

## Scientific Studies On Climate Change - New Findings And Initiatives

In the previous article, we discussed the major initiatives that are being implemented to address climate change including Guyana Low Carbon Development Strategy (LCDS). This week we will explore the latest findings from the newly released scientific studies on climate change and examine studies that are being done in Guyana.

Within the last week scientists presented the findings of the Fifth Assessment Report (AR5) of the United Nations Intergovernmental Panel on Climate Change (IPCC) prepared by Working Group I. This report provides the most authoritative and updated information on the global status of climate change and builds upon the IPCC's Fourth Assessment Report (AR4).

The AR5 report which was prepared by a panel of the world's leading climate scientists strongly asserted that **"it is extremely likely that human influence has been the dominant cause of the observed warming since the mid-20th century"**. The evidence for this has grown due to more and better observations, an improved understanding of the climate system response and improved climate models.

**The findings as presented in AR5 asserted that warming in the climate system is very clear at this stage.** Each of the last three decades has been successively warmer than any preceding decade since 1850. The atmosphere and ocean have warmed, the amount of snow and ice have diminished, the global mean sea level has risen and the concentrations of greenhouse gases (GHGs) have increased. There is high confidence that the rate of sea level rise since the mid-19th century has been larger than the mean rate during the previous two millennia. Over the period 1901–2010, global mean sea level rose by an average of 0.19 metres.

The atmospheric concentrations of carbon dioxide (CO<sub>2</sub>), methane, and nitrous oxide have increased to levels unprecedented in at least the last 800,000 years. CO<sub>2</sub> concentrations have increased by 40% since pre-industrial times, primarily from fossil fuel emissions and secondarily from net land use change emissions. The ocean has absorbed about 30% of the emitted anthropogenic CO<sub>2</sub>, causing ocean acidification.

Many scientists agree that continued emissions of GHGs will cause further warming and changes in all components of the climate system. **Limiting climate change will require substantial and sustained reductions of GHGs.**

The projections of climate change in the AR5 are based on a new set of four scenarios of future GHG concentrations and aerosols, spanning a wide range of possible futures. Global surface temperature change for the end of the 21st century is projected to likely exceed 1.5°C relative to 1850 to 1900 in all but the lowest scenario considered, and likely to exceed 2°C for the two high scenarios. Heat waves are very likely to occur more frequently and last longer. As the Earth warms, wet regions may receive more rainfall, and dry regions receiving less.

These findings paint an even clearer picture of the potential catastrophic impacts of climate change in the future, especially for highly vulnerable countries like Guyana which are already suffering from the effects of climate change.

As discussed in previous articles, Guyana has taken on significant domestic actions to address climate change - the revolutionary Low Carbon Development Strategy (LCDS) is currently in the implementation stage. Guyana has also conducted a number of technical studies and assessments

to examine the local effects of climate change. As part of Guyana's obligations to the United Nations Framework Convention on Climate Change (UNFCCC), which Guyana signed onto in 1992, the country has been preparing National Communication reports which provide a general status of key aspects related to climate change in Guyana including: National GHG inventories; projections for future climate change in Guyana; vulnerability assessments for key sectors of the country to examine how climate change will affect them; programmes containing measures to facilitate adequate adaptation and mitigate climate change; and other key elements.

Guyana prepared its Initial National Communication in 2002 and the Second National Communication (SNC) in 2012, and is currently preparing its Third National Communication (TNC). At this stage of the Project, a Stocktaking Assessment and a Project Implementation Plan (PIP) are being prepared to review work carried out under previous climate change enabling activities and to identify gaps and propose relevant activities to be undertaken within the framework of preparing the TNC.

On October 1, 2013, the Office of Climate Change (OCC), with support from United Nations Environment Programme (UNEP) and the United Nations Development Programme (UNDP), hosted a national stakeholders' workshop as part of the Stocktaking Assessment. The findings of the TNC will help to provide concrete information that will help to guide climate initiatives in Guyana.

According to Mr. Shyam Nokta, Adviser to the President and Head, Office of Climate Change, "this third national communication process is happening at a time when climate change is being underscored as the most important global issue that we are facing today...climate change is like a runaway train and right now this train is only gaining momentum and even if it reduces speed, we are still heading for catastrophe".

Climate change studies and assessments have a crucial role today and informing the planning and decisions making process at all levels of society.

Next week we will continue to discuss key topics related to climate change and Guyana's LCDS.

### **Prepared by the Office of Climate Change**

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**Presidential Adviser and Head, Office of Climate Change, Mr. Shyam Nokta delivering remarks at the TNC Stocktaking Workshop, October 01, 2013**