

**Consultation “Laudato si’ and the path to COP22”
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Your Eminences, Excellencies, distinguished delegates, friends

Good morning and thank you for this invitation to speak at this important seminar on the Papal Encyclical Letter on “Our Common Home” as we approach COP22 in less than six weeks.

In the 1980s growing awareness of the problem of climate change led to the creation in 1988 of the Intergovernmental Panel on Climate Change by the World Meteorological Organization and the United Nations Environment Programme.

Its job is to tell policymakers what we know – and what we don’t know – about the science related to climate change, its impacts and future risks, and options for tackling it. It does this by assessing the wealth of scientific publications in the related disciplines to give policymakers and other stakeholders a picture of the state of scientific knowledge.

Since then the Climate Panel has published five comprehensive assessments, and we are now preparing to start on the sixth, as well as a series of special reports on particular topics.

Our latest assessment, AR5, shows that the impacts of climate change are already being felt in every continent, from the mountains to the seas, affecting rich and poor. But we know that the most vulnerable are also the most exposed, and that there are impacts on food and water – the basic essentials for life itself.

As the Fifth Assessment Report says:

“Limiting the effects of climate change is necessary to achieve sustainable development and equity, including poverty reduction.”

The first assessment report led to the creation of the United Nations Framework Convention on Climate Change, which is the vehicle for international negotiations to limit global warming.

These negotiations have had mixed success over the years and some people have been frustrated at what they see as lack of progress in handling what can be described as the foremost challenge of our times. But I was surprised at the ambition and scope of the agreement that emerged from Paris last December in COP21.

The Paris Agreement calls for the rise in global temperatures to be kept to well below 2.0°C above pre-industrial levels, and to try to keep it to 1.5°C.

It is noteworthy that the global community recognized the need to aim for a warming limit of 1.5°C – however challenging – because of the vital importance that represents for many small island states.

This is not abstract science. As a young official from Vanuatu told me when we met a couple of weeks ago: “1.5 degrees is about our survival.”

COP22 is intended to pursue the actions that will make that ambition reality. Many people have something to contribute. I have just come from a conference in Nantes, France, of non-state actors, where cities and regions, young people, businesses, civil society organizations and others are discussing what they can do.

“Our Common Home” provides them with rich material and inspiration.

But the main delivery mechanism of the Paris Agreement, is commitments by states. The agreement establishes a process for progressively more ambitious efforts to limit greenhouse gas emissions, in pursuit of the global warming goal. At the same time the agreement spells out the need to respond to the threat of climate change in the context of sustainable development and efforts to eradicate poverty.

Countries will submit Nationally Determined Contributions to reduce their emissions, that together aim to reach this goal. Overall progress will be reviewed every five years, starting in 2018, with commitments ratcheted up if necessary after each such “stocktake”.

The Climate Panel is responding to this challenge.

- We are responding to the request of governments to deliver a report on the impacts of 1.5°C warming and related emissions pathways in 2018, in time for the “facilitative dialogue” that year on the global stocktake;
- We are updating the methodologies that countries use to measure and report their greenhouse gas emissions and removals;
- We will complete our next major assessment, AR6, in 2022, in time for the global stocktake in 2023; and
- We will put our assessments on to a five-yearly basis thereafter, in line with the stocktake process.
- Besides AR6 and the special report on 1.5°C, we will prepare two other special reports on climate change and oceans and climate change and land-related issues.

In our last major assessment, AR5, the IPCC found that to have a good chance of limiting warming to 2.0°C, the world would need to reduce emissions by 2050 by 40-70% relative to 2010, and net emissions of greenhouse gases would approach zero by the end of the century.

I must say we are far from being on track and are rapidly using up the remaining carbon budget that AR5 indicated was available if we are to hold warming below 2.0°C. It is clear that governments will have to be far more ambitious, and action is required urgently if we are to avoid a situation where the necessary adjustment threatens sustainable development and poverty alleviation.

Now, the Climate Panel deals in long-term trends not short-term data. But the drumbeat of falling weather records, and reports of extreme events, are a reminder of this urgency. July was the hottest month globally since records began; August marked 16 months of record warmth, the longest such streak for 137 years.

But there are many encouraging signs too.

“Our Common Home” points to the dangers of untrammelled faith in technology. But it also points to the many benefits that wise use of technology can bring. We see this in the responses to climate change, for instance in energy production and transport.

The reductions in the cost of renewables have been astounding. Wind and solar are cost-competitive with fossil-fuel generation in many areas and their costs continue to decline. Renewables accounted for over half of all new generation capacity in 2015. The share of renewables (excluding hydro) in electricity production in the major G20 economies has jumped by more than 70% in the last five years to 8%. Storage technologies are improving and costs are coming down.

A clear understanding of the broad economics behind these trends is important, because it is essential that developing countries, as they industrialize and pull their people out of poverty, do not lock in high-carbon infrastructure such as carbon-fuelled power plants, that would put the 2.0°C goal out of reach.

For instance when countries consider investing in clean energy, they should look at the co-benefits, for instance the advantages it brings to healthcare and quality of life. To put this into perspective, the World Bank has just found that air pollution deaths cost the global economy \$5 trillion a year, and about 5.5 million lives were lost to related diseases in 2013.

Progress is less marked in transport, but demand for petrol has slowed thanks to fuel efficiency standards, and alternative technologies for cars such as electric, fuel cell or hydrogen are gaining acceptance.

We would be unwise to put our trust in unknown or untested technologies. But when the right developments occur, transformation can be rapid. You just need to look at a photo of Fifth Avenue in New York on Easter morning 1900, with the road full of horse-drawn carriages, and the same scene a few years later – no horses in sight but a street full of motor cars.

Again, “Our Common Home” sounds a warning about impersonal economic forces. But with the right incentives from governments in place, the market will encourage the emergence of useful technologies.

Appropriate regulation of the market can lead to broader changes in business, e.g. through requirements on companies to report their carbon footprint, and the awareness that the response to climate change may lead to some energy assets becoming “stranded”. Regulators and the private sector are already cooperating on this kind of work.

Improving our understanding of the economics of climate change is crucial. Too often spending on mitigation or even adaptation is presented as an alternative to development spending. The example I just quoted of air pollution and health should correct that view. AR5 was clear that that climate change poses a threat to sustainable development, and that there are integrated approaches to sustainable development, adaptation and mitigation.

But some people argue that tackling climate change would divert resources from normal economic activity and prosperity. As if “business as usual” would continue to deliver growth year after year. We cannot really imagine what a world of 4°, 5° or 6° warming would look like, a world where many adaptation options would be foreclosed, but disrupted food production and many ruined lives would surely be part of the picture, as well as devastated economies. Conversely, a world of sustainable development goals, of 2.0°C warming or less, will be very different from what we see now, based on a non-fossil fuel economy with new jobs, and economic opportunities.

From the examples I have given, you will see that our research interests have moved beyond traditional climate science. In our next assessment, following the Paris Agreement, we will place a bigger focus on solutions, and that means a greater emphasis on the social and human sciences.

As I just said, we will need a better understanding of the costs of tackling climate change, but also the costs of inaction and of foregone opportunities. We will need to build on the work in AR5 on response options and policy approaches, so that we understand what leads to decision-making, how effective policies can be adopted and implemented, how communities can be motivated to work with them. We need a better understanding of the reallocation of resources and climate response strategies. Already in AR5 we had a philosopher on our author team, and now we need to improve our understanding of ethical and equity issues.

These are knowledge gaps that I hope researchers will address in the coming years so that we can include them in our assessment, to help policymakers and decision-maker at all levels undertake informed action for climate stability and prosperity.

Thank you for your attention.