

Thank you. It is an honour and pleasure to address this meeting.

I would like to start by endorsing the comments of my colleague Professor Kasuga about the importance of multidisciplinary, global research programs like Future Earth. These are critical both for the knowledge they provide directly and for their contribution to mobilizing scientific effort more broadly. All countries should be looking to programs like Future Earth and considering their implications for national research priorities and investment.

As we embark on the journey to 2030 we will quite rightly build statistical capacity and report data across a wide range of indicators relevant to sustainable development goals and targets. These data provide the foundation for monitoring and accountability. But it is important to remember that indicators have their limits. In isolation, indicators don't tell us about:

- The underlying causes of social, economic and environmental change;
- How specific policies and programs influence development outcomes; or
- What is over the horizon that might support or threaten the sustainability agenda.

For this level of understanding we rely on complementary science programs, and by science here I of course refer to all the sciences – social, natural, engineering, and so on.

I don't have long so I won't peel off a long list of issues relevant to the future of the sustainable development agenda. For these, I commend to you Chapter 5 of the 2016 Global Sustainable Development Report. In this short presentation I want to provide just two examples of issues that potentially challenge our existing understanding of the relationships between social, environmental and economic change and which therefore illustrate the importance of strengthening the science-policy interface.

Example 1.

The mass coral bleaching which has played out over the last few months demonstrates that preparation for the future must take account of the fact we are already living with profound environmental change.

While key ecosystems in all regions of the world are under pressure I wish to cast a spotlight on the particular impacts of climate change in the tropics. As existing climate zones shift poleward, people and ecosystems in the equatorial tropics face the prospect of climate states that have never before been experienced by human communities. At the same time, the semi-arid dry tropical edge is expanding. The implications for built environments, agriculture and food security, biodiversity conservation, and so on, are immense.

Complicating this further, global population growth is concentrated in the tropics. By 2050, it is forecast that over 50% of the world's population and two thirds of the world's children will live in the tropics. Meanwhile, progress on poverty alleviation in the tropical zone lags significantly behind the rest of the world. And as we all well know, poverty is strongly associated with vulnerability to disaster and infectious disease. It can be argued that tropical infectious diseases are primarily the product of poverty, not temperature or precipitation, but they will impact more people nonetheless unless progress is made on all fronts.

Achieving the SDGs requires a relentless focus on understanding relationships between environmental, social and economic change that may otherwise go unrecognized. Investment in science and technology must reflect the unique characteristics and needs of all climate zones. Existing investment is weighted overwhelmingly to the temperate zone with tropical regions accounting for an estimated 5% of global research and development

expenditure and 10% of science and engineering graduates. This imbalance must be addressed.

Example 2.

While we are relatively comfortable, I think, considering the implications of such profound environmental change for settlements and infrastructure. Even agriculture. But we are much less comfortable contemplating the implications of systemic environmental change for less intensively managed ecosystems such as protected areas and, for want of a better word, wilderness. We have little choice though, if we are to maintain the integrity of ecosystem processes, minimize biodiversity loss, and indeed protect any of the values we associate with ecosystems, but to give careful consideration of how to assist their adaptation to change.

This raises concern that ideas like 'assisted adaptation' might be used to justify a weakening of ecosystem conservation measures. For this reason, the question of how ecosystems might be supported to adapt needs to be accompanied by the question of how ecosystem adaptation can best be governed. For every biological or ecological question there is a philosophical and an institutional question.

People, similarly, need support to assist adaptation. And they need support to pursue different development aspirations and pathways.

UN agreements such as the Declaration on the Rights of Indigenous People rest on the principle there is no one model of the ideal society. The Declaration states very clearly that indigenous people have a right to self-determination, to decide for themselves what they want out of the development project.

It is not being indigenous that makes a person vulnerable to poverty. It is the denial of access to political authority, secure property rights, and other resources. This is true of women, people living with disability, and so on.

Among the resources that either alleviate or deepen vulnerability we must count access to appropriate technology. By 'appropriate' I don't mean small-scale or low tech. I mean fit for purpose. And in the context of sustainable development, I mean the institutional and scientific capacity to integrate technology in systems of production that support ecological function and social inclusion.

This calls for institutional innovation and scientific capacity building which is, again, specific to the needs of particular communities and particular environments.

With these comments in mind, I commend the intent to support the sustainable development agenda with a strong science-policy interface and look forward to further discussion about the role of science in the HLPF.

There is a great deal we do not yet know about the intersections of social, economic and environmental change, or the effectiveness of policy interventions operating at these intersections. As the science-policy interface develops, it must be just as focused on directing research and capacity building effort to areas of greatest need as it is on informing policy-makers and other stakeholders. The relationships must be truly participatory and multi-directional.

Thank you.