

**Opening of the High-Level Segment of ECOSOC  
New York, Tuesday 16 July 2019, General Assembly Hall  
Keynote speech by IPCC Chair Dr Hoesung Lee**

Thank you for this invitation to address the High-Level Political Forum on the Sustainable Development.

Climate action and sustainable development are inseparable.

Climate change is a threat multiplier. It amplifies existing threats, exacerbating problems for the economy, environment and society.

This morning I would like to share with you three points of linkage between climate change and the sustainable development goals based upon our latest assessment.

First, the current warming is already producing negative impacts on natural and human systems, seriously impeding progress toward some SDGs.

Second, an ambitious climate goal such as the Paris Agreement objective of limiting global warming to well below 2 degrees Celsius and pursuing 1.5 degree Celsius helps achieve most SDGs but it creates a trade-off for some SDGs and balancing the goals will be a challenge.

Third, ambitious climate actions produce new opportunities for the economy, environment and society. But these are contingent upon international cooperation, with social justice and equity being core aspects of climate-resilient development pathways.

The basis of these three points is our latest assessment on the global warming of 1.5 degrees Celsius.

First a few brief comments on the impact of current warming and its implications for SD:

Currently the global average temperature is 1 degree Celsius higher than the preindustrial level. But the warming is not uniform.

Most land regions are experiencing warming greater than this 1 degree average. For instance, the Arctic temperature is two to three times higher.

Up to 40% of the world's population lives in areas where the warming already exceeds 1.5 degrees Celsius above the preindustrial level for at least one season.

This has caused notable disruptions in human livelihoods.

We found that: For agriculture-dependent countries, temperature has had a positive and statistically significant effect on outmigration over recent decades. A 1 degree Celsius increase in average temperature was associated with a 1.9% increase in bilateral migration flows from 142 sending countries and 19 receiving countries. A 1 millimetre increase in precipitation was associated with a 0.5% increase in migration.

These findings confirm the concern we raised 5 years ago when we completed the 5<sup>th</sup> assessment report that climate change impacts on migration and displacement was an emerging risk.

Our report on 1.5 degree warming also found that coral reefs and biodiversity are at higher risk with current warming than previously understood, and that four regions face disproportionately higher risks than others—the Arctic, small island regions, dryland regions, and least developed countries.

In particular, we detected economic slowdowns due to warming in the tropics and the southern Hemisphere subtropics. Climate change adversely affected crop yields in these regions.

We found that: Current warming is already having large impacts on ecosystems, human health and agriculture. As a result, reaching goals to eradicate poverty and hunger, and to protect life on land are made more challenging.

Your own recent evaluation of SDG progress pointed out several areas of setbacks: Rise in hunger because of conflicts, drought and disasters linked to climate change; Persistence of extreme poverty in sub-Saharan Africa and southern Asia; Increase in malaria; Gap in education; and lack of access to sanitation services. Your evaluation corroborates our conclusion on the effect of current warming.

What is the world to do to limit global warming to 1.5 degrees and what are its implications for SDGs?

Current global commitments (nationally determined contributions) under the Paris Agreement far overshoot 1.5 degrees warming. The world would be 2.9—3.4 degrees warmer by the end of this century.

We evaluated the differences in impacts between 1.5 and 2.0 degrees warming and found that:

The risks to sustainable development are considerably less at 1.5 degrees Celsius than 2 degree Celsius and it is easier to achieve many of the SDGs at 1.5 degrees.

At 2 degrees C and higher levels of warming, there are high risks of failure to meet SDGs such as eradicating poverty and hunger, providing safe water, reducing inequality and protecting ecosystems.

By limiting warming to 1.5 degrees rather than 2 degrees C, we will have:

50% fewer people exposed to water shortage;

50% less impact on insects, plants, and vertebrates in their climatically determined geographic range;

10 million fewer people exposed to the risk of sea level rise;

Ten fold decrease in the risk of the sea ice free Arctic in the summer;

One-third reduction in the risk of decline in crop yields; yet even at 1.5 degrees C food shortages may emerge in the African Sahel, the Mediterranean, Central Europe, the Amazon, and western and southern Africa;

Reduced risks to biodiversity, health, livelihoods, food security, human security and economic growth;

The western part of tropical Africa benefits most in terms of future economic growth;

And the risk of triggering instability in Antarctica and/or irreversible loss of Greenland ice sheets is reduced.

Limiting warming to 1.5 requires a world of global carbon neutrality by mid century.

First of all, the energy productivity and efficiency in materials consumption must increase so that economy can grow with less demand for energy and materials. This is possible because technology is on our side and finance too is on our side.

What's needed is enabling market conditions where prices include societal costs of GHG emissions and other externalities, so that investment in higher efficiency in energy and material use and investment in carbon neutral options are appropriately rewarded.

The incremental share of annual mitigation investment which includes investment in efficiency improvement as well as energy decarbonisation is 0.36% of global GDP over the baseline share of 1.96% of global GDP over the period 2015-2030. These investments will lead to a slow-down in the demand for energy and material input and this will make system transition to zero carbon energy easier, and minimize potential trade-off vis-a-vis SDGs.

Failing to achieve low energy demand will increase potential reliance on carbon dioxide removal from the atmosphere which will be a bad news for some SDGs.

Our assessment finds that: All pathways limiting global warming to 1.5 degrees C require removal of carbon dioxide from the atmosphere (CDR) on the order of 100 – 1000 GtCO<sub>2</sub> in this century. CDR has serious implications for SDGs.

CDR is a process of reducing the stock of CO<sub>2</sub> in the atmosphere by means of planting trees, soil carbon sequestration, biomass energy with carbon capture and storage, and some novel technologies such as direct air capture with storage.

CDR, as such, would result in large land and water footprints. CDRs may compete with other land uses and may have significant impacts on agricultural and food systems, biodiversity, and other ecosystem functions and services.

And yet it would be in demand to compensate for residual and hard to avoid emissions from transport, agriculture and industry. And in case the global temperature overshoots 1.5 ceiling, net negative emissions will be needed to return global warming to 1.5 C and the CDR will be in further demand.

The lower the scale and speed of CDR deployment, the better for the SDGs.

So the choice is obvious. We should pursue: A world of high efficiency energy and materials consumption along with low GHG-intensive food consumption;

This will facilitate limiting warming to 1.5C, and have the pronounced synergies and the lowest degree of trade-offs with respect to sustainable development and the SDGs.

Let me report to you that: Our assessment also points out that limiting warming to 1.5 degree C has been found infeasible in a world characterized by inequality, poverty and lack of international cooperation.

Our assessment confirms that international cooperation for enhancing domestic capacities and access to finance and technology is a key enabler for developing countries and vulnerable regions to strengthen their action for 1.5C-consistent climate responses including adaptation.

And let's also recognize that: Distributional consequences of a transition to 1.5C pathways are matters of concern. Regions with high dependence on fossil fuels for revenue and employment generation face risks for sustainable development, under mitigation consistent with 1.5C pathways. Diversifying the economy can address the associated challenges.

Public acceptability is a key to the transition to 1.5C: Redistributive policies across sectors and populations that shield the poor and vulnerable can resolve trade-offs for a range of SDGs, particularly hunger, poverty and energy access. This would facilitate public acceptability of the 1.5 C pathways. Public acceptability can enable or inhibit their implementation.

In summary: We need collective efforts at all levels, reflecting different circumstances and capabilities, to limit global warming to 1.5C, taking into account equity and effectiveness, so that we can strengthen the global response to climate change, and achieve sustainable development and poverty eradication.

The result will be a cleaner, sustainable, more productive, and stronger global economy.

Thank you for your attention.