WORLD TELEVISION

Nestlé Creating Shared Value Forum 2010

Water and Sustainability

Maria Livanos Cattaui: I welcome you all back from the coffee break. And just a reminder of the rest of this afternoon. First we'll have our session on water and sustainability, after which I will hand over to Jane. Jane, are you here now? To Jane Nelson. Hi, Jane, there you are. Who will do something absolutely brilliant, which is to bring together everything we've discussed today in the concluding session. As she is brilliant, this is not a problem.

0:00:35 At 5:00 p.m., we have the bit that we're all waiting for, which is the announcement of the first ever Nestlé Creating Shared Value Prize. That will be announced, and after a short ceremony, everyone is invited back upstairs to the dining area where you had lunch to enjoy an absolutely stunning photo exhibition which will, I think, bring CSV or Creating Shared Value, really to life. Food and drinks will be served at the reception, and we hope you can all stick around to speak not only to the panellists, but also to the Nestlé representatives who have joined us from across the world to share their local projects with you.

0:01:18

0:00:00

And now to our session on water and sustainability. In alphabetical order, I think you know everyone up here. Peter Brabeck, Chairman of Nestlé; Colin Chartres, Director General of the International Water Management Institute; Tom Downing -Tom, there you are - Tom Downing, Executive Director of the Oxford office of the Stockholm Environment Institute - you have two countries, two cities right there in there. Jan Lundqvist, Chair of the World Water Week Scientific Programme Committee of the Stockholm International Water Institute; Stuart Orr, Manager of the Freshwater Programme at WWF. Then we have Ismail Serageldin, Director of the Biblioteca Alexandrina, among other things, and Mathew, where are you? Oh, there you are. Mathew Varghese, who's Acting Undersecretary for Humanitarian Diplomacy, International Federation of Red Cross and Red Crescent Societies.

0:02:23 And this is the time where I say, water, water everywhere, and not a drop to drink. Water definitely is on everyone's mind. I just remind you all, I picked this up on my way over, that the latest issue of *The Economist*, there's a special report on water. And it's certainly not the only one in the last week that I have seen everywhere. And literally again and again and again, you see water problems. I look through these things and it's all about water problems, and we're here to look at some aspects of progress and solutions.

0:03:06 Just as a reminder, I'm sure that Peter and others will bring this in, but farming accounts, they say, for 70% of water withdrawal, and that few of the world's great rivers that run through grain growing areas now reach the sea all year around, something I did not know. And if they do so, it's some little trickle, that withdrawals from underground aquifers, which are hidden from sight, but big enough to produce changes in the earth's gravitational field have been monitored by NASA's satellites, and so on and so on. Among the issues that I'll be asking some of you about are things that, although the supply of water cannot be increased, there's improvement of storage and delivery, making farming less thirsty, and so on. I recommend that some of us get some of our illusions about water and mythologies out of the way so that we can really look at the possible.

Colin, on that note, I'm going to start with you.

Mr. Peter Brabeck-Letmathe: Are we going to vote?

0:04:16

Ms. Livanos Cattaui: Oh, yes, we have to vote first. Thank you for reminding me. I put my piece of paper away. I'll shift chairs with you. Having been slapped on the wrist for the wrong things that were said on the last one, I hope that you all think that these are better priorities. So pick up your voting machines and hear. The question is, where should we concentrate our efforts and resources to address the water crisis? And we're asked to rank, again, the three top priorities that you might have. You remember that if you make a mistake you hit the "C" and you can do any three numbers in any order. Just three would be good. So we're looking at cross-border co-operation on watershed management, urban water efficiency and infrastructure, farming technologies and agricultural productivity, pricing and governance - here I think they mean the governance of the pricing formulas - ending distortion such as bio fuels subsidies - that already has a value judgment in it - and comprehensive fact-based solutions for each watershed. Voting starts now.

> All right, so here we are. Farming technologies, yes, I did mention that, so that might have influenced this. Urban water efficiency. Very interesting that it came in second, but close on cross-border co-operation. And further down we have pricing, governance, comprehensive solutions per watershed. And interestingly, not that many of you were interested in ending distortions. Maybe it was because we haven't yet understood the extent of the distortions and what they're all about, so we certainly will be asking this panel, perhaps a little some of you, to please, if you know and understand the distortions, please to bring them up.

Now, Colin, after thankfully Peter reminded me about the fun part of the session, the voting, we get on to you. And I think one of the things that I wanted to ask you is - there is an increasing water scarcity that we discussed already, that we know, I mentioned.

0:05:56

0:06:46

How is that going to impact the things we talked on just now, which is on food production, and who's going to suffer the most on that one?

Dr. Colin Chartres: Well, I think I should preface these remarks by saying that there are two types of water scarcity. There are the countries which are physically water scarce, that is they have used up or will have used up, in the next 20 to 30 years, all the available water resources. Many countries in South Asia, East Asia. My own country of Australia in the south, it's certainly in that category. Then there's the other category of scarcity, which at IWME we have termed economic water scarcity, and that applies to a lot of Sub-Saharan Africa. There is physical scarcity in some parts of Sub-Saharan Africa. But by economic water scarcity we mean there just hasn't been enough investment to get the water to where it's needed, both for farming and for industry and for populations.

0:07:18

0:08:12

What is really quite amazing in this whole debate is over the last 25 or so years, we've gone, in many countries, from water which was not limited to any kind of development to development being very much limited by water now, and we've seen this largely because of the factors we've talked about - population growth, bio fuels, urbanisation and climate change, all increasing scarcity or increasing competition for water. What that boils down to, with changing diets, i.e. people are going to eat more protein-rich diets, either milk and cheese or meat, in many cases, most estimates suggest we're going to need about twice as much food and feed in the near future, in the next 30, 40 years, as we produced in 2000. To do that under a business as usual scenario means we're going to need twice as much water, and in many countries we just don't have that water, particularly in Asia, so we've got to

look at increasing productivity as a key solution in those countries.

Ms. Livanos Cattaui: Colin, I'm going to come back to you after we've gone just a little bit around and talk to Jan as well on options, particularly for farmers. But first I'd like to turn to you, Jan, and then come back immediately to Colin on this. You look at water issues as not being separate from food production, and I think one of the questions, what happens, you look at so much as what happens to water in the food chain, from field to fork, as you say, and wasting food is wasting water. So what is it that you're proposing here? What is the key thing that we should be looking at here in order to carry over, maybe, stocks of water?

0:10:13 Professor Jan Lundqvist:

0:09:24

Thank you very much, Maria. I think that partly we have to recognise that water scarcity is a bit of a deceptive concept, because it's not water that is getting scarce, but it's the number of people who are increasing and the wants of people. So we have basically the same amount of water today as they had in the 17th, 18th, 19th century, or even before that. But what is increasingly also a problem today with water is, I would say, the variability in when we have the water. And with climate change, we will see a tremendous variation in the amount of water that we have from one season to another, from one year to another. So I think scarcity is a very complex concept where we have to look both upon the hydrological realities as well as the demand or the use of water.

And Maria, when you alluded to my comments that it might be, in some instances, it might be better to talk - we have to, with this variability in the availability of water, when we have some, we have what I call, we have seven fat years and seven lean years,

0:11:14

most of the time. So if you look upon the rainfall statistics for most of Africa and many other countries, they usually have a few seasons or a few years when they have abundance of rainfall and when the farmers are producing quite good yields or get good yields. But then after that, there are a number of years when there is a deficit of rainfall, and then you have physical scarcity water. And the traditional or the conventional way to tackle this has been to build reservoirs for water storage, to have carryover stocks of water from one season or one year to the next. That was a system or thinking that developed very much in the 1960s or '70s. The peak of that period was in the 1970s. So I say now we are more or less at the end of that phase where we ...

Ms. Livanos Cattaui: Of water storage?

0:12:28 Mr. Lundqvist:

Of water storage because it becomes very expensive, and environmental cost, social cost, and so on. So I think we should go for a thinking where we talk about carryover stocks of the products of water when we have the good opportunities to produce food.

You're talking about the food products, the agricultural products.

Ms. Livanos Cattaui:

0:12:47

Mr. Lundqvist:

Food and other commodities. It could be for biomass in general. But I would like to come back to what Peter Brabeck mentioned the other morning also, which I think is an extremely important and very, very - a too little discussed topic, namely that we have a huge loss and waste of food between what I call the field to the fork. Peter, you mentioned that we - you say about 45% of the food is lost. I mean, we have very little evidence of this, but I would say it could be higher. It could be lower also. And it depends on the countries and the different seasons. But we have a huge loss of food. And if we, as you said, Maria, if we are throwing away the food, if we are wasting the food or losing the food, if the farmer is losing their harvest, he or often she, of course, they are also losing the income. And they're using - if food is wasted in the households, that's the same as throwing away the water that was used to produce the food. So, I mean, if you look from scarcity from this perspective, it becomes much more complex than saying that we have a physical scarcity or economic scarcity. We have a much wider array of problems that are included under the water scarcity complex, I think.

Ms. Livanos Cattaui: Just coming back to you, Colin, listening to this, are there in place today options for us to handle this, options for farmers, or is what Jan is saying a different way of looking at it, but we don't necessarily have answers to this particular food wastage, water wastage equation?

Well, I think we need to look at an arsenal of things to attack this problem with. I think dealing with food wastage is a critical one. I think looking at ways of increasing productivity of what we call green water, that is water in rain-fed environments is very critical. And I think looking at how we improve productivity and irrigation systems is equally critical. None of this is really rocket science. We know most of the technologies. We know how to do it. It's actually getting that capacity developed and built in many countries to do that.

I would not take issue, but I think there is still scope to improve storage, particularly in Africa. When you see the figures that in the USA and Australia, per person, there's something on the order of 5,000 to 6,000 cubic metres of water stored. If you look at Ethiopia and some other countries in Africa, they're in the

0:14:09 Ms. Livanos Cattaui:

0:14:33 Dr. Colin Chartres:

0:15:10

range of 14 to 100 cubic metres per person, a vast disparity. And that stored water, whether it's stored in small reservoirs, large reservoirs, or even recharged into groundwater, provides smallholder farmers, who live really hand-to-mouth, and may not have access to large amounts of carryover of food, with insurance against these bad seasons, with insurance against climate change, as long as they can access that water with irrigation technology, simple irrigation technology. The physical side is one side, if I can just mention the other side.

But I think the really difficult side is getting governments to change the way they think about and the way they develop policies on water, and the way that that is translated through institutions into water management. We are - saddled might not be quite the right word - but in many countries we are dealing with institutions and policies established probably after the Second World War, in times when there was plenty of water and the scarcity issue wasn't there. We are now dealing with major issues of scarcity, trying to use those old policies. For example, one very quick example, in India irrigation has been transformed in the last 50 years from surface, gravity-fed irrigation systems controlled by government, supply driven, to demand driven systems where most farmers have tube rails and small electrical diesel pumps, and they can pump when they need. One of my colleagues has described that system as atomistic and anarchic because there is no regulation. The governments just haven't moved to consider how to regulate that and how to manage to everyone's advantage, how they can turn surface water systems into systems that recharge the groundwater, which make a sustainable supply for groundwater irrigators. So some of these governance, policy and institutional reform issues, which I think do come under four, not just pricing, are very, very important.

0:16:12

Ms. Livanos Cattaui:	So you would have put that as a priority down?
Dr. Colin Chartres:	I did put that one down with a—
Ms. Livanos Cattaui:	Pricing and governance?
Dr. Colin Chartres:	With a broader definition of governance, looking at policies, institutions and reform.
Ms. Livanos Cattaui:	What was your other priority there?
Dr. Colin Chartres:	Number one, because I think that's so critical, particularly in Africa.
Ms. Livanos Cattaui:	That's cross-border cooperation on watershed management.
0:18:01	
Dr. Colin Chartres:	There are literally, I think, in the order of 60 or 70 watersheds in Africa which are across border. And I think three, farming technologies and agricultural productivity, but particularly building the capacity to deliver those. Again, a human problem, not necessarily a sort of physical or engineering problem.
Ms. Livanos Cattaui:	Peter, this has been, for many, many years, a main area of research, of concern, and of action by Nestlé, and particularly water management in developing countries and in difficult areas. Could you tell us a little bit what can business bring to this if we're talking about government ordained methodologies, if we're talking about cross-border co-operation? What is business's role? What are you doing?
0:18:52	

Peter Brabeck-Letmathe:

Well, let me say why we came to the issue of water. We looked once upon the sustainability of our business and we looked at all

the resources that we need in order to assure that the company could survive the next 150 years. And guess what? Water came out as the most important resource. That's why we started looking to water. And the more we looked into the water, we were surprised what we found out. And it allowed me to say what I still say, the same thing, if we continue to use the water we are using the way we are using it today, we are going to run out of water long, long before we are running out of oil. Long, okay? We will have no water, but we will still have oil in the soil. And I think this is the first hopeful wakeup call.

The second thing is afterwards, which already has been mentioned, it's not to have water available. The amount of water available that is there is huge, it's big enough. But what is - where the water is available, how it is available, and when it is available, this is the critical aspect. It is not good enough that during the monsoon you have a huge amount of water which is then flooding everything, and then afterwards, the next nine months you have no water at all, okay? It is not good enough to have the water available in the northern part of Europe and in the southern part of Europe we don't have the water. So this is extremely important to understand. A big difference to CO2. In CO2, if you do not emit one kilo of CO2 today here, it has an impact. If you are not using one litre of water in London, it's not going to have an impact on the question of Sub-Sahara and things like this. So water is extremely, extremely local. That's why I understand why we have to go into this cooperation on the local watersheds.

0:20:46

0:19:42

The third one, and then I will stop here, is water has three dimensions, and it is such an emotional aspect because of those three dimensions. The first dimension is the social dimension. Water is a social good. Without water we cannot live. Therefore, water is a human right. But the human right goes to the five litres of water we need for hydration and the 20 litres of water we need for minimum hygiene. It is not a human right to fill your swimming pool, to wash your cars, to put water on the sprinkler in your garden; that's not a human right. But in the public discussion, we confuse this all the time. So it is first of all a social good, yes, five to 25 litres.

0:21:37 Secondly, it's an ecological good. And we don't talk sufficiently -I'm sure that you are going to talk about this and he will talk about the impact it has. We have to assure that we have sufficient ecological water available in order to maintain our fauna and flora. And only then it becomes a commercial good. And it's a commercial good which we are using in households 8%, in industry 22%, and, as you said, in agriculture, 70%. So if we want to find solutions, we have to put priorities. It's clear biggest consumption, that's where we have to start, and this brings us back to the discussion we had before.

0:22:17 Ms. Livanos Cattaui:

Ms. Livanos Cattaui:

Not leaving you go just for one minute, obviously most of the efforts of Nestlé are going to be in that very difficult area of food production, of efficiency of use of water, and I think many people here know of the work and the studies that you and the research are doing. But to what extent, picking up discussions earlier today, can a company like Nestlé have an impact on governmental levels, on community levels, on education on these, or even on, let's say, human rights consumption of the use of water? How far can you go?

0:22:59	
Mr. Brabeck-Letmathe:	I think we have a responsibility on all levels. I'll give you one. I
	must be one of those very few who voted for five. I have been-

That's ending distortions.

Mr. Brabeck-Letmathe: Distortion. I have been saying, I repeat it wherever I can publicly, for me bio fuels based on food is a criminal activity. It's absolutely immoral. And this is very simple, and it's one decision which all governments could take, yeah? It's as simple as this. And I will continue to say that very clearly. Because this is the reason, what you discussed before in your nutrition discussion, okay, and before we discussed about agricultural poverty, that was the reason which broke this bank of 300% increase, okay? And it's a very simple decision, a political decision. And it is ridiculous, ridiculous. I can go to a school class of children of eight years and I tell them the market of oil is 20 times bigger than the market of food, okay, in calories, because a calorie is a calorie. Now, government tells us 20% of a 20% bigger market should be replaced by the food market, okay? Now, you don't have to be a genius ...

Ms. Livanos Cattaui:

No, it's insanity.

0:24:20 Mr. Brabeck-Letmathe:

0:24:46

You know exactly this would mean that we would have more than to triple agricultural production just to comply with this, I don't know where they got it, beautiful vision of our politicians. Is that so complicated? No. Is this a political decision? Easy one. No food for bio fuels, first of all. Easy to be done. So I think I start on the top. I go down to the lowest level.

We have to assure, we have to help, and we do, that, for example, in India, where one thing was missed in your comment was that government gives the electricity free of charge, okay, as a subsidise in order to make these electric pumps pumping, okay? We are now at 104 metre depths in order to get the water, and we are now getting into the natural authentic level which are coming from the Himalayas, okay, so we are getting - not only that we don't get water, we are getting now authentic water coming up to the ground and poisoning the ... We have to work on this level, we have to work on the highest level. We have to work on all those levels.

Ms. Livanos Cattaui: Thank you very much for that. Stuart, I see you making ready, champing at the bit there on this one. You have said many times that this is not just a technical fix that is needed, this is not just efficiency, that fundamentally, echoing what Peter just said, this is politics. How is water used in the economy? And a quote from you. "Weak consideration of the actual economics of water, particularly in the political community." This will have resonance with you, Michael, I'm sure on this. Tell us a little bit of why you're so concerned.

0:26:11 Mr. Stuart Orr:

0:25:30

I think water - you know, we talked about nutrition being kind of an orphan. Every day we touch water. We know water. But we quickly forget about it. We quickly forget that it is the basis of life and it needs to be managed and looked after, and we need to be stewards of it very quickly. And there was a very interesting point made this morning about the link between energy and food. And I could say the same for water. Water is tied with energy. It's tied with food. It's tied increasingly more with trade. And so as we start to look to the future about, yes, we have huge challenges today, we have to think about the future and the challenges we face about this interconnectedness and the way water runs through our economy. And I think the point I was trying to make is we don't really understand how water does go through our economy, but it's embedded in everything. Everything we buy, consume, use, there's a water use in there somehow.

And I think that the poor understanding of how water flows through the economy and the ways in which it benefits society,

0:27:03

understanding how much has to stay in the rivers to maintain biodiversity, how much has to come out for basic needs, how much needs to go into industry, these kinds of things need to be brought to the table and discussed, because you have to - again, we go back to the beginning here - government has to deliver water management, okay? It's government's mandate to deal with this. We can talk about the role that the private sector may play in that; that's another discussion. But the point is, what are your levers? What are you going to do to incentivise governments to start to take this a bit more seriously than they currently do? And I think understanding the economics of water is a crucial way of understanding how we need to value, manage, and allocate it throughout societies, depending upon the needs of those different societies.

0:27:49 Ms. Livanos Cattaui:

Although, Stuart, as ...when I put that question to Peter, in addition to managing water in its own domain, the pressure that large business can put on the public understanding of priorities in this is not to be neglected, so the role of business sometimes goes slightly beyond the technological use, does it not?

0:28:07 Stuart Orr:

Yeah, absolutely. And I think again, we talk about the private sector, we're talking about a whole range of people. We're talking about those who think they have solutions to the water space, but mostly we're talking about companies that face risk in water, so we're talking about shared values. I think we need to talk about shared risks. And the risks do exist for companies in watersheds where there are competition over water with communities or with the environment. But that brings an opportunity. And I think we need to understand how we share risks as civil society, as governments, and as companies to come together and think about what the solutions are. So they may be disproportionate users in river basins, but they have, again, disproportionate power and the ability to leverage those kinds of conversations, and I think that's the positive role the private sector can play in water management.

Ms. Livanos Cattaui: All right, let me turn now to Tom and Ismail and yourself, Mathew, and just start with you, Tom. It was just mentioned before the vulnerability of those who are going to have to adapt the most to water stress. What is going to happen? You've written about this adaptation thing, the boundary between the public action agenda, the cultural change of private action. Where - how are we going to manage this adaptation? In other words, I don't know, if you look out 20 years from now, what is it going to look like?

0:28:51

0:30:00

0:29:31 Dr. Thomas Downing: A good opening question. I'll go home now. What I'd like to do, actually, is tickle your imagination a little bit late in the afternoon. Imagine the landscapes of the future, the landscapes of adaptation. I work on climate change, but it's about sustainability. The panel just before now was very clear in the solutions are not in the small technical issues around this bit of climate, this bit of yield, they're in the system management.

> The first part of that landscape, if you're familiar with England, it's the pleasant and green rolling landscape of the Thames Valley, lots of paths, very easy to find out where you are and where you're going. This analogy isn't about the physical risk, it's about the social process. That's the landscape in which we have actions. We as individuals can come to meetings, we can increase our knowledge base. We as organisations can produce principles and hope they resonate with the environment in which we're working. Quickly that landscape changes. We can see a good bit of it. It gets hillier, it gets rougher. There are still big

highways, but the density of networks, the paths in which you're going to find solutions aren't really known. You can't open a guidebook and say, to get to X sustainability in water management, do Y. You'll see the target and you'll see a long list of technical solutions, of experiments, of case history. This is what I would call mainstreaming. It's where the solutions, in the social sense, require you to act with somebody else. In the UK we have a very well developed - not necessarily effective - but a well-developed regulatory regime on water. It's a little bit isolated from everything else ...

0:31:20 Ms. Livanos Cattaui:

Can you give us an idea, an example of where you're forced to work with others?

Dr. Thomas E. Downing: Well, the UK water companies cannot set their water price. It's set by the regulator within an envelope. They can argue that climate change ought to be accounted for, but it is the environment regulator and the economic regulator who set the policy on behalf of government. So they could do a lot of stuff internally, and some of them are leaders, some of them are not. But to be effective, they have to work within a multi stakeholder partnership framework.

There's another landscape, and this is the hardest transition. If you go way upstream, and it's sort of a cross-border issue to Snowdonia, it's a landscape of risk. It's coming, in the sense of climate change. We're going to have features, and water will be one of those flash points, where survival is not guaranteed. It is not our right, in those landscapes, to expect to survive. And the adaptation to prepare for that landscape of risk, that landscape of complexity is not to know all the risks, but to know the institutions that will be prepared for managing that risk in that landscape.

0:31:56

0:31:26

And those are not the institutions we have now. The boundaries that we are going to have to go through - not now, we maybe have ten years, I doubt we have 20 years - are the boundaries of developing institutions, organisations that scale beyond the knowledge base we have now and scale into not predicting the future - we won't be able to do that, there will be surprises - but managing that process, managing the navigation of complex risks.

0:33:07 Ms. Livanos Cattaui:

If any one of the panel wants to intervene at any moment, just put up your fingers, but first I'm going to come to you, Ismail, because of all of us here, you live in what we might call a desert with a thin strip of liveable land, so when you talk, as you have in many of your work, about desertification and dry land development, we can turn to Ismail on that one. And particularly, you're very concerned in Egypt about the impact of climate change. I can well imagine not only in the band of the Nile but also in the Delta and all the things that are happening, and you're really, really concerned about the relationship between food security, and water, and diet change, and things of this sort. But I want to start by asking you, in your writings, what do you mean by the three Fs and the two Cs?

0:34:05

Dr. Ismail Serageldin:

Thank you. In my writings, I have raised a number of issues, and in one particular paper, it was titled "Three F Plus Two C Equals Question Mark." The three Fs were food, feed, and fuel, and it was ...

Ms. Livanos Cattaui:

Food ...?

0:34:26

Feed and fuel, and the two Cs were for climate change. And this was very much, at the time, as Peter rightly said, when some of us were totally offended by the third F, which was the fuels that have come in. And simply stated - it is wrong to burn the food of the poor to drive the cars of the rich. Under any circumstance, I don't think anybody can justify that. But it was an additional claim that impacted on the price hike. But more importantly, the fact that diets are changing will require an enormous amount of feed. The conversion rates of feed to beef, chicken, and pork are significant, and therefore it puts even more pressure on agriculture. And of course food, population growth, plus increasing the caloric coverage for the billion people who are still currently malnourished, plus two and a half billion people coming up, plus all of that within the same area of land, roughly, and also approximately the same amount of water, except that the water will be less predictable when it's coming, and in its impact on the land will probably cause erosion and the like.

Dr. Serageldin:

0:35:35

Now, the problem with that is that it requires us to rethink the notion of food security. And a lot of governments, including my own, have a view that food security is as close as you can get to food self-sufficiency, and that is not the same. We should be able to tell people we should optimise the use of land and water, produce different things that are produced well, rely on trade and arrangements between countries in order to be able to globally do a much better job. But there is really no reason for every country to try to produce everything.

0:36:15 And just for the audience, it takes between 2,000 and 5,000 tons of water to produce a ton of rice, and it takes about 1,200 tons of water to produce a ton of wheat. So when you are trading wheat and rice, you are trading virtual water, in fact. So it changes your perspective about food security from food self-sufficiency to a much more optimum way of dealing with your land and water endowments that you have in every country. But that requires a leap in that direction.

0:36:46 The second point I want to make is about cross-border cooperation on watershed management, the Nile being, of course, 98% of the water that Egypt has, and Egypt is totally dependent on the water coming into the Nile. And we're not the only ones. Famously, in 1995, in Stockholm, in fact, I said that the wars of this century have been on oil, and the wars of the next century will be on water. And the reason I say that is because there are 272 rivers that are shared between two or more countries, and where, in fact, approximately more than perhaps 50% of the world population depends on them. And unless we have a regime - and there's no law, there's no legal agreement except one agreement by the UN on the non-navigable uses of international waterways. Very mild, very wishy-washy.

0:37:39 Ms. Livanos Cattaui:

Dr. Serageldin:

But not on the use of where those bilateral kinds of things?

But nothing that really ...there's no international law you can go to on this issue. Nothing has been done. Worse, the underground water, we know very little about it, except, as Peter said, we're noticing that almost everywhere water tables are dropping because of withdrawing faster than the recharge rate. And there is no law at all about who can drill out of the same aquifer that is between various countries. So in effect, we need all of these. And later on, when you have a chance, I would like to come back on the issue of pricing because there is no way - and governance, of course, is part of that - but there is no way that you will ever be able to conserve water if you continue to treat it as a free good.

0:38:21

Ms. Livanos Cattaui:You know, I'm going to come back and ask all of us here about
the pricing. But before, I want a very short intervention, Colin,
and then to you, Mathew. You wanted to intervene on this.

Dr. Colin Chartres: Well, yes. I was just going to say I very much endorse the view of virtual water as a means of trading water and becoming more efficient, but we need to look at what happens at the macro level when we have a food security crisis, and what happened in 2007, 2008 was that some countries cut off exports and others froze the price of the commodity, and therefore actually stopped the very poor farmers who would have benefited and could have raised their livelihood, from selling their grain. So we need some really sort of very high level thought about how we can stop those things happening, and stop the knee-jerk reactions, and make sure trade just does help smooth out the distribution of food under those circumstances.

0:39:13 Ms. Livanos Cattaui:

0:38:31

I'm going to come back, before we go for questions, and just ask you all afterwards please just think about what is the most effective way, other than very strongly stating it, most effective way perhaps to first change distortions, and second, the approach to water pricing, which we have not discussed in governance. Before I do, Mathew, I know that the Red Cross and Red Crescent Societies have a very strong position on clean water and sanitation needs, because that's what you deal with every day in extremely difficult situations. But what is needed? How could we handle those kinds of things better? What kind of diplomacy do you need to get those kinds of issues looked at, and not just only the farming, but also the personal use. Even if it's small, it's still not around to everyone. What would you suggest? Mr. Mathew Varghese: Thank you, Maria. I think among all the subject, the most sensitive, complex, politically charged issue is water, because water is life, in many ways. The politician's way of handling it is to delay it, send it for consultations, more wait. The fact of the matter is it does not go away; it comes back. One-third of the water scarcity issues is in conflict areas. We can say conflict causes water shortage, but it can be that the water shortage has caused this conflict. And if we ...

0:40:55

Ms. Livanos Cattaui:

Mr. Varghese:

Give us an example, like the Sudan or some different people.

I will come into some of the examples which are very valid. Now, the world has the capability, the resources, the knowledge to actually happen these type of things. Now, let me give you an example. Start with Haiti. Haiti made everybody - it was a human disaster beyond anybody could think about. The government capacity was gone. It was a very poor country without infrastructure to start with; governance not there. People did not have water before the earthquake actually happened. And we had to get water to about half a million people in ten days flat. We just have ten days. We don't even have space to land delegates because their space was taken away, was crowded out. Equipment had to be landed.

Ten days, otherwise infant mortality rate will shoot up. We had about - the money was not a problem. We had about close to a billion dollars for the Haiti operation, in total, so money was not the issue. Of course, ten days flat, today we basically distribute about 1.8 million gallons of water a day, six litres of clean water. It is funny that the delegates are standing on knee-deep water and eating their, what they call breakfast, while you have to pump the clean water out. Now, I asked - I had my weekly press briefing. I see what are the risk, what is actually happening, what is going

0:41:55

forward in anticipation, what is going to happen in Haiti. The boreholes have to be dug deeper, okay? Now, you're going down to a level where it is not going to be sustainable, okay, number one. The government doesn't have the capacity to take over from us, because we cannot stay there forever.

0:43:05 Now, if I go then over to India, there was a beverage company which I was asked to do their corporate social responsibility, a well-known beverage company. What did they do? They dug wells in, they took out the water. The minute the water became low, they dug deeper. All the villages turned against them. And they were coming to me and saying, Mathew, what shall we do, okay? The issue, what I am saying, is of how do you build acceptance through trust, credibility in the communities that you work with? We talked about this subject before.

0:43:46 Darfur region. Of course, today the problem is very complex. It's a matter of religion, it's a matter of politics, it's a matter of race, it's a matter of so many things. Where did it start? Water. And I was in Khartoum. At that time we were having a group of ambassadors at my home, and they said we reached a peace agreement. What is the peace agreement saying? Political solution, wealth sharing, and security. And I was like - this is not going to solve that problem. What do the people in Darfur need? Will I get water for my livelihood? Will my wife and daughter be raped when she is going to collect water if the water source is too far away? Unless these issues are solved, the problems of Darfur will not solve. Now, in Sahil ...

Ms. Livanos Cattaui: I'll stop you there on it because this is a question also that I said I want to put to all of you. It's the governance issue of water. It is the pricing of water. It is - is that part of the solution or is that, in itself, a problem which you would rather not look at, rather not

0:44:42

approach, but try, if possible, to handle the management of water through the other factors, through the other issues that are there? What is your opinion on this? It's been much talked about. Yes, Ismail.

The time in 2000, when we presented the World Water Dr. Serageldin: Commission's report, we said very clearly full cost pricing of water. And we believe, and I certainly still believe very forcefully, that unless we have that in place, distortions are not going to be removed. Distortions will remain as long as we don't have full cost pricing, meaning the social and environmental costs have to be factored in. And secondly, the governance part on setting these prices and subsidising people has to take care what Peter said, about the fact that it's a social good. And I was also attacked at the time. I was vice president of the bank, so I was an easy target that you're trying to privatise water of the world and so on. And they said is it not a human right? I said yes, and so is food. But you pay the farmers for the production of the food. The private sector is involved in transporting it, the private sector is involved in ...

Ms. Livanos Cattaui:

In distributing it ...

0:46:19

0:45:20

Dr. Serageldin:

No, no, in processing it, in distributing, and in selling it, and every one of them makes a price. And then you subsidise those who cannot afford the food. The only country that tried to say food price is going to be absolutely fixed was the Soviet Union, and we know the experience of their agriculture. China started its reform by liberalising agricultural prices.

0:46:39

Ms. Livanos Cattaui: But it's very interesting, Peter, that you separated out the part of water that is a human right, which is quite a small part of its usage, and the part that's commercial. Would you make a difference also in the pricing and the governance as a result on those two parts of it?

0:46:58

0:47:41

Mr. Brabeck-Letmathe: Yeah. I mean, the issue of the pricing is very complex. That's the reason why most governments just stay away of it. They don't want to touch this thing. It's understandable. Politically, you have nothing to win, you have only to lose. But this doesn't mean therefore it doesn't have to be done. Now, I talk to several governments. I must say the one solution I have seen is South Africa. In South Africa, basically there is a price for the - we are talking now about household water, okay, which is where there is embedded the human right. You see, that's the problem, it's embedded. So yes, they ask for a commercial price, they asked for the price which would cover the infrastructure.

But for those people who don't have the money, they give 6,000 litres per month and per capita free. But everything afterwards has to be paid. I mean, 6,000 litres is what is a human right, and the rest afterwards you pay. So if you fill, then, your swimming pool, okay, you pay for the swimming pool. In the other countries, where you subsidise the water, what is happening - and this is not me who is saying it, it's all the specialists, like you are saying what is happening is that basically you subsidise those who are sprinkling their lawn and they're washing their cars and their swimming pool, and the poor people, they have either to buy the water from a cisterne, from a truck. And the price for water in the townships is about ten times as high as the water in New York, okay? Or they have to walk six hours, on an average, in Africa. Six hours on an average the girls have to walk to go for the water

	and come back. That's what you're getting when you're subsidising the water in a discriminating manner.
0:48:49	
Ms. Livanos Cattaui:	I know all of you want to come. I'll come back - yes?
Next Speaker:	I just want to say one little thing. The audience should know that the food part, we roughly consume, a litre is needed per calorie of food. So if you're consuming 2,700 calories a day, you're actually consuming 2,700 litres of water a day.
0:49:07	
Ms. Livanos Cattaui:	Yes. And also there's a difference in of what kind of food, and of course calories. Very quick interventions before we go to the audience for questions. Colin.
0:49:18	
Dr. Colin Chartres:	I thoroughly endorse what Peter and Ismail said about a right to 100 litres or so per day per person. And there's been experience of people, if they can get it better, a better service delivery, even the poor will pay a very small amount of money for that service delivery. But when we're talking about much larger beneficial water users, very large irrigators, there's no way, in my mind, that they should have the same right to free water or water at minimal cost, and for two reasons.
0:49:49	One, it's going to cause a profligate waste of water, but secondly, by charging for that water, it will help drive up efficiency. And I think, although I wouldn't advocate it for many poor countries or developing countries, looking at the way the market can actually help with pricing, and if we can enable trading to be developed between water users, that can be very, very useful in terms of driving efficiency and making water move to the most high cost uses. But governments do need to come in there. They've got to

regulate that. They've got to put in place the market conditions and so on before that can happen, so that's one solution. It's not a one-size-fits-all, though.

Ms. Livanos Cattaui:We're going to go to all of you. Start thinking of your questions
and putting your hands up. We have two short interventions over
here. Jan and Stuart.

0:50:47 Stuart Orr:

0:50:37

Just on the pricing question, because it's a very interesting one. I think we have to be very careful when we talk about water pricing. Are we talking about urban setting? Are we talking about irrigation? I think Colin's right to - you have to flesh this out. We have to recognise that from the point that water was declared an economic good, there's been a huge number of examples and experiences out there in the real world. And it's one thing to be dogmatic about pricing, but there's a lot of realities out there, social realities on the ground. So are we talking about water pricing to its scarcity value? No. I would agree with Colin there. Are you looking for signals of efficiency? Sure. Are you looking to cover operations and maintenance? It's all, they're all different kinds of things that we have to understand, and it is not one-size-fits-all. I completely agree. We should have meters in every home. There's no doubt about it. But when we're talking about bulk water, when we're talking about irrigation and the world's poor, what you can't do is price them out of that.

Ms. Livanos Cattaui:

Jan.

0:51:36 Mr. Lundqvist:

Yes. A couple of things also about pricing. I think, first of all, it's important to link price with the level or the quality of the service. I think both in the household sector as well in the irrigation sector,

people would be willing to pay a decent price if the service is good		
enough. But nobody would like to pay a price of water if the		
service is poor. So that is one very important. Another very		
quick		

Ms. Livanos Cattaui: If they have service at all, yes. Go ahead, Jan.

0:52:04 Mr. Lundqvist:

Another very important thing, I think, is we talk about the poor, yes. Crop subsidy is very important. I think it's also very important to think about how is the price taken out. There's a very interesting study on what's called the independent providers, I think six African cities, where they show that if customers pay on delivery, they can buy different quantities from one day to another. It's very different from if you pay on a monthly rate. So there are a lot of different types of approaches where you can get an acceptance for the price. And anyway, someone must pay the price anyway. You pay it through a tax bill, you pay it through different types of illness or whatever. So the price is ...it's not a matter of no price or price, but who should pay for it. And how do you take it out, and what is the relation to the service level.

Ms. Livanos Cattaui: There seem to be quite a few experiences in this area, but not necessarily worldwide either a consensus or an implementation of these possibilities. Questions from the floor. Can we raise just slightly the lights? And yes, right at the top there's a question. Yes, thank you very much, over here, and then one over here. Then we come down. You state shortly your name, please, and ...

0:53:31 Ms. Sophia Tickell:

0:53:03

It's Sophia Tickell. I was down there early this morning. Peter, I thought that your comment on the idea of bringing in disincentives

	beyond the use of water as a basic human right was an extremely interesting one. How would you apply it to the commercial use of water? So, you know, looking at it from a company perspective, what sort ofis there a limit to how much companies ought to be able to use with the same sort of basic framework of thinking about it as a human right, and would it be possible
0:53:58	
Ms. Livanos Cattaui:	In other words, can we regulate efficiency? Is that what you're asking?
Ms. Tickell:	Yeah. And then the sort of supplementary question would be, would it be possible to transfer the basic underlying principle to nutrition, and some of the conversations we were having earlier about food as a basic right as well?
Ms. Livanos Cattaui:	Thank you very much. And question over here.
0:54:22	
Mr. Louis Temple:	Louis Temple from International Development Enterprises UK We've talked quite a lot today about the role of the small farmer in resolving some of the problems of food security around the world, and how do wewhat's the view of the panel on how to, you know, compromise the needs of water for the small farmer in using irrigated water in particular with that increased production, and what's the view of the panel on the best strategy around that?
Ms. Livanos Cattaui:	Right, and especially in terms of adaptation as well. Another question right here, Noel?
0:55:12	
Next Speaker:	I've heard a lot about water in quantity, and nothing about water in quality. We're talking, as Peter says, about six litres a day, but that six litres has to be microbiologically safe or you get a

tremendous amount of disease. If the 2,700 calories were
reduced to 2,000 calories, we'd be talking about 700 litres, but
with no requirement for quality. I mean, you can bathe yourself in
dirty water, you can irrigate your food in dirty water, but drinking
dirty water has tremendous potential for cost in terms of lives and
expenses for healthcare. And it's just curious to me that when we
talk about water in this context, we're not ever mentioning the
biological, microbiological quality.

Ms. Livanos Cattaui: Thank you very much, Noel. Question over here? Anyone else?

0:55:07 Next Speaker:

I'm really interested to explore the idea of how the private sector can drive systemic change. We heard a lot about how complex the issue is and how very local it is. And of course it's made even more complex by the fact that most water use, for most private sector players, is upstream in the supply chain somewhere, not in their own operations. And it seems to me that we're therefore facing an area of massive systemic hidden risk, and we've kind of just come through one quite big market correction because of massive systemic hidden risk. So my question is - how well does the panel think the private sector understands the massive systemic hidden risk in their own value chains? How well do investors understand it? And what can leaders in the field do to raise awareness?

0:56:58
Ms. Livanos Cattaui: Thank you. First of all, Simon, and then last question up here in the corner afterwards. Thank you. Go ahead, Simon.
Mr. Simon Zadek: Thanks. Simon Zadek. In the discussion about climate mitigation and adaptation, there's been some interesting, if slightly marginalised debate about whether one could imagine a tradable market equivalent to carbon that deals with adaptation. And the

	closest, if you like, denominator proxy that was thought about was water. And I guess I'm curious in trying to get beyond the specific, and in a way, Peter, challenge what seems to be your absolutely correct point that water is always local, to ask whether there are possibilities of larger-scale instruments such as some kind of water trading market that would help us to deal with incentives that are not being dealt with at a localised level.
Ms. Livanos Cattaui:	And last question.
0:58:05	
Mark Bartell:	Mark Bartell from the Western Resources Action Programme in the U.K. I'd just like to ask a question to the panel. How far away do they think we are, or how feasible do they think it will become for us to start thinking about, given what we've heard about, rivers not reaching the sea anymore and the wider impacts on biodiversity and ecosystems, services of poor management of rivers, how feasible and how far away are we from imposing or thinking about a minimum requirement for environmental or ecological water flows in our rivers?
0:58:40	
Ms. Livanos Cattaui:	Thank you very much. I'm sorry, I didn't see a gentleman here who had been asking for the microphone a minute. If somebody can trot down quickly. Thank you. Sorry about that. Go ahead, sir. Oh, there doesn't seem to be microphone. Ah.
0:59:03	
Aloise Flats:	Aloise Flats, Souk Ventures. I've been investing in water technology companies for ten years, almost ten years, on the listed side, and now on the private equity venture side. And now on the venture side we see a lot of companies with business plans, with new technologies, interesting technologies. But unfortunately, what is missing is the market dynamics. It takes

ages for these companies to enter a market, if they even enter a market. And although there would be basic innovation would be there. So my question to the experts here is - what can be done to improve innovation, and especially the market aspect of innovations?

Ms. Livanos Cattaui: Thank you very much. From the webcast we have one question to you, which is - is Nestlé looking to desalination, in any way, for water shortage? A second question to all of you - does the panel think there should be very much like what was just brought up, an enforceable human right to water? And finally, is it easier to get planning permission for a commercial enterprise in areas of water scarcity if the company has strong environmental and water policies, is that a factor? So I think you all heard the big questions.

> The disincentives on commercial use of water, the problem of small farmers and their need for water which maybe go beyond the human right to water, but still may not be in the commercially, let's say, available monies for a farmer, a small farmer to use. Water quality. Massive systemic hidden risk, and does the private sector actually understand it? The tradable market in water, especially with adaptation needs coming along. How far are we away from imposing this minimum requirement of human rights also? It's the same kind of question. And investing in water, the dynamics of the market. Are they going to improve? Is there going to be one? So for the next few minutes, until we re-vote again, I'm going to ask you all to pick up the areas that you would like to answer. Stuart, first to you.

1:01:33 Stuart Orr:

0:59:50

1:00:32

Those are really good questions, so I just want to dabble on a few. Environmental flow, something near and dear to my heart. Yes, I mean, as I'm sure you know, some governments in their water and foreign policies have brought in the question of reserves and ecological flows. The framework directive also has the good status element in there. Right now a lot of it is lip service. We have to see what this looks like over time. We have to understand, again, one of the big questions underlying all of these discussions about governance and pricing, we have to know the resource better. We don't even know that in most rivers. So how much you can actually take out, what the allocations look like, what the rights look like. So again, in an uncertain climate, and uncertain kind of drivers, and the needs and requirements of that water, the flows are going to have to change. I think we do have to understand the sustainability boundaries, the 20% rule, as Brian Richter puts it, and I think there ... increasingly, as I'm sure you're aware, this kind of discussion is entering in the policymaking discussion. I think to Simon's point about a tradable water, I hope never, is my answer to that.

Ms. Livanos Cattaui: You hope what, never?

Why?

Stuart Orr:

Ms. Livanos Cattaui:

1:02:38

Stuart Orr:

Because I think ...you know, water markets occur in every irrigation district I've ever been in. You know, farmers trade amongst themselves. In the U.S. you can see interesting trading going on within river basins. I think when you start to go outside of river basins, and when people come in and speculate on water internally - again, it depends on what your intent is. But ...and I've heard this over a number of years. It's not somewhere I want to see this thing go. I don't think it's a solution personally. Others

I hope never a global trading market for water.

may disagree, but I personally don't want to see it go down that route.

And I think the most important question is the one Nigel has just thrown out for me, which is really why we're here today, to talk about the private sector and water, again to highlight that the private sector is people like this gentleman here looking to invest in water and water technologies. There's rent seeking in water. There's plenty of people investing in commodities because, as Ismail said, you can make more money out of embedded commodities as you can out of water. There's a lot of ways in which the private sector is playing in water, but the majority of companies, Nestlé included, are companies that sit there and face risk, that have brands, have to face the public, have to adhere to sustainability standards. And there's a very poor understanding of risk. I think some of them are leading in this. A lot of them haven't woken up to it yet.

> And if you indulge me, I think we've identified three or four reasons why companies engage: normative reasons, we feel we should do something in water. The second one is we want to differentiate ourselves. The third one is we've identified some kind of risk in our supply chain, and the fourth one is we face an operational crisis. And companies engage on those different pathways in. And depending upon why they're engaging in water, they do different things, they measure different things, they talk about different things. And so right now we see a tremendous amount of activity in the water space from the private sector. I think most of it is extremely positive. I think they're great levers for helping us fight for the kind of policies I need in environmental flows and social needs - sorry this is rant, but stick with me. Yes, there's a great role for the private sector here. We need to know more about their risk.

1:03:45

1:03:06

1:04:33 Ms. Livanos Cattaui:

1:04:53

Who agrees or who doesn't? And by the way, I just, I didn't acknowledge that the question on desalinisation came from James Corn (?), who is a student in the United States, and the question on enforceable human right to water, with a question mark afterwards, is from David Over of the Royal Geographical Society here. Who would like to - Colin.

Dr. Colin Chartres: I'd like to basically agree with Stuart about the environmental flow issue. As water gets scarcer, it's always the environment which suffers. And okay, people think, well, we'll just lose a bit of biodiversity, but we're losing a lot anyway. But we're actually losing a phenomenal amount of ecosystem services, which relate to fisheries downstream, and also relate to the ability of the system to clean up the water so it can be used for drinking water again. And I think what we're doing wrong is we're not viewing agriculture as part of the ecosystem, and it has an ability to act both ways. We can use agriculture to clean up effluent and sewage. There are a lot of very valuable nutrients in domestic and urban sewage, as long as we deal with the heavy metals. We can - combined with some simple treatment, first stage sewage treatment, we can then, combined with wetlands, we can use that water very effectively in agriculture, and we can return very clean water back into the river, so I think that's a real key principle that we've got to look at and we've got to push on very hard.

1:06:07 Stuart Orr:

Yes, Maria, thank you. Let me just look at this question in a different way. If we got the pricing right for water, how much of our water problem would have been solved? Very limited. Of course, in some economies, the pricing is important, but that is not the only thing. The issue is that the world is changing so much. There is globalisation taking place, but decisions are

becoming local. They want to determine them. They want to
know about water - what they will do with the water, and that is an
issue. Water also has to do with livelihoods and farming. We
were distributing for the Sahara operation; millions of people were
given food. But what we found out was we had to get the water
source cleaned up - the traditional water source. Until that is
done, things will not change. You can continue to supply food,
because that is the most important thing. Get the water, get it
right, get it through local solutions, get it in a globalised world, and
make it a locally determined aspect. Thank you.

So you're not the big one for the tradable market?

1:07:20	
Maria Livanos Cattaui:	

Stuart Orr:

Maria Livanos Cattaui:

1:07:25 Ismail Serageldin:

I'm with Stuart. I'm opposed to the tradable waters globally, but locally it's a different story. And locally, the pricing is a prime incentive for efficiency, and you're also required a regulation in order to protect the environmental side. So for example, Egypt, as you said, is just a very narrow strip. The Nile arrives at Cairo carrying twelve million tons of salts, reaches the Mediterranean with 34 million tons of salts. Those additional 22 million tons are washed out of the agricultural delta.

1:07:58 So it's not just the matter that the run of the river should be protected - is that if it's not, then all of this agricultural land will actually salinate, and that becomes a problem. The example of immediate impact and efficiency in what we called the Old River, people have free water and they farm; that's always been free.

No.

Ishmael.

The farmers actually have water logging problems because they use too much water.

1:08:22 In the new lands, which are just outside of the river, they are charged for the water. They have all adopted drip irrigation, which is incredibly efficient. But why should they do that in the main valley when the water is free? They don't get that incentive. Private sector can do a lot. I noticed that Nestle has an enormous achievement, for example, in tomatoes - that it reduced the water consumption in the production of the tomatoes by 59%. In agricultural, we set seventy percent. That's a global figure. In developing countries, it's between eighty and ninety percent of the withdrawals are going for agriculture. And thus, when you transform agriculture and the private sector and the - and Nestle can have a big impact in that - I think that will have a big impact on what you call your number three here on better productivity and farming technologies.

Maria Livanos Cattaui:

Thank you, Ismail. Jan.

1:09:19 Jan Lundqvist:

I would like to respond to two questions that have come up here. One on the small farm, or the fate of the small farmer. And then on human rights, I will stick out my neck there, I think. Let me start with the small farmer. I think that what I call the one-acre farmer dilemma, that is a huge problem in the world. We have, I don't know, maybe a billion or so small farmers - about one acre or something like that. And I think that the options for them, and I think maybe Nestle and other corporate companies could play an increasing role is there was a question before lunch here about the role of linking the farming assistant to global markets, because many of the small farmers, they have tremendous difficultly reaching out with the products, the commodities. So there is a supply chain p...., which is very, very difficult for the small farmers to overcome.

1:10:21 The other thing is maybe linking to what Ismail was talking about the three F's. I talk about the five F's - but the three F's. I think as some kind of diversification, because if you look at the price that the small farmers are getting for most of the commodities, it's very low. And there was a comment before lunch also about maybe we ought to end all the cheap food. I don't know. But we are certainly at the end of cheap food input in food production. Energy costs will increase. The price of fertiliser increases. Different input factors - the price of those will increase.

1:11:03 And for the small farmers, and also maybe for the not-so-small farmers, the only opportunity is to diversify, I think, and to get back the access outside the local market, because if they only have access to the local market and if they have some good years, and that happens, there will be price collapses. So if they produce a bumper crop, then they go to the local market to sell it, the price will go down. So there must be some kind of mechanism whereby the small farmers in particular are linked to some kind of system whereby they can market their produce outside.

Maria Livanos Cattaui: Now you're going to stick your neck out?

1:11:42 Jan Lundqvist:

Yes. You have a right to water? In my mind, I think that's a confusing discussion because that has always been a moral and ethical issue. If we look upon what was discussed at the Mar del Plata Conference in 1977, and the Drinking Water Supply and Sanitation Decade, 1980s, if you look from what's written there, it's very close to the idea of water as a human right. And I don't know any government, I don't know any political party, that will not

subscribe to the idea that a basic provision of water is the first priority. That is no controversial issue.

1:12:25	So what do we mean, then, by also adding it as a human right? I think that the difference, if you look from what has been the practice in most countries, is that there must be some kind of legal provision that would guarantee this right. And now we're talking about the right of access to water. What right does a ? It's a bit of a tricky definition, because the current definition, as far as I understand, is the right to access the water. And it's not ruled out that people should pay for the water. So I think it's a tricky discussion.
1:13:06	And I think the value-added of having this concept is doubtful, and to me, it's also shown that human rights issues are very, very fundamental. And if we add a number of different items on the human rights umbrella, and if governments, because they are the ones who are really responsible. If they cannot live up to it, what happens with the concept of basic human rights
Maria Livanos Cattaui:	We don't let them drink. No, you're right. There are no teeth on it. Yes.
Jan Lundqvist:	So ethically and morally, I fully subscribe to it.
Next Speaker:	You have to.
Maria Livanos Cattaui:	Thank you for sticking your neck out on that. Tom.
1:13:46	
Thomas E. Downing:	Yeah, I'd like to challenge, too, the biases that we often see in this kind of discussion - dare I say we've fallen into it ourselves. The first is the concept that we can understand a water system and predict it - predict its future on the order of ten, twenty years, the

cycle of invest. And I think particularly with climate change, particularly with the tens of thousands of private actors digging wells and doing things that aren't anticipated, that's difficult to sustain that assumption. So we need to shift out of predict and provide into some sort of adaptive management regime. There are lots of cases where the predictions just don't work.

1:14:27 The second is an assumption that we have institutions that can govern a system that we might or might not be able to predict. And this pricing argument is often deeply embedded in our own experience of water, and pricings, and institutions, which do work in the places where we live. Water's never the constraint on my consumption and behaviour. But in terms of the fragile states, in terms of the most vulnerable populations, in terms of the most interesting areas where I think the coming climacteric is going to actually cause the extinction events that we're all afraid of, we do not have those institutions and we're not building them.

> And I think we need to look for the kinds of solutions - I call it micro-adapt. We've talked a little bit about that. Scale free. They don't rely on very, very large formal institutions. It's not that you bypass government. It's that you do things that have low transaction costs, an open knowledge model, and scale out of the large donor mentality into something effective. There are some examples. One I'm a fan of is a payment for ecological services in Kenya working against the water trade in flowers and horticultures in Lake Naivasha and using this micro transfer scheme that Vodafone developed from DIFID funding called M-Pesa in Kenya that makes it easy for the local - the Wananchi the people who are the householders to participate in what is essentially a global economy.

1:15:06

1:15:59

Maria Livanos Cattaui:Thank you very much, Tom. I turn to you, Peter, to look at some
of the questions that had business input and perhaps also to
some of the questions that came over the webcast.

1:16:11

Peter Brabeck-Letmathe: Yeah, the first one, very simply, desalination. No we are not using desalination at Nestle - the main reason being that it's enormously energy-intensive, as it is today. You need to buy two to three litres of oil in order to desalinate one thousand litres of water. If you think that you need 9,100 litres of water to produce one litre of biodiesel, you can see the thing, again, doesn't work out very well. I'll come back to that. Okay. So it doesn't make a lot of sense, either from the water resource or from the cosmetic. But of course, because of the lack of water in many parts, it is a solution for irrigation and things like this, but not for our company. Not at all.

1:16:56 The other thing I just wanted to mention, Sophia ... I mean, most of the human rights have been answered, I think, but it's very interesting to see when you go to those countries where they really have had the lake of water, even for farming. And I always like to go to Oman, not only because it's a wonderful country, but because they have a 4,000-year-old water system - which is working still today, four thousand years old, and where the farmers are paying a price. And they fix a price. It's tradable, but it's tradable at their level.

1:17:32And they fix a price. And the water is coming from a source. It
comes to the village. It's free of charge - human rights - for
anybody who needs drinking water, then goes to the mosque,
which allows people to wash their feet because it's part of the
rules to get into the mosque, and once it leaves the mosque - and
in the mosque, they have the school, so the schoolchildren are

also taken care of - then it becomes a commercially tradable good.

1:17:58 And then the price changes on the day - if it is much less expensive, for example, during the night than it is during the day. And the farmers, they are selling their rights on an open market, which is in the village, and they can buy and sell. So, I mean, this tradable part - it's not that this doesn't work. And by the way, we have the same system as Switzerland. In one of the valleys we have the same system. And I know, because I'm participating. I'm going to go to Alberta soon. In Alberta, Canada, there is now a project - the Clear Project - for a water exchange. And the reason is - and perhaps this comes to a point that was raised before - there is a new, huge demand from water coming not from agriculture, not from households - it comes from energy. Because the real challenge that we are going to have is that on the one hand, we have a food supply that they have to assure, but on the other hand, we have an energy supply, which we also have to assure.

1:19:05 And energy uses today one litre of water for litre of oil, which most people don't realise. But worse, the new technologies, the sand tars, the gases, they all need a multitude of this, of water, in order to be produced. In order to get oil out of a sand tar, you have to steam the whole thing. But if you steam it, the oil will go by the side. Therefore, you have to freeze where you're going to steam all of this water.

1:19:38So we are going to go into multiple litres of water for one litre of oil.And this is a reason why in Alberta - it's the first local government
- which is really thinking about a tradable exchange because the
demand is coming from the energy side on the one hand and from
the agricultural side on the other hand. So I don't think one can
say that water exchange is something that cannot be thought of. I

think it will come, but what is important is that it's always going to be very local.

1:20:11 Maria Livanos Cattaui: It's very interesting. I have to say that this morning, remember we were saying that maybe we need a Minister of Nutrition. We don't have any in our countries. And maybe in most countries, we should have a Minister of Water, and then we have ministerial inflation. That's for another discussion. But in Egypt ... in countries which really have water shortage ... Exactly. And in order to have cross-border cooperation on watershed, they do need to, in those areas, get together. 1:20:43 Before we close, we're going to go back to our voting apparatus and see if anyone has drastically changed their minds and ask you all before we close any comments on it. So here we go. Where should we concentrate our efforts and resources to address the water crisis. Again, please choose three. You see them: cross-border co-operation on watershed management, urban water efficiency and infrastructure, farming technologies and agricultural productivity, pricing and governance, ending distortion such as bio fuel subsidies, comprehensive fact-based solutions for watershed. Voting starts now. [Music.] All right, here are the answers. Now, can you put up again the 1:21:41 before and after so we see if there are any major changes? All right. So yes, there was a doubling of ending distortions. You were convinced by that. They were convinced by that. I think the number six went up into the number one and they put those

together. So cross-border co-operation did rather well. Farming technologies in agriculture - about the same, but less strong. And pricing and governance also increased as a result, I think, directly of the knowledge that we all gained from your insights here on the panel.

1:22:27	Now, I'm going to leave each of you for a very short one minute at the end. Anything else that you think are areas that we should concentrate our efforts on? Please, just one key message if there are other areas that you want us to look. We already looked at the tradable possibilities. Please, each of you choose one. Tom.
Thomas E. Downing:	We have a mantra we're using. Uncertainty is the reason for action. That action takes two decades to mature. The uncertainty is a reason to act now.
Maria Livanos Cattaui:	So uncertainty in this area is a reason to act somehow on those
Thomas E. Downing:	Whatever you do, you have to start acting seriously, now.
Maria Livanos Cattaui:	Mathew.
1:23:11	
Mathew Varghese:	I think two key words: trust; credibility with the local communities,
	because the local communities are gaining ground, rightly so.
	Trust and credibility.
Maria Livanos Cattaui:	Colin.
1:23:25	
Colin Chartres:	I think what we haven't' got on the list is quite enough effort on
	reusing wastewater and making sure it can be used safely.
Maria Livanos Cattaui:	Like the examples we mentioned.
Colin Chartres:	Yeah.

1:23:40	
Stuart Orr:	Valuing the environment, of course. I think as Colin rightly said, we need to understand what needs to stay in the river, and the functions, and the benefits we derive from water - downstream, upstream, and collectively as a society - and I think we will forget that at our peril.
Maria Livanos Cattaui:	Jan?
1:23:55	
Jan Lundqvist:	Yes, I would vote that we should look at efficiency at the whole food chain; that we should link production, supply over the market, and to the consumption, because it doesn't make sense today if we increase efficiency in production if we lose half of the production down the way to consumption.
1:24:19	
Ismail Serageldin:	Something that's not been put here, but I think we would benefit a lot from - having much better, finer grade models. We have global models of climate change, but the granularity is two coarse to provide guidance at the local level, and as Peter said, water issues tend to be local, so we need to have regional modelling to provide local access.
Maria Livanos Cattaui:	And do you think this can come from the current scientific community and that we should concentrate on that?
1:24:46	
Ismail Serageldin:	Yes, but we have to be willing to focus on that. Certain places like California and Australia do it. The second point: to use the new satellites in order to really map and have a better under-standing of the underground water, which, at present, the knowledge is very scant and very unreliable. Now, those two pieces of

	information, I think, would help guide both local action and maybe convince people on better international co-operation.
Maria Livanos Cattaui:	Thank you, Ismail. Peter.
1:25:16	
Peter Brabeck-Letmathe:	For me, it's very simple. We cannot solve this problem if we are looking only on the supply side. That's the way our government looks for them. We have to start to look on the demand side. Only if we're looking at the demand side, we will be able to solve the problem.
1:25:30	
Maria Livanos Cattaui:	Ladies and gentlemen. This was a very exciting, I think, discussion on water, and although we didn't go deeply, again, into the collaborative efforts in this area, we did touch on some of the areas in which business itself can have a very strong impact. We're going to close this session, and as soon as we do, I'm going to ask Jane Nelson and the final panellists to come up on stage and bring it all together. Before that, please thank this panel for their outstanding session. Thank you.

END