

## Response to the Panel

by

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Let me add my very positive sense of the discussion here and I particularly like the fact that we all don't necessarily agree with each other. It seems to me that is what human progress is all about and Worldwatch is really a platform for discussion, for ideas, and we use the State of the World in that way: to get ideas going. We obviously take our best shot analytically in understanding what is going on in the world but we certainly recognise that neither we nor any one else at a given moment in time has all of the answers and the kind of discussion and dialogue we see here today is extremely important and I particularly appreciate that we have some real authorities, based here in the Netherlands, joining us today to discuss these issues which I might add is a pattern that we have been following in similar symposia and roundtables which we have been holding and which we will continue to hold all around the world in this year.

Let me also just limit myself to a couple of responses. We usually tend to respond to the points we disagree with and not mention all of the things we agree with. So let start by saying that I agree with 90 percent of what I heard, but let me respond to a couple of points.

I am also no expert on agriculture and it would have been wonderful to have Brian Halweil who is really one of the world's global experts on sustainable agriculture and how we move forward. We do not take a Malthusian perspective and we do think we can meet food needs in a sustainable way. So I think a different model of agriculture is going to need to come into place. The comment I would react to is this idea of intensification. We clearly need intensification of agriculture if you mean by that improved water efficiency. And clearly agriculture is water resource constrained in major parts of the world particularly because these wonderful green revolution crops that we have developed of the recent decades gulp huge amount of water and so have are going to have to use water very efficiently and in some sense that means intensification. There is also going to be intensification because of the fact that increasingly we are going to require that agricultural lands deliver energy resources to replace oil in particular as well as food. That is going to demand intensification. I would argue that particularly in the poor developing countries a lot of this intensification should be labor intensive. We need to utilize the labor that is available in a very efficient way to employ people on the farm. And I don't think that this means becoming dependent on distant imports of chemicals and energy to intensify agriculture. That may work in some limited sense in some circumstances but I think particular in an era with rising oil prices and rising chemical prices as well, I think the long term ecological damage that comes from chemical intensive agriculture would put the livelihood of hundreds of millions of people at risk. Let's be careful with developing a new model of sustainable agriculture that is focused on meeting peoples' needs. Certainly there may be some role for genetically modified crops, but the thing that we find disturbing is that 90 percent of the debate about agriculture technology is now about genetically modified crops, most of which have been proposed will only benefit rich people in industrial countries and do relatively little for meeting the need of people in poor countries. That we think is distorted. And again: let's talk about the right type of intensification and a truly sustainable model of agriculture.

On energy, we agree on most things. I think I have said clearly that we should examine all options; all options should be on the table. Let me make a very specific and perhaps slightly controversial point. Clearly we have our own vision of how the energy system could develop. I think that ultimately, if you just look at the trends underway, the way costs are coming down, markets are blossoming, that there is an enormous untapped potential for a highly efficient renewable resource based energy system. But I also think that ultimately it would work only if it makes sense in the market place. We are long past the point where a set of government planners or international planners at the UN are going to come up with the energy system of

the future. I also have relatively little confidence in government R&D. Government R&D is not going to make renewables work, it is not going to make nuclear work, it is not going to make carbon sequestration work. All of those things are going to have to stand or fall in the market place. And the thing that fundamentally makes me personally convinced, even while I want to keep all these other options on the table and allow them to be looked at and invested in, we are going the renewables direction, is because when I look at trends in the market place: these markets for solar, wind and bio are growing at 20 to 30 percent a year. They are already a 25 billion dollar a year market.

And the reason they are growing is not due to government R&D, it is because governments are getting barriers out of the market place. They are allowing these energy sources to compete, allowing venture capital to pour in, and to make the technology work. And I think if you see a large number of countries do what Germany already has done, what Denmark has already done, what Spain already has done, that some states in both India and the United States already have done, what Japan already has done in some sectors, what China and Brazil are just beginning to do, which is to change the market structure, to allow these new technologies to compete with the fossil fuels, with nuclear, I think you are going to change the world. Already the countries that I have mentioned have created huge markets, which have already created over a hundred thousand jobs in total, have already displaced significant amounts of fossil fuels. I think we are right on the edge of an energy revolution where things can and will change a lot faster than anyone expects. All that is really required to do that is to adopt the kinds of market reforms that have already worked in some countries. Clearly it will have to be adapted when applied in different countries.

I have recently met Chinese officials who have been traveling the globe. They know what the German energy laws look like. They know what the Japanese law looks like, they know what we are doing in California and they are adapting those to a Chinese context. Ultimately, what China understands, is that China has a lot more wind than oil. And it has more solar energy than it has coal. A lot of people don't realize that. But ultimately what China has, which is the strategic advantage in renewable energy, is that it has a human resource base. It has highly skilled and also relatively low cost labor and these are manufacturing technologies. And just as China sets the price today for everything from computers to refrigerators, I am convinced that within 5 to 10 years they are going to do the same thing with renewables, which will drive down the costs and make these technologies available to a much broader cross section of the world.

So, let's let everything compete. But I think if you want to know strategically where the world is going you have to study these high growth industries and understand the dynamics that are at work. I think by understanding that, it provides an optimism and a confidence that we will need in order to make that next step forward.

Thank you.

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