"Warming Up to the Climate Change Challenge"

This is the full text of the public lecture delivered by Jairam Ramesh, Member of Parliament, Rajya Sabha, and Senior Visiting Fellow, The Hindu Centre for Politics and Public Policy, on October 24, 2014 at the Asian College of Journalism, Chennai.

I

Electoral debacles force politicians to search for new avenues to keep afloat. Mr. Ram was good enough to invite me to be a Visiting Fellow at the Hindu Centre for Politics and Public Policy. Had I come here as a politician I could have perhaps spoken extempore and got away with it. But as a Visiting Fellow, I have to appear scholarly and what better way than to have a prepared text. I speak to you this evening on a subject that has pre-occupied me in my various ministerial capacities over the past decade but that continues to be of abiding interest and concern.

II

Climate change has not just been part of human history but has shaped it decisively as well. It is well known that most species of large mammals were driven to extinction by climate-related factors some 12,000 years ago. Thereafter, civilisations both in West Asia and the Indian subcontinent collapsed in very large measure due to environmental stress about 3000 to 4000 years ago. The period AD 1300 to 1850 is now referred to as the Little Ice Age, a period in which Europe especially saw profound social and economic transformations but a period that did not fail to leave its imprimatur in countries like China and India as well, especially in the 17th century.

But the story has changed dramatically since then. But over the past six decades ever since a landmark paper appeared in the journal *Tellus* in 1957, the concern has been on global warming and its impacts, some predictable, many others unpredictable. More than that, the concern has been with global warming not on account of some natural cyclical process but because of what are called anthropogenic factors—that is, because of human interventions. Today, there is wide-spread consensus that an unprecedented build-up of greenhouse gases like carbon dioxide, methane, nitrous oxide and hydrofluorocarbons has caused global temperatures to rise, thereby increasing the probability of

extreme weather-linked events like drought and floods. Today's carbon dioxide levels in the atmosphere at about 390 parts per million approximate what prevailed 650,000 years ago and follow a very long period of over a thousand years when the concentration was around 280 parts per million. Greenhouse gases are transparent to incoming short-wave solar radiation but block long-wave radiation from leaving the Earth's atmosphere. Because of this, more warming results than would be the case normally. Further, the climate effects of these emissions are widespread and relatively slow.

III

Global warming is what economists would call a "global negative externality" affecting the "global commons". It is in recognition of its profound international dimension that the United Nations Framework Convention on Climate Change (UNFCCC) was adopted at Rio de Janeiro in June 1992 and came into force in March 1994. The UNFCCC is anchored in the principle of "common but differentiated responsibilities and respective capabilities" In pursuance of this principle, the Kyoto Protocol, which divided the world into Annex-I countries that took on binding emission reduction targets and non-Annex I countries that only reported emissions of greenhouse gases, was adopted in December 1997. It came into force in February 2005 with its first commitment period ending in 2012. In December 2012 at Doha a second commitment period beginning January 1, 2013 and ending December 31st, 2020 was agreed to. Annex-I includes industrialised countries and countries making a transition to a market economy that collectively accounted for about two-third of all greenhouse gas emissions in 1990. The Protocol got shaken up in the year 2000 from the refusal of the USA to ratify it on the grounds that countries adding to the "flow" of emissions like China and India were exempt from any mitigation responsibilities. Canada too withdrew in December 2012. By 2012, countries that took on emission cuts under the Kyoto Protocol covered just about a fifth of world greenhouse gas emissions. In December 2007, the Bali Roadmap was adopted to "enable the full, effective and sustained implementation of the Convention through long-term cooperative action now, up to and beyond 2012". Since then, there have been UN Climate Change Conferences in Poznan (2008), Copenhagen (2009), Cancun (2010), Durban (2011), Doha (2012) and Warsaw (2013). Next month, negotiators meet in Lima and the expectation is that there would be a new international agreement giving concrete shape to the Bali vision of "long term cooperative action" at Paris in December 2015.

India's position on global climate change talks has been simple and can be summarised in the following propositions:

1. India didn't cause the problem of global warming, so it cannot be expected to bear the economic burden and cost of solving it.

2. If India is expected to do something meaningful, then it should be provided with adequate finance and technology to accomplish the necessary transitions.

3. India's priority has necessarily to be rapid economic growth to alleviate poverty. If this involves pollution and deforestation so be it. All countries have followed the "grow now, pay later" model and there is no reason why India should be different.

These propositions have considerable logic but they forget one fact: that India is most vulnerable to the vagaries of climate change and faces multiple vulnerabilities—both current and future. It is because of this pressing domestic reality that India needs to change its traditional mindset and provide bold new intellectual and political leadership to global climate change talks. This can only take forward what the President said in his address to both Houses of Parliament on June 9th, 2014: "The government will earnestly take up mitigation works to meet the challenges posed by climate change and will closely work with the global community in this regard".

IV

What are these pressing domestic vulnerabilities, vulnerabilities that are all-too-apparent actually?

First, India's economy is still heavily dependent on the July-September south-west monsoon which accounts for around 70% of the rainfall that it gets annually. Agriculture may now account for just around 15% of GDP but livelihoods and incomes of over 600 million Indians are still determined by the performance of the monsoon. 60% of India's gross cultivated area will continue to be rain-fed even after all its irrigation potential is harnessed. S*econd*, it has a 7000-km long coastline with over 150 million people threatened by increase in mean sea levels, something which has now been established conclusively as a direct and immediate effect of climate change. *Third*, the health of the 10,000-odd

Himalayan glaciers in India's territory has a bearing on water flow in the north Indian rivers. Although a few glaciers are actually advancing and a few are retreating at a decelerating rate, an overwhelming majority are, in fact, retreating. This has major implications on livelihoods and food security across the densely-populated Gangetic belt home to close a half a billion people. *Fourth*, most of India's natural resources particularly coal and iron ore which are needed to sustain rapid economic growth are located in the forest-rich areas of central and eastern India. Their extraction at the scale envisaged is bound to lead to loss of valuable carbon sinks, for which the creation of monoculture plantations are a poor substitute.

Judged in a global context, India is definitely not a major contributor to the stock of global greenhouse gases. Its share in the global stock of emissions since the Industrial Revolution—the relevant metric to measure the impact of greenhouse gas emissions on long-term climate change—is negligible and even its contribution to annual flows is smaller than many countries which routinely call upon India to take action. In the past twenty years, with 16% percent of the world's population, its share of global emissions has doubled from around 3% to 6% but is still far lower than the shares of China (around 29%), USA (about 15%), European Union (about 11%) and Russia (about 5%). India has witnessed rapid economic growth over the past decade when the average annual rate of GDP growth has been in the region of 7.5%. There is a consensus that this needs to accelerate even further to at least 8-9% per annum. It is only rapid economic growth that can help India meet the challenge posed by the entry of 8-9 million youth into the labour force every year.

And the demographics are indeed extremely daunting. India's population is at present around 1.24 billion and estimates are that another 400 million will get added by the middle of this century when India will overtake China and become the world's most populous country. The needs of social and physical infrastructure for such an India can be fulfilled only through rapid economic growth that has to be inclusive as well so that its benefits accrue to larger and larger sections of society. But there is a third dimension to this growth in addition to its having to be both rapid and inclusive. It has to be sustainable as well if growth is to enhance the ability of the current generation to meet its consumption needs *without* jeopardising the ability of future generations to meet theirs. Moreover, it has to be sustainable because there is accumulating evidence within India that reveals that environmental issues of pollution and contamination, for instance, are becoming serious public health concerns, particularly for the poorer sections of society.

India certainly has a justified case when it argues that while its absolute levels of emissions are bound to increase in the next quarter of a century at least, its per capita emissions will continue to be low. Over the past two decades India's per capita emissions have doubled to about 1.6 tonnes (as compared to over 7 tonnes in China, 17 tonnes in USA and about 13 tonnes in Russia) although it must be admitted right-away that there are huge variations within the country itself. Studies done by institutions outside India on the global carbon budget approach for example have revealed that whatever be the perspective on "fair share", India has long way to go before it uses up its legitimate "quota". At Heilegandamm in June 2007 at the outreach summit of the G8, the former Indian Prime Minister Dr.Manmohan Singh had publicly committed India to maintaining its per capita emissions at a level lower than the average per capita emissions of developed countries. Dr. Singh's mandate to me in May 2009 on climate change negotiations when I took charge of the environment and forests ministry was simple: "India is not part of the problem but make sure we are part of the solution". That was because he realised that it is in India's enlightened political, economic and environmental self-interest to be so. And that was that very mandate that was being executed at Copenhagen and Cancun where India contributed significantly to the crafting of compromises and to the design of a way forward on contentious issues like MRV (monitoring, reporting and verification) of mitigation actions and contributed to new equity-linked formulations like "equitable access to sustainable development" which broke many a logjam.

V

What might a pragmatic agenda for India look like for the next few months in the run-up to the crucial 21st Conference of Parties (COP) at Paris?

First, whatever may be its international stance, India must build up its own scientific capacity to measure, model and monitor climate change. Of course, we must be part of the international scientific effort but that engagement must be from a position of domestic strength. Four years back, the Indian National Network on Climate Change Assessment (INCCA) had been launched but it now appears to be moribund. This network has about 120 institutions and over 250 scientists. It has already produced an updated inventory of greenhouse gas emissions and a 4x4 analysis for the year 2030: 4 sectors (agriculture, water, natural ecosystems and biodiversity and health) and 4 regions (Himalayan region, north-east, coastal areas and Western Ghats). INCCA also took on the responsibility for

studying the issue of black carbon in detail, an issue of particular significance in India. India's extensive satellite capability must be utilised for ecological studies.

Second, India must agree to start discussions on a *phase-down* of hydrofluorocarbons (HFCs) under the Montreal Protocol. With China, agreeing to do so last year, India became the only major country holding out on a conversation on HFCs. The joint statement issued on September 30, 2014 after the meeting between President Obama and Prime Minister Narendra Modi shows some welcome change in India's position. Despite the benefits accrued to the ozone layer, HFCs which have a high global warming potential will contribute heavily to the buildup of greenhouse gases over the next three-four decades. Alternatives in the refrigeration and air-conditioning industry especially that stop ozone depletion and do not exacerbate global warming are urgently needed. India does not have to go through the replacement of hydrochlorofluorocarbons by HFCs and then replacement of HFCs. It can access the multilateral fund under the Montreal Protocol to ease the transition. But more importantly, movement on this relatively "low hanging but potent fruit" gives India a vantage point in international negotiations that could help it shape future outcomes.

Third, India has been implementing a national action plan on climate change, which is a portfolio of both mitigation and adaptation initiatives. In the international community, there is an impression that India is not willing to and is not taking requisite measures to address climate change. To counter this, and to deepen domestic efforts to address climate change, India must pass comprehensive legislation in which initiatives, such as a trading system for meeting energy efficiency targets, mandatory fuel efficiency standards, improving quality of forest cover, establishment of concentration standards where they do not exist for emissions from power plants like for sulphur dioxide and oxides of nitrogen, etc., are embedded. The confidence level of the global community in the seriousness, credibility and continuity of India's actions will also increase if such a domestic law is passed incorporating systems of monitoring as well. Executive actions must be backed by legislative pledges.

Fourth, India must push for a hybrid architecture for 2015 agreement, comprising national "commitments" (and give the lead to stop using the word "contributions") reflecting the balance between the various pillars of addressing climate change—mitigation, adaptation, finance, technology, and capacity building. In this hybrid model, certain elements can be "bottom up" like mitigation commitments and certain other elements can be "top down" like transparency provisions. A pure

"bottom up" approach will not meet environmental objectives while a pure "top down" approach will simply not be politically feasible, especially if we are to bring the USA and China into the mainstream of any agreement. India must support an option that gives countries flexibility and sets a global goal, which is reviewed periodically, and against which the commitments by made by individual countries are "analysed" from time to time.

Fifth, India must take the lead as it did at Copenhagen and Cancun for designing a non-intrusive, non-punitive system of international MRV much along the lines of "international consultations and analysis" for countries like China and India contained in the Copenhagen declaration and "international assessment and review" contained in the Cancun Agreement for countries like the USA and other developed nations. Such a system will work on the basis of technical reports submitted by the countries themselves (unlike as in the case of IMF and WTO consultations) to an international body like the Subsidiary Body for Implementation or a new entity under the UNFCCC. All countries will be subject to this international MRV system.

Sixth, India must revisit and rework its articulation of equity and differentiation. Differentiation is definitely needed to reflect equity considerations in the architecture of any agreement. But while a new agreement should not become an excuse to wipe out past obligations, it must also not become an opportunity to reaffirm stratifications of the past that have ceased to have much relevance. The 1992 criteria of differentiation may no longer be valid and India must lead the way to determine the criteria for differentiation in 2014. A better and more realistic metric of equity and differentiation is required. At the same time it is necessary to introduce the concept of "graduation" so that countries take on increasing responsibilities as they move up in the "equity metric" ladder. India must continue to insist on differentiation but it must be a realistic differentiation that is acceptable across the board. A "graduation approach" can only benefit India which is still a low middle-income country and its commitments will only grow as its per capita income improves. India must also seriously consider supporting innovative proposals on the equity issue such as the Africa Group's equity reference framework (ERF) that advance the cause of equity in a practical way for which India has been a consistent champion.

Seventh, India must begin to shift demonstrably to the trajectory of low carbon growth by making the appropriate investment and technology choices in different sectors of the economy. The report prepared by an expert group of the Planning Commission and made public in April 2014 provides

many options. This report concluded that if a comprehensive valuation of benefits is done, even with lower GDP the low carbon strategy is worth pursuing. In any case, the reduction in the average annual GDP growth rate by the expert group's own reckoning by the use of low carbon strategies is just 0.1-0.15 percentage points. The additional investment required would be around 1.5% of GDP and India has the capacity to meet the investment requirements largely on its own, an argument that should get added weight because of the co-benefits involved in a low-carbon growth strategy.

VI

In global negotiations both substance and style count. India's substance has to be pragmatic and its style has to be one of engagement. It is in India's own interest that the Paris Conference yields something meaningful as a starter. Paris will not yield the "magic bullet" but can initiate an iterative process that begins to make difference to global warming. India must view the era of the green economy not as a threat to its developmental plans. Instead, it must be viewed as an opportunity to build and demonstrate technological capability to the world.

Thank you.