
CHINA AND WORLD INTERNATIONAL FORUM ON THE PARADIGM SHIFT OF ECOLOGICAL CIVILIZATION

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I would like to say how delighted I am to be here today, back in Jinan for the 2nd time in my life, alongside such important speakers, and enjoying such gracious hospitality. Thank you CASS and thank you to the city of Jinan and the province of Shandong.

At the same time, I wish I didn't have to be here at all.

That is because my presence, as the head of Carnegie Climate Governance Initiative – to talk about the governance of climate-altering technologies – reflects how deeply the world is in trouble.

The notion that the world might one day intentionally deploy measures to affect the whole climate system is quite terrifying. I will talk in more detail about these ideas later this afternoon in the 5th Sub-Forum session.

But suffice to say, all approaches on the table, which include the very large-scale removal of carbon dioxide from the atmosphere, and the modification of solar radiation to cool the earth, would bring profound risks, costs, and trade-offs, as well as any potential benefits.

And yet, people are considering them.

That is because, despite all our collective efforts for decades – despite the ground-breaking 2015 Paris Agreement where we agreed to keep global heating well below 2°C – we are simply not doing what we must to deal with this growing crisis.

Hundreds of millions of people worldwide are already experiencing the harsh consequences of climate change, from storms to floods, to heatwaves and droughts.

We are increasingly learning that the decisions ahead of us may not be so much about getting out of trouble, but limiting the trouble we are already in.

So what do we do? Do we continue working as before, pushing ahead with familiar processes, and hoping we eventually get it right?

Or do we need to consider different ways of doing things? In which we find new forms of living, within rather than against the natural systems that surround us?

What forms of decision-making might we need, to help us make the smart collective choices needed for a world where no risk-free options remain?

If we genuinely want to change the way we work, where would we even begin?

Where We Are

Perhaps the starting point is an honest assessment of the crisis.

For decades, I and others in this field have tried to achieve a difficult balance: to convince society of the urgency of climate change, whilst avoiding the kind of alarmism that turns people away.

Today, in 2019, I find it increasingly difficult to avoid that sense of alarm. So I won't pretend that things aren't very grave indeed.

Each month brings new scientific findings that the climate is changing faster than we thought, with greater impact than we expected.

Only last September, [the IPCC's special report on the oceans and cryosphere](#) warned that during the 21st century the ocean faced a transition to 'unprecedented conditions', with more heatwaves, extreme weather events, and increasing sea level rise.

And this is just one of the many reports we see, all with similarly grave warnings. So much so, that we are losing our capacity to be shocked. Yet shocked we should be.

Perhaps the most alarming paper I have read was [written last year by my friend Johan Rockstrom, along with other colleagues](#), who now heads the Potsdam Institute for Climate Research.

In it, he raised the notion that we now risk entering what he calls a 'hothouse earth' scenario.

This is the idea that we risk setting in motion a series of self-reinforcing feedbacks, which will eventually push the earth over a threshold beyond which it will not return to pre-industrial temperatures, no matter how much we reduce emissions.

In this scenario, drawing from geological evidence when similar conditions existed, it is estimated that temperatures might stabilise at around 4 to 5°C hotter, with sea level 10 to 60 metres higher than today.

This is a spine-chilling prospect: that we may be on the brink of a point of no return to the climactic comfort zone which has nurtured nearly all of human civilization.

That is not a world I want for my grandchildren.

But what can we do to stop it? Johan Rockstrom's paper suggests that nothing short of "[stewardship of the entire Earth System](#)" will do.

That is a big concept, which requires a supremely ambitious response. It goes well beyond what was traditionally thought of as climate action.

It bears similarities to other well-known calls for rethinking the relationship between humankind and nature. These include the 2030 Agenda for Sustainable Development, and China's own concept of Ecological Civilization.

Even the IPCC, an organisation built on international consensus, launched its [special report on global warming of 1.5°C](#) with a dramatic call for “rapid, far-reaching and unprecedented changes in all aspects of society.”

Such warnings, from serious people and organisations, should keep us awake at night.

It seemed we have reached a stage where we – as humans – need to fundamentally and rapidly change how we live and govern ourselves, or risk losing our civilization.

These changes would certainly include a massive and urgent reduction of greenhouse gases, including a decarbonization of the entire economy.

But Johan Rockström suggests they would need to go much further, including a massive increase in biomass growth, CO₂ removal and capture, behavioural changes, as well as technological innovations, new governance arrangements, and transformed social values.

The bottom line is: either we take the necessary action over the next decade or so, and end up in a warmer but manageable and recognisable world, or we don’t, and risk finding ourselves in a much hotter, much riskier, and altogether uncharted place.

Some have described the epoch we are living through as the Anthropocene, in which human activity has a defining influence on the climate and the environment.

Its challenge is perhaps most provocatively encapsulated by the futurologist Stewart Brand: [“We are as gods, and have to get good at it.”](#) Without endorsing or rejecting this view, it is a certainly a challenging way to put it.

If we accept we are responsible for the climate, how do we bear that responsibility?

Are we willing to cross the threshold from unintentional climate-altering activity – which we can, at a stretch, suggest has been the case so far – and move to the intentional deployment of climate-altering technologies, as part of our portfolio of action?

Maybe, maybe not, we don’t know yet. It is far from clear society is ready to accept such ideas, or even whether such a thing is possible in a way that adequately tackles risk.

But people are considering it. And were we to go down that route, we should pull out all the stops to ensure we do it right.

Imagining Governance From A Future Perspective

While many of us recognise how much trouble we are in, and the scale of what we need to do, we often struggle to envisage how a better future may look.

This limits our ability to take the right decisions.

What does it mean to become good stewards of the earth system? Who should be involved and how? How would we decide what role climate-altering technologies might play in that process?

One useful exercise is to cast our minds forward, and to imagine the various futures we might live in after deploying such technologies.

From that vantage point we can mentally retread our steps and contemplate how we got there.

Clearly some of those futures are preferable to others – so it's helpful to pick the ones we like the best, and conceptualise what it would take to achieve them.

In the case of a better future involving climate-altering technologies, I would imagine the train of events that leads there would include informed, inclusive governance at every step, rather than hasty decisions being taken in ignorance and fear.

I have a sense that there would not be one or two defining moments when those climate-altering technologies do or don't happen, but rather an accumulation of decisions which, in aggregate, create a new climate-altered future.

In all cases, that procession of decisions would depend on governance systems in place at the time, and not those put in place afterwards.

And that matters for how we think about these issues today.

If governments wait for a big defining moment, a clear shift, to start putting the right governance in place, they may find in hindsight that they have missed the boat.

Actors are already laying the groundwork for some potential futures where climate-altering technologies might be deployed.

The things those actors are doing are being affected by the systems we have in place now, not by some undetermined future response.

And the reality is, the governance we have now is simply not up to the task.

How to Create Effective Earth Systems Governance

So what might the building blocks of earth system governance be, to achieve the vision of the 2030 Agenda for Sustainable Development or of Ecological Civilization, with or without climate-altering technologies?

Who should be involved, and where would we start?

I don't pretend to have the answers, but I do have some questions I think can help, and a few ideas as to how we might go about answering them.

My first question is: on what basis should the world be taking decisions about earth system governance?

To my mind, the starting point needs to be a shared understanding, an agreed knowledge base, which takes account of the science, as well as political and ethical concerns.

It would need to include clear evidence and analysis of the risks and trade-offs, and a common approach to equity, responsibility and fairness.

This is a big challenge, especially given our fractious political times, and the challenge of fake news.

Perhaps a first step is to build shared learning platforms, which cross silos and allow us to do a better job of measuring risk against risk. There are no risk-free options ahead, but some may be less riskier than others, so let's establish how to find them.

My second big question is: who should take these decisions, how, and where?

We all share one climate. To my mind good decisions need all sectors of society to be involved – not just governments, but also civil society, the private sector, faith groups, and youth groups.

But where would we do this, in what form, in a way that ensures the least powerful also have a say?

I imagine it would take place in a multiplicity of processes and fora. No one process is paramount, or sufficient, to engage in the necessary level of governance alone.

At the same time, I do think the biggest decisions – particularly those that have global significance, such as those relating to the use or not of solar radiation modification - would be considered in the world's most universal forum: the UN General Assembly. But how to get them there?

My third big question is how would these decisions be implemented?

There is no point taking a good decision if you can't see it through.

Earth system governance is going to involve a lot of monitoring and evaluation, and a wealth of international processes around transparency, liability, and equity.

Who would be responsible for all these things? Who would pay? How would we ensure fairness is maintained?

None of these questions are easy to answer. But if we can start by acknowledging they need to be asked, and agree on what the big questions are, that would be a beginning.

Because if we are serious about earth system governance, we need to start now.

Whether or not we deploy climate-altering technologies, we need to embark on entirely fresh thinking about how we live and take decisions and treat our natural environment.

It is likely to be a long, broad and often hard road. But the risks of not doing so are so high, we simply can't afford to wait any longer.

I hope we can work together on this journey.

Thank you.