

Discussion*

Inger Andersen, Dan Larhammar, Giorgio Parisi,
and Wolfango Plastino

Wolfango Plastino: How do we bring everyone together to unite the action agendas of the three planetary crises and amplify impact?

Dan Larhammar: To deal with this on a global scale, as you pointed out, we really need to work together. And I think the only way to accomplish that is through information and education about the situation and what needs to be done, and what ideas we have to do something about it.

Now, these are very beautiful words: information and education. It's easier said than done. But, we should also remember that we have better opportunities than ever before to do this. More people than ever before – a higher proportion, I should say, of the population, than ever before – have reasonably long school educations nowadays. And we have the internet with connections that allow us to convey information to many parts of the world. So I think those tools should be used as much as possible.

The internet is a blessing if we want to transmit information. But it can also be used for opposing purposes; and as you pointed out Dr. Andersen, there are financial interests that go against our efforts to save the planet. There are efforts against vaccination programmes to improve human health, and so on. So we need to be prepared to deal with this anti-science lobbying, the propaganda from certain interest groups, where the financial sector as a whole is probably the largest. And I think it's most important to transmit information about the situation to those with the power to take global decisions. And those are the financial experts, the economists and policy-makers. It's not really the scientists who take those decisive decisions. But the scientists need to provide all the evidence for wise decisions.

* The text below is the full transcript of the Round Table that followed the *Lectio Magistralis* by H.E. Inger Andersen, Under-Secretary-General of the United Nations and Executive Director of the UN Environment Programme.

In fact, I'm presently chairing a working group in the organization of ALLEA (All European Academies), and the title of the report that we will deliver is "Fact or Fake?" We are dealing specifically – as are several other working groups in different combinations – with the problem of false information, disinformation, or even misinformation, deliberately untrue statements. We are looking specifically at how both scientists and science communicators can respond to that, and we are also trying to make policy-makers aware of such interest groups that transmit false information for commercial or ideological purposes. So it's certainly no easy task, but we're striving to increase awareness of those challenges.

Giorgio Parisi: I agree with you that a unifying agenda is crucial. The point is that we very often have a confluence of agreement between states that are devoted to one single crisis, which is addressed separately from the other ones. And there is no widespread awareness that the three crises that you have so clearly spoken about are intertwined, and that you can take measures that are synergic with one another to address the challenges posed by any one of them. All efforts should be done to put the whole problem of the environment at the centre of this line, by emphasizing the advantage of a global vision, so that the problem can be addressed in an effective way.

Now, in the case of climate change, it is clear that the problem is global. But for the other two crises, the problems are seen more by people as local problems that individual governments have to manage, not as global problems. We do not often realize that biodiversity is a huge asset, not only for all of humanity, but for all life on the planet, and it's not the problem of a single country which is losing its biodiversity. Pollution is seen as something which does damage only locally. But for example there has been a recent study that shows that microplastics enter into the global atmospheric cycle, and they are deposited around the world even fifteen years after they've been produced and emitted into the atmosphere. We need to undertake a great work, and I agree with the president about the need to reflect scientifically on this point and to make the public aware. We need to increase scientific conferences and opportunities for debate, such as the one we have had today, but where the three crises we are considering are addressed in a simultaneous way.

Inger Andersen: If I could just comment ever so briefly – as I think that I've done a lot of speaking already – I entirely agree with you: education and awareness is critical, and I also agree with what you said, Professor Parisi, about ensuring that there is

awareness of the integrated nature of these crises. I also very much agree that climate is to some extent seen as global, whereas other things such as pollution and biodiversity might be seen as more local.

I'm so happy that we've heard about the youth summit that Italy will host prior to the COP, because young people actually give me a great amount of hope. Because they get it – in a deeper way, I'm afraid, than my generation does. And so they are also seeing what the situation is for the world that we are leaving them. And they're demanding something in a different way than my generation did when we were young. They get these planetary crises nearly instinctively.

Now, that means that the responsibility that we have is to make their voices heard – not as a “nota bene”, not as a small point that we just allow into the “adult” conversation, but we have to begin to give them an equal voice, since it is their future. And I think that here with the transformation that the Green Recovery offers, it would be inconceivable if we were to use these moneys in the wrong way. And that might very well help drive our approach to these crises in a more integrated way.

Wolfgang Plastino: *How do we increase international solidarity to ensure fairness and equity for developing nations and vulnerable communities?*

Inger Andersen: I think as things now stand we have vaccine *haves* and vaccine *have-nots*, and even with the vaccine *haves* there is a little bit of jostling at the front line of the queue between a few nations; but I think that we should understand that for the rest of the world, it's a reality of vaccine *have-not*. And we have to ask ourselves if we really believe that that's a viable future – if we really do believe that not driving equity at the global level is going to be good for those who are at the front of the queue, whether it's for vaccines or for anything else.

Surely it can't be. Because if I have Covid, and I'm in a poor country, we all have Covid. And if I have climate change, we all have climate change. It's as simple as that. So if we just want to talk self-interest for a moment, it is in our distinct interest, even if we are at the front of the queue, to think about those at the back.

Now, that is hard for a politician who is elected for four years, and short-termism will drive what they need to supply to the nation and what the nation will demand. But it's also incumbent upon leaders to talk about the fact that if one person has Covid we

all have Covid, so to speak, if one person has climate change we all have climate change. The inequity and the unfairness that we are seeing, and the wealth divide that has grown, is simply not a viable option for long-term stability on this good planet. And we need to look no further than people going into boats and people striving for a better life, etc. to understand that the reason is that the land cannot sustain them, that the rains are not coming, that climate change has hit, that crises are there. There are of course always many aspects to any crisis. It's like peeling an onion. There is politics, and religion, and ethnicity, and many other things – but invariably within that onion, there is a piece called environmental sustainability. And that piece, we have to understand, is more important than we might comprehend. If the land is nutritious and will support people, likelihood of movement is less. If the land is nutritious and the climate is stable, the likelihood of stable society is higher.

So we should understand that investing in solidarity is good from a basic value and ethical point of view, but even if we have to drive it home through self-interest, it's absolutely also in self-interested terms.

Dan Larhammar: That is so excellently said, I cannot possibly add much further. I was also thinking of the example of the Covid-19 pandemic. I think this shows excellently how important global solidarity is, because unless we can reduce the number of infected individuals across the world, there will be new variants popping up, and they will spread. So a pandemic probably shows more than most other things how crucial global solidarity is, because this solidarity will lead to benefits for everyone, or avoid a crisis for everyone.

Now, since conditions differ so much for people across the world, there are different meanings of the word “solidarity”. People in highly developed countries, with highly developed economies, do the most damage per capita overall. So they can produce the most changes in the situation. We cannot expect the people who are forced to worry about food and healthcare for themselves and their families for the next few days or weeks to be concerned about consequences for the planet years or decades ahead. And I think we must realize that conditions differ so much, but that should not take away the need for solidarity between regions with different levels of economic and social development.

Giorgio Parisi: I agree with both of you, but there are some distinctions that I would like to make.

I fully agree that fairness and equity for developing nations are a fundamental part of the approach that aim to really solve problems on a global scale. Unfortunately, I am very pessimistic about international solidarity. The vaccine is a very good example. What you have said is fully evident – if other people get Covid, then your chance of getting Covid is much higher. However, there is a programme, the COVAX programme, which is supposed to vaccinate two billion people in countries which are not really rich, and this programme has been financed in a completely inadequate way. They have money to buy 10 or 15% of the needed amounts of vaccines. Of course, there are certain countries in Northern Europe that are helping this action, but aid is certainly not coming from other countries.

This is an example of how the egoistic behaviour of countries – of many countries, not all countries, as I said before – obstructs realizing the clear interests that we all have to vaccinate everybody. The amount of money put toward vaccinating everybody on the whole planet is so ridiculously small compared to the trillions that are spent on the crisis that it's difficult to believe that it's going to happen.

And I think that in the past, too, the rich nations have been able to transfer only marginal amounts of their resources to developing nations. Here we need a much bigger amount. So although I would also like to call it “solidarity”, maybe “solidarity” is not the best word to convince politicians. Because if a nation needs economic compensation in order not to destroy its forests – which is a typical situation that happens in developing countries where a nation wants to destroy its forests to improve its economic situation – then compensation should not be regarded as an act of solidarity, but as an action to avoid global disaster. Providing clean energy sources to developing countries should not be considered as a gift, but as something that reduces CO2 impact in the atmosphere, letting us avoid other actions like sequestration of CO2 and so on. Increasing the economic level of developing countries is not an act of simple solidarity, because it leads to a decrease in demographic pressure, and we all know that demographic pressure is one of the sources of all the troubles that we have.

Therefore, my suggestion is that, although we know that this is truly a question of solidarity in some sense, it's important to convince politicians and to convince the public that it's not only solidarity – which is an extremely important thing on the human scale, because we all are humans – but that it is also in the self-interest of everybody to help other countries in this direction.

Wolfango Plastino: *How do we persuade businesses and governments to start including the value of nature in all of their decision-making?*

Giorgio Parisi: Let me say that if business people were obliged to compensate public finance for the damage they do to the environment, the situation would be very different. However, it is of course clear, as the Director also said, that this kind of compensation should not be taken as a licence to pollute. Strict regulation should be added to enforce the limit, and governments should push for this type of accountability. Accountability is very important. I can remember a famous speech of Robert Kennedy's, which I think was given about fifty-three years ago, in which he was speaking of the gross national product. He was saying that the gross national product contains a lot of information, but not all the things that are important. For example, selling guns increases the gross national product, car crashes that kill people increase the gross national product, and the gross national product does not include many of the things that make life worthwhile.

It is clear that we have to reflect on the gross national product, and if a country is going to destroy its environment, using up its national resources, this must be accounted as a negative factor for the gross national product because the richness of the country is going to decrease. However, in the way that we do the computation, we see that the gross national product is increased if we destroy the country, which is something that does not make sense when we realize that the country's resources are limited. And of course, the important and interesting part is how to persuade the government to start to reach this conclusion.

Now, let me say that if someone asked, two centuries ago, "How do we persuade businesses and governments to start including the value of the well-being of workers in all their decision-making?" – well, we know all the struggles that have occurred over the last two centuries, and we know how things finally worked out. And we also know that this issue is still at the centre of political debates. Adding the value of nature to decision-making may seem simple, but not too simple. As has been said, we need public opinion if we are going to make changes; we need to make convincing arguments. But we have other people who are pushing in the other direction. After the public opinion has been convinced, we need to bring this issue to the centre of the political arena, to the centre of the political agenda. And we should add that it's sometimes possible to find a bipartisan approach to this problem, but this is not easy, nor always possible.

However, we have to do our best to see to it that the people, when they go to vote, have in their minds also the values of the environment, and that they decide in consideration of these things too, which will be crucial for the future.

Inger Andersen: I was enjoying listening to Professor Parisi so much. I just want to say that I think it has to be about setting the regulatory guardrails, as well as driving public understanding and information. But when we began to make new rules – you know, you couldn't smoke in offices, you couldn't smoke in aeroplanes, I'm old enough to remember that – there was a heightened understanding of the public health impact. Some people still choose to smoke, but the number has been reduced, and there is a greater understanding of the impact.

So it is about informing, but also setting regulatory guardrails for what you can and cannot do. Today we have privatized the goods, the profits, and we are externalizing and putting the bads on the public purse. All the environmental clean-up in the oceans, for instance – well, it's *nobody's* business, except *everybody's*. It's yours and mine. So we need to ensure that we use subsidies, and we use regulatory setting, and we use taxation in the right way. As an example, let's put a price on carbon – finish Article Six in the Climate Convention, please, in the Paris Agreement, so that we can get to carbon trading! Let's redirect harmful subsidies, subsidies which up to today have undermined long-term sustainability – not those that support the poor, etc., but those that support over-investments in certain sectors, including obviously the hydro-carbon sector – and support, via smart subsidies, sustainable agriculture, sustainable transport, green transport, public transport, electrification of the motor vehicle fleet.

All of these things don't happen at the speed that we need them to happen, unless we help them through regulatory requirements. So on the one hand it is about GDP, as I mentioned, but it is also about that regulatory setting. And most of the CEOs that I speak to, and most of the financing houses I speak to, are asking for a level playing field. If there is a level playing field, which means at the international level, they don't feel that if they're in one country where the guardrails are set, while in another country they are not, then they have to compete with someone that has a competitive advantage, because of lower regulatory settings. That's why multilateralism has to be part and parcel of the answer.

But I will say, I'm seeing that more and more companies get this. These are especially companies that are reliant on nature

services. And, another big sector is for example the reinsurance industry. They *get* that they have to pay out huge amounts for climate impacts. They are on the front lines, saying, “Can we invest in coral reefs that break the waves, ensuring that they are protected? Can we ensure that sand dunes are there, that mangroves are there?” And so on. Because they understand that these things will buffer high winds. “Can we be sure that we have wetlands, so that the infrastructure won’t be flooded – which we then have to pay out?” So I think it is also about increasing awareness.

And finally I would say that this is one of our problems: ensuring there’s enough understanding and awareness there amongst the general population that this is not against them, it’s in their favour, and ensuring that we put a safety net under those that could potentially be left behind. We have coal miners, who work in mines for coal, and they should not be left high and dry. They should be supported in new opportunities, and it’s very important that we understand who are the potential short-term winners and losers, and leave no one behind in that regard.

Dan Larhammar: I totally agree. Encouraging responsibility is something we must strive to achieve, but it is a difficult thing because some people just don’t care. But of course, explaining evolution, explaining that nature is precious – that it doesn’t regenerate in a few years, that evolution is the result of millions or hundreds of millions of years – will probably make at least some people more aware. And the catch-phrase used recently by David Attenborough and several people before him – “Extinction is forever” – should make everybody think.

Let me add to what you have already said that maybe we can hope a little bit also for consumer power, especially in markets where consumers have a choice. Then they can choose the products, or methods, or whatever else, that show a greater awareness of the situation we’re in. It’s perhaps difficult in markets where there is no choice, and in less developed areas where people cannot afford to choose, but have to go for the cheapest option all the time.

Then finally, on a very much smaller scale, but nevertheless important for certain ecosystems, tourism can focus on what is sometimes called “luxury tourism” – but it’s luxury for nature as well: namely, to restrict the number of individuals that are allowed to visit certain very vulnerable areas. One of the most beautiful examples of that are the limited visitations allowed to the mountain gorillas, and we have also the Serengeti as a whole, where tourism

is restricted, as in many other regions. That's a way to protect some areas of our planet. And this also helps increase awareness.

So we have to work on multiple fronts, here as everywhere else.

Wolfgang Plastino: How do we democratize science so that it becomes more accessible, diverse, understandable and actionable for the general public?

Dan Larhammar: I think I can be very brief here, because we have already touched upon this to some extent. Again, it's a matter of information and education to make science more accessible and understandable for the general population. And again, the internet is a tool to reach that. But we also need to have help from professional communicators, science writers, who can help explain both the situation that we face, and what possible solutions there are to it, so that this information becomes more comprehensible for the general populations.

Giorgio Parisi: I fully agree with Professor Larhammar, because I think communication, information and education are important. The point is that scientists are very often not good communicators, because they usually speak with other scientists, and other scientists understand their jargon; and very often scientists that I know, when they speak publicly, start to use jargon and say some words which I understand, but which I am sure that no one in the public is going to understand.

Now, all that – communication, information and education – can be done, it should be done. The point is that we scientists have somewhat neglected our duty to communicate to the public, and we should do that in a more serious way. And also, education in school is very important. We have seen during the pandemic that there were simple ideas, like exponential growth, that were very difficult for people to grasp, in part because they could not read, for example, plots on a semi-logarithmic scale. Education should be done in such a way, not only to learn something, but to learn the ability to understand new arguments which one is not familiar with – of course, if it is explained in a reasonable way.

Inger Andersen: Being the non-scientist on the panel, I think I can only endorse what the scientists on the panel are saying. But I'll say that the more we can aggregate, the better. I mean, we understand that science has to be deep; for it to be scientific, it has to be deep. But the more science also aggregates and laterally integrates

across disciplines, the more it will be understood, I think. And the more science is, as you said, explained in language that is accessible, and the more it comes with real-life applied implications, the more it will be understood.

And finally, I think we need to understand that there are things – I’m old enough to have been at earlier COPs, I mean COP2 or 3 or something, for climate – that science has been telling us for a long time. It’s just gotten ever more precise for twenty-seven years, plus. But the world hasn’t reacted. So we have to ask ourselves, what is it then that science has failed to do? And it is that we need to hit the heart, as well as people’s well-being. And unfortunately, we’ve taken science very purely, and we haven’t understood how politicians need to own this in a different way.

I think we’re getting there, and lectures such as this, which are open and engaged, are very, very important. I’m deeply honoured to have had the opportunity to participate.