New Room to Manoeuvre: An Indian Approach to Climate Change

Samir Saran et al.

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ENDORSEMENT

Despite economic, social and scientific realities, the global narrative on climate change has long been trapped in a Manichean world, in which India has often been portrayed as a deal breaker or a standout. Samir Saran's compilation of articles breaks the mould, situating India's role in the global political and economic realities of our time. India, as he succinctly argues, is indeed the exception in the arc of global development: The environmental imperative to fight climate change requires India to develop an unprecedented and untested model of industrialisation. And while doing so, we may note that India has to successfully meet its twin imperatives of poverty eradication and equitable growth. That policymakers, not only in India but globally, too, should acknowledge, accept and adapt to this reality is the key implication of what Samir suggests. He deconstructs this challenge into one which responds to India's lifeline needs and the other, which attends to the lifestyle aspirations of its people. The essays in this volume illuminate the way forward for climate financing, technology transfer and green growth, making it an invaluable read to politicians, researchers and students of India's climate diplomacy. Samir backs his argument with rigorous research and methodical analysis of numbers and facts – filling a gaping void in the extant scholarship on climate policy. As a result, this collection is a force to reckon with, the sharpness of its argument matched only by the lucidity of the prose.

*– **J.M. Mauskar**, Advisor, ORF and Member, Indian Prime Minister's Council on Climate Change*

FOREWORD

If there is a subject that captures global attention today in the quest to transform the future of the planet, it is the widespread desire to combat climate change. Today, the United Nations' endeavours to help develop a common response to this seemingly intractable problem have come into sharp focus with the looming Paris Conference (COP 21) scheduled for December 2015.

World leaders of various hues have weighed in on the debate. From the Pope, who invoked religion and called on humanity to be "protectors of God's plan inscribed in nature, protectors of one another and of the environment", to President Obama, who is seeking to bypass the political resistance of the US Congress to reach a deal in Paris, no global figure has felt immune from the ambition to pronounce his commitment to a solution. In India, Prime Minister Narendra Modi has invoked the concept of 'climate justice' and asked for a global agreement that favours developing countries. Chinese President Xi Jinping is not far behind in vowing to seize the moment in Paris. Each of these leaders is seeking an agreement that could help catalyse climate policies that would be seen as truly transformational. It is clear that the climate change challenge, and the response to it, will continue to remain an enduring topic for debate and international co-operation in this century and beyond.

The climate change challenge has two significant components for a country like India. The first is the shrinking carbon space. Global atmospheric concentrations of greenhouse gases (GHGs), including carbon dioxide, have risen significantly in the past century. Alarmingly, historical measurements show that never in the last 800,000 years have the current global atmospheric concentrations of carbon dioxide, methane and nitrous oxide been exceeded. Carbon dioxide levels in particular have risen steadily, from an annual average of 280 ppm in the late 1770s, to over 400 ppm in March 2015. With almost all of this increase the result of human activity, countries can no longer afford to emit greenhouse gases as they did in previous decades, and still hope to meet the target of preventing global temperatures from rising more than two degrees Celsius above pre-industrial levels by 2050.

The second major aspect to the challenge is the shrinking space for development as a consequence of this limited carbon space. Developing countries are the most vulnerable to climate change: in a study published in 2009, the World Bank estimated the cost of climate change to Africa will be 4% of GDP and to India, 5%. Through most of the 20th century, the industrialization of developed countries was predicated on fossil fuels, which contributed significantly to the rise in GHG levels. It is apparent, however, that with growing

environmental consciousness, industrialization along 20th century lines can no longer be the development model for the post-2015 world. This realization has led to a growing emphasis on renewable energy, which so far remains considerably more expensive than fossil fuel energy. Thus developing countries today not only have to undertake a more 'expensive' path to industrialization than their now-developed predecessors, but also have to underwrite the cost of past sins they did not commit.

Over the past half a decade, few analysts have rivalled Samir Saran in his attempts to identify these challenges and respond constructively to the questions they pose. I have long appreciated what his contributions have added to our national and international debates on climate change. India's recently declared Intended Nationally Determined Contributions (INDCs) for COP 21 echo in significant measure Samir Saran's policy prescriptions. His passionate advocacy for an "Indian exception" has found an echo in Indian policy-making. The world demands of India that it adopt 'green industrialization' before 'traditional industrialization', at a time when the country is home to more poor people than all of sub-Saharan Africa. Samir's proposition that it is mutually beneficial for India and the U.S. to jointly shape an 'Indian Exception' – one that responsibly meets both the climate challenge and the development challenge -- is now part of the high level discussions between the two countries. The Samir Saran model for India's place in any international agreement on climate change is now the basis for New Delhi's negotiating position in Paris.

This compilation of Samir Saran's essays dispels many a myth and sheds light on certain realities which have thus far been ignored in the global narrative around climate change. For instance, these essays point to the fact that despite having 800 million poor people, India is a global leader when it comes to green growth and clean energy – the country is already the world's largest biomass, third-largest solar and fourth-largest wind energy producer. In fact, despite the lack of economic surpluses, the average Indian spends about one and a half times what the average Chinese spends, between 2.2 and 4.3 times what the average Japanese spends, and around 2 times what the average American spends, on renewable energy. Similarly, Samir has looked to counter claims of India being the 'errant child' when it comes to coal consumption – the average Indian accounts for around 20 per cent of the average American's coal consumption, 20 per cent of the average Chinese's coal consumption, and around 34 per cent of the average OECD citizen's coal consumption.

The purpose of highlighting these figures is not to reiterate the already well-worn argument for acknowledging and building on "Common but Differentiated Responsibility" (CBDR), but rather to further expand this narrative. By calling for CBDR not just between countries but also within countries -- not allowing India's rich to hide behind the country's

poor and ensuring the rich adhere to any yardstick set for their international counterparts -- Samir has added a whole new dimension to the climate change discourse.

In Samir's own words, he is neither a 'Cold War warrior' on climate issues (someone who believes that irrespective of prevailing political, economic and environmental reality, an alternate universe can be created through the UNFCCC which will be sensitive to India's needs and help in the country's industrialization process through incremental changes to its business-as-usual approach), nor is he a 'climate evangelist' – someone who cannot distinguish between 2015 and 2050 by believing that commercially viable green energy solutions are easily available and the answer to all our predicaments. Samir is a 'climate realist' who believes the global narrative on climate change, though historically unfair, is a reality that India must work with and work around. His argument for changing India's climate change narrative, by declaring and pursuing ambitious green targets globally, while continuing to use fossil fuels to respond to its domestic challenges of providing affordable energy to all, is bold, compelling, and an idea whose time has come.

I welcome this volume as a striking contribution to a debate of transcendent importance that has been weighed down of late in cliché and cant. Samir Saran's book is refreshing, original, forthright and lucid. It will reward the diligent reader who approaches these vexed issues with an open mind. I commend it to serious scholars, beginners, experts and policy-makers alike.

***Dr Shashi Tharoor**, Member of Parliament and Chairman, Parliamentary Standing Committee on External Affairs*

9 October 2015

1. Author's Note: A New Room to Manoeuvre

Samir Saran

Any collection of essays written over many months will necessarily have some repetitions and will contain ideas that have developed and evolved over this period. They will also undoubtedly carry some new formulations that are in response to the dynamic global engagement on the issue of climate change. This collection is no different, and despite my efforts to meticulously plan this series, I must confess my views today are far more developed than they might have been 18 months ago when this effort was first conceptualised.*

So let me at the very outset discuss the macro propositions that are fleshed out in this publication. Firstly, I believe that Indian choices on responding to climate change are now fairly apparent and uncomplicated, ambitious and steeped in India's specific reality. The first foundational principle of any Indian contribution to the global effort on combatting climate change has to be to ensure that India's rich, both individuals, corporations and institutions, must not hide behind the country's poverty. They must bear the same level of responsibility and adhere to the same set of rules as the global elites anywhere else in the world. This can be accomplished in fairly simple ways, such as taxing conspicuous consumption rather that making production costlier and thereby socialising the cost of climate mitigation. India must ensure that as it industrialises and urbanises, houses and buildings priced above a certain level deploy green technologies and green options, large corporations adhere to efficiency standards comparable to the best worldwide, cars and transportation options for the rich factor in the cost of climate impact, and fuel and energy costs are commensurate to those paid by the rich internationally. In short, India must not hide behind its poverty and the world must not hide behind India's rich.

Second, I see no incongruence for an economy like India, which is structurally dependent on coal, to be more ambitious and forthcoming in leading a global green transition – these are mutually exclusive realities and if India can get this transition right, it will have a unique model of industrialisation that can be shared with many other countries which are further down the development pathway. Coal is a still a necessity for multiple lifeline initiatives of the country to lift millions out of poverty, and to provide millions more dignity. Clean energy, on the other hand, could be a transformational opportunity – a moment for India to not only assume moral leadership but to also develop competitive advantage in a new paradigm for growth in a fast-changing world.

Finally, India, due to its diverse agro-climatic regions, is already experiencing the negative impacts of changing climate and extreme weather conditions. It will need to create innovative social policies and business models that are able to increase the resilience of local communities and help fund and strengthen adaptive capacities of the nation to climate change. Any development policies it implements today must always be ones that increase the ability of the poor and weak to respond to climate change. It may find that foreign funds and global assistance is elusive and it may have to walk alone.

These for me, must be the central assumptions for developing an articulate Indian proposition. Having outlined these, let me now put forth three structural infirmities in the global system that must be resolved if collective action on climate is to be successful.

The first stems from the tyranny of incumbency. Carbon space capture by incumbents has created the perception that limited room is available for the development needs of those who need this space to breathe and grow. These incumbents have no geographies or nationalities as they exist in every country and society, and they are also the ones that shape global narratives on climate change. Therefore, before carbon space or resource space can be retrieved, the discursive space needs to be reclaimed for a sensible conversation on climate change. We need to move beyond the binaries of North-South and East-West, and need to admit that each of these is omnipresent irrespective of where we live. Common but Differentiated Responsibility should not be seen as a contested narrative between North and South or East and West, but must be a framework where incumbents within and across nations are encouraged and compelled to cede space so that there is new room to manoeuvre.

Second, if green energy is seen as a collective global response to mitigate carbon emissions, it is self-defeating to sustain a global system where the cost of green energy installations in countries that have the potential to ramp up such installations the fastest and widest, such as India, is 24% to 32% more costly. In essence, we are perpetuating a system that reduces mitigating capacities by a fourth. To correct this, we will have to seriously re-organise the alignment of banking norms, global financial institutions, and climate and development imperatives at a granular level. The bankers, investors and innovators must be made co-stakeholders and must bear similar responsibilities to those borne by nations and communities. At present, the financial system is agnostic, if not explicitly climate unfriendly. Paris offers us an opportunity to commit to rectifying global finance regimes even as we agree on an ambitious climate action.

This brings me finally to the vexed issue of technology. If access to technology has a price tag (by way of royalty payments) higher than the forthcoming climate aid or finance, then we must realise we are in a system where the poor are underwriting the cost of mitigating climate change and we have succeeded in creating a system where the polluter profits and

victim pays. This not only undermines the moral pivot of responsibility but turns the idea of differentiated responsibility on its head.

The process of global policy formulation, however, has limited room to take into account such rationales. Global policies are usually an accumulation of how each country views its reality and self-interest. Therefore, the outcome is generally the least common denominator, shaped by individual national realities. But 'reality' itself is relative and mostly based on perceptions. These are in turn shaped by a number of factors, including, but not limited to, geography, economics, politics, culture and individual and collective histories. In an increasingly globalising world, reality is often mediated across these frontiers through technology and tools of globalisations. The space-time equation that had earlier shaped notions of local communities and neighbourhoods, and allowed people to build realities and experiences influenced by proximity, has been dramatically altered. The 'despatialisation' of time means that today, we are able to share mediated pasts and 'our' place in this world with others thousands of miles away. Many a times we feel greater kinship on an issue with someone in a different continent than with our immediate neighbour. This adds an additional layer of complexity to any debate, and climate is a fertile arena for this to play out.

According to a study conducted by the Vanderbilt Department of Psychology "... imagery leads to a short-term memory trace that can bias future perception." In the climate change context, two images shaped the perception of climate evangelists – one of a polar bear, stranded on an ice floe, and the other of Chinese factories, with their tall chimneys, blowing out plumes of smoke. Thus, in the early days of climate debates in the developed part of the world, a linear causality was formed – the polar bear is suffering due to large-scale manufacturing in China. Policy proposals from this group of climate believers seek ways to reduce and stop emissions from the manufacturing bases that by then had moved to Asia and elsewhere. As a result, the resolution to climate change for this set of thinkers is located in China, India and other growing economies.

In recent times, two very different images have also begun to define some imaginations in this space: An image of a woman nursing her malnourished, disease stricken child, in a village in Africa that is now torn by resource contests and conflicts, and the other of a suburban American family of four driving in a fuel-guzzling SUV. For those influenced by this imagery, the impact of global warming on local ecosystems, such as the Sahel region, with the consequent ethnic conflict over water and resources, defines the implication of climate change. And with this visualisation of climate change, the response equation changes dramatically. In this context, the 'American dream' becomes the villain, with its trappings of fuel-guzzling cars, appliances, insatiable consumption and climate-controlled houses and offices. The climate equation centres on consumption and lifestyle, with elements of redistributive economics and social justice liberally added in.

Over the last decade, such climate narratives have been shaping social, political and economic beliefs – resulting in climate ideologies spreading, not too dissimilar to religion. Like most religions, these frameworks have their share of myths and make-believe realities, the hypocrisy of which is not always obvious. For instance, on the one hand, while some argue that the 'original sin' of fossil fuel-led industrialisation was innocent in nature, this demography continues to lead a consumerist lifestyle. As per a report by the US Department of Energy in 2005, only 25% of the emissions in the USA were from the industrial sector, while transportation and commercial sectors contributed more than 50%. Further, 15% of the CO2 emissions came from the residential sector, which indicated that more than 60% of US emissions are directly linked to the consumption patterns of individuals and households in the country, all shaped by their lifestyles and behaviour. The year 2005 is a vital part of this account as it serves to confirm that even after a decade of this report, the rich individuals, large corporations and elites continue to lead lives that are unsustainable.

Another hypocrisy was uncovered in 2009-10, when the largest economies of the world (G-20), with great alacrity, sincerity and commitment, pumped in trillions of dollars in concert to save wanton banks and financial entities during the financial crisis. Around the same time in Copenhagen, the same set of actors agreed to only a meagre sum of $100 billion a year from 2020 as a collective financial response to climate change (note: no one knows how this amount will be raised, which raises questions as to how exactly this 'commitment' will be fulfilled). Of course, there are arguments that will justify this discrepancy and duality of response. Some argue that one was immediate, but is climate not a current challenge? Others say that the banking system was a larger crisis requiring larger commitments; is climate change a smaller crisis? There can be little justification that can change the seminal message that was received by many – to save the global financial system we needed trillions of dollars immediately, while saving the planet is a $100 billion dollar problem after a decade.

Then there are other myths that continue to create binaries difficult to navigate. For instance, the 'polar bear' club's claims of the developing world, particularly India, not doing enough to reduce emissions are also unfounded. As this compilation shows, India punches well above its weight on expenditure on renewable energy, and on maintaining low levels of carbon consumption, clearly highlighting that the country has enough room to manoeuvre vis-à-vis its development imperatives (i.e., carbon consumption) and its emission targets. Such myths allow the largest consumers of coal in the world to don the green cloak. These essays seek to unclutter such belief systems. And then there is the Indian debate on the importance of CBDR at the international level, even as it fails to respond to the fact that a tiny elite at home has captured the largest resource space. One section of its population is crippled by poverty, while the other lives the 'American dream'.

CBDR is important both within and across nations and this collection argues for this as well.

At the end of the day, this compilation of my thoughts on various aspects of climate response, along with some of my bright colleagues in some of the essays, seeks on the whole to be a realist resolution to the competing climate narratives. It brings to one table various conversations on climate change, from finance and technology to equity and aspirations, and recommends a common response to climate change that allows each actor to contribute according to capability. It's not about Common but Differentiated Responsibilities, but simply about Common Sense.

Simply put, just as Europe is forced to accept refugees from the Middle East despite domestic political opposition, the international community will have to make room for the development needs of the global south. At the same time, developing and emerging economies will also have to accept that the world is undergoing a green transition and the era when we could use dirty fuels to acquire wealth and prosperity are behind us. It is indeed in India's interest to be a part of this transition, and even as it seeks to help lead this transition, it must simultaneously shape a new world order sensitive to the new development and growth paradigm. I am confident that Paris can produce just such an outcome purely based on my personal belief on the role of leaders and political leadership. President Obama, President Xi Jinping and Prime Minister Modi are all strong leaders who in the recent past have already demonstrated their personal ambition on doing what is right on this issue. Paris just may be the venue where these individual ambitions are able to help shape a collective response to the most enduring challenge of the century.

**This compilation comprises of eight already-published articles and two original ones written for the purpose of this volume.*

2. Indian Exceptionalism and Realistic Responses to Climate Change

Samir Saran

Lowy Interpreter | September 10, 2015

At a discussion in Washington DC this spring, I was quizzed with a degree of annoyance on the multiple messages coming out of New Delhi with respect to India's position on a global agreement to combat climate change. In the same discussion there was also an exasperated inquisition on why Indian needs and priorities must hold the world to ransom (as if there were a consensus) and why India imagines that it merits a special space, attention or exception in the climate arena.

The response to these two central propositions on India and climate change must of course come from the officialdom at Raisina Hills, home to Delhi's executive offices. However, as we move down the road to COP 21 in Paris, it is crucial that any response, if formulated and then communicated (a bigger 'if'), would need to engage with the most important climate proposition put before India by the world, and its interplay with the country's development/growth imperatives.

Viewed from New Delhi, and after sifting through the chaff, the proposition for India's climate change response posed by a large section of OECD countries, and certainly from the influential capitals in Europe, is fairly straightforward:

India must be the first country in the world (of size and significance) to successfully transition from a low-income, agrarian existence to a middle income, industrialised society without burning even a fraction of the fossil fuels consumed by other developed countries. China was the last country to enjoy this privilege. India will be the first that will have to cede this option and of course this may well be the new template for other developing countries to emulate.

The scale of this transition and the current economic situation in some parts of the world, alongside the complex and privately controlled innovation landscape, means that there is limited ability for the Annex 1 countries (the developed world) to offer any meaningful support in terms of financing or technology transfer. Official Development Assistance (ODA) is a small fraction of what is necessary today, and India will therefore need to mobilise domestic resources to power the non-fossil-fuel-fired Indian story.

Even as India adopts this 'exceptional' approach to industrialisation, and creates the necessary financial and commercial arrangements to achieve it, mostly through its own endeavors, the developed world and others want to retain the right to judge Indian

performance. India will be monitored with an increasingly extensive system of compliance verification, and will be criticised for its missteps on the journey despite the novelty and scale of its undertaking.

My response to the thesis of 'Indian exceptionalism' therefore is that India does not seek to be an exception, but the demands imposed upon it that will require it to be exceptional. This is a truth for others to accept, and the climate reality for which India must discover creative policy. Three distinct narratives among various actors in India have so far shaped its response.

The first set of responses is from a group of people I like to call India's 'cold war warriors'. This group believes that no matter the contemporary political, economic and environmental reality, an alternate universe can be constructed through the mandate of the UNFCCC. These persons are the architects of the global intergovernmental processes and have faith in them. They believe that an agreement in Paris this December at COP 21, that is sensitive to Indian needs, will somehow assist in the transition required by India and will ensure that India only needs to make incremental changes to its 'business as usual' approach to economic growth and development. This group has ignored the changing economic system, which is increasingly disinvesting from fossil fuels politically, and in terms of financial flows and promoting green energy markets. The 'green' economic and market realities that will shape India's future are seen as something that can be circumvented by creatively crafted text and clauses in a legal (read weak legal agreement) agreement in Paris. Despite 20 years of failure to achieve this 'world of equity' with 'differentiated responsibility' they continue to believe that a global agreement is the end in itself.

The second set of strategies to the proposition facing India are advanced by a group I refer to as the climate evangelists. They believe that 2050 is already upon us. Commercially viable clean energy solutions are available, and these hold the answer to both our immediate and future energy woes. The opportunities that exist in the creation of a new green economy must be grabbed with both hands. This group wants subsidies and incentives for clean energy technology, and taxes and regulation of fossil fuels. These green pioneers are sanguine that sufficient 'push' and 'pull' will deliver technology innovation and development on the requisite scale. They reject that fossil fuels are necessary as baseline sources of energy and instead insist that the technological revolution is already here, and that India must get on board or be left behind. Their argument is often a moral one: we have a moral obligation to save the earth for its own sake and for future generations – ignoring the fact that at this level of income disparity, inequality and differential access to the right to life, the planet is in fact being saved for the rich to flourish.

The third set of responses is from the group I call the climate realists. The realists understand that the global climate proposition is inherently unfair, and that India could and probably should push back against such an imposition by the developed world. However, they also recognise that no matter how hard they try to construct a 'fairer' agreement in Paris, the combined forces of the market, society and technology are all pointing towards a 'greener' transition. The political economy of climate change necessitates a transformation, and it is not necessarily in India's interests to fight against it. Instead, the realists understand that there is an opportunity to lead in constructing a green economy. They believe that this moment can be used to reshape the tax, financial and global governance systems. They also see no contradiction in also ensuring continued flow of investments and emphasis on lifeline sources of energy for India's poor.

Analysis shows that India does better then Germany, the United States, China and others on per capita coal dependence, with about a third of the consumption levels of the greenest among these three. It also already commits, as a proportion of its GDP, more towards renewable energy off-take than most (except Germany). It therefore does not need to defend its coal consumption. On the other hand, it must certainly be the champion to encourage 'greener' performance from others. The equity that it seeks lies in this. The rich must continue to invest more in renewables. This must be demanded and enforced.

Prime Minister Modi's recent statements suggest that he may be such a realist as well. He is promoting an aggressive renewable energy thrust, while being uncompromising on the point that lifeline energy will continue to rely on coal for the foreseeable future. When he takes coal off the discursive table, he is not foreclosing the right to use coal; instead he is sharpening the focus on India's impressive credentials around green growth. He invokes religious texts, civilisational ethos and clever political word-play as he seeks a leadership role for India in global climate policy, and sets the agenda with ambitious plans for transitioning to a new energy paradigm. The 'house always wins' is a golden Las Vegas adage with a lesson for global politics too: unless we see strong political leadership of the kind being displayed by Prime Minister Modi and President Obama, the house – in this case national officialdom(s) and global bureaucrats – will prevail again. They will construct a new world order with words, commas and full stops, where nothing, not even the climate, can ever change.

ENERGY OPTIONS

3. Indian Leadership on Climate Change: Punching above its Weight

Samir Saran and Vivan Sharan (Vising Fellow, ORF)

Brookings | May 6, 2015

Indian Prime Minister Narendra Modi and others at the highest political level have outlined in recent statements India's commitment to constructive engagement with the global effort to combat climate change. Taken at face value, these statements indicate that India wants to take a leadership role in addressing climate change. However, in the global discourse on climate change, India often gets singled out for resisting mitigation action and for its reliance on fossil fuels such as coal. In this paper we argue that in addition to the efforts directed toward coping with and adapting to climate impacts (e.g., recent floods in Kashmir and monsoon failure in 2014), India is also "punching above its weight" on mitigation.

India ratified the United Nations Framework Convention on Climate Change (UNFCCC) in November, 1993 and is a Non Annex 1 Party to the Convention. As a Non Annex 1 Party, India is not bound to mandatory commitments under the Convention. This is a central to the notion of "Common but Differentiated Responsibilities and Respective Capabilities" as enshrined in Article 3 of the Convention.

Overall development of any nation is directly linked to its energy use and access: energy poverty is a good indicator of low levels of overall development. The United Nations Development Program's Human Development Reports have established that energy access and development are interlinked. Energy poverty is defined as a lack of adequate access to "modern energy services." Modern energy services include the access of households to electricity and clean cooking facilities—fuels and stoves that do not cause indoor air pollution. The poor in India are spending more than the rich in the developed countries on energy generally and clean energy specifically. Around 306.2 million people in India lack access to electricity (Table 1), perhaps the largest energy access challenge anywhere in the world. At around 705 million, India also has the highest number of people without access to non-solid fuels. Common solid fuels include dung cakes and firewood.

Table 1: Access to Energy (Electricity and Non Solid Fuels)

	ACCESS TO ELECTRICITY (% OF POPULATION)					ACCESS TO NON-SOLID FUEL (% OF POPULATION)				
COUNTRY	*Total*			*Rural*	*Urban*	*Total*			*Rural*	*Urban*
	1990	2000	2010	2010	2010	1990	2000	2010	2010	2010
BRAZIL	92	97	99	94	100	81	89	94	64	> 95
CHINA	94	98	100	98	100	36	47	54	19	70
GERMANY	100	100	100	100	100	> 95	> 95	> 95	> 95	> 95
INDIA	51	62	75	67	93	13	29	42	14	77
JAPAN	100	100	100	100	100	> 95	> 95	> 95	> 95	> 95
U.S.A.	100	100	100	100	100	> 95	> 95	> 95	> 95	> 95

Source: Global Tracking Framework, IEA

Carbon dioxide (CO2) emissions from energy use account for the majority of greenhouse gas emissions. According to the International Energy Agency (IEA), "meeting the emission goals pledged by countries under the United Nations Framework Convention on Climate Change (UNFCCC) would still leave the world 13.7 billion tons of CO2—or 60%—above the level needed to remain on track for just 2°C warming by 2035." There are at least two ways to tackle this problem. The first is to scale up clean energy efforts, whether in the form of fuel switching from coal to gas or installation of renewable energy capacities. The second option is perhaps harder: lowering energy consumption dramatically by altering lifestyles in developed countries.

For India, the viable solution to address the global climate change challenge is clear. Given its low base, India's demand for energy will increase manifold in the decades ahead (energy consumption will increase by 128 percent by 2035 according to BP). India will have

to scale up efforts on the clean energy front: an enabling global agreement and domestic investment environment are critical for this.

Renewable Energy Framework

Development of renewable energy has been one of the pillars of the Indian Government's strategy to improve energy access to tackle energy poverty. India's Integrated Energy Policy, formulated in 2006, lays down a roadmap for harnessing renewable energy sources. The extant policy framework for promoting renewable energy follows from this, with a target of adding 30 gigawatts (GW) by 2017 as per the 12th Five Year Plan. The sector specific developments are:

Solar Energy: The National Solar Mission, being implemented by the Ministry of New and Renewable Energy, increases utilization of solar energy for power generation and direct thermal energy applications. The long-term goal is to generate 20 gigawatts (GW) of grid connected solar power by 2022. The government has recently announced its intentions to increase the target for installed solar capacity to 100 GW.

Wind Energy: Wind energy is the largest source of renewable energy in the country. According to the meso-scale Wind Atlas (yet to be validated through field measurements), India has a potential of generating around 102 GW of wind power at 80 meters above sea level. Around 22 GW of wind power capacity had been installed by November 2014. Fiscal incentives in the form of a Generation Based Incentives (GBIs) on a per unit generated basis and Accelerated Depreciation (AD) that allow greater tax deductions early on in the project cycle have been reinstated recently. In the latest Union Budget, the Government has specified a 2022 target of 60,000 MW on wind energy capacity.

Biomass: The government has been supporting grid-interactive biomass power and bagasse co- generation in sugar mills in India, with a target of 400 megawatts (MW) between 2012 and 2017. Central financial assistance is provided for this. A 2022 target of 10,000 MW of installed biomass capacity has been announced recently.

Waste to Energy: The Indian government, through the "Swachh Bharat Mission," under the Ministry of Urban Development, has provided support for up to 20 percent of project costs linked 'Viability Gap Funding' for waste processing technologies. (Viability Gap Funding is a grant to support infrastructure projects become financially viable.)

Small Hydropower: Hydropower units of less than 25 MW are classified as "Small Hydropower" projects by the government. As of December 2014, a total capacity of around 3,946 MW was available from such projects in India. Section 7 of the Electricity Act of 2003 stipulates that "any generating company may establish, operate and maintain a generating station without obtaining a license/permission if it complies with the technical standards

relating to connectivity with the grid." The government is targeting an installed capacity of 5000 MW by 2022.

At the end of the fiscal year in March 2014, the total cumulative installed capacity for renewable energy in India was around 13 percent of the total electricity share at 31,707 MW. The average per capita electricity consumption in India for the year 2013-14 was 957 kWh: around seven per cent of the per capita consumption of the United States between 2010 and 2014 (13,246 KWh). This is a stark reflection of India's energy poverty challenge. Despite a very low base of per capita electricity consumption, the scope and ambition of India's renewable energy initiatives is remarkable.

Assuming a solar energy capacity addition of 100 GW by 2022 as per the government's plan, India's per capita renewable energy installed capacity, not accounting for any capacity growth in wind, biomass, and waste to energy, will be around 92.6 watts per person, well over today's global average of around 80 watts per person. (Population in 2022 is 1.42 billion, assuming a 17.64 percent growth rate as seen in the decade 2001-2011, as per Census of India.) This is a conservative estimate since currently wind power accounts for the largest share of renewable energy, at around 67 percent of total installed capacity, whereas solar accounts for only around 8 percent.

We should also note here that the large hydro (25 MW and above) potential and installed capacity is also significant and is not counted in the renewable energy estimates above. Large hydro potential in the country is around 145,320 MW of which 36,080 MW has been commissioned as of December 2014. This is more than the entire renewable energy installed capacity in the country. Power from large hydro can also provide base load power to mitigate intermittency challenges of renewable energy.

Per Capita Spend on Renewable Energy

At the Conference of Parties (COP) to the UNFCCC in Paris (COP-21) in 2015, global leaders will decide if an international renewable energy and energy efficiency bond facility will be established. Securing financing for mitigation and adaptation efforts is key to any meaningful attempts to address climate change. Promoting renewable energy offers a clear pathway for reducing greenhouse gas emission from the energy sector.

The key constraint to the development of renewable energy has been the historically higher costs associated with it. There are wide divergences in the Levelised Cost of Electricity (LCOE), as defined by the International Renewable Energy Agency (IRENA), depending on location. The cost of generation in non-OECD countries for both wind and solar power tends to be lower than for OECD countries owing to various structural factors such as cheap labor rates that lower project costs. For illustration purposes, the range of LCOE as assessed by IRENA in 2012 has been used. In the case of Solar Photovoltaic

systems without batteries the estimated LCOE is between 0.25 to 0.65 KWh. For onshore wind energy (projects larger than 5 MW), the costs are between 0.08 and 0.12 KWh.

Assuming a weightage of 94 percent wind power and 6 percent solar power generation in India, the costs per KWh of electricity generated through renewable energy is between 0.09 and 0.135 (Table 2). Costs in USA, Germany, China, and Japan have also been estimated and summarized in the Table 2.

Table 2: Cost of Renewable Energy (USD) per KWh, 2012

	INDIA	*USA*	*GERMANY*	*CHINA*	*JAPAN*
Lower End	*0.09*	*0.09*	*0.11*	*0.09*	*0.08*
Upper End	*0.1356*	*0.1356*	*0.185*	*0.1356*	*0.224*
Weightage in Renewables Mix	*94% (W), 6%(S)*	*94% (W). 6% (S)*	*75% (W), 25% (S)*	*94% (W), 6% (S)*	*60% W, 40% (S)*

*Rough estimations (assuming that renewable energy is largely a combination of wind and solar, particularly given the relatively negligible growth in other sources over 2012-2040) following from electricity generation shares specified in the World Energy Outlook 2014, for countries (EU figures used as a proxy for Germany) in 2012

100 GW of installed solar energy capacity by 2022, run at a plant load factor of 13 percent, will produce around 113,880 GWh or 113,880,000,000 KWh of electricity annually. Under this scenario India would be spending between USD 28.4 billion and USD 74billion on its LCOE for solar power based generation (using solar photovoltaics). The Indian government estimates that the additional overall investments required to facilitate this would be to the tune of USD 100 billion. To further put this into perspective, 100 billion USD is around a third of the total budgeted expenditure of India's Union Government in 2015-16 (INR 17.77 lakh crores). Based on the lower end estimates in Table 2, the LCOE will be over a tenth of the total amount of 100 billion USD that the Green Climate Fund is to make available by 2020.

Given the fiscal challenges, India punches well above its weight in terms of its expenditure on renewable energy (Solar Photovoltaic and Wind Energy). Using verifiable approximations for 2012, the average Indian spent about one and a half times what the average Chinese spent, between 2.2 and 4.3 times what the average Japanese spent, and

around 2 times what the average American spent. Indians spent between two thirds and half of what average Germans spent.

Table 3: Per Capita Income Spent on Renewable Energy (in % of Daily Income) in 2012*

	INDIA	*USA*	*GERMANY*	*CHINA*	*JAPAN*
Per Capita Renewable Energy Consumed (KWh per day)	*0.1080*	*1.95*	*4.146*	*0.3007*	*0.776*
Lower End (% of daily income spent)	*0.26*	*0.12*	*0.40*	*0.17*	*0.06*
Upper End (% of daily income spent)	*0.44*	*0.21*	*0.82*	*0.29*	*0.20*

*Calculated on the basis of per capita incomes and country populations in 2012 as specified by the World Bank; renewable energy consumption as available in the BP Statistical Review of World Energy 2014 for the category 'other renewables' (2012) which is based on gross generation from renewable sources including, wind, geothermal, solar, biomass and waste, and not accounting for cross-border electricity supply and converted on the basis of thermal equivalence assuming 38 per cent conversion efficiency in a modern thermal power station; and the estimates in Table 2.

Over the next 7 years until 2022, India has a target of renewable energy capacity of 175 GW and most of this capacity addition is to come from solar and wind energy. As India ramps up its solar capacity to 100 GW and wind to 60 GW, which is close to the total wind and solar installed capacity in the EU in 2012, the average Indian per capita spending on renewable energy as a percentage of daily income should positively compare with average EU levels.

Energy in the Paris Agreement

The future of global energy and the climate change challenge is contingent on a number of political and economic factors. This last year has been proof that even well-formed trends, such as in the case of the global price of oil, can change drastically. Current estimates (BP Energy Outlook) suggest that coal, oil, and gas will contribute around 81 percent of primary energy consumption until 2035. However, these estimates are based on benchmark prices of commodities and current technologies.

Changes in both prices and technologies associated with oil, coal, and gas are essentially unpredictable. However, the cost of renewable energy will certainly continue to decrease

consistently in the coming years. The cost competitiveness of renewable energy in the form of onshore wind is already at par with fossil fuel based systems for generating electricity, and the LCOE for solar has halved between 2010 and 2014. The costs of utility scale solar energy are likely to become competitive with fossil fuels in the future. Indeed this competitiveness narrative of renewable energy remains highly nuanced, and depends on a variety of factors such as existing grid infrastructure and labor costs. For instance, since the penetration of renewable energy in India is high, a substantial grid infrastructure cost will be involved in scaling up electricity generation through renewable energy.

As part of the domestic financing framework, recent measures have helped transition Indian policies from a carbon subsidization regime to a carbon taxation regime. From October 2014, a de facto carbon tax equivalent of USD 60 per ton of carbon dioxide equivalent in the case of unbranded petrol and around USD 42 per ton in the case of unbranded diesel has been introduced. In addition the clean energy cess (an indirect tax) on coal has been doubled and is now equivalent to a carbon tax of around USD 1 per ton.

However the fiscal space to maneuver is limited given that the proportionate per capita spend on renewable energy in India is already much higher than developed and developing countries and does divert resources from necessary social and infrastructure spending.

The main barrier for increasing renewable energy penetration will be a lack of financial and technological flows; India's achievements in renewable energy have occurred in spite of such flows. For instance, Clean Development Mechanism-linked flows, which could potentially subsidize renewable energy development dried up a few years ago owing to the oversupply of Carbon Emission Reduction certificates which are now trading at near zero levels. Similarly, transfer of cutting edge clean energy technologies has been limited by international trade law and protectionist policies of innovating countries. Capital flows can be unlocked by a new global agreement and robust bilateral cooperation on clean energy could potentially prove to be the most effective medium for government—government technology transfer.

In an important 1991 report on global warming, Anil Agarwal and Sunita Narain made a compelling case that "those who talk about global warming should concentrate on what ought to be done at home." It seems that the conversation at the UNFCCC has inevitably evolved to reflect this discouraging reality. The centrality of the Intended Nationally Determined Contributions in the draft negotiating text of the Lima Call for Climate Action is indicative of the renewed focus on domestic action.

Gauging by the renewable energy thrust alone, India's response at home has been more than commensurate with its economic weight. It must, at the very least, demand similar levels of per capita renewable energy spending by way of commitments from OECD

countries. India is already among the countries leading the clean energy transition and must demand that much of the developed world catch up when the Conference of Parties meets at Paris.

4. The False Debate on India's Energy Consumption

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European Council on Foreign Relations | November 2015

Despite having among the largest coal reserves in the world, India lags far behind in consumption, at less than a fifth of China's levels. The average Indian's coal consumption is around 20 percent that of the average US citizen, and 34 percent that of the average OECD citizen. And yet, in international negotiations, India finds itself caught in a shrill and binary debate pitching growth against climate. This is a false debate, which stems from the inability of the current mercantilist system to grant all actors a fair share of the "carbon space" – the amount of carbon dioxide equivalent emissions that can be released into the Earth's atmosphere without triggering dangerous climate change.

India's position in climate negotiations is based on the importance of access to energy for human development. This is supported by data, including the positive correlation between energy access and the Human Development Index (HDI). Estimates vary on how much energy is needed to meet basic human needs (hereafter referred to as "lifeline energy"). The methodologies vary depending on whether these basic needs are considered through the prism of GDP growth targets, HDI levels, or calculations of the energy needed to meet a predetermined set of development goals.

This essay will argue that, if the climate debates have allowed even a nominally equitable level of coal consumption towards meeting lifeline energy needs, India currently has immense room to manoeuvre. The analysis relies on a benchmark metric: that 2,000 Watt (W) per capita is a basic level of lifeline energy, covering housing, transport, food, consumption (of manufactured goods) and infrastructure. This is based on a study by Novatlantis, which demonstrates that this level of consumption could power daily life in Western Europe. Therefore lifeline energy is defined liberally in this study, as being high enough to cover minimum lifestyle needs of citizens in developed countries.

Consumption after the financial crisis

While developed countries such as OECD and EU member states have reduced per capita coal consumption since the financial crisis, developing countries such as India have increased consumption over the same period. This reduction by developed countries does not necessarily reflect a greater degree of climate "responsibility", and, conversely, the increase in consumption by India does not reflect "irresponsibility", as this analysis will show. Table 1 shows the total per capita consumption of key regions and countries that are shaping the climate change discourse.

Table 1: Total per capita coal consumption (W)

Countries/regions	2005	2009	2014
US	2,580.8	2,147.5	1,887.6
Germany	1,308.9	1,162.7	1,269.7
China	1,342.4	1,674.4	1,909.6
Japan	1,260.2	1127.9	1,321.5
India	217.2	279.3	377.3
World	640.9	675.7	717.3
of which: OECD	1,316.0	1,143.0	1,100.6
Non-OECD	487.4	571.9	635.1
European Union	846.8	705.6	704.8

Source: BP Statistical Review of World Energy, 2015; World Bank; author's calculations

Taking a closer look at coal consumption before and after the financial crisis, it is apparent that the trends are nuanced. Two key sub-trends are visible in Table 2, which tracks coal consumption against total primary energy consumption. The first is that, while developed countries have been cutting total energy consumption, developing countries have been increasing it, albeit at a gradually declining pace since the crisis. Second, while developed countries have cut coal consumption faster than total primary energy consumption, developing countries have increased coal consumption faster than total primary energy consumption. Clearly, then, coal consumption is very much part of the lifeline consumption matrix for developing countries since they require base load generation for industry driven economic growth (which in turn is a prerequisite in countries such as India for improving HDI and generating employment).

Table 2: Change in coal consumption vs. total primary energy consumption

Regions	Category	2006	2009	2010	2011	2012	2013	2014
OECD	Total	0%	-5%	3%	-2%	-1%	0%	-2%
	Coal	0%	-11%	6%	-2%	-5%	0%	-2%
Non-OECD	Total	4%	0%	4%	4%	2%	1%	1%
	Coal	6%	2%	2%	6%	1%	1%	0%
European Union	Total	0%	-6%	4%	-4%	0%	-1%	-4%
	Coal	3%	-12%	5%	2%	3%	-3%	-7%

Source: BP Statistical Review of World Energy, 2015; World Bank; author's calculations

Finally, Table 3 shows that the average citizen of the US and of China both consume nearly the entire 2,000W lifeline energy benchmark in the form of coal. Conversely, in India's case, only about 19 percent of the 2,000W benchmark is consumed in the form of coal. In fact, citizens of OECD countries get a much larger proportion of their energy needs from coal than citizens of non-OECD countries. This is also a function of the disparity in per capita energy consumption as a whole between developed and developing countries – while coal consumption as a percentage of lifeline energy in developed countries is decreasing, the gap between the per capita coal consumption of developing and developed countries remains vast.

Table 3: Percentage of lifeline energy delivered by coal, with a per capita need of 2,000W

	2005	2009	2014
US	129%	107%	94%
Germany	65%	58%	63%
China	67%	84%	95%
India	11%	14%	19%
Japan	63%	56%	66%
Total World	32%	34%	36%
of which: OECD	66%	57%	55%
Non-OECD	24%	29%	32%
European Union	42%	35%	35%

Source: BP Statistical Review of World Energy, 2015; World Bank; author's calculations

The World Bank's Special Envoy on Climate Change recently stated that "clean energy is the solution to poverty, not coal". This is a view that resonates within a number of development financing institutions based in OECD countries. For instance, the US Exim Bank stopped funding greenfield coal power generation projects worldwide in 2013. The World Bank also seems to be moving in this direction, even though coal consumption has been increasing in developing countries and coal-based energy remains the most practical option at a large scale. This narrative isolates economic growth from lifeline energy and skirts over the role of growth in development.

The preceding analysis attempts to address some myths related to coal consumption. First, in per capita terms, developed countries in fact consume much more coal than developing countries: The average OECD citizen consumes about double the coal of the average non-OECD citizen. China is a notable exception. And if Chinese per capita coal consumption is a benchmark, the debate on India's consumption is clearly redundant.

The per capita trends show that India will supply a larger proportion of its 2,000W benchmark through clean(er) fuels than developed countries. There is enough room for India to increase its coal consumption while continuing to accelerate its renewable energy thrust. India has set a target renewable energy capacity of 175 gigawatts by 2022. This means that it will be among a handful of countries to source a large proportion of its lifeline energy needs from non-conventional sources. The average Indian already spends much more on renewable energy (as a proportion of income) than counterparts in China

and the US. To spend even more, purchasing power will need to grow, and so, in turn, will lifeline consumption.

This has clear implications for India, and for other similarly-placed developing countries. Unlike developed countries, which have already seen peaks in their energy consumption, India must respond to two imperatives. First, to increase its lifeline energy as well as clean energy. This means that the country will have to ensure financial flows towards lifeline energy, make coal consumption more efficient, and engage with the international financial system to ensure that regulations do not make clean energy investments more costly than they already are. Second, and at the same time, lifestyle emissions need to start adhering to or approximating the Swiss model, which shows that "daily life in Western Europe could be powered by less than one-third of the energy consumed today". The estimated 20 million people at the top of India's socio-economic pyramid, and large companies that consume as much energy as counterparts in developed countries, must be included within the paradigm of "climate responsibility".

PRAGMATIC SOLUTIONS

5. India's Climate Change Strategy: Expanding Differentiated Responsibility

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Council of Councils Sixth Regional Conference Papers | October 7, 2014

Introduction

As the world prepares for the upcoming climate change negotiations in Lima in 2014 and Paris in 2015, there is an expectation that the talks be more decisive than previous attempts at consensus from Kyoto to Copenhagen. Yet the assumption that the undeniable science of climate change will by itself compel action on an issue that has thus far proved the mother of all collective action problems ignores the failures of past conferences. For Lima and Paris to succeed in achieving consensus, the issue of equitable response to the climate crisis must be creatively reimagined. Equity has been a challenge for climate consensus since the 1992 Rio Earth Summit first articulated that, "In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities."

In meeting this challenge of articulating responsibilities for a climate that all share but only some have impacted substantially, India's challenge is increasingly the world's challenge. How can India acknowledge and respond to existing trends—the increasing urgency of confronting climate change, the energy-intensive process of achieving a semblance of development, and widening wealth gaps between rich and poor—while maintaining its focus on bringing its hundreds of millions of citizens out of poverty? In a larger sense, how can the world prevent climate degradation amid existing inequality and the aspiration of billions to rise out of poverty?

Maintaining equity between India and earlier developers

For India, the actualisation of differentiated responsibility remains central to any climate agreement. Developed countries and China have already undergone energy-intensive industrial development (and largely coal-fired electrification) to bring their people out of poverty, consuming much of the world's carbon budget in the process. From Britain's use of the steam engine in the early nineteenth century to China's exponentially increasing coal capacity over the last decade, carbon-polluting energy has been essential to providing jobs for the millions who seek them in each successive industrial revolution. India's coming industrial revolution and necessary shift to manufacturing, with twelve million

new workers entering the workforce each year, cannot be avoided lest those millions lose the possibility of a better life. India's economic transition, coming at a time when the world is finally moving toward a collective response to climate change, represents a great challenge to maintaining economic equity between India and previously industrializing powers. After all, the cost of access to prosperity must not be the highest for latecomers to industrialization. In other words, poverty cannot be frozen by a dateline.

India has acted to engage these contrasting priorities, by committing to a 20-25 percent reduction in carbon intensity by 2020—a natural consequence of increasing efficiency in the energy sector, but also a step to ensure the government's promise that India's per capita emissions will not go above those of wealthy countries. But equity suggests that India resist any effort to tie its energy intensity reduction to China's, as the two countries have vastly different existing energy consumption and generation footprints. India starts from a lower polluting baseline compared to China and even to developed economies that have shed manufacturing—India's use of energy per purchasing power parity dollar of economic output is 0.33 kg CO2, compared to China at 0.60 and developed countries like the United States at 0.48. The tendency to see China and India in hyphenated terms as large economies with growing emissions ignores the fundamental differences in their current contribution to climate change and to their vastly different economic and development landscapes.

Toward an Indian strategy

The need for global action against climate change has prompted diplomats in the developed world to speak of "win- win" situations—that transitioning to renewable energy will allow economies to reap the benefits of green jobs growth while reducing emissions. At least in India, this rhetoric rings false. Barring as-yet-insufficient technology, stuttering monetary transfer, or commercial funding from the developed world, coal will remain significantly cheaper than all other sources of energy through 2030 and perhaps beyond. Renewables suffer from high variability in supply and base load restrictions on Indian power grids. Renewable energy development, which would be appealing from a simplistic "first, do no harm" perspective, collapses upon closer scrutiny: how should India assess the harm of more of its citizens remaining in poverty for every increase in marginal energy cost? The ethical aspect has a political dimension as well: India's parliament will not countenance ratifying the Paris proposal unless it allows maximal focus on poverty alleviation. And even if it does, democracies have other ways to negate bad agreements, federalism being chief among them. While this is a matter for another study in itself, it must be noted that in the Indian context, the country must be viewed as a collection of thirty nations in a union. The Paris proposal must work for Indian states, or it will fail the ultimate test of implementation.

To negotiate action on climate change despite these challenges, India should promote a more fine-tuned form of differentiated responsibility — not just between countries, but *within* them as well. International debate thus far has been dominated by equity between countries, yet recent globalisation has caused increasing intra-national inequality as global inequality decreases.[7] Even proposals for differentiated responsibility within federal systems, whether EU members, Chinese provinces, or American or Indian states, suffer from inadequate consideration of the far greater inequality within each of these smaller entities. India should solve this problem by introducing international emissions standards for large corporations. For instance, all corporations valued above $1 billion (or another suitable cut-off) should be subject to internationally binding efficiency standards, regardless of national origin. By decoupling protection of the poor from protection of wealthy corporations that reside within the same borders, India will focus its negotiating power on protecting its most vulnerable citizens, while also addressing large multinational corporations often unconstrained by state power. Allegations that India's wealthy corporations hide behind its government's focus on poverty would be allayed, and the world would be able to address climate change with differentiation and therefore equity—targeting those able to pay rather than the global poor. This would also compel the "rich" countries to act against the "carbon gaming" of their transnational corporations.

Market-oriented change

Such a negotiation strategy would enshrine an expanded differentiated responsibility, helping to solve equity concerns. Corporate emissions standards would nonetheless face several practical obstacles—balancing mandatory and transparent compliance with national sovereignty; preventing economic distortions that might inefficiently incentivize corporations to remain below $1 billion valuation or break into subsidiaries; and solving the larger challenge of corporate tax havens that would be ripe for exploitation under any international standards. As these are important issues for global governance to solve regardless, an equitable response to climate change can provide the impetus.

India can supplement this new proposal with more traditional methods of reducing emissions. India is leading the way in developing countries' efforts on energy efficiency, a key opportunity for the eventual low-carbon transition—and one that remains truly "win-win" because energy saved from low-cost sources further reduces cost. In the latter part of the last decade alone, India's Bureau of Energy Efficiency (BEE) doubled its energy savings in avoided generation capacity each year. New economic instruments like demand-side management hold the potential to reduce energy use by up to 25 percent, and the Bombay Stock Exchange's GREENEX Index on energy-efficient stocks shows that the private sector is already taking action through market mechanisms to improve its energy efficiency.[10] Lima and Paris can capitalize on such early beginnings to turn India's ideas and experimentation into global systemic change.

Summing up

India's challenge at the upcoming global climate talks is twofold. First, it is now time to look beyond the India-China hyphenation; it is unhelpful to India's cause and situation. It is time to walk alone and seek specific exemptions or exceptions for India's scale and diversity of realities.

Second, India needs to take leadership and identify constructive ways to move forward on climate change mitigation while not sacrificing the imperative of poverty alleviation. By the same token, the world's challenge is to develop a holistic global framework that can manage the climate change threat in a world of differentiated responsibility.

By introducing intra-national differentiation between wealthy corporations and impoverished populations, Indian negotiators can help move the upcoming talks beyond past failures. These big corporations also account for a large carbon treasury and can be a low hanging fruit for both emissions reduction imperatives and to fashion a new sustainable business paradigm. Through leadership on this and other issues like energy efficiency, India can ensure its commitment both to the development of its citizens and the maintenance of the ecosystem.

6. The Tricky Path to a Global Agreement

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Council on Foreign Relations | November 24, 2014

The Conference of Parties (COP 20) of the United Nations Framework Convention on Climate Change (UNFCCC) will convene a critical session in Lima December 1–12. It precedes COP 21, to be held in Paris in December 2015, at which a post-Kyoto global agreement (post 2020) on climate change must be finalized, in accordance with the Durban Platform for Enhanced Action. The outline of the Paris agreement is expected to begin to take shape in Lima. This agreement will determine the ambition and contours of the global response to climate change in the years ahead.

Expectations and Challenges in Lima

The Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP) is mandated with reaching a global agreement by COP 21. Such an agreement would include a vast range of issues including mitigation, adaptation, finance, technology development and transfer, transparency of action, and support for capacity building.

Since the ADP is under the convention, the contours of a new agreement will need to be in consonance with the principles of the UNFCCC, including Common but Differentiated Responsibilities and Respective Capabilities (CBDR/RC). While the principles are meant to guide efforts toward the ultimate objective of the Convention —to stabilize greenhouse gas concentrations—they have not necessarily been fully observed by Annex 1 countries, the countries that had committed to take the lead in these efforts, per Article 4 of the Convention.

Alongside eliciting a renewed commitment from all parties to the mandate from Durban, the Lima meeting should also establish robust processes to consider scientific assessments and reviews (on climate change effects and responses) that are being developed or have recently been submitted to the convention, including the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC). The Lima meeting is also expected to lead to decisions on the contours, time lines, and anchoring in ADP, of the so-called Intended Nationally Determined Contributions (INDCs).

Factors Conditioning a Global Agreement

There are at least four developments that may influence any global agreement on reducing greenhouse gas emissions. These include the domestic political challenges in the United

States, the evolving global energy scenario, the European impulse to reindustrialize and regain competitiveness, and the dynamic and evolving role of emerging powers.

Today there are 192 parties to the Kyoto Protocol, yet the world's second largest emitter, the United States, has failed to ratify the protocol. It has, however, in a submission to the UNFCCC stated that it "supports a Paris agreement that reflects the seriousness and magnitude of what science demands." Earlier in the year, the U.S. Environmental Protection Agency unveiled ambitious regulations on emissions mitigation for new and existing power plants as part of President Barack Obama's Climate Action Plan.

While a global agreement without U.S. participation cannot be considered a success, Republican leaders including Senator Mitch McConnell—who is likely to become Senate Majority Leader in the new Congress in January 2015—have publicly criticized the Obama administration's climate change policies. The U.S. submission on the elements of a 2015 agreement outlines clearly that the country expects certain elements of the Paris agreement to be internationally legally binding. Yet the possibility of the U.S. Congress agreeing to commitments that fulfil the ambitious policy response envisioned in the AR5 remains bleak.

The United States is the world's largest oil consumer, and oil prices are at multi-year lows. For the first time since January 1994, the United States imported less than three million barrels of crude oil per day from the members of the Organization for Petroleum Exporting Countries (OPEC) in February 2013. In addition to the shale gas revolution that has inevitably led to an impulse to industrialize in the United States, there is weak demand from China and the EU that has added to the downward pressure on the price of oil. OPEC members are split on establishing a floor price for oil in this scenario, and high energy prices cannot be expected to act as a trigger for industrialized countries to invest heavily in alternative energies.

Adding to the energy sector realities is the fact that the European Commission has explicitly stated that industry will be brought back to the core of European policies. In the midst of burgeoning unemployment, particularly among the youth, the EU agenda is set on bringing industry's weight to 20 percent of GDP by 2020, from around 16 percent today. To fulfil this agenda, EU member countries are already consuming more hydrocarbons.

According to recent reports, Germany has increased coal consumption by 13 percent and the UK by 22 percent in the last four years. The EU is also negotiating an expansive free trade agreement with the United States (the Transatlantic Trade and Investment Partnership) that could give further impetus to reindustrialization. In the midst of these fundamental structural shifts, it is unlikely that EU leaders will commit to aggressive and bold climate change measures required of developed countries.

The rise of rapidly growing developing countries and their different development trajectories will also complicate a global agreement. These countries, including China and India, which together account for nearly three billion people, face domestic imperatives to develop further, albeit of different dimensions and scale. India for one has to provide energy to 300 million of its people that have no access and millions more who have only notional access. It also has to provide jobs to nearly twelve million people who enter the workforce every year; a large share of those jobs will need to be generated by the manufacturing sector. This means that India will continue to negotiate for space and time to ensure its broad-based economic development and would ideally like to have the support of Brazil, South Africa, India, and China on this.

It remains to be seen how the recent bilateral agreement between the United States and China could impact the group dynamics and whether this club of countries will continue to weigh in on the climate debate together in the run-up to the Lima and Paris meetings.

The Way Ahead

The COP 20 at Lima will be an exercise in creating trust and credibility mechanisms under the convention. To avoid replicating mistakes from COP 15 at Copenhagen—where negotiations on the draft text fell through in the final hours—the discussions at Lima should be aimed at producing the draft negotiating text for the COP 21. This will enable a transparent and goal oriented process, which will be able to meet many of the expectations and constraints outlined above, at least in the short term.

The factors discussed above indicate that the national contributions as agreed in Paris must be substantive without being burdensome. This can be achieved through an innovative global response that targets three low hanging fruits, assuming the Annex 1 countries demonstrate a new willingness toward fulfilling their commitments on financial and technological flows as per Article 4 of the Convention:

Improvement of energy consumption efficiency per unit of revenue earned (energy intensity) of large, energy-intensive corporations operating in industrial and energy sectors across the globe. Industry and energy sectors account for 45 percent of global emissions. Even relatively nominal gains in these sectors through policy incentives for enhanced energy intensity performance can yield large emission mitigation gains. Only corporations that are over a certain predetermined revenue, profitability, or turnover threshold, across the globe, should be considered within an incentives framework to ensure that actions are commensurate with respective capabilities.

Realization of end-use efficiency through demand-side management. For instance, India's Bureau of Energy Efficiency estimates that up to 50 percent efficiency gains (relative to current levels) can be realized through such processes domestically in case of commercial buildings alone. Given that the buildings sector accounts for around 8 percent of global

emissions, there is significant scope for purposeful collaboration between developed and developing countries in demand side management.

If it is understood that the principles enshrined in the UNFCCC should act a barometer for success, the conception of these principles must not be limited to procedural matters. An example would be the equitable transfer of financial and capacity building assistance from first-tier cities toward towns and rural areas within and across national geographies. Initiatives such as the C40 Cities Climate Leadership Group show that multi-stakeholder responses can be leveraged toward an ambitious climate change response and private sector stakeholders are ready to participate. Such initiatives both between countries and within countries would act as a robust means toward achieving sustainability.

In Lima and Paris, the global community must ensure that obsession with the legal nature of the post-Kyoto agreement does not detract from achieving what is eminently possible. The next year will in any case determine whether or not climate multilateralism will work.

7. Calibrating India's Climate-Change Response

Samir Saran

The Stanley Foundation | July 28, 2014

India and other developing countries have consistently emphasized the notion of equity in the climate-change debate, advocating a "common but differentiated responsibility"—the principle that all states are obligated to address global environmental degradation, but not equally so.

This approach, however, is fast reaching its structural limitation since a number of countries, including some in the G-77 and the Alliance of Small Island States, are indulging Western lobbies that seek to dilute it and have already hinted at accepting a compromise.

Without the full support of developing countries including China, which is clearly distancing itself from the G-77 narrative, India will shortly find itself isolated without enough political weight to continue pushing for the common-but-differentiated approach. It has to rethink its equity-centric narrative without risking being politically outmaneuvered in multilateral discussions.

The narrative will need to be both progressive and inclusive, with a focus on accommodating fundamental realities in the implementation framework of the United Nations Framework Convention on Climate Change (UNFCCC), such as the fast rates of urbanization in the developing world, which will inevitably lead to changes in consumption and production patterns.

India should adopt a fresh approach to better align its domestic and multilateral commitments before 2015, when a large part of the world negotiates a global response to climate change under the auspices of the UNFCCC. Careful calibration by India's new government, which was elected in May 2014, requires a series of actions: the articulation of a viable normative framework within which to place its climate-change response, the provision of modern commercial energy, enabling efficiency gains in large companies through market mechanisms, and investment in adaptation.

Low-hanging Fruit

Despite a sustained thrust for energy access by previous Indian governments, elaborate planning has unraveled through poor implementation. Around 300 million Indians still do not have access to electricity, and millions more merely have notional access. While the electrification of a number of new areas has proceeded, the quality of electricity—essentially the number of hours in a day that grid power is available—remains highly

variable. Moreover, the new government has to enable an energy transition not just to cater to the nominal needs of so-called light-bulb electrification, but also to enhance industrial competitiveness. For this, it will need to relentlessly pursue all viable energy options.

Although India's energy basket is coal dominated, India does not produce enough of the material to sustain domestic consumption, and even if its development can be accelerated, domestic coal consumption will peak in a couple of decades. In the years ahead, coal imports will add a new degree of fragility to India's fiscal stability. Even as the government renews attempts to overhaul the coal sector, development of natural gas supply chains—new port infrastructure for liquefied gas as well as pipelines connected to massive gas fields in nearby regions such as West and Central Asia—offers an unparalleled opportunity to scale up power generation. Additionally, unlocking domestic gas potential will also need some bold political leadership as it involves creating market-based pricing mechanisms to attract domestic and foreign investment. Indeed, gas has the potential to become India's bridge fuel until other alternative energy sources can be mainstreamed.

While gas presents an opportunity for the medium term, reaping the low-hanging fruit must be an immediate priority of the new government. Creating the right market conditions can enable efficiency gains in large companies. Simply through demand-side management, energy consumption in the industrial sector can see efficiency improvements of up to 25 percent. Moreover, greater operational efficiency has virtually unlimited potential. Substantial energy savings are possible if financial-incentive mechanisms that employ market forces and reward such efficiency gains are promoted. Templates for such financial instruments already exist, such as the Bombay Stock Exchange's GREENEX index, which tracks energy-efficiency performance of listed stocks. There is great equity in ensuring that the big corporations in India achieve energy and resource efficiency levels consistent with global best practices. It will also bolster India's global position as it seeks equity while engaging with the richer and more-developed countries.

Perhaps the most critical area for India's response to climate change must be adaptation. It needs to invest in actions against the imminent threats posed by climate change irrespective of how the global discourse progresses. Investments must be made through innovative channels, using a mixture of capacity-building programs, awareness campaigns, traditional solutions, and new technologies. A good example of an appropriate adaptation response would be to look at areas such as the financial engineering of insurance products to protect farmers from erratic weather patterns.

Toward 2015

It is already clear that the new government is likely to rely on sustained economic growth as the primary instrument for responding and adapting to climate change. This, of course, has its own set of implications for India's emissions, which are likely to increase before stabilizing in the long term. The twin objective for the government in New Delhi must be to peak India's emissions as quickly as possible and to keep the peaking emissions as low as possible.

Therefore, at home, India will largely need to focus on rapidly building up generation capacity, using efficient coal-mining and combustion processes, exploiting opportunities that natural gas offers, and investing in green technologies and efficiency gains. At the global level, India must ensure that the 2015 negotiations do not impede its ability to offer a better life to its people or make the cost of the provision of lifeline services too steep. Both agendas must be pursued simultaneously.

8. An 'India Exception' and India-US Partnership on Climate Change

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A Unique Dilemma

Climate change has become the major global challenge of this young century. For years, the search for solutions has run up against a sharp North-South divide over the historical emissions of developed countries and the parameters of what is termed, in the climate world, "common but differentiated responsibility" for developing nations. A common appreciation of climate and economic equity between disparate countries and regions remains both critical and challenging for the global climate negotiations process if it is to culminate in a major deal in Paris in 2015, and for implementation beyond that date. The authors believe that the only way to remove this roadblock is to forge an "India exception" in global climate talks; doing so is the only realistic pathway to a global climate deal, and could be a key tool in cementing stronger ties between India and the United States, two critical actors in the evolving international order.

The Lima Conference of Parties (COP) in some ways breached the North-South firewall as it sought details of climate action from a larger set of stakeholders, but at another level it reinforced the historic differences between nations on the question of "equity" and "responsibility." Perhaps more important, the 2014 U.S.-China bilateral agreement on carbon emissions constitutes an important breakthrough in the North-South dynamic—as well as showing that great power agreements on climate change can be forged. In the November 2014 agreement reached between Presidents Xi Jinping and Barack Obama, three important things happened:

1. China accepted that there was a specific timeline wherein its emissions had to peak.

2. Both countries accepted that they had greater responsibility than other countries for an effective global climate arrangement, given their outsized contributions to global emissions.

3. The United States accepted that China has the right to energy-intensive industrialisation, as every major developed nation has had before it.

China is in a very specific place. Its growth over the past two decades means that while it is still treated as a developing country in climate negotiations, its economic position and influence far surpass that of any other developing country; for example, its emissions and

gross domestic product (GDP) per capita remain four times that of India, the only other relatively significant developing economy. To get from a U.S.-China deal to a global one, the next challenge is to find the critical path for other major developing states. Of these, India by far remains the largest, although it is at a far earlier stage on its trajectory of industrial development.

In the spectrum of common but differentiated responsibility, India finds itself uniquely situated between nations that industrialized long ago and can now afford expensive renewable energy production and climate adaptation, and those who largely gain their livelihoods from traditional subsistence practices that continue to follow preindustrial low-carbon practices. India is confronted with the dilemma of being between an identity as an emerging power and as one of the least developed countries. It exhibits the economic weight of an emerging power while still containing many hallmarks of a least developed country in its villages and communities.

Furthermore, the sheer size of its population means that India's choices about development and climate/energy carry global consequences to a degree that is far greater than any other developing country.

After two decades of economic development that have begun to lift sections of its population out of poverty, India cannot and will not let its development wait for the eventuality of commercially deployable and cost-competitive renewable energy. More than 300 million Indians still have little or no access to modern energy sources—India's dilemma is that several generations of Indians are on the cusp of prosperity if growth is powered by cheaper energy.

The most accessible option is often carbon-polluting coal. In this, India is similar to all previous industrializing nations, from Britain, Germany and the United States in the 19th and 20th centuries to China in the recent past; all powered their industrialization, rural-urban transition and rise in per capita incomes with fossil fuels.

But India faces a predicament all previous countries that used energy to reduce poverty did not. It stands on the verge of industrialization just as the world may finally be willing to take multilateral action to reduce carbon emissions. Possessing vulnerable coastlines and reliant on the monsoon and glacial melt, India is as vulnerable as any to the consequences of collective action failure on climate. But for India, the tradeoffs between environment and growth are harsher than perhaps anywhere else. India's overall size in both population and emissions accords it unique attention for a low-income country in the global climate debate; yet its relative poverty and low per-capita energy use compared to every other large emitter creates what Indians view as a justified overriding imperative for poverty elimination.

Figure 1: Climate Inequity

Country/bloc	GDP per capita (US$, 2013)	Carbon emissions (metric tons per capita, 2010-2013)	Carbon Intensity (kg per kg of oil equivalent energy use, 2010-2013)
European Union	$34,290	7.4	2.2
United States	$53,143	17.6	2.5
China	$6,807	6.2	3.3
India	$1,499	1.7	2.8

Source: World Bank

Polluting Below Its Weight

How can India thread the needle between climate disaster and premature economic stagnation? Though the challenge is great, India will be an important enough partner at the upcoming climate talks to articulate a set of red and green lines—what it can and cannot do. India will find it difficult to accede to any deal that will make its ongoing industrialization the first industrial revolution in history to be nipped in the bud by international restrictions. From the Indian perspective, the Chinese must not be the last ones allowed to become a middle-income nation. Given the uncertain prospect of maintaining a steady double digit growth rate in a post-Lehman Brothers world, Indian poverty cannot be frozen by a dateline. At the same time, India needs action from already-industrialized and wealthier nations—including China, which has leveraged 50 percent of the world's coal consumption to catapult itself to prosperity—to prevent scientists' dire predictions on a 'business as usual' approach to carbon emissions. This would negatively affect India's poorest along with its economic growth.

India also has a set of green lines outlining its contributions to the climate change fight. Even though under the logic of industrialization India's emission intensity would be expected to rise in the coming decades (see Figure 1), in the last decade the United Progressive Alliance government committed to reducing emission intensity by 20 to 25 percent by 2020 (from 2007 levels). As India moves from a service- and agriculture-based economy towards greater reliance on manufacturing, rapid urbanization, more intensive infrastructure development and growth of the transportation sector, meeting this carbon intensity target will be a de facto climate mitigation measure and a mark of India's

commitment to climate action. The recent election of Prime Minister Narendra Modi has created the opportunity for all of India to benefit from the renewable energy-friendly policies he pursued as chief minister of Gujarat and has opened up the possibility that India become a leader in cost-competitive renewable energy. India is already the world's largest biomass, third-largest solar and fourth-largest wind energy producer. India would be open to reducing its relative dependence on coal if a climate framework created meaningful funding and technology transfer to accelerate such efforts.

Figure 2: India's Climate Actions

Economy-wide pledges and targets	Submitted to UNFCCC: Pledge to reduce emissions intensity by 20 percent to 25 percent by 2020 submitted to the UNFCCC. Outside UNFCCC: Eight national missions have been introduced under the National Action Plan on Climate Change in 2008 and include mitigation measures focused on promoting solar energy, improving the forest cover of the country and market based mechanisms such as Performance-Achieve-Trade (PAT), which are focused on improving cost effectiveness and energy efficiency in large, energy-intensive industries.
Sectoral/programmatic mitigation actions	Submitted to UNFCCC: Agriculture would not be a part of the 20 percent to 25 percent reduction target. Outside UNFCCC: Sectoral actions include emission reductions and low-carbon strategies across important sectors such as power, energy and construction. Strategies include policy instruments/measures such as coal tax, feed-in tariffs and energy codes for commercial buildings.
Project-level mitigation actions	Submitted to UNFCCC: Clean Development Mechanisms (CDMs) that allow developed countries to promote climate mitigation projects in developing countries. India hosts a total of 2,295 CDM projects.

Sources: Fifth IPCC Report; India's National Adaptation Programmes of Action (NAPA) Profile

India's growth dichotomy is particularly acute. On the one hand, the price competitiveness of coal makes it the preferred choice given India's imperative to eliminate poverty and deliver energy to all. Yet at the same time, India's adoption of renewable energy and low-carbon technology positions it among the global leaders in sustainable growth. Even more significantly, India has a structural frugality to its energy consumption. India's peaking per-capita emissions are unlikely to ever cross the threshold of five to six

tons per capita that still marks the climate action aspirations of developed carbon-intensive economies. In contrast, China is projected to peak at 12 tons per capita, as per the Global Carbon Project. Even without this continued Chinese emissions growth, India would need four times China's population—and 10 times that of the United States—to achieve total emissions comparable to either country. Therefore, Indian industrialization, even with its coal component, will be greener than many that have come before.

Given the vagaries of growth, its inescapable linkage to poverty reduction and the compelling need to grow to provide jobs for a youthful demography, India will have difficulty accommodating international demands for a national emissions peaking date. As a pluralistic democracy in the midst of vast anti-poverty and electrification efforts often uncoordinated between states, the Centre and the private sector, a peak date cannot be imposed on a decentralized governance structure by a fiat emanating from a competitively elected and therefore precariously changeable authority of the Centre.

India as an Exception

India's combination of dilemmas and promise on climate change demonstrates the folly of expecting comparable mitigation from India as from China, or from emerging economies as a vaguely defined category. India is the country that most uniquely combines large size, low starting point and high potential over the next few decades. China has moved on and is likely to be a developed country by 2030. Many other countries embody one or even two of these factors, but none combine all three—thus making India the most important prospect for mass poverty elimination in the coming decades, and the defining challenge and opportunity for sustainable development.

This unique position is borne out in the data. When compared to the other largest emitters —China, the United States and the European Union (EU)—India has vastly lower per-capita GDP and per-capita emissions; even on emission intensity it is closer to the United States than China (see Figure 1). But there are many less developed countries in a similar category; what makes India's position different? First, the sheer size of population and scale of the poverty eradication challenge. More profoundly, India's claim to uniqueness comes from the fact that its growth and concomitant industrial revolution is happening now. It is expected to grow more rapidly than any other region of the world in the next few decades to 2040 (see Figure 3). This growth, thus far largely powered by fossil fuels, is the best opportunity to continue the mass upliftment of citizens from poverty that began in China—and an important tool to maintain Asia's regional security balance. India's robust economic growth is itself a compelling contribution to the future, and the world must work together to lift one-sixth of its people out of poverty while also maintaining their environment. India may be one of the countries that is most vulnerable to the effects of climate change, but it is also the country most in danger of losing out on mass poverty elimination and great power status because of a forced transition from fossil fuels.

Figure 3: Relative Economic Growth, 2010-2040

Country/region	Project Real GDP Growth Rates (average annual percent change)
India	6.1%
China	5.7%
Africa	4.6%
Non-OECD Europe/Eurasia	4.4%
Other Asia	4.3%
Mexico/Chile	3.7%
Brazil	3.4%
South Korea	3.3%
Other Central/South America	3.2%
Russia	2.8%
United States	2.5%
Middle East	2.2%
Australia/New Zealand	2.2%
Canada	2.2%
OECD Europe	1.8%
Japan	0.6%

Source: US EIA International Energy Outlook 2013 With Projections to 2040, pp. 17-18

In short, there are two conflicting imperatives here. On the one hand, if India chooses to grow through the same carbon-intensive pathway that has characterized every other major country's growth, there will be no credible prospect for maintaining progress on global carbon reductions. On 'business as usual' projections, India would add another EU to the world's carbon emissions budget within a few decades. On the other hand, denying India the right to grow and confining hundreds of millions to continued poverty is an untenable proposition.

Within any global climate framework, therefore, the authors believe that India should be accorded exceptional status in light of its mass poverty challenge and imminent growth opportunity. Such an exception should be predicated on a rational and pragmatic framework. The first principle must be to support and sustain the poverty elimination efforts of the country, and in this direction, the goal must be that lifeline energy is available to all at affordable prices. This would necessarily imply ensuring development space (and corresponding carbon space) to India and accepting that a peaking date may not be forthcoming anytime soon. The second principle must be for India's affluent to participate in mitigation efforts globally. And finally, there must be support from countries and communities to equitably share the burden of climate change, based on their current capabilities within and across borders.

Such an exception would have five elements:

- Continuing and supporting India's voluntary emission intensity reduction goals that moves its economy from a 'business as usual' trajectory;
- Focusing the spending of the Green Carbon Fund and similar instruments, including technology transfer, on Indian energy options;
- Following collective but differentiated responsibility within India, requiring rich states and cities to develop innovative mitigation methods, including through "Green Building" Initiatives, improvement in public transport infrastructure and adoption of energy efficiency schemes by the affluent, each of which is already at various stages of implementation at the central and state level;
- Initiating a universal agreement on corporate emissions mitigation that would involve large Indian companies on equal footing with developed country corporations and mandating sectoral efficiency goals for these large corporations; and
- A decadal review of India's development status, as no exception should outlive its rationale.

Any agreement must ensure India's rich do not hide behind its poor, while also excluding India from Chinese-level obligations that do not befit a country in an earlier stage of its development trajectory. Given India's place in its, and the world's, history, a global peaking date will depend on other nations taking on mitigation to account for India's exceptional challenge.

An economically invigorated India in several decades can be imagined, one that is powered by broad-based prosperity and a changing energy mix, leading global efforts in environmental adaptation and low-cost renewable energy. But such leadership is only affordable if India's industrial revolution is made possible. India's experience in the years ahead could be a valuable pathway to share with other developing countries as they start grappling with a similar dilemma.

The Washington Angle

India can carry its own water in global climate negotiations, and it can drive its own industrialization. However, the likelihood of squaring the circle between an effective global climate regime and India's need to develop will increase if the United States plays an active role in helping to forge these arrangements.

There will be predictable opposition. For those motivated primarily by climate change itself, the idea of granting an exceptional status to the world's most populous country will seem injurious to the prospects of mitigating the more disastrous climate scenarios. The rebuttal is to simply point to the reality that for all intents and purposes, India has a veto on a global climate agreement—both in the room, and more importantly in how any deal is implemented. India has already shown that it is willing to walk away from global negotiations if these threaten its core economic interests. And when it comes to implementation, there is no prospect of any deal that holds out meaningful and enforceable costs for "cheating". The only source of pressure for compliance will be information flows about behavior and mutual pressure between the top powers. That will be outweighed, in India's case, by the imperative of poverty elimination.

Moreover, there is a strong strategic imperative for the United States here, which has to do with India's role in Asia. An India confronted by internationally-imposed restrictions on growth will face serious internal political and democratic challenges. A successful India, in contrast, can play a critical role in stabilizing Asia during an otherwise turbulent transition, and can be a critical partner to the United States.

With the U.S.-China deal, and its $3 billion pledge to the Green Climate Fund, the United States has begun to stake out what it gave away in the late 1990s—namely a leadership position on global climate issues. It has also adopted a realistic stance, recognizing that when it comes to climate, the most practical thing is to pursue a back-to-basics approach, which combines a focus on natural gas (which emits carbon at roughly half the intensity of

oil), efficiency and joint investment in renewables. In diplomatic terms, it has adopted a "concentric circles" approach to making progress. Here, the concentric circles start with the United States and China, where these two largest emitters will lead the way by reducing carbon emissions. The next obvious focus is India. Helping India navigate a pathway to a more efficient industrialization is a win-win in terms of climate, international order and U.S. foreign policy.

The United States could also make a critical difference in terms of financing more efficient technologies. The math is simple and compelling. India has, as noted, 800 million poor people, out of which 300 million have no access to modern energy—and India's population is set to keep rising. According to latest National Sample Survey data, around 800 million Indians subsist on less than $2 a day, and around 300 million lack access to electricity. Politicians in India thus feel that they have no choice but to continue to pursue every source of energy, clean or not. India will simply continue trying to grow, and that inevitably means greater energy use in the near-term. If India succeeds in doing what China did before, and pulls 300 million people out of poverty, it means adding a population the size of Europe to the overall carbon emissions mix. They are certainly justified in doing this—what possible ethical or moral precepts could justify the OECD countries and some others continuing to emit carbon while 800 million Indians languish in poverty? But this approach will crater any credible efforts to stabilize the climate.

India is, of course, fully open to adopting a more energy-efficient form of industrialization and urbanization if the developed countries provide meaningful financing and access to technologies. A rough estimate of what would be needed for India to adopt more efficient energy pathways during its industrialization is investment of between $50 billion and $100 billion over the next 10 years—in natural gas infrastructure, renewables and clean building technologies. Even this sum does not capture the scale of resources necessary when considering what needs to be done at more local levels. As India's rural poor increasingly move to cities, its cities will require new infrastructure; 70 percent of its buildings of 2050 have yet to be built. If these are built with existing building technologies, massive carbon emissions will be built in. The new buildings can be constructed with green technology, but India by itself does not have the resources—financial or technological—to do so.

Granted, India could reprioritize its spending and cut down drastically on its planned naval expansion or other defense spending, but the United States and the world may not want it to. As long as China increases its defense budget, the United States wants India to do so too. As long as China is investing in its blue-water navy, the United States wants India to do so too. It is profoundly in U.S. interests that there be a strong and growing India, an India that is domestically stable and contributing to a stable Asia and Indian Ocean.

The United States can make a critical difference. It could reapportion part of its international development budget toward India's effort and push for greater allocations by the World Bank and other international institutions. It could create a way for U.S. cities that have successfully used clean building techniques to work with Indian cities. It could invest in Indian education in urban development that is informed by the latest science. As mentioned before, the United States recently pledged $3 billion for the Green Climate Fund—it could work within that Fund, and within the World Bank, to ensure that a large proportion of that funding goes to India (the most critical case), and use that financing to leverage private sector and city-based contributions.

Of course, there has already been some U.S. investment in renewable technologies in India. The results have been mixed. U.S. investors complain that the returns are inadequate and that Indian policies are not ready for investment at scale. This is in part because of India's decentralized decision-making and uncertainty about the ways in which a global climate framework will limit specific pathways. For Prime Minister Modi, this represents a significant challenge. However, if backed by a U.S.-India deal, and against the backdrop of a global climate framework that accepts an exception for India, the timing would be ideal to intensify efforts at policy implementation and to launch a new phase of what would have to be understood as a generational partnership between the United States and India on efficient urbanization. There are challenges to aligning private incentives of U.S. financiers with public incentives in India, but if this effort is initiated by high-level agreement between Obama and Modi, and public monies are available either through bilateral or multilateral tools, the path can be discovered.

An obvious place to start is clean building technologies, something that President Obama has pinpointed as a central goal for U.S. efficiency efforts. The United States and India could form the key building blocks of a global goal on clean buildings and efficient urbanization, which would be critical for locking in energy-efficient development for India.

If the United States partners with India in navigating towards more efficient industrialization and supports an "India exception" in global climate talks—not using climate negotiations to pull up the carbon ladder behind it, but using bilateral ties and the Major Economies Forum on Energy and Climate Change to offer to help build a clean energy ladder for India—it could be the kind of investment that cements ties between these two countries. From the perspective of a stable international order, it would be a big deal; from the perspective of global climate talks, it is the only realistic pathway forward.

9. The Paris Package: Setting the Finance Agenda for Climate Action

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Introduction

The year 2015 is crucial for global agreements that establish the trajectories and paradigms of development. The Millennium Development Goals (MDGs) are set to be replaced with the Sustainable Development Goals (SDGs) at the UN General Assembly in September and negotiations on a new global treaty on climate change will take place in Paris in December. The global climate and development processes intersect; therefore, the question of financing—how much, how and for what—should logically also intersect.

However, the Addis Ababa Action Agenda adopted at the UN Financing for Development (FFD) conference in July failed to yield concrete new proposals for additional funding that can be swiftly implemented to meet the world's multiple challenges. Instead, the agenda once again stressed the need for countries to achieve the target of 0.7 percent of Gross National Income for Official Development Assistance and noted with concern the failure of many countries to do so till date.

The failure of Addis means that finance has now become the proverbial elephant in the room. Just like in the classic fable on the blind people and the elephant, experts on development, climate and finance approach the elephant from their own perspectives by touching and feeling only its partial contours. None of them is able to comprehend the overall landscape of challenges and opportunities. Development experts are scared that climate finance will detract from available resources. Climate experts, meanwhile, obsess about finance going to “bad things like fossil fuels”. And finance experts worry that institutional interventions will lead to outcomes that are suboptimal from a market point of view. This brief is an attempt to remove the blindfold and lift the veil of disciplinary ignorance.

First, some facts: According to statistics published by Climate Policy Initiative, in 2013, global climate finance totalled $331 billion, $193 billion (58 percent) of which was from private sources and $137 billion (42 percent) from public sources. The worrying statistic is that only about $34 billion of that flowed from developed to developing countries, a 20-percent reduction from the previous year. It is estimated that 74 percent of climate finance

is used in the country in which it originates, which highlights the limited flow of financial resources from developed countries to those most vulnerable to climate change. This is in sharp contrast to technology flows, where technology owners and providers aggressively seek international destinations. We have a concerted push to mainstream green solutions, without the necessary financial ecosystem to allow for global finance to follow technology in the new markets that it seeks.

At the 15th Conference of Parties to the UNFCCC held in Copenhagen in 2009, developed countries committed to jointly mobilise $100 billion dollars a year by 2020 from a “wide variety of sources, public and private, bilateral and multilateral, including alternative sources of finance”.

Given that currently there is a flow of roughly $30 billion as detailed above, this would mean a gap of $70 billion in climate finance for developing countries. Part of the gap could potentially be closed by the world's development finance institutions – multilateral, national, regional and bilateral – increasing their investments and the percentage of their investments that go towards climate finance investments. The rest will inevitably require what is called “blending”. For example, investments made to green India's energy resource development will both increase sector productivity and reduce its carbon intensity. This would be true of most areas of infrastructure in countries undergoing a development transformation, were the finance, development and climate communities able to work together to smartly identify such blending opportunities. Then, and only then, will a harmonious and adequate climate finance response be possible.

There are two structural issues with climate finance besides the concerns over the levels of mobilisation. One is the heavy focus on mitigation activities. For example, in 2014, the Multilateral

Development Banks committed $28 billion towards climate finance, representing 22 percent of their total financing activities. Mitigation activities accounted for 82 percent of the $28 billion and 18 percent went towards adaptation projects. The strong bias towards financing mitigation activities causes concerns as it ignores the imperatives of building resilience, capacities and capabilities that are already required in many parts of the world to respond to changing climate. Supporting adaptation to the impacts of climate change and pathways for climate-resilient development is a vital component of the climate change response for developing countries. Mitigation is important but so is adaptation; one cannot be said to take unquestionable priority over the other.

Secondly, over the next 15 years to 2030, it is estimated that the global economy will require an estimated $89 trillion in infrastructure investments across cities, energy, and land-use systems. A further $4.1 trillion is also required for incremental investment in low-carbon transitions, to keep within the internationally agreed limit of a two-degree-Celsius

temperature rise. However, although the challenges of development and climate change are increasingly intertwined each passing day, it is crucial that financing climate action does not become a substitute for financial flow for development. Climate finance must be treated as 'additional finance'. It should not be conflated with Overseas Development Assistance even if there is an overlap in the sorts of development initiatives that eventually get supported.

While significant scope exists for developmental activities within the adaptation framework, there is concern that the SDGs could encourage fund transfers only if developing countries conform to a pre-set 'green' agenda. Attempts to paint climate financing with the same brush as developmental aid will undoubtedly cause strain in the relationship between the rich and the poor. Development finance must not be cannibalised by climate finance flows. Climate finance will be crippled if it seeks to work within an underdeveloped ecosystem and, in the long run, leapfrogging infrastructure investments and provision of basic services in order to implement the climate agenda will only prove futile. It is imperative that 20th century developmental exigencies are not compromised by the 21st century agenda. Both must be addressed together, with the balance of narrative always focusing on the side of ensuring lifeline access and services for all.

Innovative solutions and thought leadership are both required to break out of the current stalemate. There is, obviously, political convergence: the same group of world leaders will ultimately agree on the climate and development agenda. Yet even such convergence remains outside the banking conversation on prudential norms and monetary policies that impact the price and availability of money.

The 21st Conference of Parties (COP 21) scheduled for December this year in Paris offers the chance to change some of the worrying realities shaping the financing agenda currently; namely:

• Levels of finance for the huge scale of transformation required;

• Financing for adaptation and climate-resilient development;

• Finance for access to lifestyle and lifeline existence.

COP 21 therefore needs to have a Communiqué on finance. It must address the core question of how lifeline energy and developmental needs of the poor can be met whilst taking effective action on climate change. In a manner of speaking, it must strive to make the ambitions of New York sensitive to the aspirations of New Delhi. Therefore, it is important that long-term finance be mobilised and made accessible for both climate action and development priorities. Basel III should be re-written to facilitate green investments and improve financial flows to climate-related interventions in developing

and emerging economies. Strong commitments and intent from developed countries to specifically provide resources to least developed countries to adapt to climate change and chart a path of sustainable development is also needed.

It is expected that the negotiations in Paris will proceed along well trammelled lines, bringing with it a history of silos, a bias towards incrementalism and politically fossilised divisions. This will not, by itself, serve the urgent need to shape a holistic and collective view on Climate and Development Finance. We need a leaders' initiative that marks a major aspirational and substantive thrust for an agreement on climate finance. This will not happen automatically as part of the "business as usual" COP21 process. What is needed is a Paris Package that defines the aspirational and practical contours needed to meet the climate-development finance challenge. To make this happen we propose that this package be announced by a collective of global leaders this December.

'Paris Package'

The 'Package' will be headlined by an aspirational communiqué by world leaders, a statement of decisions on administrative arrangements for 2015-2020 and the 'Intended Nationally Determined Contributions'. A key component of this communiqué would be the effective financing of climate action. This will send signals to financial institutions and private actors about the intention of countries to create a policy ecosystem and regulatory environment that is conducive to directing capital flows towards adaptation and mitigation efforts and towards 'de-risking' climate investment. The proposed Package has been divided into Critical Components and Significant Components, which collectively cover the range of policies required to positively transform development and climate action.

Critical Components

1. Developed countries need to reconfigure their institutions and regulations to free up investible capital in energy and infrastructure projects in emerging and developing countries.

2. Lifeline energy needs to be delivered at the lowest possible cost to the poor.

3. Financing institutions should not impose blanket restrictions on financing fossil fuel projects, or blanket portfolio limitations on financing for fossil fuel initiatives. This will perversely constrict the ability of developing and emerging economies to lower the carbon intensity, and increase the productivity, of their energy delivery systems, through investments in cleaner power plants.

4. It is critical that banking conversations are sensitive to requirements of climate and development. Barriers for investment by multilateral banks and private funds in 'cleaning up' coal-based power production and energy efficiency projects should therefore be

dismantled. Any moves to introduce sustainability criteria into Basel III should be effected only in the context of this re-write. Basel III norms have created disincentives for investment in infrastructure projects in developing countries, which are critical for long-term adaptation and development.

5. Flow of private capital for climate-compatible development is restricted by the perception of regulatory and market risks – the perceived risks are higher than the actual risks. Clear signals from global processes are needed to 'de-risk' climate finance.

6. Supporting adaptation should become a viable business proposition. Emphasis on the commercial value of adaptation projects is required for increasing private investments in adaptation activities. Creating successful demonstration models is critical for this. One of the reasons why a large proportion of private finance is diverted towards mitigation activities is that investors are aware of the returns on such investment. On adaptation however, such awareness is missing, leading to a significant funding gap. In this context, the UNFCCC must play a critical role and ensure the knowledge gap is narrowed. The multilateral development banks can contribute by taking the lead and partnering with organisations adept at identifying and implementing adaptation development projects. Once this is done and a market is created for adaptation projects, the private sector will crowd-in, as it has in traditional sectors.

Significant Components

1. Accreditation and administrative processes for accessing global financing, including the Green Climate Fund, need to be rationalised and simplified to allow easy access for developing countries.

2. Policies facilitating decentralised finance and low-cost micro-finance models would be necessary for adaptation and mitigation projects. There is an increasing number of technological innovations (such as solar home systems) which meet essential daily needs at the domestic level. These solutions do not need big infrastructure projects. Micro-finance institutions can play a key role in these areas.

3. The New Development Bank's potential for financing infrastructure and energy projects should be leveraged, especially for projects on clean and responsible coal technologies, carbon sequestration and climate-compatible infrastructures.

4. In the context of countries with lifeline energy and developmental needs, taxing consumption rather than carbon would be more effective. For instance, carbon taxes should be applied on consumption over and above the 'threshold consumption' or 'lifeline consumption' across all countries. Also, corporate carbon taxes should be introduced for carbon consumption by large corporations.

5. Central Regulators need to incentivise participation of the private sector in climate-compatible investments through backstop guarantees against risks for mitigation and adaptation projects. For instance, in emerging economies like India, the central bank has the authority to lay down guidelines whereby commercial banks can lend funds at lower interest rates to private enterprises which are looking to invest in green infrastructure. These interest rates can be benchmarked to actual performance of the private sector.

6. Continuity of carbon markets and setting of a floor price for carbon is important to give strong signals to the market to invest in carbon, especially for the developing and emerging economies. However, there is little clarity on an appropriate international arrangement for this. A renewed conversation is urgently needed.

7. Technology collaborations in the public sector should be facilitated by easing regulations, creating mechanisms to crowd-in private capital, and increasing the risk capacity of private enterprises. The proposed new UN-based Technology Facilitation Mechanism should focus on this objective. Public sector owned technologies should be efficiently deployed.

8. As stated in the paper "*Roadmap to a Low Carbon Electricity System in the U.S. and Europe"* by David Nelson for Climate Policy Initiative, innovative financial tools such as green climate bonds should be facilitated to reduce market and regulatory risks. Insurance tools should be integrated as a risk transfer mechanism.

9. Impact investment infrastructures for long-term financing should be encouraged as they produce quantifiable social and environmental impact alongside a financial return. Even before the negotiations, developed countries or the G7 group could signal, through an announcement, their serious intention to facilitate global climate actions (both adaptation and mitigation) through effective financing. If the Paris agreement were to be implemented from 1 January 2020, financial actions should not lag due to delays in the decision-making process and this issue, therefore, needs to be tackled in the next four years. The development and climate landscape is set to be shaped decisively in 2015. This opportunity to rethink and reconstruct the global financial architecture that will catalyse these global processes awaits us in Paris.

Disclaimer

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10. The Tyranny of Technology: Aligning the Old with the Real

Samir Saran

In September this year, the Sustainable Development Goals (SDGs) were agreed upon by world leaders in New York and next month, countries will attempt to agree on a global deal to combat climate change in Paris. The actual success (going beyond the symbolic consensus) of both the SDGs and a potential climate agreement is contingent on technology – how it is shared, adopted and dispersed successfully. Technology innovation, development and transfer are key to achieving equity and parity in global lifestyles, and avoiding dangerous levels of climate change. For technology to be effectively applied to the global development and climate agenda, however, a few systemic flaws and some new realities need to be acknowledged and then responded to. A technology-centric response to the problems of the 21st century will require formulation of policies that reflect the changing nature of global technology flows, production regimes and consumption paradigms.

The paradigms and regimes of technology innovation and transfer that are currently in use are from a period when developed countries were both producing and consuming the products of technology innovation. In that instance, the innovation itself led to increasing purchasing power in the locality. It was therefore easier for people to absorb such innovation and pay for it. These structures are incongruous with the consumption realities of today, underpinned by globalisation. While technology innovation and production may still continue to happen in the developed countries, the consumers of today are in the developing countries. They are not necessarily benefiting from enhanced capacity resulting from the process of innovation (albeit innovation itself does increase the efficacy of business and livelihood for them with mixed scales of participation in global value chains).

However, the scale of consumption in Asia in particular is creating new markets for corporations from the OECD countries. These insatiable markets offer far more to corporations today than saturated western markets. This 'trend' is only going to become a new 'reality' in the coming years. And therefore, it may require us to rethink the technology regimes premised on the realities of the previous centuries. The McKinsey Global Institute predicts that nearly half of the economic growth between 2010 and 2025 will come from 440 cities in 'emerging markets'. China and India will naturally lead this new consumption paradigm. Tianjin, towards the south east of Beijing, is expected to have an economy the size of Sweden by 2025. Asia will soon be joined by Africa in the shopping aisle. Standard Bank predicts that the middle-class in Africa's largest economies will grow

from 15 million to 40 million in the space of just 15 years. It is only logical then, that a global technology regime should respond to this new consuming class.

Alongside this new consumer is another nuance that must be factored into the debate around technology. The largest economies of tomorrow would comprise large numbers of low income and poor households. Big economies will remain poor societies for some time to come in this century. Therefore, technology and royalty regimes around technology must cohere with the current development assistance paradigm and the global development agenda as it seeks to elevate the lives of the poor. If access to technology has a price tag (by way of royalty payments) higher than the forthcoming climate aid or finance, then we must realise we are in a system where the poor are underwriting the cost of mitigating climate change and we have succeeded in creating a system where the polluter profits and victim pays. This not only undermines the moral pivot of responsibility but turns the idea of differentiated responsibility on its head.

Developed countries have provided Official Development Assistance (ODA) (defined as financial flows administered by governments towards economic development and welfare of developing countries) of about 0.29% of their own Gross National Products. However, what would be interesting to uncover is the amount of returns that have been repatriated to the rich economies by way of royalties that allow technology access for the developing world. For example, as per figures from the World Bank, India received $2.4 billion in 'net official development assistance and official aid' in 2013. To put such figures in context, Merck, a global pharmaceutical giant, reported pretax profits of just under $1.6 billion in 2014. The contribution of technology royalties earned from the developing world to that figure needs to be calculated. Imagine 500 such companies which are leaders in their domain, and it is easy to see why the developmental aid flowing to parts of Asia and Africa simply does not match the scale of the money flowing out to pay for access to technology. The OECD countries, their corporations and institutions are giving with one hand and taking back with both.

The recent example of Nokia's royalty payments from India to Finland illustrates this burden of technology access more starkly. Between 2006 and 2014, Nokia's Indian subsidiary paid over INR 20,000 crore to its Finnish parent as royalties for the technology used in its manufacturing facility in Tamil Nadu. In 2013, Indian authorities alleged that Nokia owed over INR 2,000 crores to India on tax on the royalty payments. While the dispute over non-payment of Tax Deducted at Source (also called withholding tax) continues, the outflow of over $3 billion as royalty for handsets made by Indian factory workers – that Nokia was selling to lower and middle class Indian consumers – clearly demonstrates that the profit motive of the parent is supreme. The development assistance narrative needs to be tempered by the fact that the quantities of corporate profits earned by OECD companies through consumption in developing nations far outweigh nominal

financial transfers made by OECD governments towards development of their primary markets.

ODA needs to be rethought. Since royalty outflows are far outweighing inflows from developmental assistance, it might make more sense for developed countries to subsidise technology diffusion in developing countries by paying their own corporations, to allow for open access to technology in developing country markets. That will perhaps deliver a better return on the money being spent by western nations to support development in the global south, particularly given the increasing linkages between technology access and economic development. This will perhaps also be more palatable to the political economy of the developed world as the transfers are being made to their own and not to a foreign government.

In order to achieve the SDGs, it is also time to re-evaluate the global patents regime. Michele Boldrin and David K. Levine, two economists from Washington University, St. Louis, have pointed out that the current patent / copyright system discourages inventions from actually entering the market. They opine that the IPR system only helps large corporations and multinational corporations (MNCs) rake up profits, noting that the majority of patents are registered by corporations rather than individual innovators. Boldrin has termed intellectual property as "intellectual monopoly," arguing that it hinders innovation and wealth creation. While patents may protect corporates, they don't seem to preserve the larger public interest of disruptive innovation. To wit, the largest Western pharmaceutical companies have been decreasing their R&D staff and spending, even as earnings per share remain unaffected. The innovation ethos has simply dissipated in the one industry that seemed to champion patents globally, and has made way for the rather more perverse 'license expensive drugs to the poor rather than push the boundaries of science' ethos.

All of this does not mean that India and other developing countries do not need to look inwards and explore policies and practices for creating a culture and system that encourages innovation. Are developing country policies transforming sufficiently to meet the new reality? The demographic dividend offers these countries a chance to develop a generation of technologists innovating for the bottom of pyramid needs. At the same time, real cooperation with the OECD countries on joint R&D will enable a blending of product innovation capabilities of the developed world and process innovation that some of the developing countries have excelled in. The Indian posture is that technology transfer is not enough in itself, just like Foreign Direct Investment (FDI). Domestication and indigenisation of technology are prerequisites to development as well as for a growth trajectory that is non-linear.

Joseph Stiglitz has noted that the most defining innovations of our time were not motivated by profit but rather by the quest for knowledge. The patent system was created

to reward innovators but is now stifling innovation, feeding the hunger for profits and perpetuating the north-south divide. In order to support the development agenda, combat climate change, achieve parity in global lifestyles and shape an equitable planet, the tyranny of technology must be replaced by the technology panacea. Governmental resources and policies must be directed towards encouraging open innovation so as to avoid the incumbent's monopoly on the current system, which is compromising the ability of developing countries to fight poverty and guarantee the right to life. There is a need for studies that examine the impact of the IPR regime on economic activity in specific sectors that will demonstrate where IPR can stimulate innovation and where it does not. The SDG and climate agendas, perhaps the defining themes of the next few decades, cannot be held hostage to the ability to pay or a perceived entitlement to profit perversely. It is time to examine the economic distortions that have altered the founding principles of patent and intellectual property right regimes. And it is absolutely the time to re-price innovation, to deliver for the bottom of the pyramid.

THE INDIAN PROPOSITION

11. India's INDC: Walking the Tightrope between Reality and Ambition

Samir Saran and Shubh Soni (Research Assistant, ORF)

The phrase 'Intended Nationally Determined Contributions' (INDCs) has acquired prominence in the global discourse on climate change policy since the 20th Conference of Parties (COP) in Lima in December 2014. While the term was first negotiated in the Warsaw COP three years ago, Lima's 'Call for Climate Action' dedicated eleven of its 103 clauses to the INDCs. These are going to be a central feature of global climate action post-2020, and will figure in a significant way in any global agreement likely to be reached at the 21st COP in Paris in December 2015. INDCs are seen as the instrument that secures voluntary commitments on mitigation and adaptation (less so on the latter) from every country for the first time. It is hoped that peer pressure around these national intentions will result in an ambitious implementation of global action on climate change.

As negotiations has evolved between India and major developed actors like the United States and the European Union, India's INDC does matter because it is a statement of purpose that India will be measured against. Simultaneously, India can use these declarations to also hold others to account. In a world increasingly intertwined through commercial and strategic relationships, perception matters, and being outside the norm may have consequences. However, as noted by eighteen civil society groups in a study titled "Fair Shares: A Civil Society Equity Review of INDCs," the national declarations of the developed world have failed to impress, while the commitments of certain developing countries such as India have exceed their 'fair share' of emission cuts.

In this context, four patterns emerge from India's INDCs that have already been discussed in preceding sections of this publication. First, India is determined to showcase its leadership in renewable energy consumption. As has been highlighted in this compilation, India is today the world's largest biomass, third-largest solar, and fourth-largest wind energy producer. Further, as mentioned in an earlier essay, using verifiable approximations for 2012, the average Indian spent more on procuring renewable energy as a percentage of income than the average American, Chinese and Japanese.

The document put forth before the UNFCC highlights that between 2002 and 2015, the share of renewable grid capacity has increased over 6 times, from 2% (3.9 GW) to around 13% (36 GW). The government now is looking to leverage this momentum to significantly

scale up the renewable energy sector to achieve the target of 175 GW renewable energy capacity in the next few years. This push from the government provides a significant opportunity to technology companies, small and medium enterprises, and the banking and financial institutions to invest and reap benefits this sector has to offer and support Indian leadership in clean energy.

Second, the document recognises that India's electricity demand is set to increase from 774 TWh in 2012 to 2,499 TWh in 2030. This increase in demand is borne out of the country's efforts to industrialise, eradicate poverty and provide its population with better living standards. This industrialisation will require bolstering the manufacturing sector, building reliable infrastructure, and ensuring rapid urbanisation. Thus, alongside the efforts to strengthen its renewable energy sector, a large portion of India's energy needs will be met through coal and fossil fuels. However, as highlighted in this compilation, the average Indian accounts for around 20 percent of the average American's coal consumption, 20 percent of the average Chinese's coal consumption, and around 34 percent of the average OECD citizen's coal needs.

Further, India's peaking per-capita emissions are unlikely to ever cross the threshold of five to six tons per capita that still marks the climate action aspirations of developed carbon-intensive economies. In fact, based on the INDC submissions, none of the major developed nations will achieve this level of per capita emissions. India would need four times China's population—and 10 times that of the United States—to achieve total emissions comparable to either country. The bottom line then is that, while India will "Go Green" and lead the green transition, it will also have to "Grow Coal" to meet its development objectives. Additionally, as the benefits of industrialisation and economic growth increase the purchasing power of every Indian, the country, which already outperforms many, will be able to invest more aggressively in clean energy. India's peak will be lower than any other country that would have industrialised before it and its transition time will be much quicker. The country will have to deploy fossil fuels to power its early green transition. In this regard, better coal technologies, vis-à-vis combustion efficiency, energy efficiency across the board and natural gas as a bridge fuel will offer India enough room to manoeuvre.

Third, the Indian government recognises that assistance from the developed world on climate change adaptation will not be forthcoming, despite the adverse impact climate change will have on sectors such as agriculture and coastal economies. Taking this into consideration, Government of India has indicated its intention to set up its own domestic adaptation fund. India will need to discover innovative social schemes and business models to build societal resilience and capacity, and this is a core component of the INDCs. If global partnerships can aid in this effort, vital resources can then be diverted to further bolster mitigation actions.

Last, the INDCs predicate the success of India's ambitions on the availability of technology (some of which are listed) and financial flows (not aid) at commercial, competitive rates from the financial system. Specifically on financial flows, the INDCs take a leaf out of the chapter titled "Paris Package" as they call for new and additional finance for climate change, recognising the fact that there currently exists a huge shortfall in supply and demand for climate finance. The International Energy Agency (IEA) has stated that except for a "breakthrough at the Paris UN climate conference in 2015," the existing international framework and market structures will be unable to mobilise funds for climate action at the required pace or scale. Simply put, the fewer the impediments to access technology and finance, the greater the probability of success for India's INDCs.

However, there still remains a lot that needs to be achieved at Paris, and a lot that Indian leadership can successfully negotiate. The crux of such leadership must argue for lifeline energy needs to be put before lifestyle energy consumption, and in this context the expansion of CBDR from between countries to within countries is a must. India should also pursue linking finance and technology to 'multilateral shells' such as BRICS, SAARC, ASEAN and SCO, and be open to bilateral partnerships between groups of countries on specific technology and financial requirements. A co-benefit approach should be pursued in conformance with reference to Article 3 of the Convention. It also must be recognised that climate-induced disasters do not respect administrative or political boundaries. Therefore, besides multilateral cooperation, strengthening regional cooperation, for instance between Himalayan countries or within the Indus and Ganges river systems, is a must.

The climate agreement has to be analysed alongside another major global agreement that was signed recently, the one on Sustainable Development Goals (SDGs). The success of the SDG agenda will be determined by India's ability to grow its economy inclusively and eradicate poverty, just as the success of the Millennium Development Goals were predicated on the economic growth of China. Any international agreement on climate change, therefore, must take this reality into account – else a significant portion of the global population may not just be a victim of climate change, but also fall prey to overdesigned climate policy. This, in a nutshell, is the Indian proposition at Paris.

About the Author

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