

**“Visiting Global Public Policies for Sustainable Development:
A Transatlantic Dialogue”**

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Pascal, General de Nomazy, ladies and gentlemen, it's really wonderful for Columbia University and for the Earth Institute in particular to be part of this new Transatlantic Alliance. It takes on a special importance in the international political context and I think we have an opportunity and a responsibility to provide leadership. The challenges are enormous and today's conference is not modest in its ambitions because we're talking about virtually the whole planet and all aspects of sustainable development. I have the unenviable task of helping to set the stage by outlining some of the key issues around this theme regarding our common future on the planet and to impart some meaning and some direction on our discussion.

I chose the title of “Professor of Sustainable Development” for myself when I came to Columbia last year partly because the phrase is viewed with some suspicion in the United States. Sustainable development is thought of as a little bit questionable and soft, and some in the Bush administration probably consider it a bit flaky. However, I thought the title would help me provoke some thinking around these themes because I think that the concept is not necessarily soft and squishy, but is in fact a proper organizing principle for our thinking if we think rigorously about the challenges. I take both words of the phrase “sustainable development” as being of equal importance, which perhaps puts different emphasis from how the term is sometimes used. The common usage of “sustainable development” equates it with sustainability or sometimes with sustainability science where the emphasis is on environmental matters. Instead, I want us to think about sustainable development both as a question of sustainability of material well-being, the environment, and peace in general terms, but also development in a very real sense. Remember that we're trying to find pathways for our planet and for our increasingly global society in which the poorest of the poor have a chance for material progress while at the same time we don't destroy the environmental underpinnings of our livelihoods through destruction of biodiversity or through unwanted climate change or other aspects of environmental degradation. Sustainable development is interesting precisely because it's about both fundamental goals – sustainability and development. It would be too easy to strive for just one or the other. Some are ready to say that economic progress has to stop, or even deny that there is such a thing as economic progress, but I regard that as a very lazy gloss of rich people who don't understand the struggles of very poor people trying to stay alive and for whom material progress is absolutely essential. The material progress of the dying poor should perhaps be the most urgent goal on the planet.

I'll discuss sustainable development briefly in three components. The first is the development challenge. The second is the broad sustainability or the environmental challenge that goes along with it. The third is the challenge of global governance, which will be vital if we are to have a shot at either the development or the sustainability goals. Indeed, these global governance problems are probably more acute, contested and debated than we could have even imagined just months ago. We seem to have gone back from sharing a tentative consensus among many different powerful countries in the world as to how global governance

might proceed, but now we seem to be back to debating some fundamental aspects of global arrangements.

Let me start with the development issue, which is itself fantastically contested, as the anti-globalization demonstrations surrounding Evian in the next few days will surely remind us. The dynamics of the global economy are not simple and no simple storyline can capture the complexity of an increasingly interdependent yet highly divergent world. It's not correct to simply say that the rich are getting richer and the poor are getting poorer, and it's certainly not true that the rich are getting richer and the poor are getting richer. The tapestry is complex and diverse, and in my view, extraordinarily poorly understood. A proper understanding of the economic dynamics would help us find practical solutions to some of the most profound economic challenges that we face. The fact of the matter, broadly speaking, is that the rich are getting richer and a lot of the poor are also getting richer. Unfortunately, however, a lot of the poor are not getting richer and indeed a lot of the poorest of the poor are becoming poorer. The picture is more complex than either those on the streets or those on the opposite side of the barricades like to portray. It is neither the case that globalization is a barrier to progress for poor countries, nor that it is a complete anecdote to poverty in impoverished parts of the world.

Broadly speaking, I separate economic dynamics around the world into three broad well-recognized groups of economies and study the different economic challenges that they face. There are the rich countries, totaling about one billion people, in North America, Western Europe, Japan and few other scattered and smaller parts of the world, whose average incomes today is about 25,000 dollars per capita. With remarkable consistency, the income levels of these rich have tended to rise during the past generation. Globalization has been good for the economic well-being of the rich.

On the opposite end, however, there are about a billion people who can be characterized as the poorest of the poor, living with a poverty that kills. This absolute poverty is so extreme that under-nutrition is chronic, resulting in immunosuppression and increased vulnerability to infectious diseases that run rampant and take lives in large numbers. The most basic needs that human dignity requires, such as having a latrine or access to water within even a few kilometers, are unmet. Even access to basic schooling is a precarious proposition for hundreds of millions of people. For the bottom sixth of the world, globalization is not only unreliable, it's been nearly useless in breaking the back of extreme poverty. On average, the very poorest part of the world, Sub-Saharan Africa, experienced an absolute decline in material conditions during the past generation. Moreover, it fell prey to the most significant pandemic in modern history, AIDS, which has claimed well over 20 million lives in Africa, has orphaned well over 10 million children and shows absolutely no signs of abating to this point. So in this sense, globalization is certainly not working for the poorest of the poor, and it's not for lack of some effort, since there have probably been tens of thousands of IMF and World Bank missions during this period, but to little avail so far.

There's a broad center between the extremes of absolute poverty and rich countries in the economic development spectrum. The center consists mostly of so-called middle income countries, where the picture is mixed but on the whole usually promising, more so than the anti-globalization rhetoric would suggest. China and India, the two most populous countries of the world account for about 39% of the human population, have experienced historical material progress. This is especially so during the last 25 years for China, and during the last decade for India. China's improvement, in and of itself, is certainly the most dramatic

example of economic progress in modern times, and perhaps in world history. Several hundred million people have been dramatically lifted from poverty, and even those that remain relatively behind have experienced significant improvements, either directly or through the dramatic improvement of their children's opportunities. In India where growth has been 6% per year (below China's phenomenal 9% per year), the progress is also palpable and data show that poverty rates have come down sharply during the last decade. Globalization is a mixed picture – it has surely done remarkable things for China and for India, and it has created the base for progress in much of Central and Eastern Europe, which will soon join the European Union, for parts of North Africa, for certainly a significant portion of Mexico, parts of South America, and many other places in the world. I think it's fair to say that 3 billion people in developing countries have experienced marked progress during the period of globalization. Globalization has allowed China's advance by multiplying its exports fifteen-fold in the past twenty years. This is a globalization-led boom for China and a lot of the rest of Southeast Asia and East Asia has partaken of it as well. We have to start by admitting the complexity of these phenomena and to escape from the one-liners hailing globalization as the remarkable force that will lift all from poverty or the catastrophe facing the developing countries. It's neither of those. What would a deeper analysis show? A deeper analysis would show that there are many factors that have played into the relative success or the relative or even absolute failure of different parts of the world to partake of the progress that has certainly gripped well more than half of the world's population.

In my own attempts to understand the problems of the poorest of the poor, I plunged deeply into the interface of human society and its physical geography and ecology. If one claims that what's gone wrong in Africa is that they didn't listen closely enough to IMF advice (as the IMF claims), or that they listened too closely to IMF advice (as the anti-globalizers claim), then I think one misses the entire picture. I think a better observation is that there is not a single place with holoendemic malaria in the world that has experienced sustained economic progress. In general, year-round holoendemic malaria, that is, high transmission malaria, is almost synonymous with economic catastrophe. That's a better analytical starting point, from which you understand as a corollary that five thousand or ten thousand IMF and World Bank missions probably haven't stopped one mosquito from biting. They're just addressing the wrong factors. The right starting points to understand the problems of the poorest of the poor include the human ecology and the disease ecology, the soil nutrient depletion, the burdens of intensified *El Nino*'s, or sustained droughts for other reasons, the physical isolation of very poor populations that don't even have a paved road to take them hundreds of kilometers to the nearest ports, the absence of modern energy systems in populations that are too poor to pay for them, thus leaving an impoverished environment as well as an economy de-linked from the world. Why is it that some places are able to start from low levels and hook up to the world economy while others are not? It turns out that China had a whole lot of advantages: it didn't have holoendemic malaria and it didn't have to take off in the midst of massive climatic shocks in the coastal provinces where growth has occurred. It had easy transport conditions to world markets compared to what most of the poorest of the poor face. The list goes on in terms of energy resources and other basic considerations.

The point is that to understand globalization we need to get real and come down from the clouds of high theory to understand the physical context in which economic development does or does not take place. That is a natural agenda for this Alliance in its attempts to combine a physical and ecological and environmental perspective with the social scientific perspective, and will doubtlessly result in an enormous amount of new knowledge. Specifically, I think it will result in a quite different view of the burdens of the poorest of the poor. I do think that

when the G-8 summiteers meet together next week, the most important thing for them to do, although perhaps the least likely thing for them to do, is to focus on the plight of the bottom billion people because they are dying by the millions as we dither, as we make unfulfilled promises, or as we send endless IMF and World Bank missions to go lecture them about good governance while their children die by the millions of malaria and unsafe water and lack of access to basic modern energy systems and paved roads that would give them the chance to share in progress.

This raises a second question that is what makes part of the tension of sustainable development so pressing: can you have even more development and yet also have sustainability? The environmental movement, which has done so much to open the world's eyes to the risks of anthropogenic destruction of the physical world, includes factions claiming that we've had enough development and it is time to stop. Of these, the ones sympathetic to the poor say that consumption levels of the rich need to be massively cut to make room for increased consumption among the poor, while keeping global consumption levels constant at the current level to prevent further human forcings on the physical environment. My own sense is that this again is a wrong-headed way of thinking about things. We need to analytically desegregate the different kinds of threats, the kinds of forcings, and the kinds of challenges.

I'll discuss one of the themes where this debate is lively – energy. Energy is perhaps the most vital resource that we have, and the fact is that we are not running out of it. Energy lets us do work and with work we can solve problems. We might be reaching the limits on oil and gas resources, but we're not reaching limits on hydrocarbons, for example, and we will not for hundreds of years to come. Beyond that, the prospects within a reasonable period of time (certainly within those hundreds of years) of harnessing vastly greater amounts of solar energy or nuclear energy in its various forms mean that depletion of energy resources should not be a great concern. Current estimates claim that we have ten thousand gigatons of hydrocarbons, which would satisfy our needs for over a millennium at current energy usage. The problem in general is to figure out how to use the resources wisely and to address to specific problems that need addressing.

The links of economic growth and environmental sustainability are again complex, and there are risks of poverty leading to environmental destruction rather than leading to economic development. There are certainly as many channels from extreme poverty to environmental catastrophe as there are from economic growth to environmental risk. It's the poorest of the poor where one finds massive deforestation and great loss of species. It is not accidental that desperate people cut down rain forests to make room for new farm plots escaping nearby nutrient-depleted plots, or because they need firewood as fuel to keep themselves alive because they're disconnected from a modern powergrid. Another example is when bush meat is sought to the point of threatening the great apes throughout extremely poor parts of Africa today.

What we find is that within many parts of the rich world, we see general improvement of environmental threats and risks despite the kind of governments we sometimes get. Development can be an escape from environmental degradation for obvious reasons. One of the things that development does that is perhaps most helpful is put a limit to population growth, which may be the single most challenging and difficult of all the anthropogenic forcings. The explosion of the human population, roughly six-fold during the last 175 years, has probably done more than almost any other factor to create massive losses of habitat and

massive stresses on the environment. Economic growth is in a broad sense the most effective way to impart and consolidate the demographic transition which is now spread to around half of the world's population. The most important reason for optimism on long term sustainability is the fact that global population is likely to peak at a much lower level than we guessed to be the case even five or ten years ago, given the speed of transition to lower fertility rates in much of the developing world, with the notable exception of the poorest places up to this point. At the same time, we cannot say that economic growth solves environmental problems, since it certainly creates certain profound challenges. The challenges are identifiable in character – they tend not to be challenges around the livability of an urban area or a watershed in a rich country, but the challenges of impacts of growth on the global commons. Our political systems have found ways, albeit imperfect, to help curb adverse effects of economic development when it takes place within our own homes, within our own countries, and within our own communities. Our political systems have done much more poorly dealing with threats to the global commons (the oceans, the atmosphere, and the global inheritance of biodiversity), where the challenges can't simply be solved by collective action within a community or within a country and where we don't yet have workable political institutions that provide for coordination and collective action at a global scale. Consequently, things like the ocean fisheries are being destroyed at remarkable rates. In the case of the atmosphere, your neighborhood's air pollution becomes uniformly mixed everywhere in the atmosphere within 30 days or within 6 months for many chemical processes, causing more damage globally than what your neighborhood perceives. It is those kinds of environments that are so far threatening the most by development, of which I think the most important three are: managing the oceans, managing the atmosphere and climate, (atmosphere, ocean and climate are linked systems); and protecting biodiversity. I will say a word about one of them – climate change.

We know, albeit imprecisely, that anthropogenic forcings on the climate due to fossil fuel use and other greenhouse gases is with very high likelihood posing significant risks to vast parts of the world, perhaps all parts of the human population in the coming decades. We don't know precisely how big those forcings are. We don't know where the effects are likely to be felt since our models are not good enough to resolve those questions quantitatively. We don't know with precision how much of the recent warming of the atmosphere and apparent changes in precipitation patterns are really due to anthropogenic causes and not to other factors affecting the global climate. Indeed, we know from the paleoclimatological record that even without human forcings, the global climate can be profoundly unstable; one of the reasons for concern is that human forcings could trigger highly non-linear responses – so-called abrupt climate changes – in ways not really anticipated in the models we use at GISS or at IRI at the Earth Institute or in various European climate laboratories. Some people have felt that the risks are so profound that we need a dramatic overhaul and even suspension of uses of modern energy. This is where the view that growth has to stop in order to protect sustainability tends to come from. Scientists at the Earth Institute are trying to take a more nuanced and I believe a more appropriate view of this critical problem. In terms of climate, our scientists are not only deeply engaged in the evidence on paleoclimate and the risks of abrupt climate change, but are in the forefront of explaining why these problems are likely to pose risks well beyond anything that has been foreseen, and therefore require urgent action. On the other hand, they make another key point that I believe to be the essence of the way these problems need to be analyzed. Their point is very simple and specific: the problem is not energy use, and therefore the problem is not stopping energy use per se, the problem is the carbon dioxide side effect of energy use. If one wants to address a problem like long term climate change, focus on the real source of the problem and not the problem three or four

steps removed. Focus on the problem of carbon and other greenhouse gases rather than on the problem of energy per se. A number of Earth Institute scientists led by Klaus Lackner in the Engineering Department are therefore taking a basic and ingenious route. They argue that we never worried about carbon dioxide in the past. It's harmless, it's odorless, and it doesn't bother any of us, except for one small hitch: it could wreck the planet. Until now, we never had to worry about it. No engineer, no entrepreneur, no business leader ever had to put much effort into thinking about carbon until the past ten or twenty years. We don't have 200 years of thinking, research and development on ways to handle carbon. This hasn't been the great challenge for the world's engineers. Therefore it's probably something where an intensive and focalized science and technology effort could have profound effects; it is virgin research territory, it's virtually unexplored and yet the underlying chemistry and thermodynamics tell us that there are multiple potential ways to get the carbon out of the energy system. The one that is particularly promising in the view of Lackner and his colleagues, and I must say that I am a tremendous fan, is to capture the carbon at the power source through well-known techniques (that can be improved and made cheaper), and then to sequester the carbon. It could be deposited down saline aquifers or other geological storage areas for some decades, perhaps combining the carbon with basic earth crust magnesium silicates, for example, to make magnesium carbonates that Lackner assures me are thermodynamically stable. Don't take it from a macroeconomist, but my colleague says it's so and I believe him on this. He says that they're good for tens of thousands of years. The magnesium carbonates will hold and store the carbon and keep it out of the atmosphere. The point I'm making, and I'm just touching on one of many issues, is that we need to focus and unpack the issues, not using the broad brush. We need to understand something that has been true for the last 10,000 years but certainly for the last 200 years: technology has side effects and those side effects need to be addressed. We learned to address smog using smoke stack scrubbers to keep the sulfur oxides and the nitrogen oxides out of the air. We learned to take lead out of gasoline, though perhaps some decades later than we should have. We've learned a lot of things, and we can learn to address energy systems in a sound and safe way if we put proper public and private investments at the service of that mission.

Let me finally turn to the third topic: how we are going to get all of this done. We need to help the poorest of the poor escape their ecological and geographical barriers currently preventing them from participating adequately in the world economy. We need to reshape institutions, not by saying that growth has to stop or that massive destruction of living standards of the rich countries is the only way to open up opportunities for the poor, but rather by addressing the specific challenges of merging sustainability and development. Within our societies we grapple with that problem. We have done a strong job in rich countries of getting the air and the water in better shape than a generation ago. What we have lacked are international approaches that can handle the global problems. It remains for us to find ways to shape international institutions that can be effective in achieving a global-scale level of cooperation, as we typically find within our countries and as the European Union, despite its problems, has found ways to do this across this continent. A year or two ago I had more confidence that this reshaping of international institutions would be possible. Looking from the other side of the Atlantic, the achievements of the European Union are vast. It doesn't look so pretty as you get closer to Brussels, but looking from some perspective of history and distance, finding new political institutions to address continental scale cooperation is one of the most promising breakthroughs in political management in modern history and it's a great lesson. It's a lesson currently scorned by the U.S administration but only out of ignorance and not out of anything deeper.

Our struggle towards global governance issues must answer whether there is a path to real global collective action, what Kant in 1795 called “the path to perpetual peace”, a collective and cooperative approach? There seem to be three models for solving problems internationally. There is the Kantian way, which I would say is broadly the European approach, structured as dialogue between participating democracies peacefully and collectively. Kant thought that republics and free trade would be the model for perpetual peace. I think that he was right about a lot of things and I think he had a lot of insight on this issues also, so I’m still stuck in the Enlightenment myself and think we ought to go in that direction. A second model, favored in Washington now, is that American hegemony is going to take care of this, but I’m fairly skeptical of the ability to turn military power into an answer for global problems. I’m pretty frightened about the Bush administration right now because the international view is being matched in the domestic policies as well, all a part of a radical vision of society of “each to their own” where the rich take care of themselves through power, and I’m afraid it is not a very desirable picture. The third model is that somehow in the anarchic international system with neither the Kantian perpetual peace nor a *pax americana*, somehow real international politics will solve the problems. I think that this is surprisingly the big debate for the years ahead, one that I did not think that we’d have to spend a lot of energy and time on, but, alas, it looks like we will.

My own sympathies are of course with global cooperation as the only realistic approach, and if we are able to get that far, then it behooves us to ask us what we would cooperate about. There are five things that I would mention quickly: poverty alleviation for the poorest of the poor, since without the help of the rich it’s impossible and we need vastly greater development assistance from the rich to give the poorest of the poor a chance to get a foothold into globalization. Second, we do need global cooperation on security, but security not only from proliferation of weapons of mass destruction, but also from diseases, as SARS and AIDS remind us now but as malaria should have informed us long ago. Third, we need proper frameworks for international migration, trade and investment. Fourth, we need to manage the environment of the global commons with vastly more sophistication, energy and intensity than we do now, whether it’s the fisheries, biodiversity, or climate systems. Finally, we need global cooperation on science and technology. We need global-scale systems to address global scale challenges. In fact, my last point on governance is that we will not succeed without science. All of this is not just a matter of heart and the public spirit – the complexity of managing a planet with 8 or 9 billion people with growing demands on various physical systems and massive unprecedented levels of integration and interaction requires the best of our science and technology. Therefore, the last great challenge for us that I will mention is maintaining the broad public support for science and technology as an approach to solving our problems. Science and technology advances have been at the core of material progress for the last 200 years and they are vital for sustaining further economic development. Science is under threat from a religious backlash of fundamentalism in the United States and other parts of the world. It is under threat by a loss of public support in Europe and in many other societies where scientists are not viewed as experts but as sources of yet further controversy and unpredictable consequences for society. Our mission at the Earth Institute is to help bring science and public policy together in various ways, including public support for serious science and technological approaches to these great problems. This Alliance that we are launching and fortifying today will doubtlessly increase the quality and the scale of that effort together.

Thanks very much.