicators and indices.

A couple points before I start, one is on definitions. I realized after looking through the slides, I am going to have to define a couple of terms. One is the term "ecosystem," and by ecosystem, we mean just the farmland, the agro ecosystem, the forest, the range, the grasslands, the water, the coastal and marine. These are what we mean by ecosystems.

More difficult is the term, perhaps, "ecosystem services." The Millennium Ecosystem Assessment, which I think a number of you are familiar with, released its preliminary results a year ago and the final results in March of this year.

They used the term "ecosystem services" in three different categories that I want to discuss.

One is provisioning services. So that is the food, the fiber, the water that people need, particularly in a basic rural society that I am going to talk about.

The second type of services are regulating services. These are the climate regulating services, the water purification, things like that, flood modification.

The third type of services are called cultural. These are very important in rural societies in developing countries. They may be aesthetic. They may be spiritual. They may be educational.

The other term, I am not going to define in great detail. My colleague, Frances Seymour, will talk this afternoon in much more detail about governance. Just let me say how important it is. Dan Esty mentioned it, and you are going to hear that again and again, the role of governance.

Two questions that we ask in thinking about governance indicators is who has voice, who actually is able to be at the table, who has a way to say something about an issue that affects them, and then who gets to decide. That is the critical one.

So what you will see in my presentation is the need for indicators of governance, and I haven't put them in, but I do want to suggest that they are starting to be developed in an important way.

In fact, the first compact that the MCC developed in Madagascar I believe has a project on land titling, and I think that is going to be very important. I suspect as the MCC moves through the poorer countries, you are going to see that this is an important activity in almost each country, and that is trying to understand land titling first as the process, but we want to look at tenure. Particularly, we want to know whether or not the poor have rights to the resources that are around them.

Let me go to a couple of other points that I want to make before I go through some slides. There is a thesis behind this. Our thesis is basically that for many poor rural inhabitants in developing countries, natural resources or what we are calling ecosystem services can be a first step out of poverty if we have the right kind of governance.

So it is a lot of words there, but it is basically three things. We are dealing with poor people. We are dealing with the natural resources that they have, they have access to, and the critical thing is whether or not they have some level of rights and control over those resources.

There are many other things that are important, like markets, like transportation, like international trade, like Chris Flavin talked about. I am not going to capture those today. I know they are there, and I know they are important.

Finally, as an introduction—and I am a third of the way through—I am going to show a number of maps. Many of these maps are of Kenya. I am going to show maps of poverty, and I am going to show maps of ecosystem services. I won't show maps of tenure yet. I know there is going to be some. We are getting there, but I don't have those yet.

For those of you who like maps, I think you will enjoy this. For those of you don't like maps, I have a suggestion. It is not to leave or go to sleep or read a book, but to put yourself on a farm in Kenya, and you are going to see different maps of Kenya. Think about if you are sitting or standing in a farm area or in a village area, what resources are around you, and basically that is all we are doing with the maps.

The difference between you standing there and thinking about those resources and working on them and the maps is that now, with the help of Kenyan government, international organizations, NASA, a number of organizations around the world, we are able to map those resources and increasingly take a look at this thesis of whether or not we can map the poor, we can map the resources that they have, and finally at some point can we map the governance structures and policies that they live under.

So let me go forward. First, definition of an "indicator," one we have used for—at least I have used for a number of years, and I won't tell you how many, but in the simplest way, it is the quantitative measure that bears upon a societal goal. So it is not strictly a scientific issue. It is not strictly a statistical issue, but it is quantitative in some way, and it meets all the criteria that you have heard the speakers, both in the introductions and Dan and Chris and others talk about today.

To get you started, I am just going to look at a couple of global maps and then begin to understand that when we are talking about countries—and that is what the MCC has to deal with—you can look at the country level. The country decision-makers often make decisions based on sub-national information. Global decision-makers, whoever they are, make decisions based on national-level data.

Sub-global decision-makers make data based on local conditions, and finally local decision-makers, whoever they are at the village level make decisions based on the conditions at the household level.

So you can make a lot of different scales here. We have to deal with that in the scientific and the mapping community, but that is an important thing for us.

Let me go rather quickly through some of these. This is the World Bank map on a dollar a day, and obviously, those dark countries, many in Africa, that have more than 50 percent poor show up as dark areas.

Kenya. By this, if you can find Kenya on the map in the east middle of Africa and the coast is about 23 percent poor, using the Bank measure.

It is not easy to see, but this is a global distribution of agro ecosystems. In and of itself, it is not an indicator. Basically, you get an indicator when you finally relate it to a social goal or a condition, and obviously, we can do that by looking at rate of change, crops, agricultural productivity, a whole series of areas that The World Bank, FAO, and others do with global maps like this.

You can also look at forest cover. This is based on landside information. Again, this in and of itself is not a very good indicator. A much better indicator is what services to the different countries get at.

Let me go to the national and the sub-national level, which I think you will find a little bit more interesting and a little more innovative, both poverty and ecosystem services.

Again, I put governance up there because it is essential. We are not there yet in terms of this development.

Percent of rural population below the poverty line in Kenya is important. This is developed by the Kenyan Census Bureau with help from The World Bank. It uses an econometric model that links the census of Kenya with their household surveys. It can be updated year by year, if necessary, but that is a fairly expensive proposition.

Not only can we look at the percent poor, which when the Kenyans measure it, it is quite different, they use $1.13 a day in urban areas. They use 53 cents a day in rural areas, and they end up with about 40 percent poor when the Kenyans do it themselves.

Those areas that are gray on the side are next to Somalia. The household samplers could not go into those areas. There were conflict areas at the time this was done, about 4 years ago. So, as you can see, it is not a heavy population area, but clearly, you are not surveying the whole country. So some of the statistics vary here.

It is also important to look at the number of poor. So here you go from the percents to the numbers, and they are fairly well correlated. These are not the people in the highlands, but the lower part of the highlands, and then the people just at the beginning of Lake Victoria—if you look over to the left, that is the part where Kenya butts Lake Victoria and Uganda. So that is where the higher numbers of poverty are per kilometer.

I wanted to say something else about this map. It looks like a district map, but what The World Bank working with Kenya have now been able to do is reach the level of what they call the location. There are provinces. There are districts. There are divisions, locations, and sub-locations, and then census districts in Kenya. They are at the location level. There are about 2,300 locations.

It used to be, we could only look at poverty in a developing country and maybe 5 provinces or 10 provinces or sectors. Now we are down to 2,500 locations, and in Nairobi itself, there are 80 locations. So I didn't show a map of Nairobi, but you can look at the neighborhoods, and those people who know Nairobi well—and I don't, but my colleagues do—can tell you exactly where you are and what the level of poverty is.

The third indicator I didn't include is the poverty gap. If we are trying to get people out of poverty, it is not only reaching the poor, but it is also how far away are they from that level and what does it take, does it take allocation of resources or does it take true development.

Let me look quickly at four different ecosystem sets of maps. Again, we are looking at the services that ecosystems provide, particularly the provisioning services that people want, but also the regulating services and also the cultural services.

Now we look at crop intensity. We think of Kenya as an agriculture society. It is. Most of the blank spaces to the north are livestock herders or wildlife

areas. Most of the concentration of agriculture, that above 50 percent, again, follows where the poor were. So we are dealing with a society that intermingles crops and livestock, and a number of them are not making it.

Here I just wanted to look at the livestock numbers and not the wildlife density. As you can see if you look at livestock, that is the red and the brown. This is a very important sector for large parts of Kenya.

You can also see—and we will talk about this later—it is interspersed with wildlife density, which is the blue, and in some cases, that leads to tremendous conflict.

Right above the white space there where you see blue and red together is an elephant zone that is not in national parks, but wildlife, and this is doing a great deal of damage to farms.

So here you have the service for tourism, but you also have a disservice to farms, how are you going to make those kinds of tradeoffs.

In Sri Lanka, 2 years ago, 60 people died from elephants. This is an important health hazard in certain countries as well as a conservation value.

Let's go to water, rainfall. It is a dry country, a very dry country, as those of you who have been there know. The Kenyans call the water in the middle, just north of Nairobi, the Water Towers. This is the Aberdare Range, Mount Kenya, and Mara National Park. These are critical areas for water and for the runoff of water.

We are going to look at three or four different services. The most important one, of course, is water for drinking and for municipal use, and you can see the difference between groundwater use, which is in the flatlands and the drylands to the north, and more the surface water above 75, which is the green areas particularly in the southern parts and above Nairobi. Obviously, water has to come from surface or from groundwater, one or the other.

If you looked more closely at Nairobi which is fairly dry and higher up in elevation, it is getting its water Upper Tana Basin, which is the darker areas in the north. So, if it doesn't have the pipelines, it is not getting the service, but that area is still providing the service to people.

Electricity, 55 percent of the grid of electricity in Kenya comes from hydropower. Over 90 percent of the electricity in Nairobi comes from hydropower. Nairobi is right at the bottom of the map there, and then the relevant basins are just north of Nairobi.

Let's look at trees for a moment. Sometimes in this area of looking at services, it takes years to gather this information. This is information from the NASA satellite, the Terra Satellite, and this is the modus instrument that is on that satellite. We now can measure the extent of trees very, very accurately every 2 weeks anywhere in the world.

So, for FAO to sit there and do a forest assessment every 10 years, that is okay if they want to, but if you want to look at deforestation rates now, except in areas

in Central Africa where there are a lot of clouds that make this hard to do, you can do that. We can raise this resolution even higher.

Some of the information I am showing takes a long time to gather. Other times, it meets the criteria that we are talking about.

Some of the services from forestry, obviously you know many of them. There is logging. There is non-timber forest products. There is charcoal making. There is fuel wood. It is still a very important source of energy in most of the developing countries. The poorest countries that you are all looking at, probably 80 to 90 percent of all the energy is from renewable resources such as trees, and there are not a lot of trees in Kenya.

The last one is wildlife. The major national parks are down at the bottom in the southeast area, the Masai Mara to the left and then further down is Ambseli and then the Tsavo East and Tsavo West. These are the great grasslands and the places that most of the tourists go. Wildlife tourism generates over $125 million a year for Kenya, which is a tremendous amount, and there is no reason it can't be doubled or tripled as long as they maintain the resource and maintain security for the tourists.

There are a lot of other uses of wildlife, and for the local people who are still poor, it is a source of food. It is a source of skins both to use and to sell. It is a source of dung for energy and on and on. Wildlife is a remarkable ecosystem service that is used by poor.

Now, what if we put these together? This is the hard part. This is the challenge. While I think our thesis is right, two-thirds of it is right, and that the natural resource base supports the poor and can do it more if we had better governance. I am not able to capture governance at this level at this point, but let's take one area.

If you look at the yellow line, that is the beginning of the Upper Tana watershed. It is north of Nairobi. It is near Thika at the bottom there. This is where Nairobi gets its water, from this watershed, and the dark areas up on the left are the Aberdare Range, Mount Kenya you can recognize, and then Mara National Park over on the right. Again, these are the water towers. These are an important part of the central part of Kenya.

So that is the part I am going to look at. Now, you look at the slashed lines and part of that is called the Upper Tana watershed.

Next, we look at the poor that live there, and the green, about one-third of the people living in those areas, those locations, are poor. In the red, about two-thirds of the people living in those areas are poor. So now you are beginning to see poverty mapped against a watershed.

If we then add all of the services that we talked about, you can now see the individual services, and then the last map, I am going to combine the two and it gets a little bit messy. These are some of the key services that you can identify. The major ones are small irrigation. Those are the triangles. There is also the hydropowered dams in the middle, which are orange. Most of this area, 60 to 80 percent, is cropland, except the actual mountains themselves. So this is where the coffee is grown in Kenya. There

is the tea plantations. There is some wildlife, but not the same major wildlife that you see in the south.

My point is all of the services are there, and then if you overlay this with poverty, you begin to see where are the poor and the services and where are the better off and the services.

Let's assume for a minute that most of these people are farmers, small-scale farmers. You see in the green that they are further up the hills. They are closer to the water towers. They are getting access to the water to grow the coffee and to grow their crops to sell often in Nairobi. If you go further down and you look at the red areas, the people are not getting as much of the water, not as successful as farmers. This is just a beginning of the analysis. If my colleagues were here, they would be able to go into much more detail about the analysis.

What are our next steps? We are putting this together as a map, a series of map in an atlas which will come out this October. We don't have the title yet, but it will sound something like Poverty and Ecosystem Services in Kenya.

Five of the ministries are already waiting for it. They are helping us develop the data. In the next slide, you can see our partners. At the top are those from Kenya. The second section are from Uganda because we are going to Uganda next year, and the bottom is the international organizations that we work with. So, as you can see, it is a lot of partners to try to pull this off.

Most of the writing and the analysis is being done by Kenyans, which is important. It is only two of my colleagues who actually go out 3 weeks about three times a year to work with them. So I would say 80 percent of this is being done by Kenyans and their institutions and the international organizations that are working in Kenya.

The next step is to get the atlas done, and after that, we would love to start to integrate further with the governance indicators which may very well not be at this scale, but other scales, and start to understand those relationships.

The thesis is still there. The hypothesis is there. I think we have got two parts of it in pretty good shape to look at, but in the end, I am not going to say that we have got the perfect model, and I think that is true of my other colleagues, too. We know we don't have the perfect model, but as long as we are clear about what we do have and how we measure it and who puts it together and who looks at it, if it is not the perfect answer, what I would call an "indicator as a trigger" where something happens immediately, it can still be an indicator within a policy dialogue, and I think that is a key part for the MCC.

Thanks.

MR. PURVIS: Thank you very much, Dan. It is interesting to have a second and rather different approach.

I would like to now invite John Dixon to come take the third seat here on our panel, and let me introduce John while he does.

John was until he retired in December 2002 the lead environmental economist at The World Bank here in Washington, D.C. He joined the bank in 1990 and worked in Latin America and Central Environmental Department of the Latin American Division and at the World Bank Institute.

His field experience includes stints in East and Southeast Asia and in Latin America, and he publishes and teaches widely on applied economic analysis and environmental impacts, with a specialty in natural resource investment and management and environment indicators.

John has done a tremendous amount of raising awareness about the idea of environmental investment or disinvestment and brings a very interesting perspective to this discussion.

John.

MR. DIXON: Thank you.

MR. PURVIS: That is the water service.

MR. DIXON: That is the water service. Well, I apologize for that, but thank you very much to The Brookings Institution and to the MCC for this invitation to be here.

Given that it was summer in Washington, as Dan pointed out, I debated whether I should come in Kailuan national dress which is a T-shirt, shorts, and slippers, but I should dress formally for the occasion.

I think it is very important to this dialogue, some of the issues that are being raised today and the two presentations that we just had and the earlier ones. They presented a wide variety of approaches.

I have a small paper which is outside, which I actually recently prepared for the IUCN, which asked me a similar question. They said, "We are interested in monitoring compliance with the Millennium Development Goals, and could you review what is out there in terms of indicator sets and approaches and give me your thoughts?"

Now, the advantage of being retired and gray is I can say whatever I want. I was at The World Bank, and I am no longer. So they are very much my personal views, and I am sure some people will take exceptions to some of the points I make. Of course, that will not be anything new either.

One thing I wanted to say right to begin with, it was interesting looking last night at the website of MCC. I looked up the countries that have received compact agreements.

Cape Verde is not on there, which I thought was interesting. Hopefully, it is just coming, but looking at the 16 indicators, it is actually a combination of 10 indices and 6 indicators, and there is a difference.

We have seen that discussed this morning already. Indicators, as you know, the formal definition, it has a unit attached with it, percent of population served with sanitation services, gross savings rates, percent of forest cover. So there are always units attached to the indictor in the way that I use it.

An index, an excellent example, of course, is the ESI, environmental sustainability index, that Dan Esty discussed. It is basically a scalar, and it is unit-free. It is a unit. It is a number, but it could be based on 100 or it could be a combination of different scalars that are added up. There are a lot of indices and indexes out there. One of the interesting questions for MCC, as I have been listening to the presentations and thinking about this, is do you want an index, do you want indicators, and how many. I think that is one of the issues to be discussed today.

They are different animals. They both have their use. A good parallel is the stock market. The price of a share of stock you own is an indicator. It tells you what someone is going to pay for a share of that company. The Dow-Jones Industrial Average is an index. It goes up; it goes down. Are you richer or poorer? It depends. You want to look at what your stocks actually did. They both have a very valuable function, but they are different.

In this work today, I will be reporting on some things that my colleague, Giovanni Ruta, will also be referring to this afternoon. I did work for many years at The World Bank, and one of the pleasures I had there was setting up the indicators and economic policy unit at the request of Ismal Seregeldin many years ago.

He liked the indices, wealth of nations, big numbers. He wanted us to try to do a more rigorous job of estimating them and making the strong links to economic policy, economics, social well-being, and decision-making, which has been stressed this morning by the Governor, Mr. Applegarth, and the other speakers.

You are all familiar, of course, with the Millennium Development Goals, which morphed out of an earlier OECD-led effort on the International Development Goals. It is interesting because here the environment is defined by basically six to eight different indicators. They are not indices. They are indicators.

The International Development Goals, which came out in the year 2000, had the following six. First is actually a measure of country with effective processes for sustainable development, do you have a NEPA strategy or not, population access to improve water source, percent forest area as a percent of national surface area, biodiversity, land area protected, energy efficiency measure, GDP per unit of energy used, carbon dioxide emissions per capita. These are six measurable indicators. The first one is yes/no, do you have a policy or not.

As the process evolved to the Millennium Development Goals, the numbers increased. The Millennium Development Goals, as you are probably aware, has some 50 different indicators, 18 targets, 8 broad themes.

Obviously, one of the important issues for the Millennium Challenge Corporation is how many indicators can or do you want to allow allocate to management of natural resources, one, two, or three. You have 16 now. There is always pressure to add in my special interests and add and expand the numbers, and, of course, this is one of the reasons why indices are popular because they do a lot of this combining for you, but does it give you the insight you want? Maybe you would want to combine an indicator, an index, or one or two different measures, and I will give you my answer at the end in a few minutes.

In fact, I have a candidate for if I want to know one piece of information about a country that tells me are they managing their natural resources for well-being, for the welfare of their population, well, there is a measure which I personally like, which you will be surprised at, but it is a game that basically anyone can play. We have many of the players here today, and I think the idea is a good idea. I will discuss what the issues are.

I have mentioned already the difference between indicators and indices, and that is an issue that will come back over and over again.

What is out there? Well, in this review that I did for the IUCN in Gland, I discussed a number of the different major indicator-based efforts. My apologies if I left our efforts that were worked on by people in the room.

I was sitting in Kailua in my office in Hawaii. So it was what I could find on the Internet. My other library was here. I was wearing the Kailua national dress.

The GEO report is well known, but you look at natural resources or biodiversity, it comes down to a single indicator, which is percent of land area protected. Why not species threatened?

Well, one of the interesting things when you start looking at some of these more detailed measures is the more you look for species threatened in a country, the more you find. So countries that have a lot of species and a lot of species threatened often do the best job of actually managing because they spend more time and effort looking and worrying about it. So you get this perverse result where countries that supposedly have very few species or threatened species probably just haven't looked.

The Living Planet Report, here is one that I did take some exception to. It is well known for the ecological footprint measure, which is an interesting measure talking about intensity of resource use on a sort of per capita basis. On one level, that has a lot of resonance, are we making demands on the planet? Caring capacity is limited.

What was interesting when I compared that with the human development index, which is an index also, is that the two are 180-degrees opposite. The top 25 countries in the HDI, the winners, the guys who really do a good job, human development index, also do the worst on the ecological footprint by about 65- or a 70-percent correlation.

What does that mean? Reducing goods and services for people, eliminating poverty, raising income levels does place demands on the environment. It doesn't mean you use more of the environment. So you can get these two measures, which both measures are something we are interested in, and get very different signals.

There are two measures from The World Bank that I particularly found interesting and liked partly because of my involvement there, but also I liked very much their link to economic policy and generation of social well-being and welfare.

The little green data book, which my colleagues now produce regularly—Kirk Hamilton is not here—Giovanni Ruta from the office is—lists one page of indicators for every country in the world.

What is interesting is that it not only provides the data for the country, but it also lists the comparison with the other countries in its geographical group. So, if you are looking at Madagascar, it also lists Sub-Saharan Africa, and it also provides the same indicators for a similar income group; in this case, low income. So you both look, as was mentioned by other speakers, not only at your neighbors, but in a sense, the competition, am I doing better or worse on average than other poor countries or better or worse on average than my neighbors, very useful information.

There are two measures that I would like to mention from The World Bank. One is presented in here on an annual basis. I mentioned this at a meeting held here in February. This is often referred to as "genuine savings." Now it is called "adjusted net savings." I think this is actually a very interesting candidate indicator for giving some measure, some idea of management of natural resources and links to policy.

The formula is presented in here. The numbers are presented here, and it is an indicator. It takes its percent of GNI, gross national income.

It starts with gross national savings and says savings, just like our own savings, gives you an indication of development path for countries and what they can provide for their citizens in the future. You save more, you invest more, hopefully wisely, and you will benefit from that in the future.

But it makes adjustments largely for the management of natural resources and some social resources. For example, Madagascar has a gross national savings rate of 12 percent to which you would deduct, first of all, a consumption of fixed capital, a standard deduction for replacement of fixed capital.

However, you then add education expenditures. Why? Investing in people, we felt—the World Bank feels—it is an important component of, in a sense, saving for the future. It is building human capital.

Then the others are all deductions, energy depletion, mineral depletion, net force depletion, CO2 damage in terms of greenhouse gas emissions, particularly emission damage in terms of health effects to give an adjusted net savings rate. In the case of Madagascar, gross national savings of 12 percent is adjusted down to a "genuine savings rate" of about 5.5 percent.

Honduras, the other country, did actually much better, a gross savings rate of 23.6 percent adjusted down to 20.8 percent when all these pluses and minuses were taken into account. Data are not perfect, obviously. The data are here. They do have that nice attribute that Dan Esty mentioned that each one of those adjustments is actionable.

It relates to a minister, a ministry, a government policy. You can also understand, gee, if I want to up this number, more education investments will give me a plus, better husbandry of my forest resources would reduce that negative, et cetera. So there are some very nice aspects of this.

The other measure, which is a static number or more static, is the wealth of nations estimates that we originally published in 1997. The new version is almost

ready. Giovanni will mention it this afternoon, I hope. This is basically saying what is the resource endowment of a country?

It is more static because it doesn't change very quickly. If you are a rich country, you are going to be rich and you are going to be rich for a long time. If you are poor, it will take you a while to get rich, but the wealth numbers are very interesting because it points out the importance of natural resource endowment, fixed capital, human capital, and policies. These numbers have just now been updated and should be available in the next few months, but it is a more static number and I think for MCC in particular of less potential use because it does not have that nice direct link to policy-making.

If you are a dry country or a wet country, you are Chad or you are Brazil, you can't do a whole lot about forest cover overnight, but you can talk about depletion rates.

Some conclusion, looking for an indicator or set of indicators or indices that would serve the goal of MCC in trying to track and measure a country's progress towards better and more sustainable management of their natural resources for the welfare of their populations, I think the important thing is to look at indicators or indices that do have a link to economics and policy.

I like to use the Monday Morning Rule, which is you have been to a seminar, you have been to a workshop, you have heard about this new indicator or new approach. You go back to the office Monday morning. What can you do differently?

If the indicator says you are a dry country, there is not a whole lot you can do, but if it is linked to a policy, just as you were saying, Dan, and Governor Whitman mentioned earlier, then you start thinking about can we start to make adjustments, can we actually do something positively.

For the Millennium Challenge Corporation, two possibilities I will put on the table, or actually three. One is an indicator, which is a genuine savings, adjustment of savings, not perfect, but I think it gives a lot of information and does have a very economic link to savings, investment, generation of welfare, and policies.

The second one that I like very much was the environmental sustainability index, not without its problems. I would wonder if I was choosing between Albania and Belgium, which one I would choose to live in, but it does certainly highlight some of these issues.

I must say, I picked these two measures as ones I liked best when I did this paper sitting in Kailua before I knew this meeting would be held or that I would be sharing a panel with Dan Esty because I thought it presented a lot of data in an interesting way, and as he said, it was transparent and open. One could look the numbers that went in and think about what that meant for what you could do differently.

If I could pick personally—and I will end with this—one indicator that I would say if I wanted to know or get a sense of what a developing country was doing with respect to managing its environment and its social and welfare issues, the one I would pick—and you will laugh perhaps—is percent of population with access to potable water.

You will be surprised. Why not sanitation? Well, sanitation is important, but what goes in is more important to your health and well-being than disposal, what goes out. They are both important, but often you find countries that are pretty effective in providing potable water to its population also does not a bad job of a lot of other things, not 100 percent, but if you had to pick one number, that is the one that I think gives me a sense of what is going on.

With that, I would like to thank the sponsors and close.

MR. PURVIS: Thank you very much, John, for some very insightful comments, and thank you for bringing your experience to this discussion.

We now have a good chunk of time before our lunch. We will be breaking for lunch at 12:10, and it is only 11:25 by my watch. So that leaves some significant time for a discussion.

I know that Governor Whitman has been following this conversation closely. So I would like to invite her to ask a question or two before opening up to a broader audience.

GOVERNOR WHITMAN: Thank you very much.

I want to first thank the panelists because there is a lot of food for thought here and a lot of different takes on what we should be looking for.

I would just like to bring it back and throw it to each one of you. There has been discussion about we need to have indicators that are—I don't want to say simple because that is the wrong word, but are—and actionable is something that has been brought up a lot which I think is much more appropriate, but understandable is probably where we want to go.

If you were looking at whether it is using the map and looking at natural resources and indications of poverty, if it is looking at some of the other research that has been brought forward to date, which indicators would you recommend?

John, I have to tell you, I have been saying for sometime now that I think water is the major environmental challenge of the 21st century, access, quantity and quality, but I absolutely agree with you on the quality issue and the poverty index.

That is a good place to start. Can you say water, land, human health? Are those three good sort of broad categories to look to when you are trying to develop more comprehensive indicators? Is that wrong? Is that too short a list? How big a list do we need? Recognizing that these are things that need to be communicated to people that may or may not have the most sophisticated ability to respond and to analyze them initially, we need to make it as practicable as possible, putting tools in their hands at the same time.

MR. ESTY: I think the challenge here is that if you go to a single measure, even one that is very central to quality of life, like water, you aren't providing the guidance to policy-makers on the ground that you get by a broader set of measures.

I fear that the environmental realm has got even more complexity than just a couple. I think, Governor, you know this very well, having tried to manage a very

complicated agency here in Washington, but you couldn't get away with saying, "Well, I am just going to spend my time talking to the water folks," because then other things would go off the rails.

So I will offer—and this is building on the work we are doing to hone in on an environmental performance index for the coming year—I think there are seven or eight key things that you can't get away from and are core to policy guidance.

I think you have got to track water issues. I think you have got to track local air pollution issues. I think you need to do something with waste management and, perhaps connected to that or separately, toxic exposures. I think greenhouse gas emissions are critical. I think you have got to have something around biodiversity. I think you have got to do something on energy because it connects back to the climate change and other issues, and it frankly is an important element independently, and I think something on land use/forest cover, but more broadly, land use.

So that is my core set, and I am sorry it is not smaller, but there is the famous quote from Albert Einstein that we should simply things as much as possible, but not more, and that is my bottom line. And I think here at eight, you are probably as close to that minimum as you can get and still have management value from your effort.

MR. DIXON: Actually, Dan Esty, you have just sort of repeated the Millennium Development Goals.

MR. ESTY: With a few twists.

MR. DIXON: With a few twists.

I have a personal interest in this because I was part of the OECD working group that started with the International Development Goals, and we considered hundreds of indicators. We ended up with six, and now it is sort of eight.

A lot of other people have looked, and you end up back where you started because of this need for data, comparability, information, communication, et cetera. So it is sort of interesting that we sort of got something right almost right the first time when we had six, and they were basically the same things with a few twists.

I guess the question to the Millennium Challenge Corporation is do you have space for five, six indicators dealing with environment and natural resources because I would definitely agree with many of the ones that you have mentioned because that is what actually we came up with our initial work in this area.

I think the environmental sustainability index—I have to give Dan Esty a free plug here—does have a lot of interesting dimensions to it, but it is a little bit of a black box unless you dig into the information.

Frankly, genuine savings is for the minister of finance and the prime minister perhaps and the minister of planning and people like that. It is hard to sell it, to explain it to a lay audience, but again, it is a management decision.

You may be willing to have an interesting measure like genuine savings that does say an awful lot, but it not easily communicable. Some of the ones that Dan Esty just mentioned can be communicated fairly easy, and we know they deal with

really key central issues about resource management and sustainable economic well-being.

MR. TUNSTALL: I like the list that Dan put together, and I think John's point about linking these very much to economics and particularly to poverty alleviation is important. I guess I would still add that third element of the governance side that we have to look at, is there a way to capture that, also.

Obviously, we were not able to capture it easily in a mapping exercise of indicators, but that is not the only way to do this. We were looking at the national to the sub-national and decisions that have to be made at those different levels.

What you are looking at is very clear, and the audience is the board that makes up the Millennium Challenge Corporation. That is your specific audience, and I think you are using it for a screening indicator. I think if we can capture something that links these three, because you are looking at growth and poverty alleviation and in most cases through natural resource use, we need the governance regime right. So, if there is some way to capture those three, I don't have the full answer to that yet, and maybe it will come to me as the day goes on.

Thank you.

MR. PURVIS: Thank you very much.

We will turn now to questions from all of you. I would ask you to raise your placards as an indicator that you have a question, and then please remember to use the microphone so that we can capture for our transcripts and for our web broadcasting your questions. Please keep your questions short as our time is limited. We would like to get to as many different questioners as possible.

Also, I know that Governor Whitman has to leave us in a few moments. So I am sure you join me in thanking her for her time and her interest and leadership on this issue, and we will just continue with the questioning, if it is all right with you, Governor, and invite you to depart when you need to.

The first question is over here. Please identify yourself by name and affiliation as you ask your question.

MR. : [Inaudible], Department of the Interior.

These are really a nice set of commentaries that you had. I was going to ask Dan some questions, but I don't think I will do that. I think that is getting too much into the nitty gritty, and I am not sure that is what you want right now.

There are some indicators that do a lot of integration within themselves, so to speak. One is something like life expectancy. When you take a look at life expectancy, there are elements into that that feed directly from access to potable water, sanitation, and also what would feed into it would be levels of air pollution and things like that.

I think something like that could capture a whole lot of things and could actually capture it in a way that would make a lot of sense to people.

One of the problems with that, of course, would be that it captures so many things that it makes it a little bit difficult for people to develop policies just looking at the life expectancy, but if you know what feeds into life expectancy and if you had one indicator like that and subsidiary indicators, if I may use a term like that, like access to safe water, access to sanitation, air pollution levels, et cetera, I think you could capture a heck of a lot into that kind of thing.

The other thing is it is not an environmental indicator really, but when you take a look at how many of the aspects vary, we find that many things vary with the log of GDP per capita or income, what have you. In fact, I think this is what is used in the human well-being index. They use a lot of the GDP per capita.

I think many aspects of the environment, including safe water and sanitation and so on and so forth, would be captured by that. That is not true of everything. There are some environmental indicators that actually go south first before they head north, but it would capture a whole bunch of things.

Actually, I think if somebody were to think of marrying something like the human development index with perhaps some additional subsidiary numbers, you would probably end up with a pretty good set, I think, but that is just a suggestion.

MR. PURVIS: I think we will take three questions and then turn back to our panelists, so that we have a richness in the conversation.

David.

MR. HESS: Thank you very much. David Hess, U.S. Agency for International Development, Office of Natural Resources Management.

Thank you. This has been a great panel. It is great for MCC to provide this opportunity for all of us.

I just want to comment related to Dan Tunstall's presentation. Some of our work that our office has collaborated with WRI on is related to a conceptual framework that lies at the heart of a lot of what Dan was explicating up here, and it is called nature, wealth, and power. In fact, you can't look at natural resources—[audio break].

[Side A of Audiotape 2 of 4 begins.]

MR. HESS: [In progress]—three of those domains and how they interrelate.

One thing I wanted to just comment on, I think that somehow getting at the tenure regime, asset tenure, land tenure, however you want to call it, is essential at looking at how poverty can be alleviated, reduced by sustainably using the natural resources upon which poor people are disproportionately dependent. So I think something related to asset tenure regime is called for.

One other comment I wanted to make was related to what Chris Flavin mentioned on Madagascar, and that is that I think that there is a huge potential for what MCC is investing in Madagascar's vision, and that is that while the MCC program is focused on land tenure, improving land tenure, improving rural finance, and improving

agricultural productivity and marketing channels, I think that is a perfectly symbiotic, to use an ecological term, with what a number of other activities in Madagascar, particularly the USAID program and Natural Resources Management is doing, by building eco-regional alliances between those who are working in protected areas and those who are in the margins of protected areas and in agricultural productive zones, to get a dynamic going so that there is protection for ecosystem services of the protected areas and at the same time as economic growth for the agriculturally dependent poor.

Asset tenure, land tenure in particular that the MCC is doing, is crucial as is finance and productivity and marketing. So that is just a comment.

Thank you.

MS. HECHT: My name is Joy Hecht. I am afraid I don't have a card.

I wanted to comment on the little exchange that happened right here at the end. Governor Whitman asked for some comments from the three panelists, and Dan described an indicator that they are working on that is not yet part of his presentation. Both of the other panelists said, "Yes. That sounds good."

I think my sense was what sounded good about that was it was an explicit indicator of performance. In the pressure-state response framework, it is a response indicator. It is not pressure. It is not state. That seemed interesting.

I think what MCC is actually after—and this may not be what the national governments need, but what MCC needs or seems to want—is something that says are they trying to do it right, and if they are trying to do it right, we will encourage them and we will use the potential to get our money as an incentive to get them to try to do things right, and if they do things right or they try, we will give them more money to help them.

If that is the kind of indicator MCC wants, that may be a first-level basis criteria for making a choice among indicators, and I think we probably want to distinguish. We want to make the choice of an MCC indicator on resources in several steps. A, do we want an indicator of performance or of the state of the environment or of something else? The potable water indicator is also an indicator of performance, but it is really, in my opinion, more public health than environment. It is a great indicator, but it is of something else.

Then, if we want a performance index—and I say index carefully, not indicator—the next question would be what should be the components. Dan quickly listed six or eight, and other people sort of said, oh, well, maybe this one, that one, the other. That choice of what the components would be should be thought through carefully and notwithstanding Dan's somewhat disingenuous remark that the environmental sustainability index is not weighted. Any composition of indicators into an index is weighted even if everything is weighted equally. So the choice of indicator is to include gives your weight. I mean, if you include 27 separate indicators on climate change, but have all different ones, and then say we didn't weight anything, you have still weighted climate change more heavily than if you only had one.

So I think there is a somewhat more technical discussion that would have to be had if you like the idea of a performance index to decide how it should be

constructed, and I think those two levels of choice should be made differently—separately, not differently.

MR. ESTY: Actually, I think all three questions get at a very important issue here, and that is the distinction between policy drivers and performance or outcome measurement, and I think that is an important distinction.

I worry a little bit, Joy, that you even blurred them at the end there because it gives a question of are we doing things right or getting things right. Actually, I think those are distinct because you could end up with a country that has got a lot right, but doing everything wrong.

I would just tell you, that comes out in our environmental sustainability index where Russia comes out quite high. So why does Russia come out high? It comes out high because, despite doing almost everything wrong, it has got a vast resource base. So it has an enormous amount of space to spread its mistakes across. This sounds funny, but it is not. Russia has more polluted water than anyone in the world, but more fresh water than anyone in the world. So, on average, it looks pretty good.

I would say we really do want to both track performance / results—that is very important—and separately track the drivers. So, on that, I agree with Dan Tunstall who was making the point about the importance of understanding what it is that is getting us where we need to go, and I think, David, that is your point as well. We want to look at these underlying issues like land tenure.

Just a quick response to Inder [ph] on his point, I think life expectancy is a very good single measure. I think under-5 mortality is maybe even better, but we could debate if you had to pick one.

MR. : [Inaudible.]

MR. ESTY: My point would be that for a certain purpose, distilling down to a single measure like that has value. If Governor Whitman forced me to choose, as I know she wanted to, I am probably with you. Under-5 mortality might be my favorite because it goes right to John Dixon's point. Probably water is the most critical driver of under-5 mortality.

I think the purpose here is a little different. I think it is about gauging performance and tracking the drivers of good performance, and that requires a slightly broader set of things to track.

MR. DIXON: I had written under-5 mortality because that also is my favorite life expectancy. That is the one that really tracks very, very well with a lot of things we are concerned about.

Interesting point that Joy just raised, the issue here is the list of indicators or topics that Dan mentioned at the end, as I said, basically are the Millennium Development Goals.

The question is there are six or eight of them. You added one or two. I think solid waste, frankly, is not an important issue. It is a nuisance. People don't like it. I don't think it kills you very often, maybe toxic waste, but can you make an index of these. Then this whole issue of weighting becomes crucial.

The Bank has struggled with this in the CPIA. I think Giovanni will discuss it this afternoon. I don't think they have come up with a really good solution yet.

You get back to the old index problem, well known in this country from consumer price index. What you put in the basket and how you weight it and when you measure it or what the basis is determines whether you do greatly or poorly. So they kept redefining the basket to make things look better over time, but it is a legitimate approach, and so long as it is done very transparently, you will know at least what it means if you have a small number of components.

My last word here is avoid doing what the UN did with the Commission of Sustainable Development where they worked for years and years on indicators and came up with their short critical list of 143, which, of course, never got measured in any comparable way. If you ask a country to look at that, they throw their hands up and say, "We already have numbers for these six," and someone else has these six, and it went nowhere.

Keep it simple. Keep the numbers small and meaningful. You can't please everyone, but you want to get the key issues, and I think these have come up again and again, land use, biodiversity, water, air. These are things that really matter.

MR. TUNSTALL: Let me go back to what I think is still the problem I have with the challenge we have been given, and we had it in February when about 10 of us sat around the table and talked about this. I still have the challenge.

As I read the legislation, it says what are the economic policies that lead to sustainable natural resource management. I also understand that what you are looking for is an indicator to go under the economic section. It already has six, and you would like to add a seventh. So there would be 17 altogether. That is where I get stuck, what are those economic policies that lead to natural resource management. It is not what are the natural resource management policies. That would be one thing, and maybe we could do that, but it is the economic policies. So does it deal with the trade? Does it deal with financial policies? Does it deal with labor laws? What are those economic policies that we are most interested in?

While I think it is a challenging point to make, I still have difficulty answering that question. I don't have a good answer for that. Even if we do an index like Dan talks about, which can capture a number of these different things, do we have the economic policies, so that we are back to the point where we can make a difference, can we make a difference in that economic policy.

Maybe there is a way, and maybe some of the resource economists around the table can help us on that, but I still have difficulty with that.

My suggestion before was not accepted, but I will still make it again because it is a larger group. We need a fourth category of indicators, not only the social and economic and the governance and the economic ones, but we could have a natural resource one. Then we could look at two or three or four indicators and possibly indices under that fourth category.

The reason I think that is so relevant—and maybe we can change the legislation to get it—is because the people you want to help the most with this

development are the poor people living in rural areas who are dependent on natural resources, and we are right back to the thesis that I called a thesis and that David calls nature, wealth, and power, and we have used that in much of our work.

I think that would be a more reasonable way to go. I know that is not solving the problem, Nigel, and I know we didn't solve it in February. My recommendation is not solving it because we have to go to Congress and see if they will change three or four of those words, but I think it is worth considering at some point.

Thank you.

MR. : Let me ask a question that touches on the theme of governance that all three of you raised. It is I think absolutely the case that the governance situation will affect a country's performance on natural resources and the environment, but the MCC already has a number of governance indicators.

For example, John, you had in your net savings rate, investment in education, which is already captured in the MCC.

Dan, you have in your sustainability index, the corruption rate, which is already captured in the MCC index.

So I wondered to the extent to which the environmental indicators that have been developed so far, the indices rather that have been developed so far would lead to a double-counting or a special emphasis on some of the things that the MCC is already looking at.

Dan, in particular, I wonder whether the new index that you are developing based on performance goes part of the way or all the way to weeding out those things, so that there is a clearer focus just on natural resource and environmental issues.

MR. ESTY: In fact, that is exactly the goal of our new environmental performance index is to pare away all of the endowment material and all of the governance trajectory data in order to focus on environmental performance. It is really going after what Joy wants, which is a clean understanding of what you are getting at, and then separately—and I am glad that the MCC is doing it already—you want to track these, what I call "drivers."

I think it is important not to do just one or the other. You really do want to track whether conditions in the environment are getting better, whether natural resources are being managed sustainably, but if you stop there, you won't be able to tell people what the model policies are, what the best practices are.

I guess I think we can even do better. My vision here is not just to do that, but to really shift environmental policy-making broadly onto a more empirical and data-driven foundation.

So I wanted to again pick up one of Inder's points which I didn't address before, and that is it is clearly the case that level of wealth, GDP per capita, is an enormously important driver of your environmental outcomes.

We know that rich countries can and do invest more in environmental protection. Anyone who says otherwise is really kidding themselves, and we should, therefore, always remember—and I think this is John Dixon's core point—investments in economic growth are important to environmental success. I think anyone that disconnects that is missing the whole vision of sustainable development.

Having said that and looking, for those who want to see it quickly, at this eight-page brochure we produced, you see that the track between GDP per capita and ESI scores is powerful, significant, but not complete. What is striking is that every level of income, you have got some countries that are doing better than you would expect, some countries that are doing worse than you would expect. So what it says is there is a powerful force that is basically your GDP level, but a whole set of other issues around policy that matter a lot, and figuring those out becomes an important challenge.

As part of my more academic work, I have got an article coming out with Mike Porter from Harvard Business School where we take this dataset and really try and do what Dan Tunstall is asking us to do, and that is figuring out what some of those underlying links are, what is it that gets us good results.

I can just tell you what emerges from our analysis is that good regulatory systems matter a lot. Getting your regulatory system right is significant, but equally important are your political and economic underpinnings, do you have a market economy, do you protect private property, how low is your corruption rate, so some of the things that we all talk about, but it is nice to see the statistics bearing out that theory around governance.

I think one of the reasons to invest in—and I hope the MCC will do it—getting the data strengthened is it will allow us to do better policy analysis and really in the next generation be even more clear on the linkages that so many of you around the room have said is what is important to track.

MR. : Actually, I wanted to ask a question of Dan.

In your introduction, you said it covered 146 countries. How many of the MCC 17 or 18 does it cover? That would give us some sense of still what the data problems are that maybe MCC can work on and/or these other independent sources.

I know the MCC wants to have the data as much as possible be independent from MCC paying for it. Otherwise, it looks like they are cooking the screening.

MR. ESTY: Our basic principle is we have got these 76 variables that underpin our 21 indicators, and we throw anyone out of the analysis if there is more than 40 percent of the data missing. So it is a simple rule. It is probably not a perfect rule.

A stricter standard would mean we would lose a whole lot of countries. I fear that we are losing a lot of the countries already that the MCC would really like to track.

I understand the MCC's desire to stay at arm's length, but I think investing money in outside groups, coming up with the data or improving the

foundational datasets, doesn't corrupt the objectivity of MCC's role, and I would urge that that kind of investment get made. There are lots of folks who have got at least a starting point on this that it would be worth pursuing.

If I were the czar of the MCC, I would actually put out money in three or four different directions and let different people compete to produce the best results. I think there has been a powerful lesson here about the importance of competing efforts and the spur that that provides of thinking creatively about ways to fill gaps.

Just to sort of complete the answer to Dan Tunstall, we tried very hard to start with our theoretical set of indicators, and we lose some, even if you look at the OECD. For example, we think wetlands are a pretty critical question of ecosystems strength. There is no good data even across the OECD countries that gives you a track on what the level of wetlands protected is. That is stunning, and frankly, it is unacceptable.

Everyone who is in this environmental policy realm should be outraged by the fact that we can't get at one of these critical questions that goes to ecosystem services, biodiversity, and a whole lot of other things.

Then when you get into some of the broader sets of countries, you start losing issues quickly. I mean, you start losing whole datasets. We don't really have good air pollution data for most of the developing world, and again, this is such a critical environmental health question. It is a scandal. It really is unacceptable.

So I hope that one of the things that can come from this process is a broad-based agreement that investing in the data is important and should be something the U.S. government does.

I have joked, but it is actually not a joke, that the U.S. could put monitoring stations on the roofs of its embassies around the world, and 5 or 10 years from now, we would have the best dataset that exists for air pollution, albeit that it is a terrible methodology because you wouldn't normally start with where your embassy is, but it would be better than anything that is out there. It would not cost that much. We are talking about low numbers of millions of dollars, not billions, to get this kind of foundational material.

So I really hope that that can be a centerpiece of whatever conclusions emerge today.

MR. PURVIS: Thank you.

Let's take three more questions and come back to John, since you didn't get a chance on this go-round. There was a question here on this side.

MR. RUTA: Thank you very much.

This panel actually gives scope for so many questions. I am Giovanni Ruta from World Bank.

I have one specific point which has been absent in the panel, and I would like the speakers to say something about this. It is the issue of setting targets.

If indicators are meant to give advice for policy-making and we want indicators to make sense as well, we want to say how far we are from a target, from a specific target. For example, the MDG 7, the environmentally sustainability goal in the MDGs fail, which there is no target.

So one thing is help policy-making through setting a target, and the other thing is deciding which indicators are good or bad. If we cannot define an indicator that can be monitored against a target, then we are giving a bad indicator.

For example, Russia is quoting relatively well in the ESI, it is probably because the resources indicator in its target, they are not much together.

MR. MARKOWITZ: Ken Markowitz, Earthpace, and a consultant to the International Network for Environmental Compliance and Enforcement.

I want to follow up on a comment that Dan had made and also something that Joy had referenced before that we are looking forward towards governance and systems of governance. That is intricately tied to the rule of law, and the underpinnings of the rule of law is a system of compliance and enforcement of the environmental law. This is something that we are looking at in INECE.

If we are to get an indicator that both reflects the state as well as the response, somehow we need to understand—and I would like feedback from the panel—on best ways to involve—how well a country is implementing its laws and what are the impacts of its compliance and enforcement activities on improving conditions towards the future.

MR. HIMBERG: I am Harvey Himberg. I am on assignment to The World Bank from the U.S. Overseas Private Investment Corporation.

I guess my question has to do with the temptation to gravitate to single surrogate indicators that combine other indicators that correlate well together.

As attractive as that is, I wonder if it isn't equally as important if you are looking for something that is actionable to distinguish between a country's natural endowment in something such as clean water, potable water, and its management of that natural endowment and to maintain that distinction through the analysis. If you don't do that, you are likely to end up with some very peculiar results such as Dan's very excellent example about Russia where it scores very high because of endowment factors rather than issues that are actionable.

Could any of the panelists comment on that?

MR. PURVIS: John, would you like to respond to any of these questions?

MR. DIXON: I will start with the last point from Mr. Himberg.

The endowment issue is obviously fundamental. Whenever you do indices, you end up with funny results. Looking at the list, Taiwan just beat out North Korea for the last place. I know how you got it, but I find that doesn't sort of tally with a sense of a lot of welfare issues that we are concerned about and possibilities for change.

There is no good answer as to a single indicator that is going to capture everything you want because it will be very specific, particularly indices by definition, as Dan and everyone has mentioned, are dependent on what goes into them and how you weight them and how you add them together. You get anomalies that come up.

When you look at it in detail, you say yes, now I understand why there is this outlier here and why we get this funny result, which just doesn't square with a laugh test or a reality sense.

I wanted to make two broad points. One is targets and goals that Giovanni mentioned, very important. Implicit in a lot of the indicators as opposed to indices, there are targets or goals behind it, like under-5 infant mortality or access to potable water. Access to potable water, you want it 100 percent. Under-5 infant/child mortality, you want a figure very close to Finland and Norway, which is very low. Children under 5 are not supposed to die. If they die, something has gone wrong.

Data for new efforts, I would disagree with Dan Esty on this. I don't think even with MCC's potential billions, you are going to have the staying power and the funds to actually create large data efforts at an international level.

I think you will have resources to support people who will use available datasets maybe to do some improvement on the margins, maybe think of some more creative ways of using data that are available to create indices or what have you, but data is something everyone always calls for, and when it comes time to pay for it, everyone always says somebody else has to pay for it because we know it takes years of investment and effort to establish new datasets.

Even improving presently collected data is a major challenge, but to establish new things, it is just a huge investment. If that is a path that MCC chooses to go, that is fine, but it is not done lightly. Every international workshop or conference ends up with a call for a web-based managed dataset or a clearinghouse of data. How many of those ever actually take place? That is just among professionals who benefit from it directly.

Go to Chad, go to Guatemala and say, "We want you to establish a new data series. We don't have any money really, but we think it is a good thing for you to do, and this is what is required." It is a huge effort.

I think a great deal can be done with available information and data, and I think that is where you have to start.

Last point, the ruling indicators in the present MCC, 16, is actually a very nice set of governance indicators, and I don't think you need necessarily—the environmental performance or management index could be an interesting one, but for just general governance one, if you have rule of law, if you have control over corruption, if you have civil liberties, if you have political rights, these relate to resource management and the environment as much as they do to a lot of other things. So I think a lot of it is already there.

MR. ESTY: I think the goal here was to spark some discussion. So now I will get to disagree with John to help get at some of these hard issues.

Just quickly on the issue of Taiwan, it is an artifice. It is an artifice of Taiwan not being in a lot of UN databases. They are excluded because they are not considered to be a country. So that is clearly a red flag and sort of we shouldn't give it much credibility at all. Nevertheless, it has helped the Taiwanese get very focused on this issue, and they are all over the question of how to raise their ranking.

Second, the Russia anomaly demonstrates something else, and Giovanni's point about targets, I will come to it in a second, but there is another critical issue here and it is denominators.

Why does Russia look good? It looks good because it has got a huge base of water to divide its polluted water against, and that is a problem. I think almost all of these indices need to be thought through very carefully in terms of denominators, what is the right scale against which to make judgments.

Third, on John's point about relying on existing data, I really disagree. Assembling all that is out there doesn't work. In fact, that is what we have tried hard to do, but it is not collected on bases that are methodologically consistent. So, if you got everyone to post their air pollution data, it would be a mess.

The value of having a single country that is big and can throw some resources against it like the United States is you would get everyone to add it up on the same basis. So I really disagree with the thought that we can get to where we need to go just by compiling what is out there.

I would urge you to talk to people like Tom Parris, who I know has been in this business for a long time, or those at the Columbia University part of the Earth Institute. You just don't have a methodological consistency that allows you to have confidence when you compare these things across countries.

There is a lack of capacity in a lot of countries to do it. If you could think about anything that would go to the long-term vision of the United States supporting good governance and decision-making that is going to lead to better results over time, this is an enormously powerful investment at a relatively low cost.

Ken, with regard to the rule of law, a critical issue. If you look at our ESI 2005, it comes out as one of the five top correlates, how well do you enforce your environmental regime. There is just no doubt that that matters. So, again, basic commitment of resources to an environmental protection system and to a regulatory regime does pay dividends. Just as ignoring wealth as a driver, ignoring environmental regulation would be foolish.

With regard to the targets question, we are getting into sort of the technical details here, but it is a critical technical detail. So I want to just spend 30 seconds on it.

I think you have got three choices. You have got a choice of what we do in the ESI, which is a relative target. It is basically how are you doing compared to other countries. Finland is the top overall, and we are all comparing how close we are to Finland, or on any specific issue, you pick the country that has got the best performance and measure distance from best performer.

I don't think that is really ideal because it doesn't tell you whether anyone is either doing as much as they need to do or—and this would be the second thing to aim at as a target—what true sustainability requires.

We get criticized quite a lot because we give people credit for high numbers when they are doing relatively well, but we don't say whether anyone is on a track to true sustainability, and the answer, of course, is that no one is.

A third way to set targets would be to take issues where there are goals set, either internationally or like the World Health Organization has set some exposure targets and things or perhaps the ones the U.S. has said are the right place we should be for the purposes of the MCC. I do think that distance to target is the right way to set a standard. You shouldn't just use what we are doing in the ESI or relative position.

So, for the environmental performance index that we are working on, we will use a distance-to-target approach and try to draw our targets from those that have been established either by international agreement, by international bodies, or in the absence of that, what the U.S. standard is as at least a starting point for what the target might be.

MR. TUNSTALL: Let me add a couple of points to my colleagues.

On the targets, if you take Dan Esty's list of eight, we already have targets for four or five of those. On water, the Targets are very clear, set by WHO on drinking water and on river-reach flow. On air, we have targets, both indoor air pollution and outdoor air pollution. On waste, the targets are a little bit different, particularly in terms of waste, hauling or collection, but there are targets for what is a good waste site, whether or not it is protected, and toxics, we have quite a few targets that are related to health and to ecosystems.

On biodiversity, we have some. Obviously, the United States has some, and IUCN through its red data books gets close to targets.

What is interesting in greenhouse gases and energy, we probably have a lot of targets, but they are not always accepted. So, as we know, certain governments in the world don't accept greenhouse gas emissions as an important target where others take that target as very important. Our own organization work very hard to develop greenhouse gas protocol on how to do this for projects and how to do it for industries.

Land use is very difficult. We just had a Supreme Court decision yesterday that affected land use in the United States and energy, too.

So I think targets are one of those things that are absolutely right. We are going to need them. We have looked for international targets when we have them. We even can look for targets like IUCN has, talks about 10 percent of protected areas in each country.

I know the Nature Conservancy is now considering setting a target for 10 percent of all the major ecosystems in the world.

Let me skip back to the last one where Dan Esty and I are really on the same track I think, and that is on improving the data.

In 1950, FAO set up shop in Rome, and they have done a pretty good job at collecting data on production and on trade of natural resources. I give them credit for that in the forest area and agriculture, fisheries, and they have done quite a bit on land and water. They have greatly improved their water data in the last 5 years.

What they haven't done, and they are struggling with, is what I would call the ecosystem service part of this that goes beyond the provisioning services into the regulating services. Those are the ones that don't come to the market. They are not priced. We often take them for granted until they are lost, and then we have to make them up. They are very expensive to make up. The cost of not maintaining some of the regulating services are extreme, and we know that in the United States already in terms of trying to maintain our rivers and drinking water.

I know, John, we say data collection, but I think what is different now is that the satellite imagery is starting to work. It is getting better and better. NASA, NOAH, and our international colleagues, there are 15 countries now with their own satellites using this information. The Russian satellite information is fantastic. So is the Indian information. The costs are going down, and the technical ability of the GIS experts to do the analysis is down.

In fact, much of our GIS analysis at WRI is done in Russia now because we are outsourcing some of the most expensive stuff to get very high quality at a lower cost.

So let's use this geospatial information to help us determine what these ecosystem services are, where they are in countries. You saw some of them up there that I put up. That is just a part of what we can do, and let's start to think of what those services are because we can actually relate those now at a local area, at a national area. If we need national numbers, we can do that.

I think moving the international system, moving FAO in particular, but also moving the U.S. government. I think the government of the United States can do this. We had reports on ecosystems and a lot of blank spaces of where the ecosystem indicators are just not there.

So I would just go along with we need to make that investment, and it is not just a brand-new investment. It is moving from what we did in the last half century very well, production and trade, now to the next half century which is going to have to be living with those systems in a way that they can be sustained and their capacity can be sustained while we get value out of them. We need the numbers for that. So we have to push that.

That is not saying MCC has to push that, but it can call for that over time because, when you start investing and signing compacts with 16, 17 countries and many of them are not in your index and they are not going to be on the measures of environmental legislation, they are just not going to be there in most cases. I wouldn't trust what Cameroon does with its forests. You are going to need this other information. So let's start anticipating that.

Thanks.

MR. PURVIS: That is an excellent segue into our afternoon discussion, but it is time now to break for lunch.

I would like to thank our panelists, and please join me in giving them a round of applause for their help.

[Applause.]

MR. PURVIS: That was a very rich discussion and I think an excellent setup for the rest of the day.

Before I give you the details about lunch, let me just introduce two people who I think you will want to say hello to over the course of the day.

Sherri Kraham, who is immediately to my right, is the policy director of the Millennium Challenge Corporation and has been given the mandate of thinking through this very challenging issue for the corporation.

Margaret Kuhlow—please raise your hand, Margaret, so folks can see you—will be moderating the next panel discussion and is the natural resource and environment person on staff and really taking the lead in helping to think through these issues from a practical and intellectual standpoint.

So those are important people to this discussion, and I encourage you to say hello and to share your views during the break.

We now have lunch for you until 1:00. Lunch is available across the hall. You can go out either the gray doors or the brown doors and then take a left over here to a large room where we have a buffet for you. We will be meeting back in this room at 1:00.

Thank you so much for your attention so far.

[Luncheon Break.]

[Side A of Audiotape 3 of 4 begins.]

Panel 2: Technology and Data

MS. KUHLOW: Good afternoon. I have been asked to make sure that we start on time. So I would like to make a bit of a start, and hopefully, this will help to call the rest of our lunchers in from outside.

[Pause.]

MS. KUHLOW: Thank you all again very much. It is a pleasure to be here. First of all, I am Margaret Kuhlow. I am the director of Environmental and Social Impact Assessment at the Millennium Challenge Corporation.

This morning's conversation, I have to say has been very instructive for all of my colleagues from the MCC.

You will notice that we didn't spend any time jumping in ourselves making counterpoints or answering some of the questions because we very much wanted to be here to listen today.

February of this past year, we started the public conversation around our search for this natural resource indicator, and since that time, we have had a number of substantive discussion with, I have to say, virtually everyone in this room over the course of the last several months. It is very interesting to hear now all of you have the opportunity to have this discussion with each other and more widely. This is very informative to us, and we are grateful for all of your participation.

One quick housekeeping item, as our CEO this morning, Paul Applegarth, let everyone know, we will be calling for ideas for this indicator, and one of the purposes of today's discussion was to have a substantive discussion around the pros and cons of the various issues that we have to deal with, with this indicator, so that the ideas that we get in are more focused and more targeted.

In essence, there has been a lot of preparatory work, so people have a better sense of both the constraints that we are all facing in finding an indicator like this and the kinds of things that the MCC is looking for.

Very soon, you will see up on our website a call for ideas, and we will allow 45 days for people to submit ideas for a natural resource indicator. That submission should include, for example, a description of the indicator or index that is proposed for us to use, a description of how the indicator or the index meets our legislative requirement, a description of how the indicator meets our general criteria for an index or an indicator that we had talked about this morning, whether it is developed by a third party who uses objective high-quality data and is analytically rigorous and publicly available, has had or will have broad country coverage, is comparable across countries, demonstrates a theoretical or empirical link to economic growth and poverty reduction, and is policy-linked and actionable.

We will also request that submitters provide a real or theoretical example of the kind of information that the index or the indicator that they are proposing would present for, say, five sample MCC candidate countries, and we will also ask for a

description of the technical feasibility, what kind of data, where does the data come from, who gathers it, how much time does it take, et cetera.

We have asked a number of people if they would help us in providing evaluations of these proposals, these ideas when they are submitted, and I am pleased to say that six experts have answered our call to provide to us individual assessments of the submissions.

Those experts include—actually, almost all of them are here today—Don Coursey who is my co-moderator for the panel this afternoon. He is an Ameritech Professor of Public Policy at the Harris School of Public Policy Studies at the University of Chicago. He has done quite a bit of research in environmental justice and endangered species as well as sources of demand for environmental quality, a very well-known environmental economist. We are happy to have him both as an evaluator and as a co-moderator here this afternoon.

Nigel has also agreed to serve as an independent evaluator for us, and we are very appreciative given his vast experience both in public-private sector, NGO as well.

Ted Gayer, who is associate professor of Public Policy, Georgetown University, Visiting Scholar at the American Enterprise Institute, was not able to join us here today because of travel.

Asif Shaikh, who is here with us today, is the president and CEO of the International Resources Group and also the head of the Society for International Development here in Washington.

John Dixon, who spoke this morning, is a very well-known resource economist and former lead environmental economist at The World Bank, and Joy Hecht—

MR. DIXON: The thing is that the Bank has lots of lead environmental economists now.

MS. KUHLOW: You were the first.

MR. DIXON: No. I was one of the first two.

MS. KUHLOW: Modesty is not a usual characteristic of an economist, and it is welcomed.

[Laughter.]

MS. KUHLOW: Joy Hecht, who will join us on the panel this afternoon, is a consultant on environmental economics and policy. Many of you will be familiar with her writings.

This next panel, we will talk a lot about measures and a further discussion of what kinds of indicators we might look at and how to measure, the pros and cons of measuring policies, how you find the data, how you put it together. We will move a little bit more from general issues to specific issues.

I think with that as an introduction, I will turn to Professor Coursey to provide a couple of introductory remarks.

Thank you.

MR. COURSEY: Thanks, Margaret, and thank you all for inviting me here today.

I guess it is our job, the six of us, to solve this problem of complexity. So I just wanted to share with you the kinds of things that I am here to learn more about or to know more about.

First, I do realize this is a very complex problem. It involves economics. It involves development. It involves their effect upon the environment, but it also involves something that I want to keep in my mind and focus, which is poverty and solving some of the long-term problems around the world associated with poverty.

I am an economist from the University of Chicago, and this may surprise you, but I am also a humanist first. As I go about listening to all the experts in the room, I keep that humanist perspective in mind. This is about the environment, but it is also about helping poor people.

Dan Esty had a list of eight or so measures that might go into a general index. Quickly, they were water, air, waste, toxic, emissions, greenhouse gases, biodiversity, and energy. That is I think a good global perspective on these things, but from the perspective of poverty, I am very much interested in a lot of the discussion that went on this morning having to do with sort of more gut-level environmental issues surrounding people.

People have asked me all over the world what I think the biggest environmental problem in the world is, and they are typically expecting ozone depletion, deforestation, greenhouse effects. If I am putting on my humanist hat first, though, that is not the answer. To me, clearly the answer is, is there something in my direct environment that is going to cause my child not to be born or to be born dead.

Secondly, if that child is born, is there something directly in the environment that is going to cause it to die before the age of 5? Typically, the cause and effect is they don't have access to clean water or sanitation. The child gets diarrhea, gets dehydrated and dies. To me, those are the main environmental problems from the humanist perspective in the world today.

So I am interested in measures like access to potable water, infant mortality—these came up this morning—infant mortality under 5, property rights. If I am a poor farmer, how assured can I be that if I plant a crop or raise some animals that I will have access to them and they will not be taken away from me or confiscated.

I had a few more things. Well, sanitation came up this morning. Energy production. I think another good measure of how well a country is treating its people is how many people are not gathering wood all day long to cook or to heat themselves, or worse, they are collecting dung all day long or charcoal, making charcoal.

How many people have access to large quantities of large quantities of reliable electricity? That would be another measure I might put in there in terms of how good a country is treating its poor citizens.

Finally, culture. Culture came up in Dan's talk as well this morning, but how do people actually feel or value elements in their environment?

That said, I have worked in this area long enough to know that the data requirements for answering these questions are very, very difficult.

I have been working on a project that has nothing to do with this discussion today. Two years ago, I wanted to know country by country how many operating cars are there in the world. I figured this would be pretty easy. So I sent a graduate student out, "I can't find it." They can't find it anywhere.

I said, "Okay. Fine. Start with the OECD countries." "Well, I can't get that either." We don't even know how many cars, which is something you would think we could account pretty easily, there are country by country, even in the rich countries.

The NASA satellites came up today as well. People think we have good population estimates in different parts of the world. These same NASA satellites that are counting trees in Kenya are counting thatched huts in South America, and those thatched huts are multiplied by some family constant to come up with rural population estimates.

So there is a strong inverse relationship between the wealth of a country, a strong positive relationship between the quality and quantity of data from a country and the wealth in that country. What I want to know is what do the holes in this data look like, how devastating are these holes for the Millennium Challenge Corporation, and which of those holes can we fix quickly.

Finally, I am holding an open mind about a purely quantitative index versus some qualitative flexibility. A big discussion that I think is important is do we recommend to the Millennium Challenge Corporation that here is a list of things, you deal with them, or do we say here is a final number, it is a final score, end of the story.

This is a more open question than you think. Again, the consumer price index came up this morning. It is in the mix. It is not perfect. It needs to be updated as new things are invented, like computers and so forth, its population demographics change and so forth, but we do this all the time with the CPI.

You will hear something like the consumer price index was high this month. Well, does that mean we are going into a period of inflation? No. It might mean that there was a refinery fire in Houston and that has caused a local spike in gasoline prices across the country, and we can put caveats on things like indices.

So what I am trying to grapple with is do we want a pure index, a pure mathematical object that is worshiped for all of its goods and bads, or do we want some qualitative flexibility as well.

I will stop with my introductory remarks and send it back to you.

MS. KUHLOW: Thank you very much.

That together with the end of this morning's session I think sets an excellent basis for the discussion that we are going to have led by our three speakers.

This morning, you heard a lot of talk about the importance of governance, about the difficulties in finding data, the difficulties in measuring, and we are going to talk a little bit more about some efforts that some of these experts are taking to tackle some of those issues.

We will start with Tom Parris who is a research scientist, executive director of the New England office of ISciences, has a background in both mathematics and public policy, so comes at this issue interestingly from both directions.

His current research focuses on sustainable development, vulnerability analysis, and environmental information policy.

MR. PARRIS: Thank you very much for inviting me to speak today. This audience is very different than the typical audience that I speak to. So bear with me if I stumble a bit.

Just to start, I have to say that Joy, who is sitting to my left, and I have had a fairly active e-mail correspondence for probably about 10 years, but have never met—

MS. HECHT: Fifteen.

MR. PARRIS: Fifteen.

—until today. So you have managed to really wrap your arms around the community very well and bring us all into the same room together.

I am going to try to do three things today. The first is I want to parse out at least what I think of as sustainable management and natural resources. We have talked about a lot of issues today, but I think I want to focus on that phrase in particular.

I want to talk about what the measurement opportunities are, what are the observables you can actually go out and try to measure.

I want to talk about the deficiencies in those measurement opportunities and the weaknesses, and then hopefully point some ways forward with some illustrative suggestions, not comprehensive suggestions, of the types of things that might go into an indicator or index.

I have tried to keep the creativity to the point where it is actionable as opposed to saying we need a $30-million data program. So that is where I am headed.

I have been writing on this issue for a number of years now, and when we look at the term "sustainability" or "sustainable development," there really are two halves of the equation, the issue of meeting human needs and nurturing life support systems of the earth.

I realize this list is a little hard to read, but what you see in each table is a column for goals, indicators, targets, and the quality of reporting and assessment. What I tried to do in this piece is examine all of the international consensus documents, whether they be treaties or declarations that come out of things like the UN population

conference, the Earth Summit and so on and so forth, and distill down what they have stated are their goals, indicators, and targets.

On the left-hand side are the priority human needs indicators, and we have talked about a lot of these together today, childhood mortality, literacy, under-nourishment, poverty rates, access to improved sanitation services. In coming up with this list, we intentionally tried to keep the list small. There are seven indicators mentioned there.

We removed indicators that were highly correlated with one another. So, actually, there is a pretty good correlation between potable water and sanitation services. Here, we chose sanitation services because it is actually a harder thing to achieve, and it is a better measure of the ability of the country to put out complex sociotechnical infrastructure like electrical goods, but it is more immediate in terms of its impact on human needs for the most vulnerable people.

At the right, you see indicators that came out for priority life support systems, and you see indicators such as greenhouse gas emissions, condition of the marine ecosystems, consumptive fresh water withdrawals, land use/land cover change, land use/land cover change in biodiversity hot spots in particular, and toxics, here illustrated by dioxin and furan emissions.

A couple of interesting contrasts between the two tables, first of all, a lot of the targets on the right are not specified in the international consensus documents. They say we need to do something about it, but they don't set hard targets.

The second is the quality of reporting and assessment for the ecosystem indicators is far worse than that for the human needs indicators, and you can argue that they are not in great shape either. So we start from an information deficit, and we start from a policy consensus deficit.

The second point I want to make with this slide is that there are issues in how you choose your indicators for the particular universe of countries you are interested in examining. So, for example, in the countries that we are looking at, dioxin and furan emissions may not be the most important toxic to worry about. Lead and mercury may be a whole lot more important. So we need to think about of the indicators we can select for a particular issue, what is the indicator that is most appropriate for the universe of countries that we are thinking about for the MCC.

The third point I want to make is that oceans are a very important ecosystem. It is very hard to come up with country-specific indicators for ocean management. The countries through the exclusive economic zone manage a very small portion of the oceans. The coastal zone is important, and you can develop indicators for it, but there are few that are widely measures.

The final point I would like to make with this slide is that country averages can be very deceiving, and we saw that in the Kenya example earlier today. That is what we have most widely reported. It is what the MCC wants as a country score, but if you dig in, what you are really concerned about are spatial co-locations.

On average, the U.S. has high water availability per capita. Tell that to someone living in Phoenix. Those are important distinctions to know about. So the sub-national distributions and the co-locations of those distributions is very important.

Finally, to pick up on the debate that we had earlier between Dan and John on whether we need to invest in more data, I think this slide says yes, we have to. Whether it is the MCC that does as an appropriate vehicle, I think that is way open for debate, but it is also worth pointing out that the Germans just hosted a high-level ministerial conference on the possibility of supporting a world environment organization.

I don't know the particulars of what they were discussing. There are pros and cons to a world environment organization, but data is one thing that such an organization could provide and invest in, and it may be something for U.S. foreign policy to consider.

Many of us have talked about the pressure state and response framework, and I want to use that to illustrate where there are measurement opportunities.

Pressures are typically considered in terms of consumption, emissions, or extraction. Examples of consumption include land use, consumptive water withdrawals—and I will parse that out later in the presentation—energy use. Emissions include greenhouse gases, toxics, organic water pollutants, extraction, deforestation, mineral resources, petroleum resources, and so forth.

Those pressures affect the current state of the environment, and you can think of that state in terms of natural capital ecosystem services or exposure impact, sort of a public health perspective.

Changes in the natural capital or ecosystem services include measures such as the change in forest cover, change in fresh water availability or quality. Examples of exposure and impact might be the burden of diseases due to environmental factors, and responses are what the policy community and the society at large do about it.

It includes the policies themselves about protected lands, clean air/water standards, protection of biodiversity, enforcement actions which we have talked about a bit earlier. When you have market ties to externalities, as we do in the United States for some emissions, you might think in terms of the prices of the traded emissions. That is not going to be available for virtually all of the MCC countries, but those are the measurement opportunities.

Before I leave this slide, we talked a bit about driving forces today. The first presentation this morning talked about population as being a driving force on consumption emissions. We talked about the policy process and the quality of governance and governance institutions as a driving force on the types of responses.

I think it is important that you not try to settle on single driving forces. Those are going to be very context-specific across the countries that you are dealing with, and it is important for you not to focus too much on driving forces in these indicators that you are considering for identifying eligible countries. They are responses that they can take from a policy perspective once they understand what they need to

change, but I think it is a mistake to say that population growth is something that the MCC needs to focus on as an outcome.

So what are the measurement issues? What I am going to do is go through pressure state response and talk about some of the difficulties one has in coming up with comparable measures for the poorest countries of the world, and that is the task at hand.

First, with pressure, consumption and emissions for the poorest countries of the world are probably the wrong concept to hang your hat on. If anything, we want them to increase their consumption. They are under-nourished. We want them to eat more food.

They have problems meeting household energy needs. We want them to consume more electricity, hopefully through renewable resources, but we actually want them to consume more.

The second part of this is emissions in particular are rarely available for the poorest countries of the world. So there is a good argument for not thinking about pressure.

State. A lot of the measurements of state are focused on narrowly constructed measures of changing natural capital or ecosystems services, and because of that, they are not comparable because of differing endowments.

We talked a lot about deforestation. There are countries that don't have a lot of trees, and deforestation is not a good way of comparing their land use/land cover change to countries that do have a lot of trees.

With the exposure impact measures, it is very difficult to establish causality with exposure and impact. So, for example, some people suggest childhood respiratory diseases as a measure of indoor environmental quality. There are a whole lot of factors that go into those diseases, some of which are environmental, a lot of which are not, and it is very difficult to prove a cause-and-effect relationship, and they are typically not available for the countries that we are interested in. It is not a very optimistic picture so far.

Response. There are a number of measures that are in your existing interim such as the societies' legislative score, and I think we all know that it is one thing to pass legislation and create regulatory regimes. It is quite another to implement them and enforce them and still yet another for them to have the desired effect.

We have talked a lot about process issues, and my feeling, which came out in the prior discussions and I just want to emphasize, is that many of these are already addressed by the existing MCC measures. You have voice and accountability, political rights, civil liberties, corruption, and probably a couple of others that I have forgotten.

The quality of governance and institutions is not something that is very specific to environment. They tend to exist across the board. Environment may be a little better or a little worse than the other sectors, and it would be good to know that,

although difficult to know that, but I don't think we need to focus too much on those driving forces of policy.

The third thing—and this is a common feature of a lot of measures that one might consider—is that you have nonlinear relationships. With regulation, it is bad to have zero regulation. It is bad to have exhaustive regulation of everything you could possibly regulate. You can over-regulate to the point of economic burden. So it is important to think about these non-linearities or U-shaped relationships.

So that is a very depressing picture so far. It sounds like we can't do anything. I don't want to leave you with that picture. I think there are some possible ways forward, and I am going to talk about two baskets of indicators and only give some illustrative examples. These are the ones that I, with my limited creativity and insight, have been able to come up with, and I think as a collective body, we can probably do a lot better.

The first bundle is what I have done, policy effective measures. What we are really interested in is the capacity of the country to do natural resource management. We can have all kinds of arguments about what constitutes good versus bad natural resource management, but if they can't do it at all, that is an even bigger problem.

So what we would like to do is measure the degree to which the policies achieve their desired outcomes. If a country states that they have protected lands, we shouldn't be seeing a lot of land use/land coverage change in those areas. It is an easy experiment, relatively inexpensive to conduct with a combination of the IUCN protected lands boundaries and remote sensing over time.

Ideally, you can get land use/land cover change metrics yearly, and they are planned to be done quarterly, although there are some holdups in the process. A little bit of prodding from MCC that there is a new customer out there might break that deadlock.

Another example might be a decline in toxic emissions as a result of toxic release inventory style, freedom of information policy, but you can set up experiments that say did you enact a policy and did it actually have an outcome we can observe that we think is an associated outcome. Those types of experiments demonstrate capacity.

You can then work with a country to improve the capacity to have more desirable outcomes, but if they have no policy apparatus at all—and here, I would argue that the natural resource management is a distinct sector from other types of governmental management.

The second basket I would point to are what I call highly aggregated measures of change in natural capital. The problem is we have lots of incomparable units. We don't know how to compare change in forest cover with change in desert area. We don't know how to compare mineral extraction with water consumption. We have no common units.

I have listed three instances of what I mean by this. The top is purely biophysical, the bottom is purely monetary, and the center is somewhere in between.

So the top which is purely biophysical is changes in net primary productivity. Net primary productivity is basically a measure of how vegetation fixes carbon. It is a biophysical measure. It varies from year to year based on weather and climate. So you have to have a way of modeling that variability out.

You can do it with long-term averages, not good for the MCC application, or you can do it by actually looking at what the weather and climate was from a year-to-year basis in making adjustments. I think we may hear a bit more on this later.

It is a fairly abstract concept, but it does get at sort of the health of the land of a given country to fix carbon, which is what is needed for agriculture. It is what is needed for forestry. It is a good common metric.

Moving forward with that, you could decide to delineate that only in areas of critical concern, like biodiversity hot spots, so that you focus it specifically as a biodiversity measure, and there, net primary productivity is really correlated with an underlying functioning of an ecosystem that is important for biodiversity.

The second illustrative idea is net annual carbon dioxide flux into the atmosphere, attributed to anthropogenic land use/land cover change, a long phrase, and I will parse that out in a subsequent slide, but the idea here is that we are trying to take a particular process that we are concerned about, land use/land cover change, and come up with a common unit of measurement over which we can compare different types of land use/land cover change.

Finally, green national accounts, we heard about adjusted net savings earlier. I think it is a good start, and there are things that one would like to see added to it that are data-limited, such as consumptive fresh water withdrawals as a withdrawal on your natural capital.

What I particularly like about the green national accounts is it doesn't say you can't use your natural capital. That is a mistake. We have to allow these countries to make use of their natural capital. It is a question of what you do with the proceeds.

What do you do with the money you take out of your savings account? Do you invest it in a way that is going to create economic growth, or does it end up in offshore bank accounts through corruption? That is the key issue, and that is what green national accounts try to get at. So I actually like them very much, but I think they have a long way to go in terms of fleshing them out for the countries of your interest and making sure that they are accounting for the depletions that we want accounted for.

I am going to spend a little bit of time, and then I will finish, just parsing out this one measure because it is not a very well-known measure. It is an accounting base measure that accounts for lots of different types of land use change, although not all that you would worry about.

They use national estimates of conversion rates and emission factors associated with each emissions rate. The issues here is that it is an annual time series, but it stops in the year 2000. It needs to be normalized by the country's endowment, and probably most critical is it is basically a hobby project of two researchers at Woods Hole Oceanographic Institution. So it doesn't have the institutional muscle behind it to

produce what you need on an annual basis, but a little bit of incremental funding could go a long way to fixing that problem.

Just to give a sense of what it looks like, the black line is the total, and if you look just at the right-hand column for the 2000, you are reading tropical Asia which has basically at least stocked its increase for the last few years since 1990; Latin America which was high, but had a significant decrease; tropical Africa, which is increasing substantially; China, which had horrendous rates in the '50s and '60s, but have declined since, most likely because there wasn't much left to convert in an economically useful way; and the U.S. at the bottom which is actually reforesting and, therefore, has a negative number.

So I will conclude there.

MS. KUHLOW: Thank you very much.

Our next speaker is Mr. Giovanni Ruta. He is a research analyst at The World Bank and an environmental economist who works on environmental indicators and provides expertise in economic analyses and policy research assisting countries in their specific environmental analyses.

He will talk about an entirely different kind of indicator from what we have been hearing about today, and this one is more focused on measuring policies and gets to your question from this morning about enforcement of environmental assessment regimes.

MR. RUTA: Thank you, Margaret. You did a mistake as I am "the" research analyst of The World Bank.

[Laughter.]

MR. RUTA: Anyway, it is a tough hour. So let's try to keep awake.

What I am going to talk about here—there are many things I am going to be talking about, one of them is the little green data book. It is on the table at the entrance. So every one of you is welcome to pick one copy. If you don't find it on the table, they are hidden in the counter at the entrance. There is a box behind the counter. So just go and find them.

It is one of the most interesting activities I have been involved in since I got to the Bank. It is one of the most challenging. The title comes from there. It is something everybody is looking for. It is something very precious. It is assessing institutions and policies in environmental management, but at the same time, once you start bothering about these issues, you get a lot of headaches and comments from people, why are you doing this and are you sure you should do this, how do you aggregate things, what is the weighting, and it is a big headache.

The reason I think I have been called to talk about this is because it is an exercise which is very similar to what the MCC is trying to do, which is try to decide on how to allocate scarce resources for a big number of countries with, let's say, countless needs. So how do we solve that problem? We do this sort of exercise in which we do some prioritization.

We will give then some background on what the Bank does. CPIA is a Country Policies and Institutional Assessment. We will look at how it was done before and then how it is done now, new elements of the unbundling of environmental issues and the dimensions of government we consider, and then do some general consideration just to let the floor open also for the discussion to follow.

What is a CPIA? It is part of the IDA. IDA is the International Development Association, performance-based allocation. IDA is a fund. It is not a bank. It is a fund. So it gets replenished every 2 years, and it has to decide how to allocate these monies in these 2 years.

It does so by using this very complex formula in which CPIA is one of the variables. The CPIA is a set of 16 criteria under which each country is assessed. The 16 criteria are grouped in four clusters, and one of the criteria is policies and institution for environmental sustainability. It aims at assessing policies and not outcomes.

We have some outcome indicators. We can know how much pollution is in major cities in the world. We can know what is the coverage of sanitation. We can know what is the rate of forestation if the data is not updated so often, but then what we are looking at here is not outcomes at all. It is about policies and institutions. So it is a different question we are asking.

The main presumption for doing this exercise is where you have good policies, your actions, your involvement as a development association would probably gather better results for growth and poverty reduction, and the Bank thinks that environmental management is an important step in public data. So here is where we enter the game.

The main principle, CPI, the ratings should depend on actual policies. They shouldn't depend on intentions. So, even if the country dialogue shows that the country is engaged into some reforms, but these reforms have not happened, then it shouldn't be given an importance in the actual scoring, and it shouldn't be affected by outcomes.

This first bullet tells you something about where the CPIA process comes from, which is the Bank's experience in policy dialogue with the countries. Actually, it drives on a very powerful house, which is the very wide experience the Bank has on these issues because of the direct contact and everyday operations with the countries. So, in a sense, it is an exercise that doesn't rely much on information that is publicly available. It is information that is embodied in the staff and the people working on different projects.

Ratings should depend on the level rather than changes from the previous year. So we are looking at how the situation is, and we are picturing the situation in any given year. We are not picturing how much it has improved from previous years.

Ratings should take into account the country's level of development. This is one of the presumptions as well as the CPIA. We are not really trying to make a ranking in which you can compare Finland and North Korea. We are just trying to think of North Korea within its level of development and within its peer.

Once you start doing these sorts of exercises, things get complicated, let me tell you, because it opens the window for a lot of subjectivity. So my personal point of view, it is not the weight that it is done right now, but you can take into account the level of development, but do it explicitly. Once you obtain your ranking, you can adjust it with GNI per capita, for example, if you think the development is GNI per capita, but being explicit about this is probably the best thing to go off with it.

Let's do one step back, and let's look at CPIA before we modify the procedure. The way it basically works is the vice president of any given region—for example, the vice president of Africa receives this big package with all the criteria and all the descriptors of which number and sends it to its country team.

The country director receives the package and gives it usually to the country economist, and then the next day or the day before the submission deadline, you will try to sneak into the office of the country economist and you will find that he actually put on some nice new age music and he is sitting on his chair with his legs crossed and his fingers like this, trying to figure out a number under each different criteria of the CPIA, putting together all his knowledge on what he really knows about the country and what he is supposed to know about the country.

Then, often what happens is the country economist or the environmental specialist is actually the country economist, then delegated a different specialist with their expert, for example, about forestry. So you are in the country office Djibouti. A forestry guy gives you a score on the old environmental CPIA. So, of course, the process realized would be thinking mostly forestry. You cannot avoid that. You cannot have him thinking about indoor pollution, for example. In Nigeria, 50,000 children die every year due to indoor pollution, and he probably doesn't have that expertise to assess that.

So there is some challenge there, and to give you an example of what the environmental specialist would receive, he would receive a page like this and say a score of 2 means this, this long paragraph, the first bullet. A score of 3 means this other paragraph, a score of 4, a score of 5.

So let's see some of the problems with this. I don't know if you see the green letters. You should be able to see them. These were ineffective or limited scope or something is inadequate or policies are fairly broad or reasonably matched. So these words really don't help much in trying to figure it out. This is one of our starting points.

The next example is—here you are. If you have a score of 2, it is because, among other things, the regulatory framework and its implementation are inadequate to handle major environmental challenges.

If you have a score of 5, it is because together with other things, water and sanitation services are broadly available and financially sustainable.

I don't see why these two elements, the two green sentences, shouldn't be together, shouldn't be happening in the same in any given country. So is that a 2, or is it a 5? So these are not very sure.

If you look at a multidimensional problem, you cannot solve it on a uni-dimensional scale. That is the challenge.

So here we go. The basic final result of our process was to give—I am afraid the slide—the characters have changed. So it doesn't show, but basically in the circle there, there was a 3.5, the score given to any given country, Country X, and a big explanation of that.

After you read all of the explanation, if you want to take time to read it—I don't particularly suggest to do it, but after you read the whole explanation, you really didn't know why it was a 3.5, where this 3.5 was coming from.

So, without losing any more time, I don't want to spend so much time talking. I would like you to say what you think.

We observed that there are several issues that are observed here. Forestry and biodiversity are in this explanation, industrial pollution, solid waste management, wastewater treatment, water pollution. There are different dimensions of governance being realized, like the legal framework, how the policies are, the capacity-building efforts, how is the information based on which decisions are based, and they look at some selected outcomes, in fact, as well.

All of these are bunched together in 3.5 without a clear explanation, and of course, this explanation changes from country to country. There is some sort of subjectivity.

Our first step to settle this new mechanism for scoring was to unbundle environment. Environment is probably one of the most complex things we are dealing with when we talk about development, complex in terms of there are many issues involved.

We consider, okay, let's divide it first between brown issues and green issues. With respect to brown issues, we would like to bother about air pollution, water pollution, solid waste, for example. Within the green issues, we want to look at water management, biodiversity management, and the management of those marine and coastal resources.

At the same time, some countries that are very rich in commercial natural resources, such as oil, minerals, forestry, we may want to ask about how they are managing their commercial natural resources system.

If you now start asking, for example, your country economist about giving a rate from 1 to 6 under each of these dimensions, now you are already forcing him to think about more concrete steps. That is a huge improvement. As simple as it seems, it represents a big step forward.

If you ask me to give a ranking of air pollution management in Sao Paulo, I can tell you something more if you ask me to rank environmental issues in Brazil. It is a different type of question that actually uses a different part of your brain or a different part of your knowledge, and if you don't have the knowledge, you can record the specific knowledge. So this is the first step.

The second step is what we are looking at. There was a sort of mixing up when the scoring process was happening with respect to the outcomes. People were implicitly thinking, "If I know any country is known to have a big environmental

problem, that must mean the policies are bad." This is not always true. Maybe policies are good, but the outcome is not good.

Another thing is let's try to define what we are really looking at, what are policies and institutions. So I started reading around and draw this sort of flow chart. We have the national government. That is the first thing I think of when I think of policy and institutions. We have national environmental policies that the government implements, but that is not all about it. There are also other government instances that affect environmental management.

Very often, environmental problems are local, and decisions are taken by the local government. So here again, we have a set of policies or even regulations that are decided by the local government sometimes.

Then we have another problem. Not all countries are the same. Some countries have a more centralized structure. Some countries have a more decentralized structure. So how can I compare them? I said it is a new dimension. The yellow column is getting difficult. Do I have a bench mark to define what is the right level of this internalization to assess the environment? To what extent should a government delegate to the local governments, and how can I say if it is good or bad?

Then we have another level of difficulty. It is not only environmental policies that matter. It is also other policies that affect the environment that matter. So there are economy-wide policies that are actually influencing your environmental outcomes. So I can have a very good environmental management, but at the same time, I will have a lot of protected areas. At the same time, I might have an energy policy that is very damaging for the environment. So I should look at these issues as well.

Then there are issues of how they are spending the money. There is the public expenditure review and the public environmental expenditure review. So I should look at that as well.

Then there is the issue of participation. Does society have access to environmental information? Is society actually able to challenge policies and decisions that are being taken or has any ability to take decisions, the society? So it is very close to an environmental problem, but do they have actual access to the issues.

Then at a more difficult level, we have to look at the overall legal framework, is the legal framework established as a mechanism for all of these institutions and laws and policies to work. Beyond that, is there a political will to make things work? In red, they appear sort of brownish in the slide, but in red, I am indicating they are very difficult things to measure. Ultimately, we would like to know more about them.

So this was the simple diagram of governance I started with. There are many ways you can organize it. One could probably come out with different boxes and colors, but it is the framework we started from. We are the first reality check when we send the first variation of our new CPIA mechanisms to our regional colleagues, and we are reduced to simplify this a lot.

This is the way we ended up. I don't show you what the intermediate steps were, but this is the final result. I am afraid you don't read very well, this slide, but

to tell you this, there are two parts to it. The upper part looks at the broader and environmental management issues, cross-cutting across environmental sectors, and the second part looks at sector-specific scores. So it is the unbundling issue we are talking about.

Let's look at Part B, the part below. We have a different dimension of environment. We have air pollution, solid waste management. We have fresh water resources. In here, we consider both the protection over the water sources, so the water resource really and water pollution. We look at marine and coastal resources. We look at the ecosystem and biodiversity, and we look at commercial natural resources.

Then the second part is sort of a matrix because then we have two columns. There were four columns initially trying to mirror the scheme in the previous slide, but now we ended up with two columns. One is on the adequacy of the policy mix. So we actually tried to score how good is the policy mix under each of these sectors. Then we looked at the enforcement implementation capacity.

After the scoring, let's say 12 boxes in the matrix, however, we still have issues left out which are very important for the environment, but it could not be related to any environmental sector in specific, like is the government doing good prioritizing on cross-environmental issues, is the quality of environmental assessment good or bad, is cross-sectoral coordination happening, is public information and participation being sought when environmental decisions are taken. These are the dimensions that receive a score.

Each role gets a 10-percent score; in total, the 100-percent score. Again, here there is no weighting. It is just an arithmetic average of the results.

How do we actually get the score under each of these dimensions? Well, for example, let's take quality environmental assessment. Inside this box, what you actually have is a questionnaire of five questions related to an environmental impact assessment. These questions can be answered with a yes or no or a ranking from 1 to 4, 1 is bad, 4 is good.

In many cases, what they tried to do is capture facts. Having a broad knowledge about the country and being an environmental specialist in the country, you should be able to answer these questions with a fair degree of certainty. Again, there is a tradeoff here between how specific you can ask the question and what is the extent to which people can answer a specific question. So the question becomes less specific, but it becomes more answerable. So there is answerability, specificity tradeoff here going on, and we are to struggle out with that.

The questions, luckily I didn't come out with them because I am not an expert of EAA, but we asked EAA experts at the Bank to provide us a good set of questions. All of these have been peer-reviewed as well across the Bank.

Another example is air pollution. We're talking about the policy mix. Right? So here again, we have a set of three questions. Again, we send these over to the region. We asked all the air pollution experts in the region to give us a number of questions, and these are the ones which we ended up using.

Doing this exercise for all the environment CPIA means having to answer about 70 questions. This is the answer button that this represents. It is done every year, and it really relies heavily on the Bank's knowledge about this.

I will show you how we did in terms of response rate. What I wanted to show you is some of the interesting outcomes here. We don't have a single number, even if the end we use one single number, but we have 10 different numbers. For example, on the left side, you can look at these overall environmental management questions. We have participation, prioritization, environmental assessment, and cross-sector coordination, and you consider this country is scoring particularly bad in cross-sector coordination, for example.

The same country in the sectoral issues on the right side of the presentation is doing particularly well on biodiversity, but not very well on waste management, for example. So it gives you information about where the policy weaknesses are in a given country.

How can we improve these? Just let me say something. What if we are looking at a country like Laos in which, for example, the air pollution might not be a big problem, and probably because of that same reason, air pollution policies are totally absent. So should we punish Laos because their air pollution policies are not in place? In other words, how can we establish a weighting mechanism that actually captured those things? This is the challenge, and this is a question we haven't really answered, but it is a big one. It is the next step, let's say, to deal with these issues.

Let's make another example. How do our results in terms of policies and institutions compare to the outcome variables? Here, for example, I am graphing different countries, the CPIA air pollution score on the vertical axis, and the horizontal axis, we have the PM10 emissions in the countries.

The time is up. So I have to wrap up here, but look at this graph. Can you see a clear correlation going on between policies and outcomes? Not at all, at least I couldn't see it. It is a good news or a bad news.

I would say we shouldn't think in terms of good news or bad news.

[Laughter.]

MR. RUTA: As the research analyst of The World Bank, you should believe me.

[Laughter.]

MR. RUTA: What the graph is telling us is that there are different opportunities for intervention in these countries. Those countries that have high PM10 emissions and weak policies are those countries in which we have to engage mostly on reforming policies. Those countries which have, let's say, a lower level of PM10 emissions, but, again, very low policies, a country like Uganda, for example, is a country in which we should both look at policy advice, but also at the more technical issues of how many vehicles, what is the average age of the vehicles. So it really identifies different areas of intervention which are not necessarily policy-related.

So I will end the presentation here. This is how we fared. We had a response rate of about 65 percent across the Bank. So we are still not able to capture all information from all countries at the Bank. We have the breakout of the regions.

What I would like to see is now to give some thinking pills here. If we want to measure policy and institution and we have in mind these objectives for the indicators, the indicators should be analytically rigorous. We have to think of the tradeoff I was referring to before, answerability and the specificity of the question, so is something measurable, and if it is, probably it is less subjective. Then, if we go more subjective, we can measure more things.

Analytical unbundling is a major step forward. If we want to have high country coverage, CPIA is not the example to look at probably because the scores are so far undisclosed. It cannot be used, put in the public domain. There will be next year only for IDA countries, but you can look at relevant policies, for example, protected IDAs and adjusted net savings. We have been talking about this already.

If we worry about country comparability, do we want to use the same yardstick? The development level should be treated exogenously, as I was saying at the beginning, and we need to identify relevant importance of issues.

Finally, if you want to look at policy relevance of the indicators, again, unbundling is important, and we want a measure that can be changed. We want to work on something that can be changed. We should—[audio break].

[Side B of Audiotape 3 of 4 begins.]

MR. RUTA: [In progress]—longer-term changes, most policy changes take a long time to go, and also which are the actions we should take.

So I will leave it here, and thank you. I hope you are all awake.

MS. KUHLOW: Thank you very much.

Quickly, to introduce Joy Hecht, our last speaker, she is an independent consultant on environmental economics and policy, and among other works was the founding executive director of the New Jersey Sustainable State Institute.

So the end of this panel will bring you back to this morning and Governor Whitman. Perhaps I will abuse a bit my role here as a moderator and ask you to go ahead while you are talking and address Governor Whitman's inquiry this morning, and I was going to ask as a first question when we get into the discussion, all of the discussion, discussants address the question of how is this actionable, how does it meet the Monday morning test that Dr. Dixon mentioned this morning.

MS. HECHT: Thank you.

I am not sure I will do that because I think my talk is not quite as specific about particular indicators than other people's, and I should warn you of a couple of things. I was brought in as a speaker on Monday. So I didn't have a lot of time to think about this. If you think it is scattered, that is why.

I will tell you another thing, my slides are numbered. There are 17 of them. So you will know how far I am from the end.

What I want to talk about is some general considerations that have come up in my work, and my work is sort of scattered, a lot of work in Sub-Saharan Africa, a lot of work in Egypt, some work in Southeast Asia, a little bit of work in South Asia, some other work in North Africa as a consultant largely and also at IUCN.

Some general issues that have come up in my experience is on data development in the third world, how it differs from data development in developed countries, and obviously, I have also had experience here and in the OECD.

Some of the patterns that I have seen that are really more institutional than technical about data availability in the developing world, these are things I think need to be taken into account in a practical way when we come up with ideas for indicators.

The first thing that I threw in here—and I am not even sure I think it is correct right now, having listened to all the discussions this morning, but I will put it out there—is essentially what kind of data are we talking about when we are talking about environmental data and environmental indicators.

The first there points there, spatial information, ambient environmental quality, and discharges, are pressure and state data. They are not response data. They are not policy responses. They are nothing about the effectiveness of policy, but when you talk to environmental ministries in developing countries, this is generally what they talk about. They have a sense of all the spatial data, land data, water data, forest cover, land use, land cover, all of these databases that could be spatial, although sometimes they are not, and that is a big portion of it and it is a lot of what is used for natural resource management.

Then they talk about ambient environmental quality, air and water pollution, sometimes soil pollution.

Sometimes they talk about emissions into air and water, the whole sort of brown-end pollution from sewerage industry and so on.

Then the fourth element that is crucial is data about human activities that either depend on the environment or influence the environment, and if we are using data for policy purposes, we are essentially combining all of these things together, either the reform indicators or to do policy analysis.

I have found several things that typically seem to emerge when I work with people in the developing world. One is that there is great confusion about the difference between ambient data and emissions data. People really don't seem to get that one. I don't know why. I thought it was really obvious.

Obviously, in a lot of contexts, it is not, and when you talk to people about air pollution data, for example, they tell you about their monitoring system. They tell you we know this many sites in Cairo and that many in Alexandria, and you say, "No. I want to know how much is being discharged and by whom," and they look at you blankly, like why in the world would you want to know that. So they don't really see the policy importance of knowing about emissions in addition to knowing about ambient quality.

A lot of people don't quite get why the economic and social data are essential as part of your environmental information system, and that has been my experience in developing country governments. It is interesting because, in this discussion today, I feel like people are talking more about economic and social data than they are talking about any physical data on the environment. So I feel like we might be at the other extreme to some extent because we are so much focused on policy responses, on population, population density, housing types, whatever.

The other thing that I find people don't get—and of course, this comes partly from my biased background as a person who has done a great deal of work on environmental accounting—is many people don't see the importance of linking environmental data, particularly emissions data, to economic classifications, such as the ISIC codes. Again, that is crucial for policy purposes. If you want to know how to solve your problems, you need to know which economic activities are causing them and which economic activities will be affected by tighter environmental controls, but if your data are not instructed to let you do that, you can't get very far in your policy analysis.

One issue that I come up with a lot—and if this seems a little random, I'm sorry it is—has to do with the difference between indicators and data that are used for policy analysis. There is a great deal of discussion about indicators these days, and I guess I am kind of a policy wonk because I am much more interested in what do we really need to know to figure out how to solve our problems.

Indicators are good. They are a flag. They are like a little red flag goes up and says, "You have a problem. This indicator looks weird." They don't tell you what to do about your problem. They usually don't tell you what caused your problem unless they are really well defined. They are just a flag. They may be useful as kind of a test, which is what the MCC wants to do. They want to have a test. If you pass this score, if you make this score, you are in, and you will get our money, but they are not a thing that you can use to solve policy problems. You need much more detailed information to really understand why your indicator looks bad and what you can do about it in your country given your context.

To do the policy analysis, you need detailed underlying data. If those detailed data exist, you can use them for indicators and policy analysis, and that is great, but you can't take an indicator and turn it into detailed data that will enable you to figure out how to solve a problem. So we need to bear that in mind.

What MCC needs are indicators, but they really may not be particularly adequate to solve policy problems in the countries the MCC wants to work with.

Let me talk a bit about primary data collection. We have all observed that primary data are terrible in the developing world, especially in Sub-Saharan Africa, but also elsewhere.

There are several factors that obviously explain that. Basically, the money is not there to collect the data, and given the wealth of problems—that is a bad choice of words—given the problems in developing countries, collecting data on the environment is probably of low priority. Frankly, for all that I work on environment, they are probably right to give it a low priority.

Conducting a population census is more important than a forest census. It is more basic. It is more fundamental. It is more basic infrastructure, and doing other things may be more important.

Donor money is overwhelmingly used to fund data collection in the developing world. In Sub-Saharan Africa, I would guess 99 percent of data are collected with donor money. In other countries, that is less true.

In Egypt, I was quite pleased to see some consistent environment-related data, particularly on the Nile River management because the entire economy of the country depends on it. So they do spend their money collecting data on the Nile, but on other issues, it is donor money.

Donor resources do not go into ongoing time series data collection, with very few exceptions. Donors like to fund cutting-edge things. They like to fund one-time efforts. They say it is investment. It is leveraging, "We will put in the capital investment. Somebody else puts in the operating cost." That has consequences for the nature of data in the developing world, especially in very poor countries.

Where the environmental data are crucial for economic management, the countries do invest. As I said, Egypt invests in data on the Nile. They invest in tourism data, which is partially environment-related, because their economy depends on tourism. The Philippines have invested in forest data because they depend on forests, and similar examples in many countries, but to a significant extent, if the economy doesn't clearly depend on it, the countries aren't going to spend the money on it.

Sometimes we see that we have internationally comparable data. You will see World Bank databases. You will see data on a few topics where you really do have somewhat comparable information across many countries.

In a number of cases, this is because it is possible to estimate data about a country even if the country is not collecting primary information about their own situation.

This is true, for example, on greenhouse gas emissions from field combustion, which have been estimated for many countries in the world by Oakridge Labs based on trade data, on purchases of fuel, and then standard coefficients for the emissions from burning that kind of fuel. If you go to the Oakridge National Lab's website, you can find this stuff.

In similar ways, somebody at an international scale can compile small-scale, not necessarily large scale, land use/land cover data from satellite imagery for the whole world. The existence of databases like that, which are used by people like us and are probably being used in Columbia and at Yale for the sustainability index and for a number of these internationally comparable measures, don't mean that there is any more detail underlying the information at the country level.

If the country didn't collect the primary data and aggregate up from that, getting some international measure is not going to let you disaggregate. So that is going to also affect whether these comparable international indicators of this type are useful for policy purposes within the country. If they can't be disaggregated, they won't be.

The influence of donor funding on all of this is crucial I think. Donors generally like to fund cutting-edge things. They like to leverage. They do not like to support operational activities, and it is sort of a logical principle. It is sort of the teach your man how to fish instead of catching fish for him.

You want to go in and start something that will be able to be continued in the country. Data collection is not generally continued in the country, and what happens is in many of the big environmental databases, a country will come in. For example, I think it was Uganda I was working. The Norwegians had come in. They had done this gorgeous forest inventory based on satellite data. It was beautiful. It was lovely. The Ugandans were very happy. They had wonderful data. It was never updated. It was a 4-year project from the Norwegian donor assistance, and they didn't want to update it every 5 years, which would have given you meaningful consistent time series. They only did it once, and that kind of thing happens all the time.

It even happens with the census of population. It happens with base mapping. It happens with all kinds of data. The donors don't want to fund consistent investments in data because it is just not sexy. It is hard to justify at home. It is something they feel the country should do themselves, and that means you are not going to find the data you need if you are going to the countries.

There are some exceptions to this, which I think are political, and they are in Africa, in particular, and also in the developed world. In Sub-Saharan African, because of the food crises in the '70s and the starvation and the fact that we in this country saw photographs on TV of starving children in Ethiopia, WMO, the World Meteorological Organization, started supporting collection of weather data, in the [inaudible] and other parts of Sub-Saharan Africa and perhaps elsewhere in the world, but I have worked on it in the [inaudible].

That is ongoing, and they keep supporting it. They set up the weather services. They set up data collection systems. They linked it to agricultural data and so on.

The USAID and the European Union both supported data collection on food security. This is the fuse system in AID. It is a system called [inaudible], which may have a different name now, and I only knew the French acronym in the EU. It meant there exists ongoing data on certain issues. They are not always wonderful, but they are there in Sub-Saharan African countries.

This was driven by a crisis in the U.S. and perhaps Europe. It was a political issue here. So the countries did it.

In a somewhat similar way, it is relatively easy to estimate greenhouse gas emissions in many countries, and you see this when you start looking at environmental accounting and other things, because in the 1970's we had oil crises, and all the countries that were heavily oil-dependent started collecting energy data. They still collect energy data. It is key to their economy, and it was threatened in the '70s, with a result that now we have time series data on greenhouse gas emissions from fuel consumption because we have fuel consumption data back to the '70s.

It is those kind of political crises that drive us to do this. In other areas, if there is not a crisis, there is not an investment in that kind of data collection, and it has to be a crisis here, not in Africa.

Another issue that does seem to come up—and this has been certainly mentioned this morning—is that international standards do have influence. International norms—and I have seen this with the system of national accounts, not particularly the environmental accounts yet, but definitely the conventional SNA, the SDDS, standard data dissemination system, I think—it is the IMF data standard system, which many countries are joining, and they have to have certain kinds of data to be part of it, and they get a certain amount of positive feedback if they are part of it, perhaps not as good as the MCC feedback because here it is actually cash, but those kinds of things do lead to some standard core data, and that seems similar to what we heard this morning about countries starting to respond to the MCC indicators and say how can I improve my indicator.

That creates a risk. I mean, that could mean countries are basically teaching to the test. They are saying how can I improve that indicator, not how can I actually do things better, and when you have got only 15 indicators and a lot of money rides on them, you can probably do a lot to get businesses licensed faster, and it doesn't mean anything will change in your private sector context. So we need to be careful about that.

The UN Statistical Commission's adoption of environmental accounting standards and the World Tourism Organization—that is not the World Trade Organization—their adoption of standards for tourism accounting have both pushed countries somewhat on standardizing data, not a lot, but somewhat. So there is some influence there, and it may be useful to have standards, but it doesn't mean the primary data will be collected.

I will talk a bit about environmental accounting in particular because that is my area of expertise. Environmental accounts, as I am sure most of you know, are the modification of the system of national accounts, the conventional economic accounts, to link that to the environmental data.

They are very useful for policy purposes because of that linkage. If your environmental data are structured so as to be compatible with your economic information, you can look at the impact of economic policy on the environmental and the impact of environmental policy on the economy, and all of that is very useful.

They also allow you to calculate a number of quite relatively simple indicators—not very simple, but that includes measure of green GDP, whatever that might be. It includes adjusted national savings and a number of other indicators that are less well known.

In my experience, a few developing countries have built environmental accounts entirely with donor support. The Koreans, I guess aren't a developing country. They didn't have donor support, but overwhelmingly with donor support, they have built environmental accounts, not on their own.

A number of countries have explicitly looked at them, considered them, and said, "No. This is not our highest p2riority to build environmental accounts. We simply need to improve our environmental statistics first." That is what the Egyptians said. They said, "We will do tourism accounts because our economy depends on it. We don't want to do environmental accounts," and this was both the environmental people and the national accounts people, "because we are not there yet. Our environmental data are so bad. We just want to strengthen our environmental statistics. We will worry about accounting later."

If you are thinking about indicators that would be based on environmental accounts, you need to think about are you pushing them into something that they may have decided is not a priority for them simply to meet an MCC desire for tidy indicators, and that is a real concern to my mind that the MCC's need for a summary indicator that lets you compare countries may not respond to what the countries feel they need for their own internal policy purposes. You need to ask yourselves to what extent should we be pushing them into investing their data resources, since MCC isn't likely to pay for it, to collect things simply because we want them, when it is not useful to them except as a way to get money, an investment and a cash return from MCC. So that is something to think about.

Another factor on environmental accounting is that some of the key elements that underlie the accounts, notably, for example, being able to organize data on emissions and natural resource use by ISIC code may be more useful for policy purposes than actually building full-fledged environmental accounts. If you can make that link, you can do a lot of policy work, and that deals with how you structure your primary data. It doesn't deal with whether you actually construct environmental accounts.

Another factor is that very few countries are actually interested in green GDP except for maybe something to put in the newspaper and kind of boast about if it looks good. Adjusted net savings may be a little bit more useful because it has more policy applications, but those macro indicators are not terribly useful for the countries. They may be useful for international comparisons. They are interesting, but for policy decisions within the country, they are low.

Green GDP even within the UN, the UN methods for environmental accounting do not recommend calculating it. They talk about it. They don't say you should definitely do this because nobody knows what it means, and there is no agreed-on way to calculate it that anybody knows what to do with.

So those indicators, they may look great from this perspective. They are cool when you compare international numbers. When you get into the details, they are muddled.

MS. KUHLOW: Joy, we only have a little more than 5 minutes left. Can I suggest that you—

MS. HECHT: Wrap up.

MS. KUHLOW: —say one or two more words and then let's let people ask questions.

MS. HECHT: One or two more words. I think I already said that. I will skip it, and other people said it, too. You can read this. I said that already.

One other thing that has not come up—and this is data access—data access in the developing world is a nightmare. As I kind of realized when I first went there, there is no Freedom of Information Act in the developing world.

MS. Seymour: That's not true.

MS. HECHT: Where?

MS. KUHLOW: This is a good segue into the next—

MS. HECHT: No place I have worked.

Data from my experience are the property of the agencies that collect them. They don't even share them with other government agencies, in my experience. I might be working in different countries from you.

It can be very hard to get data. It can be very hard to even get metadata because the agencies—and maybe Egypt is one of the worst cases, but this is certainly true in Egypt. They won't even tell each other what they have got because if I know what you've got, I can go to somebody else more important than you and make you give it to me. If I don't even know what you have, I can't do that.

The donors play a role in this. Some donor projects, when they collect data, do get the data on the web and make them easily accessible to everybody, but many donors, including the United States, are saying, "You should be marketing your data. You should be selling them and getting a return on the investment that has gone into data to help cover the costs of producing them," and the sort of privatization model for data, in my opinion, is a disaster.

I was more polite there. I said it wasn't realistic or desirable. If we believe in price and things at the marginal cost of supplying them, then data should be free because one more download off the Internet is free for the supplier.

To me, data are a social good. They are an investment in a social good, and we should be pushing as hard as we can to get everybody to use them if we are going to build them. We should not be—and we really being USAID in this context—should not be pushing countries to sell the data. They should be pushing them to give the data away because the benefit is the social benefit, not the private return to the agency that produces them.

A couple of recommendations, this is nothing radical here. Keep it simple. Don't ask countries to invest in collecting data that aren't useful for them. If we need data that aren't useful for them, we have to do the work.

Time series measures are going to be more useful than cross-section, which means the donor role in not producing time series—the donor funding role is an issue.

The devil is in the details. If you really want to know what the data mean, you have to know how they were calculated. I think there is a tendency to look at

international comparisons and assume they are really comparable. You probably all know that already that they are not.

So I will stop there and let you look at a picture instead.

MS. KUHLOW: Thank you very much.

With that, I will forego on both of our behalves any opportunity for us to ask questions and just open it up, so we can hear from some of you and maybe some of you who didn't ask questions in the morning.

MR. GIBSON: Dave Gibson at Chemonics. I want to thank the panel for taking us way down the road. I kind of left at lunchtime with a sinking feeling that we were going to really over-engineer something we have over-engineered so many times, and Giovanni and Joy have certainly pushed us in that direction of applicability and some reality checks I think.

I just want to call our attention to a couple of things. One is that MCC under its own charter mandate, Section 605 requires that they respond in kind to their own environmental procedures which are I think still out for public review or will be concluding public review soon.

As they are currently stated, they really do require a very serious consideration of the response arena that the last two speakers focused us on. They do suggest that, in fact, there better be a regulatory framework, there better be an implementation framework, there better be some guidelines and teeth in implementing environmental requirements, and I would suggest that all of those things are things that are probably not anywhere near adequate in the four countries that have already been seeded as compacts.

The backlog of environmental assessments in Madagascar, to my knowledge, is only exceeded by the backlog and number of requests for land titling which is 100 years. If you can tell me how long the backlog and environmental EAs is—but it is substantial.

The ability to conduct an EA and make sure it benefits from public scrutiny and participation and does do, in fact, what the requirements—this is two parts of the equation. I want to be clear. This is the environmental requirements of projects within a compact, but it suggests to me that one of the major indicators that you do select must, in fact, allow that to occur.

So an indicator for a selection of a country certainly would be that it is, in fact, able to conduct the environmental review process that you have already outlined in place and public comment. I hope that is clear.

There are some very serious bench-marking requirements to get that done, and you have done a great job in that environmental guideline that is under review. You have acknowledged some of the IFC/World Bank things, which is a good step, Equater [ph], AIA, best management practices, a lot of things that were really good, and if they were implemented, they would be great. So I think you are headed in the right direction, but connecting the indicator with the environmental review policy is very important.

The second and last comment is that we have really left health and safety out of this discussion so far, although it is, in fact, rubricked into the 605 part of the charter, and we really haven't talked about that.

We talked a little bit about exposure. We talked a little bit about some broad environmental criteria, but how about accident rates and exposure level in the workplace? What about a country's willingness to encourage policy that helps investment in health and safety in ways that really do help us foster sustainable economic growth?

I guess I just don't want to make sure that we leave the environment side without bundling in the health and safety issue. Thank you.

MS. KUHLOW: Thanks.

Are there other questions or comments?

MR. : [Inaudible] CO2 flux into the atmosphere. Let me suggest a poor man's surrogate for that because that looked very complicated to me because you are looking at a number of things. You are looking at CO2 emissions as well as land use and land cover and so on and so forth.

MR. : CO2 flux to the anthropogenic land use change. It is not CO2 emissions to the fossil fuel-burning.

MR. : No, I understand. I understand.

MR. : It is an ongoing dataset that has been produced. It is available historically for 150 years for countries of the world. It is just that it doesn't have muscle to do it every year annually. It is 5 years behind.

MR. : I am sure if somebody looks at that, they probably would have a lot of questions about what assumptions went into assuming that these were the rates of CO2, et cetera.

Let me suggest, as I said, a poor man's surrogate which won't lead you into all of those questions—now, one of the major problems that we have around the world is that more and more land is being used for agriculture, which is what puts pressure on biodiversity.

Now, in developing countries, this problem comes through the fact that agricultural yields are low. If you had higher agricultural yields, that would mean less land going into agriculture and less pressure on biodiversity. So that would be a poor man's surrogate instead of the CO2 route. This would give you a notion as to how much pressure there for cropland because the higher your yield, the less cropland you need and the less pressure there will be on natural land, so to speak. I think that might be something that is worth looking at because it does two things.

It actually kills two birds with one stone. One is it is an indicator of the pressure, or lack of it, on biodiversity. The other thing is the higher your agricultural yield, the greater the likelihood that you will have higher food supplies which goes into hunger, which people may or may not want for that into the environmental aspect, but it would capture that, also.

I think it would be a lot less controversial because some of the data ought to be there. The FAO collects this for every country, year after year.

Again, I have no idea how good their datasets are, but they are better than virtually anything anybody else has. So the data ought to be there, and it will also give you an indication as to the pressure and biodiversity.

MS. KUHLOW: Thank you very much for that question.

The last question down here, Alex.

MR. de Sherbinin: This is for Giovanni.

I liked your sort of tradeoff between measurability and subjectivity, and I think that is useful.

Having worked on the ESI for 5 years now, we tried to sort of move away from some of these more subjective measures, but I think it does matter who answers the questions that you are asking. If I am correct, it is basically environmental officers in The World Bank offices, is that correct, country offices that answer the questions? If that is the case, then how does that affect time series when you get one environmental officer who moves on and another one who comes in and they have a very different type of assessment of what is going on in the country based on their own sort of subjective understanding of what is happening there?

I have actually been pushing INECI for a while here, Ken Markowitz, to do some kind of survey of their network—this is the International Network for Environmental Compliance and Enforcement—because I think that there is a body of people there who are working on the ground. They are not experts being plunked in from outside who would be available to be surveyed. These are environmental lawyers, I gather, that would have more in-depth country knowledge where you would have a greater body of knowledge that you would be pulling from to be able to assess the kind of things that you are trying to assess.

I guess my last question is, are these data that you describe in the CPIA publicly available? I will leave it there.

MS. KUHLOW: I think we have maybe a minute for each of the speakers to respond to whichever of those three questions you would like.

MR. RUTA: Thanks. Good question. I will basically use my minute here.

The starting point of CPIA was very subjective before. So, actually, they implemented the whole system to deal with that, which basically they go through several scrutinies.

There is one person, given the score, and this is, again, the country economist, but then the person really submitting the score is the director. Once it is submitted, it is being peer-reviewed by the region the country belongs to.

For example, Nigeria is going to be compared with all the other Sub-Saharan African countries. Once they submit the semi-final score, their scores, 16 different scores because of 16 criteria, are sent to the network.

So, for example, we in the environmental department would receive the 200 scores from all the countries. We look specifically at the environmental to compare countries.

Finally, after we do our review, there is a final review meeting with the regions, and the scores are frozen. So there is this multi-level peer review before we have to deal with a very big level of subjectivity.

Again, this system, this question doesn't prevent the expert, the environmental specialist, who is doing the first scoring to contact the experts in the country, even outside the Bank. Actually, CPIA is moving towards a more participatory approach, basically involving people in the country to answer it.

Finally, scores are not publicly available. They will be for IDA countries, which are the poorest countries the Bank lends money to, starting in 2006.

MR. PARRIS: Three quick responses.

I presented that indicator really as an illustrative example as opposed to something I am pushing real strongly of having to need something that takes common units across different types of activity.

If you look at land use/land cover change, agricultural conversion is only one of many types of land use/land cover change, and agricultural yields is only one of many driving forces in agricultural conversion. So you are stepping way back from the problem.

Really, the point that I want to drive home is that one of the problems we have in the environmental indicator community is this problem of mixing and matching different types of change, and we need to look for some common units that will allow us to compare change in one country to change in another.

On the question of respondents, if I can just add, I think surveys and expert surveys in particular are very useful complements to direct observation. I think MCC has to be exceedingly careful how they are used.

If people know they are answering a survey that is bearing upon an MCC allocation, they are likely to game the system, consciously or not, and I just lay that out as a caution.

MS. HECHT: Let me just put in one point, and this is also about agricultural yields versus land use/land cover and carbon flows.

It is a good example of where what you are suggesting may be the poor man's measure if the data were to be collected by the country and they had to calculate it for themselves. They may not have access to the information, satellite information and so on, to look at the land use/land cover stuff, but they may have information about their own agricultural yields.

I think what Tom is getting at is for the international purposes of MCC, although not necessarily for the purposes of country management, the land use/land cover can be done by one group of people sitting in one office in one country for the entire world because they can simply get their hands on the satellite data and do it.

Once you have sort of got the algorithms for interpreting the images, you just run it for the whole world. So you can get a simple comparable number that may not be accessible to the countries internally and may not be useful to them and is not building up, bottom up, from their data. It is very top down, but for MCC purposes, that might be more cost effective, a more practical way to go.

MS. KUHLOW: Thank you. A special thanks to all of our speakers and to you, Professor Coursey, for joining us this afternoon and for agreeing to be one of our evaluators.

With that, I will turn it over to Nigel. The last couple of questions are a great segue into the next panel.

Panel 3: Concrete Examples and Actionable Ideas

MR. PURVIS: Thank you very much, Margaret, and please just join me in giving a round of applause for our speakers.

[Applause.]

MR. PURVIS: Thank you.

If I could ask our panelists to go back to their original seats, so that we can make some room within the line of sight of the camera for our next panel.

While our third panelists are taking their seats, I am going to introduce all three of them and then ask them to provide their presentations in the order that I introduce them.

The topic of this panel really is moving from theory to action, and what we have asked our panelists to do is to provide some concrete recommendations about what the MCC should do. We hope that they will keep their comments nice and tight, so that we can leave some time for a discussion and a synthesis of the entire day.

Frances Seymour is our first speaker on this panel. She is the director of World Resources Institute's Institutions and Governance Program. She has been someone who has been active on the issue of governance for a number of years, before it was as central to policy-making and decision-making as it is today, and has played a very active role in the access initiative, which we will be hearing a little bit about during her remarks.

She was at WWF before she joined WRI, and so has been a leader in this field for a number of years.

Alex de Sherbinin is a senior staff associate at Columbia University's Center for International Earth Science Information Network, quite an acronym, but the institute is a leader in the development of environmental data and analysis within Columbia's Earth Institute.

He also serves as a program coordinator in the population environment research and has a long background working with IUCN and others on environment policy.

Kiran Pandey is a senior environmental economist at the Global Environment Facility Secretariat. Before joining the GEF in 2004, he was a consultant with The World Bank and in private practice in Virginia.

We have a very rich panel, and without further introduction, I would like to invite Frances to tell us about the access initiative.

MS. SEYMOUR: Great. Thank you very much, and I really appreciate the invitation to come and share a little bit about what we are up to.

Let me just start out by telling you what the access initiative is. It is a global civil society coalition that is promoting public access to information, participation, and justice in national decision-making that affects the environment.

Now, this initiative is related to a set of international commitments, starting with what was Principle 10 of the Rio Declaration, which included these commitments to providing the public with information about the environment, opportunities to participate in environmental decision-making, and access to redress and remedy, which we shorthand as "access to justice." That commitment was reaffirmed at the World Summit on Sustainable Development in Johannesburg a couple of years ago.

The access initiative is not asking governments to do anything other than implement commitments that they have already made and reaffirmed.

The goal of the access initiative is to accelerate implementation of what was Principle 10 of the Rio Declaration in countries around the world.

The organizers asked me to pause for a minute and just say why focus on procedure as opposed to environmental outcomes or other kinds of measures. It has been said several times during the day today, just an assertion that how you make decisions and who gets a seat at the table when decisions are made is a very powerful determinant of the outcome of those decision-making processes.

So, if you don't like what is coming out at the end of the pipe, you might want to look upstream to see what the problem may be on a procedural basis.

We just assert—and we can talk about this later if somebody wants to challenge it—that basically processes that abide by Principle 10 of the Rio Declaration with transparency, inclusiveness, and accountability mechanisms tend to produce outcomes that are more equitable, because the poor have a voice in the decision-making process. They are more environmentally sustainable because constituencies for the environment have a seat at the table, and they are more likely to be actually implemented because disagreements have been worked out upstream and people are not going to lie down in front of the bulldozers later on.

I was also delighted to hear Dan Esty in his presentation talking about the high correlation of his index with the governance indicators because that is what we have been saying all along.

I want to stress that the identity of the access initiative is this global coalition that is governed by six organizations that are regionally based with WRI serving as the Global Secretariat. This is not just a WRI project, but a thing that lives on its own and has an independent identity.

The strategy of the access initiative is, first of all, to develop and continually refine an indicator tool to assess how well governments are performing and implementing their commitments under Principle 10.

Then we support civil society teams at the national level to conduct independent assessments of that performance. Usually, it is a coalition of an average of about three organizations, an environmental law organization, an environmental organization, a civic action organization.

Then we utilized something called the Partnership for Principle 10, which I will mention in a minute, to urge dialogue between the civil society coalition that conducted the assessment and relevant government agencies to talk about here are

the gaps we have identified in national performance, what do we need to do to close those gaps, whether it is putting new law on the books, training government officials about how to implement them, or other steps that need to be taken.

So I guess I will just pause at this point and point out that the access initiative's goal is completely consistent with the goals of the Millennium Challenge Corporation in terms of one aspect of improving environmental governance, but our strategy is completely different in that our objective is not to product cross-country comparable data or rank countries, but rather to catalyze change at the national level and importantly develop constituencies for that change in the country, both inside and outside the government, who will then move the agenda forward.

My goal for the rest of this presentation is to tell you just enough about what we are doing and where we are to invite you into the thinking that we are sort of wrestling with, is there enough overlap between the joint goal and the different strategies to make it worthwhile to continue to talk about how we can work together.

In terms of what the access initiative attempts to assess, not a surprise, it is both the law and the practice of the three principles that were under Principle 10 plus capacity-building. So what do we mean by this? Access to information. Does the government provide its citizens with routine air and water quality monitoring information? Is there a pollutant release and transfer registry for emissions level data, these kinds of things?

So, for example, the Government of the District of Columbia would score very poorly in telling me that there was lead in my drinking water like a year and a half later, after I had been drinking it.

Public participation. It is things like: was the affected community consulted before the last round of timber concessions were let in a particular area, or if new mining legislation is being debated in parliament, was there an opportunity for the draft law to be publicly disclosed and people have an opportunity to say something about it.

Access to justice. Is there standing to sue on environmental substantive or procedural rights, and is pro bono legal assistance available? Is there real access to justice?

By capacity-building, we mean does the government invest adequately in building its own capacity to operationalize this system, like actually train your staff in what information to disclose at what cost, but also investment in the capacity of the public to access the system, letting people know that actually they have rights to this information and how to come get it.

The results that we are looking for out of this whole initiative are, first, enhanced credibility for civil society critiques. Often NGOs have been haranguing their governments about secrecy on environmental information, but now that you have a standard international credible, analytically rigorous tool, it helps them have a more level playing field and dialogue with the government.

Second is to provide that platform for constructive dialogue. It is not so much a naming-and-shaming thing, but a more "Let's sit down together, see what the

problems are, roll up our sleeves, and work on them together," and then to actually try to move to the next step where everybody makes an explicit commitment, "Here is what my organization is prepared to do to address these issues."

We have proof of concept in a couple of countries now. For example, in Mexico, after the first assessment, the coalition of NGOs—and some are not the ministry of environment—actually agreed to an integrated set of commitments to collaborate to address what was found to be a gap between the new Freedom of Information Act that was on the books and the total ignorance of the bureaucracy and the public about what it means for environmental information.

Since then, they have collaboratively produced two editions of a citizens' guide to environmental information to inform people what information exists and that they have a right to ask for.

In Uganda, the government has just submitted a set of commitments that includes a commitment to table a freedom of information act to the Ugandan parliament as well as to collaborate to set up environmental information centers under the ministry of water and natural resources.

You might wonder how much does this cost. For the kind of countries that the MCC is looking at, we are talking in the ball park of about $30,000 for an assessment. This is probably subsidized by NGO staff nights and weekends, but, hey, we are happy to contribute.

Our rapid expansion in Latin America and Eastern European countries kind of shows that really cost is the only barrier to scaling up at this point. We have a long waiting list of NGOs, and 20 or 30 countries have expressed interest in doing this, and really, funding is the only constraint.

Briefly, the Partnership for Principle 10 was something launched at the Johannesburg Summit, and it is a global club of governments, international organizations and NGOs, to try to provide the political legitimacy, the financial support, the technical assistance to actually move beyond the assessments and do something, and it is under the auspices of the Partnership for Principle 10 that the governments and the civil society groups lodge their commitments formally. We have a website, and you can go see what did the government of the UK say they were going to do or what did the government of Mexico say they were going to do.

This is a brief history. We have been in business really just 5 years from initial gleam in our eyes to where we are now. It started out with pilot test methodology in nine countries. We are now in a rapid scale-up phase in conducting assessments and just sort of midstream in a major overhaul of the methodology, trying to make it a little more comprehensive and streamlined. By the end of this year, we will be active in 40 countries.

These were the pilot test countries, and I would say that the places where the most interesting collaborations have spun off would be Chile, Mexico, and Uganda, although there is some ongoing activity in each of these.

To see where we are going from here, here are the lists by regions. The ones that are underlined are where assessments are already underway and, in most

cases, nearing completion. The ones that are not underlined are ones that we anticipate will be getting started by the end of this year.

The idea is that these assessments would be repeated about every 2 to 3 years, that that would be about the right time frame to be able to see progress from one assessment to the next.

Speaking briefly about the methodology, since this is kind of the indicators thing, we have a Version 1.1, which is a CD-ROM-based methodology that has got more than 100 indicators that don't yet include in this version the access to justice indicators. We didn't think those were quite ready for prime time. You can actually just go on the web and look at it and see what is there.

Again, just to reiterate what are we assessing, the information disclosure, public participation, access to justice, investments in capacity-building, and basically for each indicator, there are research guidelines and fields where you have to fill in the documentation, the basis for the scoring, and it is a 1-to-5-guided scoring, with 1 being low, 5 being high, with a clear indication of what would justify the higher or lower score.

Specifically what we measure in terms of law, it is both the presence and quality of the law, so do you have a freedom of information act and is it sufficiently specifically worded, so as to apply and not give loopholes to exclude environmental information, things like a mandate for public consultation in the conduct of an environmental impact assessment.

In terms of practice, we use a case study approach, encouraging the partner coalitions to choose representative cases from across sectors that are important for that particular economy. We always ask that they assess government performance in an environmental emergency, so, for example, the last time there was a major chemical spill, how quickly did the government mobilize to tell people not to drink the water or not to eat the fish or whatever the most important reaction would be.

As I have mentioned on participation, things like permitting processes where the relevant communities consulted that a permitting process was underway and given opportunities to give input, and I have already mentioned the kinds of things we look at under law and capacity-building.

I would say here, this is probably complementary to what Giovanni described in the Bank CPIA in the sense that it is not survey-based. It is actually research-based. You go out and look at actual cases, and it is researchers associated with the independent NGO coalition filling out the forms rather than World Bank staff.

Just briefly, I put this slide up because, as I say, the day after tomorrow, we are convening a 4-day meeting with about 25 of our partners from around the world to work on this overhaul of our methodology. The most ambitious thing we are trying to do is add indicators of "effectiveness," so not just is there a good law or is the practice right, but did it, in fact, make any difference that the law and practice were right. It is something that our partners feel is a very important thing we need to add.

This will be a web-based application which will help us revise it more organically, and we hope to launch by first quarter of next calendar year, but it could be ambitious.

Anyway, we are eager for reviewers of our methodology. So just hand me your card, and we will get you on our e-mail list if you want to help us out.

Last couple of thoughts on how the access initiative squares with the MCC criteria that Governor Whitman mentioned earlier today, first of all, developed by independent third party, yes. We hit that one out of the ball part. We are independent if we are nothing else.

Utilizes objective and high-quality data. We have built into our guidelines for our partners a lot of checks to try to guard against bias. You got to document your sources. You got to convene an advisory panel of high-level muckety mucks that will review the draft and give guidance and make sure that NGOs aren't just picking cases to come out with the answer that they already had at the beginning.

However, these are different coalitions doing this and different countries, and there is going to be some level of subjectivity. So we just try to make it as transparent as possible and hope for the best.

Analytically rigorous and publicly available. Yes, we have these review processes both at the national level and at the global level, and we do post the results on the web once the assessment has gone through a review process, so fully transparent.

Here is where our downfall is: broad country coverage and comparability across countries. As I say, by the end of this year, up to 40 countries, several of those are OECD countries. So it will be a while before we have a significant global coverage and certainly in the countries of interest to the MCC.

Comparable across countries. As I mentioned, this whole methodology was not designed to enable comparing across countries, and in fact, we were focused more on ability to bench-mark progress over time in a particular country. So that is how it was designed.

Having said that, especially on the legal indicators, whether you have a FOIA in place or not and whether it has the certain characteristics that makes for a good FOIA for environment information, you can do that. So I think there are parts of it that could be harvested if we wanted to do it.

A clear link to growth and poverty reduction. I am just going to assert that it is for the reasons that other people have said up to now, and if you want to challenge it, we can talk later.

Policy-linked. Here is where I think we really score high because a lot of the things that we measure are, indeed, things that you can do something about on the 2-to-3-year horizon, and in fact, the indicators are explicitly designed to serve that diagnostic role, what specifically do you need to do. Is it strengthen the legislation? Is it train your staff? Is it improve the ability of ministry of mining officials to invest in public participation processes in the context of EIA? So I think we score well on that one.

Finally, broad consistency and results from year to year. We are still doing repeat assessments in the first-generation countries. So, in fact, we don't know that yet. I suspect that we will have very good consistency on the legal research, maybe some variability on the practice, just because we will be choosing different cases and the representativeness is not guaranteed.

I think the key that I would want to focus on here is this policy-linked thing, not only because of what we measure are things that can be acted upon on a 2-to-3-year horizon, but we automatically build a constituency within the country to argue for and cooperate in the agenda of implementing those changes.

Given that we don't have broad country coverage and there is a comparability issue, what could you do in the meantime that might be, at a qualitative level, useful for the MCC?

Well, on the 1-to-2-year horizon, you could just ask a simple yes or no question, has the government cooperated in allowing NGOs to conduct an independent assessment of their performance in implementing Principle 10. Not all governments welcome this. Some are very cooperative. So that is kind of a 1-up-or-down thing.

In a 3-to-4-year horizon, you could say in those countries where an assessment has, in fact, taken place, has the government taken the recommendations to heart and actually said that it is going to respond in some specific ways.

Then, on the 5-to-6-year horizon, when we have not only broad coverage and assessments, but repeat assessments in a number of countries, has the government actually demonstrated progress in having successfully addressed some of the gaps from the first assessment to the second one.

So let me just close by showing you our website addresses to learn more about either the access initiative or the Partnership for Principle 10. Pretty much, everything I have described is posted up there on the website from the methodology itself to the commitments that have been lodged by the partners and Partnership for Principle 10.

I think I have kept it under 20 minutes. Thank you very much.

MR. PURVIS: Thank you very much, Frances, for a very clear and powerful presentation.

Alex, you are next.

MR. de SHERBININ: Well, it is a great pleasure to be here as well, and I can see we are down to the real environmental indicator diehards here. I am just pleased that some of you have been willing to stick with the presentations thus far.

This presentation is really focused on what we consider a pragmatic set of indicators that are really focused on the needs of the least-developed countries.

As some of you may be aware, CIESIN, as you saw from the presentation this morning by Dan Esty, has been involved with the development of the ESI. The indicators I will be presenting, actually none of them have made their way into the ESI yet. In fact, a couple of them are very new.

I want to introduce my colleague from the Wildlife Conservation Society, Eric Sanderson, who is going to be pinch-hitting during the biodiversity portion of this presentation. We also worked with the water systems analysis group at the University of New Hampshire, Center for Tropical Agriculture at the Earth Institute at Columbia University, and also the Yale Center for Environmental Law and Policy, all of whom were involved in reviewing this and helping to contribute suggestions to this presentation.

I use the analogy of a three-legged stool of essentially three components to sustainable natural resource management, which are biodiversity conservation, agricultural sustainability, and water use, and I do that not just because it is elegant and simple, but also because when you actually start throwing away all the lovely potential indicators out there, but which really would take many years to develop, you come down to a much narrower set if you are going to be looking at country coverage and time series. Those are the reasons why I think you have to narrow it down to a substantially reduced set of indicators.

It is a focus on outcomes that are affected by policies, and the theory behind this is that for poor countries, if you get these three right, you are on the route to sustainable natural resource management.

I am going to start with this one. I will introduce it, and then Eric is going to take over on presenting the actual nuts and bolts behind it.

The indicator is percentage of wilderness protected per country. It utilizes two input datasets. One is a human footprint dataset. The other is a world database on protected areas. The method is to essentially overlay the world database on protected areas on the human footprint dataset, measure the areas protected and unprotected, and calculate the percent of a country's remaining wilderness, which we classify as the 10 percent highest or most wild per country. Eric will describe that in more detail.

The rationale behind this is that there is a large and growing list of biodiversity indicators. We have been following the 2010 target process that the CBD has initiated.

Very few have any direct connection to policy. I mean immediate direct connection. So concentrating protected areas in the most wild areas maximizes conservation effectiveness in our view.

So I will let Eric take over from there.

MR. SANDERSON: Thanks, Alex.

If you think about what the threats to biodiversity are, as we did a couple years ago, between the Wildlife Conservation Society and CIESIN, they come down to a few root causes, which there is good global data for. One is the human population density from the global population grid of the world that CIESIN has produced, human elements—this is from a globally available dataset—human land use.

You will notice these maps don't have a shoreline to the world. They are just the data themselves.

This is agriculture and urban land use worldwide from a satellite data cover set, a roads dataset, and then power consumption. It is a little bit hard to see with the lights, but this is lights you can see from a satellite at night dataset that is globally available.

We just added those together to create this human footprint index. So you can think of this as the pressure that human beings are putting on to nature worldwide.

Just a few statistics about this, if you add up those four or five factors, it influences 83 percent of the land surface, but it is in a gradient from low influence to high influence. It is 98 percent of the places where the FAO says you can grow rice, wheat, or corn. Most of the world that is good for those crops has already been influenced by human beings in one of those four or five ways. It is not including things like climate change at all.

For this process, we thought there is a nice trick you can do with this. You can ask this map to tell you where the wild places are, where the wildernesses are, and you can define that in a number of different ways.

For this purpose, we thought it useful to define it in terms of the 10 percent of a country that is wildest. So 10 percent of the area of a country that is wildest is the metric we are using. All countries have an area, and they all have a 10-percent wildest area. So there are no issues about the natural endowment, and it is a fair and level playing field in that respects.

There are many ways of addressing threats to biodiversity, including protected areas, sound legal framework, conservation incentives, community-based conservation, capacity for natural resource management. Many of these have been mentioned today, relevant scientific information including access to that information.

Wild areas provide an opportunity, not the only opportunity, but an important opportunity to protect nature without biasing countries with different levels of biodiversity. So all countries have wild areas, and all countries can protect them. Protected areas are not the only way to address biodiversity conservation, but an important way.

Fortunately, there is another dataset of protected areas. This is the world database of protected areas. It is updated annually. Through a process, it is led by the World Conservation Monitoring Center in England in collaboration with a number of NGOs.

Then you overlay these two datasets. This is an example of East Africa, and the yellow areas show the overlap between the wilderness areas and the protected areas for Tanzania and Southern Kenya there, and you can do this for all the countries of the world.

We picked out the countries that were the FY04 eligible and threshold countries, and that column in yellow, it is a little bit hard to read, but that is percent of the 10 percent of wildest area in each country that is protected. You can see there is a lot of variation in that area, and it is something countries can do about because they can make new protected areas.

We are not making any statements about effectiveness of protected areas, and this is all IUCN classes, if you care about that, but you see that it is a metric that can be calculated fairly easily from these two datasets. Here is the same numbers for FY05.

I will hand it back over to Alex. Thank you.

MR. de SHERBININ: The next indicator that we would like to focus on is the agricultural sustainability indicator, and here we just came up with a very simple metric, and that is yield changes for subsistence crops based on FAO data.

The method is to create an index based on changes in the 5-year moving average of yields for a basket of subsistence crops such as millet, sorghum, and maize. The rationale behind this is that agricultural experts agree that what matters most for small holder agriculturalists are yield changes.

A 5-year moving average smoothes out some of the effect of rainfall and can help to identify the secular trend in soil fertility.

We vetted this with the people at the Center for Tropical Agriculture at Columbia, Pedro Sanchez, Cheryl Palm, Raphael Flore [ph]. Pedro, by the way, was working on the Millennium Project's task force for agriculture. So he is someone who really focused his entire career on trying—[audio break].

[Side A of Audiotape 4 of 4 begins.]

MR. de SHERBININ: [In progress]—Forestry Center in Nairobi. So he has really focused his entire career on trying to improve agricultural yields in the poorest countries and has a real interest in soil fertility issues.

If you take a look, I just picked alphabetically the top 15 or so countries from the FAO stats rather than go through and select the threshold countries, but just to give you an impression of what it looks like, basically for maize on the top, you can see that Cambodia and Bangladesh both have improved over the last—these are 5-year averages, moving averages. So, through 2002, they have improved quite a bit, but you have seen decreases in several African countries, including Benin, Burundi, Chad.

Millet, Ethiopia, and Chad have improved. So, two African countries have marginally improved their yields, but Burundi and Bhutan have declined.

The magic threshold, according to Pedro Sanchez, is 1 ton per hectare, which is right in here. For millet, it is on the high end of what you are seeing here.

We do have an ideal indicator for this, or maybe not so much an idea, but what we think would be a very interesting indicator to try out, which is based on a rainfall-adjusted NDVI. This would be either in addition to or in substitution for this agricultural measure.

NDVI is basically your greenness measure from satellite imagery, and if you subtract out the amount that is due to rainfall and you do that over a trend line and you masked out all the natural areas and simply looked at the agricultural areas, you begin to see whether or not you are getting a secular trend in soil fertility decline.

We have talked to some people who are involved in the Millennium assessment. Bob Sholes [ph] in South Africa, he has tested some ideas that are similar to this. He thinks it is feasible, but, of course, it would require many thousands of dollars to actually implement. So I throw that out on the table in case there is anybody here who has that money.

Indicator 3 is water use. This indicator, we relied heavily on the University of New Hampshire's water systems group, and the idea is percent of irrigation based on nonrenewable water resources. Again, it is based on UNH data, their discharge fields data, and FAO irrigation withdrawals.

The method is to take country-level irrigation withdrawals that are geospatially distributed over irrigated areas. You take a look at irrigation need, which is crop water demand minus the soil moisture availability, and then you get nonsustainable irrigation use, which is a mean annual discharge minus irrigation water withdrawals.

It will become a little clearer I think when I show the map, but the rationale behind this is the agricultural sector is the single largest water user, and nonrenewable irrigation undermines the future sustainability to meet water needs for all sectors and not just agriculture.

So, if you take a look at the top map, the red areas and the black areas are essentially oversubscribing by one kilometer cubed in those spatial areas. I am guessing it is a kilometer or, at most, 2.5-minute grid cell, but Eric could probably tell me right off the bat. Anyway, it is a little hard to tell from here.

If you aggregate that up, then on a national level you get the map on the lower level which shows the percent over subscription essentially, the percent of irrigation that is from nonrenewable water resources.

This chart, you can't read very well. I apologize for that. I have circled in yellow the various countries that are MCC-eligible, Morocco, Mongolia. I think it is very interesting to see India, which is somewhere in here, and China, two huge demographic giants, about 40 to, I think, 80 percent of their irrigation is essentially coming from nonrenewable water resources. So this is something to think about. Maybe World Watch will write a report, if they haven't already on that.

Then it goes down to Mozambique and other countries, which I think are below 4 percent. I am sorry for the quality of that slide.

Just to conclude, these indicators are available. The data availability really is a big issue, which has been highlighted again and again by every presenter, in these countries. So what we have tried to do is focus on data that are readily available.

We believe the geospatial datasets based on simple methods are perhaps the best bet for getting at the broader country coverage that the MCC is looking for.

We have time series data for all of these. The irrigation data happened to be under development, but I think it is within the foreseeable future. They are being developed by IWRMI, the International Water Resource Management Institute in Sri Lanka.

All the measures proposed here are policy-mutable and highly relevant to the natural resource management issues confronting the least-developed countries.

I think it is important also to realize that there are tradeoffs here that you could improve, say, by reducing the amount of irrigation you are doing for nonrenewable resources, but then you might have a food security tradeoff. I think these are real issues that developing countries face. I don't mean to make light of that or minimize that in any sense in proposing these indicators.

Going through the list—and I am not going to read through them one by one, but I believe that these indicators do meet the major criteria outlined that Frances went through for her own set of indicators. So I will say that in closing.

MR. PURVIS: Thank you very much, Alex and Eric, for that presentation, very helpful.

We will continue on to the third presentation and then invite questions on all three of them.

So, Kiran, if you could go ahead.

MR. PANDEY: Thank you, Nigel.

My presentation would be slightly different than some of the ones that we have seen in that I would not be talking about specific indicators, but talking about the process that we have gone at the GEF, that is, the Global Environment Facility, in developing our own resource allocation framework.

We have had to go through an exercise similar to the MCC where we needed to define how we are going to allocate our resources based on environmental priorities and some measure of country performance.

I will begin with a basic background on the GEF. Next, I will talk about proposed resource allocation framework in the GEF. I will talk briefly about the indicators and scores that go into the resource allocation framework because that is, after all, the heart of the resource allocation framework, and finally some lessons that might be transferable to the MCC in terms of the process that we have done.

Let me just focus a minute on the proposed resource allocation framework. It is proposed in that we have not actually adopted it yet. It has been in the development stage the last few years. It is expected that our governing body, the GEF council, will adopt the framework in August in an upcoming extraordinary meeting.

A brief background on the Global Environment Facility, what do we do? Essentially, we finance projects in developing countries. It is for the purpose of generating global environment benefits. We finance the incremental cost of projects. So largely, most of our projects are co-financed by other institutions such as The World Bank, UNDP, UNEP, et cetera. There are different implementing agencies who co-finance projects.

We provide the funds for countries, the extra cost that the countries incur in providing global environmental benefits. So it is related to a number of different focal areas. It is related to climate change and biodiversity. Those have been our major

areas of interest. We have roughly spent about two-thirds of our resources in those two focal areas.

In addition, we have four other areas related, ozone depletion, land degradation, international waters, and persistent organic pollutants.

The GEF was established in 1991 as a pilot, in a pilot phase at The World Bank. It was restructured in 1995 as an independent unit outside of The World Bank, but works closely with The World Bank.

We are financed basically by donors. We are replenished every 4 years. As part of the third replenishment of the GEF in 2002, the donors basically asked us to develop a system to allocate our resources based on environmental priorities and country-level performance. That was the mandate that we were set to do.

We have been struggling to do this over the last 2 years largely because that mandate was pretty open in the sense that that is all we had. We had to figure out what that meant and how we go about structuring something that would be acceptable to donors and as well as the recipients. So it was a complex task.

I can happily say that we are pretty close to the end of the design phase, and we will hopefully adopt it in August.

What does the resource allocation framework do? Essentially, it is really designed to increase the transparency of allocations. The primary reason for the resource allocation framework was that. It wasn't that donors were upset with how we were allocating resources. It is just they didn't feel they understood how we are allocating resources, and there was a need for donors to report back to their parliaments regarding how allocations were done.

In terms of transparency, this one issue is in terms of methodology. We can certainly explain how we do that, but beyond that, there is also the issue of data and indicators. To the extent that data and indicators are not transparent or easily understood, you are not going to get a transparent system. That is one of the things that we needed to work on.

The other focus has been in terms of developing this to try to target countries with better performance. So we are making investments for the global environment. We want to make sure their investments pay off. There are certain countries where you have good policies, and those lead to a higher probability of success for projects. As a result, we want to target our resources to where we might have higher probability of success.

How do we do allocations in the proposed resource allocation framework? The first step is to really development country scores. These are going to be based on country performance and country potential benefits in each focal area.

So we are going to do this separately for each of the focal areas. One of the points that has come out repeatedly is you can't add things across environmental subsectors. You can't compare climate change benefits to biodiversity benefits, and that is one of the first things that a technical working group that we had put together in 2003 told us, "Essentially, you cannot do that."

So the direction has been to try to define potential benefits separately for each of the focal areas, combine that with country-level performance, and then put that together in some methodology to get a country score.

Once we have a country score, then the idea would be to allocate proportional to countries based on those scores, and then there would be some modifications to that to deal with the realities of the real world. Namely, it would be pooling resources for low-scoring countries. If you are getting a very little amount of money, then you just can't devise feasible projects of the right magnitude, of the right size. So there may be a need to pool resources for some of the countries and give them a collective pool of money. Secondly, we wanted to ensure that there would be ceilings and floors for equity reasons.

Just an aside, the resource allocation framework really sets out the envelope of money going to be made available to countries specifically in each of the focal areas. It does not actually say what projects countries will do. So there is a second level to all of this, which is countries bring projects and we will evaluate those projects based on technical criteria in terms of whether they meet global benefits, the provided global benefits, what types of benefits, et cetera. So there is a two-level process, and the resource allocation framework is really just defining the resource envelopes available to countries.

Let me just move on to indicators very quickly because basically that is what we are interested in, what sorts of things we considered as we were developing. This list is pretty similar to the type of list that we have heard all day today. We want technically relevant indicators with reference to the objectives that we are trying to achieve.

A key issue for us has been the issue of comprehensive coverage of countries. We needed to develop these indicators for all countries that are eligible for funding from the GEF.

For us, essentially eligibility is defined by the environmental conventions because we are the financing mechanisms of the international environmental conventions. What that meant was for biodiversity, we had 154 countries, all developing countries. For climate change, we have all the non-annex one countries, which essentially means 168 countries in the world. That is a lot of countries for which we needed to pull data.

We do not have the option of saying, "Hey, look, we don't have data for Country X. So we are not going to allocate you any money." We just don't have that option. That constrains the type of indicators that we might be able to use and look at.

Obviously, we are interested in low development and implementation cost in terms of indicators. We want to use indicators that are simple to understand. After all, the purpose of this was to increase transparency. Lastly, for purposes of transparency, we also wanted to have indicators that were publicly available.

I talked about the two separate indices. One was country performance. The other was potential benefits. First, I will talk about the performance index that we used for measuring country-level performance.

There are basically three components, and this has been one of the most contentious issues throughout this whole process, how do you measure performance, what goes into it.

We have broadly defined this in terms of three components. I will start from the right-most thing. Portfolio performance, that is the performance of projects in the past, so what has the performance of projects in a country been in the past, has it been successful, has it not been successful, how successful has it been.

We look at the portfolio of projects that the GEF has. We have not historically had projects which we evaluated for all countries. We have had that for only about 85 countries. So we go on and extended that, supplemented that with environment-related projects at The World Bank. So combination of the two gives us our project portfolio performance. That is, in a sense, a backward-looking measure of performance.

We have two other components, a broad framework indicator and an environmental sector policy indicator. Those are both measuring similar concepts. They are related to policies and institutions. They are both forward-looking in that we are looking at what countries can do to change things.

The difference between the two is that the environmental sector policies and institutions focuses specifically on environment-related policies, the sector-specific policies. Those would be like air pollution policies or biodiversity protection policies, et cetera, and the enabling policies of institutions.

The broad framework indicator actually covers things outside of the environment sector. So those would be things like energy policies. They would be related to good governance, rule of law, property rights, et cetera.

The big debate for us really has been in terms of whether broad framework indicators are applicable for us because we are primarily interested in environmental policies and what should we include in the broad framework indicator.

Part of that debate has been because indicators are lacking. That, we have come across throughout the day.

The current proposal that we have, which I think will work through, is to use the CPIA indicator that Giovanni has talked about earlier today. For the environment sector policy, we would be using the environmental sustainability index. That is one of the 16 criteria that Giovanni talked about in great detail. That is the one we are proposing to use. For the broad framework, we are proposing to use the aggregate CPIA index.

The alternatives we had for measuring performance, at least as far as the policies and institutions go, was pretty bleak. For the environmental sector policy, we really didn't have anything. So our choice was to go out and try to develop our own set of indicators for that.

That is learning from the World Bank's experience, a very costly proposition, something difficult to do, it is subjective, and there are issues of credibility if you don't do it right.

On the broad framework indicator, there are a number of governance broad policy-related indices that are available. In fact, one of the better sources probably is the one that is developed by The World Bank as a synthesis of information available on broad governance.

The World Bank Institute has developed a set of six governance-related indicators synthesized from 350 different publicly available sources and computed a set of six governance indicators. These include rule of law, voice and accountability, governance effectiveness. There are a number of others, regulatory effectiveness, et cetera.

We proposed using that because that is publicly available. Whereas, the CPIA, as Giovanni pointed out, is not publicly available right now. It will be available for IDA countries, which is about 82 countries, next year.

Essentially, the governing council rejected using governance indicators from WPI, even though it is publicly available. I know some of those governance indicators are already being used in the MCC. So outright rejected use of that—and there is a number of reasons for that.

One is those are not really developed with the participation of countries. Those are countries that know how they rank in all of these different indices. They measure specific things. Not all countries like the indicators that are being used.

You are developing these indicators from 350 different sources. I might not like five of them. Its use in an international setting like this makes those indicators legitimate and provides it some degree of credibility. So there is a whole bunch of countries, donors as well as recipients, which did not like specific indicators used in the computation of the government's indicators. So they did not like using it.

Whereas, in terms of the CPIA, a current proposal is not to disclose it until The World Bank discloses all of it. So, to some extent, the reforms at The World Bank in terms of CPIA has led to a greater degree of participation from countries in development of the CPIA indicators. So it has been much more acceptable for the council to accept that indicator for our use, and we will, I am sure, have a continuing dialogue with the council on this particular aspect as we go along.

Let me move on next to the benefits side of things, and as I said, we are looking at two different benefits indices. First, on the climate change side, what we are proposing to do is to define the benefits index for climate in terms of the baseline greenhouse gas emissions and the carbon intensity adjustment factor.

You can think of the baseline greenhouse gas emissions as, in a sense, a negative endowment. That is determined by the set of characteristics that a country has.

We had difficulty using state variables in terms of the state response model largely because—if you think of carbon intensity, that is one measure we might want to use. The carbon intensity is the CO2 per unit GDP.

The difficulty with a measure like that, that we found, one, it has to be bench-marked against a target and, two, is that good or bad. Is a particular state good or bad? If you have a high level of carbon intensity, do you want to give more money to

countries like that or less money? If you give more money to countries where you have a high carbon intensity, you are going to create a perverse incentive for people to do the wrong thing.

The more you are going to get, countries are going to say, "Hey, look, I will get more money. So I am just going to increase my carbon intensity over time."

If you provide money to countries where you have low carbon intensity, the potential for you to do shrinks as your carbon intensity shrinks. So there is a difficulty in using essentially a fixed state variable.

What we have done is combined two things. Instead of using the state variable, we are using a change in the state variable. Let me just show you how the carbon intensity adjustment factor works. Essentially, it is a ratio of the carbon intensity over time. So it is a time-dimensioned measure. If you improve your carbon intensity, you get more.

The baseline greenhouse gas emissions is more of an endowment variable. It is a scaling variable. You do not want to award the same amount of money to Zimbabwe or Lesotho as China. China has much greater potential in terms of climate change mitigation than some other small country.

On the biodiversity side, we were not able to find a comprehensive index, a simple index like for climate change. So we have had to go out and try to develop our own indicator, and we thought we could add some value to what is there.

Largely, we are synthesizing a lot of the data that is available in the NGOs and in the international community. As people have called it, it is a top-down approach. We are not going to countries collecting data from the bottom up. Part of that is essentially it leads to comparability-related issues, et cetera. So this is very much a top-down approach where we are taking global datasets, synthesizing the datasets, like a lot of other cases, and constructing our own index.

I need to acknowledge here the significant amount of support that we have gotten from a lot of the NGOs—I see some of the colleagues here—from IUCN, from CI, from WWF, WRI. So there is a whole bunch—from [inaudible] International. So there is a whole bunch of NGOs that have provided us direct support in terms of providing data, providing peer reviews of what we are doing, and making sure that things are okay, and that is an appropriate way for us to move.

Of course, we have had a significant amount of analytical support from the development research economics group at The World Bank as well in helping us put this thing together.

Our basic approach is to develop a national index which is aggregated from sub-national data. The first task in developing this index is to characterize the benefits potential at the sub-national ecoregion level. Then we take that characterization, aggregate it to the national level, and that is the index that we use.

I will not get into the details of the index too much. I can answer questions later on, but I don't want to get into the gory details of it.

GEF's benefits index for biodiversity, essentially there are two components. There is a terrestrial component, and there is a marine component. The terrestrial component is built up from species-level data and broader categories which represent essentially all the factors that you would not be able to do based on species.

The distinction between species and ecoregion exists. We have talked about the availability of data, and for large part, there is a tremendous amount of information on species, for selected species. What we would like to do is use as much information that is globally available, covers all the countries, is valid for comparison, i.e., there aren't big data holes. Those data, we would like to use and include in the index.

If we don't have that, then we want to use broad definitions of areas, and we are using an ecoregional representation. We take the species in ecoregions, and we construct actually two indicators for each, one based on representation. So we are aggregating based on each species that we have information for across all of these sub-national areas, proportioning them out, scoring them, and obtaining scores for each one.

The next one is basically threatened species, and there, what we are saying is that not all species are equal. There are certain species that are more valuable, identified as valuable based on IUCN data and globally accepted. What we want to do is use that global valuation in terms of evaluating species. We do the same thing for threatened ecoregions.

We talked about state variables. These are not local threat variables. These are essentially globally threatened species or globally threatened areas. We are not looking at a local measure. So it is not exactly a state variable. It is another way of representing endowment.

The last slide, lessons learned. Basically, in terms of the indicators, that is the basic focus. It is very difficult to find good indicators. What we found is that most of the indicators for environment performance—that is what we are looking for—relate to environmental stress or environmental state. That is what has generally been put out there in terms of people saying we are measuring environment performance.

In terms of direct measures of policy and institutions, the only one that we found was CPIA at The World Bank for environmental performance.

Disclosure of indicators and methodology, that is a very crucial components that has essentially bogged down some of the issues for us over the course of the last few years. It certainly increases buy-in by countries if you have publicly discloseable data and transparent, but the difficulty is getting those indicators that are credible is much more difficult.

I just want to close with that.

MR. PURVIS: Thank you very much to all of our panelists for their presentations.

I would like to do what we did in the first session, which was just to go around the room and collect three or four questions and then come back to all of our panelists and give them one opportunity to address them.

The first question is over here in the corner. If you could use a microphone, please.

MR. : A response to Alex, if I can, and a comment perhaps to Margaret.

Throughout the day here, we have heard various indicators put on the table. Alex put an interesting one out there on agriculture, which you also did. Yet, the prevailing development paradigm of the Bank and many donors goes in a very different direction. It goes to growth, export agriculture, irrigated agriculture. In Mali, that means resources going to 15 percent of the land, 15 percent of the people, largely the wealthiest, no money going to the poorest, no money to sorghum.

It just seems to me that we are not challenging the paradigm at all. We are accepting it, and it could be that the paradigm is driving against the very environmental forces we are trying to avoid.

MR. PURVIS: Other questions?

MR. ROSENBAUM: I am Ken Rosenbaum, Civil Environmental Consultants.

Since this is the last discussion period, I would like to make a generic comment that reaches back into some of the earlier panels.

One of the things that I have learned today is that despite the wording of the MCC's desire to develop an indicator that demonstrates commitment to economic policies that promote sustainable management and natural resources, despite that very predictive sort of wording, we want to know do these people have a good policy in place.

What you are looking for is very much actionable or catalytic indicators, indicators that will entice people to do things, and this made me think of a paper that has been out there a few years that Donella Meadows, the environmental modeler wrote, a very informal paper called "Nine Ways to Intervene in a System in Order to Increase Effectiveness." I am sure it is searchable. It is out there on the web.

The least-effective way is to play with the numbers. Adjusting budgets, adjusting tax levels and things like that is not very effective unless it rises to the point of tipping into one of the other eight ways, and the other eight ways all deal with affecting the structures of the system.

Negative feedback loops, positive feedback loops, material flows are much more powerful than just small adjustments of figures. That is why governance is such a powerful and potent effect. That is because governance is a feedback loop. That is why the market and land tenure is so powerful and potent because you are looking directly at the structure of the system.

So I would encourage you, despite the fact that you have other indicators and other parts of your program that are tracking those kinds of things. I am encouraging not to ignore the structural impacts and the indicators that point to structure rather than status, and I would encourage you just as an exercise in thinking to hunt

down the Donella Meadows paper and give it a read and consider what its implications are for your effort.

MR. PURVIS: Great. Thank you.

MR. : Thank you. I have a very brief question, actually a brief comment that I will disguise as a question.

A lot of people feel that governance is the key, and I think that has come up on several occasions. I have spoken to people in two of the MCC countries where we happened to be working, Madagascar and Honduras, from those countries, what do they see as the right indicator, and governance came up again and again.

Fundamentally, MCC—and I think Owen is absolutely correct that it is about paradigm, and let's be clear about the paradigm for MCC. MCC's paradigm is about good governance, not in the small DNG sense, but governing the country well, investing in people and all of that as part of the governance.

The MCC criteria and the other criteria, a recognized change in transformation, and there is no sector that is going to be more fundamentally transformed over the next 15 or 20 years than the environment and natural resources sector, if for no other reason that population shifts, urbanization rates and all the stuff that we are familiar with. So we really need governance criteria that understands that what we are looking at is going to be fundamentally different than what we are seeing now.

So the question is this. At some level, if the governance hypothesis is correct—and many people said, "If I really had to choose just one indicator, it would be governance-related"—then there should be a correlation between countries ranking against other MCC criteria and their ranking against environmental indices that take governance into account.

I wonder if anyone has looked at that and if that is something that might be doable.

MR. PURVIS: Thank you. Let me just collect two more, and they will be our last questions. Then we will give the panel a chance to respond before turning to the wrap-up for the day.

John.

MR. DIXON: I will follow the lead of my distinguished friend here and make a comment in the guise of a question.

The title of this panel is Concrete Examples and Actionable Items, and I have a little bit of a conflictive role here since I am also a reviewer potentially of proposals, but I want to lay out something just for your consideration. If someone wants to propose something along one of these lines, I would obviously look at it favorably.

These meet the nine criteria that MCC has set out, rely on available data, only one of which is from The World Bank, I must say, and three of the following. If MCC can pick one indicator, one indicator to add to the 16 to talk about natural

resource management, here are three possibilities that have come out today that I will put forward.

One is a very concrete simple measurable indicator, access to potable water or under-5 infant mortality, very powerful, measurable. It says a lot about a lot of other things.

The second is a more complex indicator, and this is a World Bank indicator, but I think it is very powerful because it has policy links, and that is genuine savings or adjust to net savings. That has come up several times.

Both of these first two are available right now, no charge to MCC. I will give you the websites, so you can have them tomorrow.

The third one will require some work, and this came out of the discussion this morning and also today of this interesting interplay between land use, different types of resources, access, what have you, all of these issues.

Could MCC as part of its effort in this area develop a new index based on five or six available indicators, not indices, but indicators? And the innovative part, whoever does this, would be to weight them and explain the weighting. I would propose that these indicators be some variation of the Millennium Development Goals, which are basically the same ones that Dan Esty mentioned this morning. You might add or subtract one or the other, but one could create an index weighting them.

The advantage, again, is that these are data that are available and are published annually, and one would not have to go on a major data collection effort. The thinking would be in conceptualizing how you would put them together in an index with explicit weighting, and it would cover a broader suite of issues, obviously, than just water or child mortality, but it would include biodiversity services, forestry, perhaps land use measure, toxics, et cetera.

Those are my three suggestions for concrete examples of actionable items. Thank you.

MR. PURVIS: Thank you, John.

Last question, David.

MR. : An unabashed comment. I would just suggest—we have talked about governance a lot today. I think a lot of the issues raised things on access and other things. So I think there is something there that should be seriously considered in an MCC criteria related to environment and natural resources management, but specifically related to the governance indicators, measures that MCC already has in place, I would suggest something specifically related to natural resources management, and that is in the countries, the poorest countries in particular where MCC is working now and they have some threshold countries that we are working, probably all of them—I don't know all of them in my own experience, but I imagine all of them—I know a lot of them have as a primary governance issue related to natural resources management, corruption, and controlled by elites of the natural resources opting to take control of them either legally or illegally or quasi-legally to their benefit.

So I would just suggest that corruption, whether it is through the governance set of indicators or an environmental set, however you do it, corruption in the manipulation of control of natural resources has got to be considered to some extent.

Thank you.

MR. PURVIS: Great. I will turn to our panelists. I ask you to confine your responses to the questions and to the presentations that your fellow panelists made to 1 minute each, starting with Frances.

MS. SEYMOUR: Sure. I will be even less than that.

I just welcome David's comment. I think the power of focusing on governance, particularly in the environmental and natural resources context, includes empowering domestic constituencies who are trying to work against it and highlighting those governance issues that are specific to the sector.

In my remaining seconds, this is our sort of standard propaganda packet. It is out there on the table. Grab one as you leave.

Thank you.

MR. PANDEY: In terms of the debate that has been going on in the GEF council, one of the things has certainly come out is that countries are pretty clear that governance does matter. It is something that recipient countries accept. They should, and it should be included in terms of performance. That, they are not very concerned about.

For us, the debate was in terms of the broader policies, such as trade policies, such as macroeconomic policies, should those be part of the framework in which we measure governance.

Just getting to another issue that you raised, we did in collaboration with some of the colleagues at The World Bank—we looked at some of the impacts of governance in terms of project success, looking at the portfolio of World Bank projects.

What we did find is that governance is measured by the CPIA indicators, explained a fair amount of project success when you control for a lot of other common culprits in terms of sectors and things like that, but it does not explain all of it. There is still a significant component that is not explained, but governance is a very strong component.

I think the focus on governance is proper, and in terms of what we need to do, we need to have it.

MR. de SHERBININ: Just to respond to the gentleman from World Wildlife Fund, I think that it is certainly widely recognized that the investments in subsistence agriculture are infinitesimally small compared to those in industrialized agriculture and export crops. I think this indicator might have the potential to reinforce sort of global public opinion around the notion that we really do need to pay attention to these subsistence crops.

In case I wasn't clear in the presentation, my idea was not so much to try to compare yields across countries, but rather the relative change. So you bench-mark it

against, say, the year 2000 and then say has it increased or decreased, so you are not comparing apples and oranges. Many countries have rainfall and other basic constraints that will reduce their yields inevitably compared to other countries, but I concur with what you said.

MR. SANDERSON: Can I have a minute?

MR. de SHERBININ: Yes. Sure, Eric.

MR. SANDERSON: Thanks.

I would just conclude by saying that it seems to me that economic growth depends on taking care of your natural resource base. That is a theme we have heard over and over today, and good governance means, therefore, taking care of that natural resource base. So I would encourage the MCC to pick a metric in this context that is about sustaining your natural resource base.

Thank you.

MR. PURVIS: Please join me in thanking our panelists for this rich discussion this afternoon.

[Applause.]

Wrapping Up

MR. PURVIS: Paul, welcome back. Before turning it to you to give us the game plan that you and your staff will be following over the next few months to move forward on this very challenging and difficult issue, if I may just take a few moments to summarize the discussion for you. I know you will get a full report from your staff, but I will take the chairman's liberty.

For all of you, my colleagues, please be forgiving in that I did this on the fly in the last few minutes, trying to recall the many points that were made today.

I think it was universally acknowledged that you are wrestling with a very difficult question, but one that is important. So there is I think great praise for the direction that the Congress has given you and great sympathy for the challenge that you have before you.

There was a rich discussion on the difficulties that are inherent in the inadequacy of the data, and a number of viable options were presented ranging from using uniform globally available geospatial information to narrowing in no the historical longstanding datasets such as on greenhouse gases where we have good coverage for a wide number of countries that would be of concern to the MCC to the third option of working with an institution to manufacture data that could be used for this purpose.

There are I think some very significant and credible efforts that are following all three of these approaches. So you have a number of choices to address the data question.

More broadly, in terms of determining what you are trying to measure, there was I think a no consensus about whether it would be best for MCC to pick a single indicator or whether to turn to a more aggregate index of indicators or data, and that there probably is a reasonable way to do each of those things, and it is a choice that you will have before you.

There are a number of institutions that have put together very credible approaches that you and your staff will want to pay closer attention to and that stand out there as potential partners for you should they choose to submit proposals, and they range from academic institutions like Yale and Columbia to very credible nonpartisan responsible environmental organizations like WRI and WCS to international institutions, like The World Bank and its Global Environment Facility. So there is a range of possible partners.

As you go forward, you have the support of not only your reviewers, but this broader community that came here today, and we stand ready to be a further resource to you if you need it.

So, with that, I turn the microphone over to you for an explanation and your thoughts about how you will be dealing with this complex challenge.

MR. APPLEGARTH: Thank you, Nigel. I really want to thank you personally and Brookings more generally for hosting today.

I was here for much of the discussion this morning and really found it quite interesting, and I understand that it has continued at that level while the time I was out. Since I have come back, I have also enjoyed it. So I regret that I had to go do some other things, but I do thank you very much.

I do want to address actually a couple of questions that apparently came up that are not directly in terms of the summary. I understand the question of the environmental impact assessment guidelines, which is different than the indicators. This is what MCC is actually doing on the ground, how they measured, how it came up. Those draft guidelines are actually out for public comment on the web.

We continue to get interested and helpful comments, and as a result, we have actually extended the public comment period because we are finding good quality comments. It has been extended to July 15th, and those of you who haven't already commented, we would encourage you to go to the website and look at them, what we are proposing to do on actually assessment of MCC operations on the ground.

More generally, some of you were here in February, and as you know, that was really our first meeting on this. We used that meeting to really enlist the participation of a group of experts with backgrounds in the national environmental sciences, economics, and public policy. A number of those experts are here today, and at least six of them have agreed to actually work with us individually, submitting ideas or about helping us evaluate proposals that come in for the coming period. I think we see the quality of those people and those experts who understand that this is a serious effort, and we have really been able to generate great interested and enthusiasm.

At that first public discussion and in many of the discussions we have had since then, both the experts and several of you here and several of you who were there then said we should have another full, long day, a full session, more substantive that would help us focus on the issues. That is what today is about. We listened, and that is why we wanted to do this. We thank you for helping us submit those ideas and that suggestion. This is an example of we really do try to listen and learn and incorporate your ideas in what we are doing, and with Brookings' help in particular, we were able to do that today.

There was a question that came up this morning when I was here about the link between MCC's program in Madagascar, whether the link to poverty reduction, growth, and the environment. Actually, the Madagascar program is a perfect example of the linkage. The land titling, which I gather some of you talked about, is key to preserving the environment in Madagascar because the Madagascar identified land titling as being one of their major obstacles to have poverty reduction and why one of the reasons they had the lowest agricultural yields in the world, among the lowest in the world.

It is because there is accessed land in Madagascar, and the smallest farmers practice in [inaudible] agriculture. They don't have title to the land. They can't

stay on it. They are afraid to invest in it. So they go in and deplete it for a couple years, and then they move nearby.

Well, unfortunately, in moving nearby, they destroy one of the true virgin ecosystems in the entire world because they go in and slash and burn again. By encouraging them to stay on the land and giving them the title to stay there, so they know if they make any investment—and we are not talking about small irrigation or small works that you can do by hand, but they are afraid if they make that investment now, somebody will come and take the land away from them. So they don't do it, and it is too easy to go slash and burn somewhere else. So there is a very direct link between the MCC program in Madagascar in land titling and environment protection, and we knew it and Madagascar knew it, which is one reason we thought there was a strong link to our mission, which was poverty reduction and sustainable economic growth.

As somebody mentioned, the under-5 child mortality indicator, we actually have been looking at that and the investing in people category as an outcomes measure. That is harder to effect on the policy side. It has some problems a little bit in terms of consistency in what we have done before in country coverage, but it is a very interesting indicator. I noted it again, and you picked it up.

In terms of beginning to distill what the staff has told me particularly had been the most salient conclusion from today, I would like to return to the question that Governor Whitman raised at the beginning of the convergence, and that is how do you prepare something that a policy-maker can use, not MCC board members, but in the countries. More specifically, what types of measures, the kinds of things we discussed here today, can help MCC select countries that are committed to ruling justly investing in people and economic freedom, but more importantly, what types of measures help policy-makers in poor countries to understand what actions they need.

If it is too complex or too complicated, it is not directly linked to policy or things they can do or they don't see it is in their interest, their eyes glaze over. So that is the clear linkage that we want to see come out of this whole exercise, something that is clear and usable for the non-environmental technical scientific expert, so they get it and they get it quickly because they are all busy. They get it quickly, so they can act on it, and they don't need to spend a lot of time trying to really understand a lot of nuance that realistically they won't spend. So we want to help provide clear direction and incentive.

I think you probably saw all of this out on the table, but this is an example we talk about with our indicators. These are the 16 existing indicators. They are on the web. Every country that is under per capita income, below $1,450, are favored developing countries up there. This happened to be Burkina Faso, at least as pretty well. There are a number of countries that have all red sheets or almost all red. They don't do well. In competition ranked against their peer group—there was a lot of discussion earlier about being ranked against somebody who is relevant to you, the Finland-Haiti example.

This is not Finland or Haiti. These are basically all poor countries, but a lot of them do compare themselves against each other. [Inaudible] countries in West Africa all know how they all rank against each other. Armenia, Georgia, Azerbaijan,

they all know how they rank against each other. They use these. They are a good indicator, a real good indicator and policy-driven and can end up on this sheet. These are very powerful.

I think the message that everybody has taken away today was reinforcement of the idea that governance is essential. It is important to measure countries' resource endowments and how those endowments are changing, but how those resources are managed, whether there are a lot of resources or a little resources, is what we should be evaluating. It seems to me that was the key, and I think that was the conclusion today.

A basic commitment to environmental regulatory regime enforcement is a good measure of that. It is interesting because we do see governance and leadership extending not only in this area, but across all of our indicators. At the end of the day, that is what makes the difference is governance and whether rule of law, freedom of the press, investment in health—we even see that same thing, leadership showing up, and which countries move most quickly in terms of getting a compact done. These are very strong leaders that are helping drive the process to conclude a compact with MCC. So I am not surprised to see governance and leadership surface here as well.

The advantage of the policy indicators is that when they are constructed properly, they actually help the board make more meaningful comparisons across countries and provide clear guidance to the countries on the kind of actions that they need to take to demonstrate performance. Somebody mentioned they saw this as an incentive.

This link to policy incentive is important obviously here, but fundamentally, all of our indicators are intended to be incentives. You figured it out. We are really about policy reform across the board. We are the whole scheme—and if that is the wrong word—the whole design of MCC is to incentivize and reward good policy reform, the whole idea of competition, publicizing the indicators, having the countries measure themselves against each other. That competitive spirit has an effect in terms of good policy, and why is that important? Because fundamentally, country ownership and good policies are what lead to poverty reduction, lead to good management. So that is the deal.

[Side B of Audiotape 4 of 4 begins.]

MR. APPLEGARTH: [In progress]—good environmental indicator will be an incentive. That is what we want to see.

There was also agreement, apparently, that choosing an indicator is a complex problem. I heard you mention it again, Nigel.

Well, I guess it is sort of like poverty reduction, sustainable growth, it was easy, it has already been done. It is not. We don't have a good indicator. This one was going to be easier than solving poverty reduction and sustainable growth, but it is complex. We recognize it, but it also means that any indicator that is picked should be chosen and measured with caution, and it is something that we have been paying attention to for some time.

Particular attention has to be paid to the objectivity and how this comprehensive ability, how easy it is to understand. The indicator is based on expert perceptions [inaudible] introduce unacceptably high levels of measurement error or highly complex indices that are difficult for policy-makers to understand [inaudible] incentive effect of MCA. Again, sort of a keep it simple—almost a keep it simple stupid, but that will get me in trouble politically and diplomatically, but it is to keep it simple. That idea is very important here because we have already seen the positive effect that good, clear, and simple indicators can have.

It seems also clear that any indicator that we have chosen must have a strong link to economic growth and poverty reduction. In particular, it has been emphasized to elicit the buy-in of poor countries. It can't simply be a good idea. We have to see it is in their interest. One of the speakers this morning mentioned that.

We must choose an indicator that relates to material improvements in the lives of the people in the countries that we are trying to encourage the policy reform in.

So these things, the idea of good governance, objectivity, comprehensibility, and a strong relationship to economic growth and poverty reduction are what we believe should be primary guideposts as we move forward, but I would add a couple of others in thinking about the technical design of the index.

One is broad country coverage. It may be the perfect indicator in the world, but if it only covers 20 countries out of the 82 or the 100 that we ultimately will evaluate, it doesn't help. It has got to be good coverage, and I was encouraged by one of the presentations this morning where countries are volunteering to sign up to be measured under the good business indicator.

Secondly, it needs to be transparent. It really does. It has got to be a credible indicator and be fully transparent. People need to understand it.

Third, I believe—and I think more generally people in the MCC and within the administration believe—it needs to be a credible arm's-length and politically independent indicator.

MCC should not be involved in developing it or funding it. It has to be above suspicious, that somehow the rankings are politically inspired, and above suspicion somehow linked to other foreign policy objectives in the United States. Otherwise, it will not be bought into by the leaders in the countries we are trying to encourage this, and the same way, we want them to see how it benefits their countries, we really would like it to be from a credible institution that doesn't have either an apparent or actual political or foreign policy axe to grind.

I was encouraged very much by the presentation by Simeon Djankov this morning that would show the combined power of the MCC incentives and a good indicator. It showed in that case the power on [inaudible], but a really good indicator here can have exactly that same kind of effect on the management of natural resources. So let's not lose sight of that. This can be transforming. We are seeing country behavior change as a result of MCC indicators in many areas, in corruption, which is our hardest indicator, and it is one you have to pass to be chosen because, without it, everything else that gets done gets sapped away, but in freedom of the press, in good governance.

Governor Whitman mentioned the story of the African leader who came running over to me in Capetown 3 weeks ago, waving the piece of paper showing how much it had improved on their indicators, and they really were significantly improved in three of our indicators. That is pretty unusual getting a president of a country to come over and wave indicators, talk about good policies. Imagine the piece of paper in their hand saying look how much we improved in our management of natural resources. That is what we want at the end of the day because it is linked to poverty reduction. It is linked to growth.

Then, lastly, there is a linkage here also, I must say, to MCC's request for its appropriations. I can't encourage you to go out and lobby, but I will say that at the end of the day, if we are going to have the incentive effect, the countries have to know that the reward is there.

The idea of where is the beef, where is the reward is important. So the request for our funding—we have asked for a doubling of MCC's funding this year. Those of you who don't spend time tracking U.S. budget accounts, I hope at least—=but the point is we asked for a doubling. The President has asked for it. It is important. It is important across the board for poverty reduction and important for this effort.

So, with that, it has been a really good day. I very much enjoyed what I heard. I am jealous of the rest of you who had the chance to be here all day, but thank you all very much for coming.

MR. PURVIS: Thank you very much, Paul, and thank you for your leadership in getting the MCC off the ground. I know it has been a lot of work, and I am sure your staff has been putting in very long hours. Many people outside of government don't often appreciate just how much work it is to do good public policy.

Let me just single out a couple of people who have really been instrumental in making this day possible, and I don't just mean the administrative support of organizing a convergence like this, but really substantively identifying the key people in this field, and I think you hopefully would agree with me that we have been able to pull together some of the people who have really been leaders on this issue.

The two individuals who really made that possible are Brad Parks who is sitting over here in the blue shirt on my right and Nalin Sahni who is sitting immediately behind him. Brad is with the MCC staff, and Nalin is here at Brookings. They deserve our appreciation for all of their hard work in bringing us together.

[Applause.]

MR. PURVIS: On behalf of Brookings, let me thank you for coming here today. This had been part of a continuing deepening of our engagement on foreign aid and on environmental issues, and I think you will see other events like this in the days and months that come under the leadership of David Sandalow who runs our environmental project here and Lael Brainard who is in charge of our economic growth and development initiative.

So I thank you for coming to Brookings, and I look forward to discussing this issue with you and others in the days ahead. Thank you.