

# Paris agreement, India, it's INDC and beyond

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Recently President Mr. Donald Trump announced that the United States will withdraw from the historic Paris Agreement. By opting out of the Agreement, he has shown the poorest form of leadership – as if those hit by climate change do not matter. The announcement has sparked anger and frustration around the world, including huge protests from his own citizens and states. Trump, a global warming sceptic, has been critical of the Agreement, saying it would be harmful for America's manufacturing and that other nations like India, China and Russia were not doing enough for the mitigation of greenhouse gases. Although US's withdrawal will not unravel the Agreement, could weaken the global efforts significantly to fight climate change, with world's largest historic greenhouse gas emitter and now second largest emitter, and also the largest economy at the same time, going out of it. The most visible implication of US's withdrawal from the Agreement is other member countries will have to either undertake the burden of mitigating US greenhouse gas emissions of 3 billion tonnes of CO<sub>2</sub> which accounts 15 per cent of the Globe's total greenhouse gases generation per year, otherwise it would impact the aim of Agreement.

Intended National Determined Contributions (INDCs) is a term used under the UNFCCC for reductions in greenhouse gas (GHG) emissions that all countries, which signed the UNFCCC, were asked to submit in the lead up to the COP21 summit in Paris. The concept of INDCs evolved out of the search for a new mechanism to make the planet carbon-neutral. Most of the member countries, more than 160 of them, have already communicated their INDCs under the UNFCCC, pledging their support for the cause of saving planet Earth. The INDCs would serve as critical inputs in this national policy setting process, where the countries would determine their contributions in the context of their national priorities, circumstances, and capabilities with a global framework that drives collective action towards a low-carbon and climate-resilient future. India's INDCs in place are even more aggressive in comparison to that of INDCs of China and USA, particularly committing more non-fossil fuel percentage in our energy basket by 2030.

In 2012, Trump, then only a businessman, had tweeted, "The concept of global warming was created by and for the Chinese in order to make US manufacturing non-competitive." He said, frequently during last year's election campaign that climate change was a hoax. Again, recently at Taormina, Sicily, Italy, leaders from the world's major industrialised nations began talks at a G7 summit, exposing deep divisions with US President over the issues of trade and

climate change, although they all agreed on measures against terror. Trump's decision may also impact Developing Countries, in terms of sourcing appropriate technology and finance that the US as a global player used to play a role before. The Paris Agreement was signed in Paris, in December 2015 by 195 member countries of United Nations Framework Convention on Climate Change (UNFCCC), including India and went into effect on 4 November, 2016 after the ratification by 147

member countries, including the USA, Canada, Germany, France, UK, Japan, Russia, China and India. The Paris agreement aims at strengthening the global response to climate change by keeping a global temperature rise below 2°C and to strengthen the ability of countries to deal with the impacts of climate change. The agreement allows for voluntary determined targets, called Intended Nationally Determined Contributions (INDCs). India has got a very pragmatic and most ambitious INDC which is very

aggressive in adopting largest clean energy programme and to achieve 40 per cent of energy generation from non-fossil fuel sources by 2030, in addition also committing to promote 175 Gigawatts of renewable energy by 2022.

Trump's personal view on the issue is under focus because he spoke about renegotiating the Agreement or work on a "new transaction" as he called it. But how does anyone negotiate climate change – if at all because most of world leaders have said that the Paris Agreement is irreversible – with a climate change denier? President Trump has also asked the US Environment Protection Agency (EPA) Administrator, Scott Pruitt to examine the modalities of US's withdrawal from the Agreement. Mr. Scott Pruitt told the US Media that his team has worked out two possible options, a process that legally could take minimum three years to complete since US has not only signed but also ratified the Agreement, or the next option would be to exit the Agreement by leaving the UN body, viz., UNFCCC itself, which might be a lot quicker process.

Trump's decision of pulling US Ph. 10 PM out of the Agreement even provoked anger and condemnation from heads of the industries and world leaders. Hon'ble Indian Prime Minister Shri Narendra Modi was quick to respond. He said, "Paris or no Paris, it is our conviction to protect the environment. We have no right to snatch from our future generations their right to have a clean and beautiful Earth. Failing to act on climate change would be morally criminal". German Chancellor, Angela Merkel said, "Trump can't and won't stop all those of us who feel obliged to protect the planet. The move is regrettable and that's putting it very mildly. Climate change threatens our well being, our security and our economic development today". French President Emmanuel Macron said, "I do respect this decision but I do think it is an actual mistake both for the US and for our planet... We all share the same responsibility, make our planet great again. France will be active and mindful of the fight against global warming." Chinese President Xi Jinping commented, "China has stayed true to fighting climate

change including promoting and the signing of the Paris agreement. Tackling climate change is a shared mission for mankind." The German Chancellor, French President and Italian Prime Minister Paolo Gentiloni said in a rare joint statement that the Agreement could not be renegotiated and urged allies to hasten efforts to combat climate change. Downing Street said UK Prime Minister, Theresa May expresses her disappointment during a phone call with President Trump for pulling US out from the Agreement. Canadian Prime Minister Justin Trudeau described the decision as disheartening. Former US President Barak Obama, one of the architects of the Paris Agreement, said at Montreal, "Greener policies were good for economic growth. We have shown that environmental sustainability and the economic progress are not contradictory but are complementary. I am confident that our States, Cities, and Businesses will set up and even do more to lead the way and help protect for future generations the one planet we have got." The United States, the world's biggest carbon emitter after China, signed the Agreement last year under the previous President Obama's administration, but Trump has argued that the Agreement would harm the US economy.

One might reasonably expect that America would emit as much greenhouse emissions as it pleases, in order to make America great again. But it won't be easy to bully Americans to do this. Already states like California, New York and Washington have refused to ignore the Paris agreement. Cities like Salt Lake, Los Angeles, Pittsburgh, etc., have signed up a plan which will still hold America accountable to emission reductions as promised. California's Democrat Governor



*US President Donald Trump announcing plans to withdraw the US from the Paris Agreement on climate change*

Jerry Brown in the 8th Clean Energy Ministerial, a global forum to share best practices for transition to clean energy, being held in Beijing, said President Donald Trump's pulling US out of the Paris Climate Agreement has an unexpected result. Instead of the support for the move that he expected, people in the US and abroad have woken up to the pressing need to stop climate change. Notwithstanding President Trump's announcement, more than 100 US cities have said they will continue towards meeting the emission targets set by the Paris Accord. Governor Brown also said California hopes to work with India and China to fight global warming. Arnold Schwarzenegger, former California governor and a registered Republican criticised Trump – "One man cannot destroy our progress. One man can't stop our clean energy revolution. And one man can't go back in time." Trump's decision to scrap the Paris Agreement signals America's diminished global leadership, great loss of diplomatic strength and has left him isolated on the world stage and prompted a backlash at home, with several state governors, city mayors and powerful companies already drawing up plans to meet the pact's emission targets, without White House's backing. This move will also adversely impact US to be a leader in new developments and will lose access to growing markets for renewable energy, although may add a few jobs to a shrinking fossil fuel industry. The renewable energy sector is among the fastest growing job creators in the US. Solar power alone employs 3,70,000 people against the combined coal power and mining sectors which employ only 1,30,000 now.

In keeping with his pre-election promise of America First and pulling US out of the Paris Climate

Agreement, President Trump made the announcement, alleging that it gave a better deal to "some of the world's highly polluting countries" like India and China. Though the US was \$20 trillion in debt, "under the Paris Agreement, billions of dollars that should be invested here, will go to countries that have taken our jobs," he said. "At what point do they start laughing at us as a country? We want fair treatment," President Trump had added. He named India and China among the reasons he called the deal unfair. He said the Agreement was not tough enough on China and India. China will continue polluting for a "staggering number of years." India makes its participation contingent on receiving billions, billions and billions of foreign aid from developed nations and while the US was expected to cut production of coal under the Agreement, India could double it." He said he wishes to renegotiate the Agreement on the terms that is fair to the US, its business, people and taxpayers.

"India signed the Paris Agreement not because of any pressure from any country or for the lure of money. Our signature in the pact was not because of greed, neither it was because of fear. We are committed to environment protection and this commitment is 5000 years old. We worship nature. In our villages, we worship trees, we worship mountains. It is in Indian ethos. I clearly dismiss both the accusations. India will continue to be a part of the agreement, irrespective of whether the US remains in it or not," said Ms Sushma Swaraj, the Indian Union Minister of External Affairs.

While announcing that the US will pull out of the Paris Climate Accord, President Donald Trump claimed that the Paris Agreement allows India to build hundreds of coal

plants and double coal production till 2020. Union Minister (Environment, Forest & Climate Change) Dr. Harsh Vardhan, while participating in 8th Clean Energy Ministerial in Beijing, has denied the allegation of President Trump and said, "the country is hoping to achieve climate targets well before time; worshipping nature is part of our DNA and we know the importance of clean air and our rivers".

The 2015 United Nations Climate Change Conference, COP21 was held in Paris, France, from 30 November to 12 December 2015. It was the 21st yearly session of the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC). COP21 was meant to be a very important and a landmark event in the history of world climate change action plan because the world is pursuing a new emission reduction instrument called 'Intended Nationally Determined Contributions' (INDCs). Countries across the world have geared up to act against climate change and that is evident in their INDCs for climate change adaptation and mitigation. INDCs is a term used under the UNFCCC for reductions in greenhouse gas (GHG) emissions that all countries, which signed the UNFCCC, were asked to submit in the lead up to the COP21 summit in Paris.

### **Significance of the INDCs mechanism**

The concept of Intended Nationally Determined Contributions (INDCs) evolved out of the search for a new mechanism to make the planet carbon neutral. Most of the member countries, more than 160 of them, have already communicated their INDCs under



## Intended Nationally Determined Contributions

the UNFCCC, pledging their support for the cause of saving planet Earth. The INDCs would serve as critical inputs in this national policy setting process, where the countries would determine their contributions in the context of their national priorities, circumstances, and capabilities with a global framework that drives collective action towards a low-carbon and climate-resilient future. For the INDCs to be successful, they would

have to be based on concrete research results and facts. INDCs shall make it possible to track progress and achieve a collective ambition level sufficient to limit global warming to below 2°C relative to pre-industrial levels. They should be considered as an initial attempt to put the planned actions into force and form a new climate economy in order to tackle climate change.



Public opinion on climate change mitigation in COP21

## Fate of the Kyoto Protocol

The Kyoto Protocol had come into existence in 1997 at COP3 in Kyoto, Japan where all the member countries, including the USA, had signed the Protocol. Later, since the US Congress did not approve it, USA did not ratify the Kyoto Protocol. Although, the Protocol came into operation w.e.f. 16 February 2005, subsequently the important member countries, such as Canada and Japan walked out of the Protocol and as a result the emission reduction targets which all the 41 developed industrialised nations had accepted on the basis of 5.2 per cent reduction on the base year of 1990; failed to be achieved during its first commitment period, i.e., 1 January 2008 to 31 December 2012. Now, although the second commitment period is operational since 1 January 2013 and will continue up to 31 December 2020 after Doha Amendment since many parties have walked out; there is little hope that the Protocol will be successful in achieving its committed targets.

## Backdrop to the mechanism of INDCs

In fact, INDCs did not arrive all of a sudden. By December 2009, most of the world had already realised that the Kyoto Protocol might not be successful, hence, at COP15 in Copenhagen, Denmark, the whole world got engaged in discussions that the world needs a new emission reduction mechanism where all the member countries irrespective of their 'developed', 'developing', or 'least developed' tag should come forward to share some burdens of GHG emission cut to save the planet from the grave dangers of global warming. India had declared 20-25 per cent reduction in its carbon intensity

with respect to the base year of 2005 by 2020, which was declared by the former Prime Minister Dr. Manmohan Singh at Copenhagen. It was also decided that the modalities for a new mechanism would be worked out by 2015 which would be operational during 2020-30. Discussions on new mechanism were carried out in all subsequent COPs – at COP16 in Cancun, COP17 in Durban, South Africa, COP18 in Doha, Qatar, COP19 in Warsaw, Poland, and COP20 in Peru, Lima. The concept of INDCs was initiated at Warsaw, where its scope was largely confined to emission reduction, GHG cut, or mitigation. Finally, during COP20 at Peru, the member countries of UNFCCC realised that at that point of time, ‘adaptation’ is even more important than ‘mitigation’ for which the ‘adaptation measures’ found a place in INDCs conceptualisation.

### Contribution of INDCs to the Paris agreement

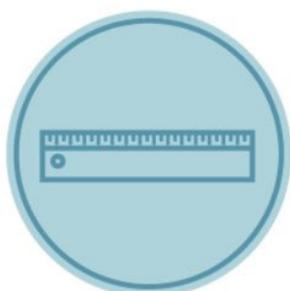
INDCs are another experiment in emission reduction space, similar to emission trading experimentation. Nothing is cent-per cent guaranteed or conforms to a water-proof mechanism. All these mechanisms have emerged out of the necessity of the time to meet the challenges of protecting the planet against the perils of climate change. The pledges made by the member countries of the COP so far would still result in global warming

of at least 2.7°C, even if they are all met – this is much better than the 5°C rise, we might expect without action, but still short of the 2°C goal. Negotiators have virtually given up on the idea that the pledges should be legally binding. Shirkers would face no real sanction, other than international opprobrium. And that means a system to check and report what each country does, seems to be critical. But the rules for monitoring, also remains unfinished. The plans to regularly review and “ratchet” up the pledges to contain global warming to 2°C or lower, i.e., capping global temperature rise to 1.5°C by the end of the century, i.e., by the year 2100, are not finalised either. In the upcoming COPs, UNFCCC strategists must calculate if we can achieve 2°C temperature reduction to stabilise the planet’s climate and what identify the shortfalls in the sum total of each of the individual commitments of INDCs. The strategists should also discuss if some capable/abiding developed and developing countries would be asked to make some more commitments. It is hoped that this new Paris Agreement is ready before December 2020 so that it can be implemented starting from 1 January 2021.

### India’s position and responsibility as a rapidly developing economy

A few questions that can come to the mind of any attentive Indian citizen are, “Our per capita emission is the least in the world, why should we agree to some commitments for which we are not responsible? The developed countries have enjoyed over thousands of years through the series of industrial revolutions one after another, especially when we have not any access to the basic human necessities, such as clean drinking water for our survival, electricity for studying, houses to live in; why should we spend money in cutting industrialised countries’ emissions to make the Earth carbon-neutral? In fact, this is our time for growth and survival...” This is how many Indians may think. To a certain extent these apprehensions may be true. ‘Equity’ is an important issue in our climate change negotiations during COPs. All the citizens of the planet should have equal rights over the planet’s resources including air or water space. The entitlements and the quota of the developing and least developed countries should not be ignored.

But, at the same time we must not forget that we are the third largest emitter of the GHGs into the planet’s atmosphere (Table 1). Our GHG emissions are constantly and geometrically increasing, whereas, in developed and industrialised countries, carbon emissions are geometrically reducing. Most of them argue that our industries



1. Measure your climate footprint



2. Reduce your emissions as much as possible



3. Offset what you cannot reduce with UN certified emission reductions

are not doing their bit, taking the advantage of demographic figures of India. But, this perception is slowly changing, and Indian industries are now stepping forward in standing up to their counterparts abroad, to be more energy-efficient, water-efficient, and adopt sustainable technologies and development practices to ensure a long-term green growth. We all have to equally think for the survival of our planet, hence the survival of ourselves. Who is responsible if we don't have safe drinking water, even after 70 years of independence? Being a civilised citizen of the planet we need to feel equally responsible, like everybody else in the world. We need not block our growth but at the same time,

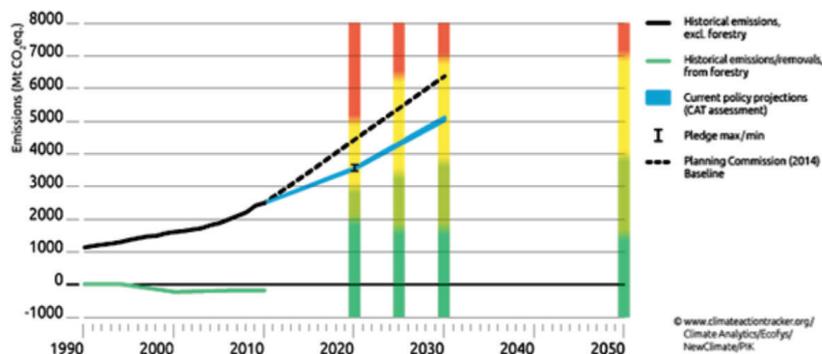


Fig. 1: India's GHG emission trend over the years. Source:www.climateactiontracker.org

emissions could be at least two to three times of its present level by 2030, and it may well end up being the world's second-largest emitter after China soon, if we fail to take stronger proactive action to reduce our GHG emissions.

world has polluted the Earth and we are suffering. Still we want to become a part of the solution and give results. We want to walk on a cleaner energy path." The Indian government declared its futuristic adaptation and mitigation actions starting from 2020 till 2030 after doing a complete homework. The nodal Ministry, i.e., the Ministry of Environment, Forest and Climate Change (MoEF & CC) had administered different questionnaires to various industries and other stakeholders who are responsible for the GHG emissions in India through their respective affiliated ministries and asked what are the adaptation and mitigation measures they are likely to undertake or commit from 2020 to 2030. After getting their responses, government undertook a collective consolidative perspective regarding its adaptation and mitigation preparedness during 2020-30. India submitted its INDCs in the form of a 38-page document containing the details of the pledge.

India's plan to cut carbon pollution builds on its pledge at the COP15 in Copenhagen to reduce the intensity of its GHG emissions by 20-25 per cent by 2020 from 2005 levels. The cost of this climate action between now and 2030 is estimated to total more than \$2.5 to 3 trillion. India's goals may seem highly ambitious, but they are in fact achievable with

Table 1. Top Seven GHG Emitter in the World

Country	Total CO <sub>2</sub> emissions in 2013 (million tonnes)
China	9,977
USA	5,233
India	2,406
Russia	1,812
Japan	1,246
Germany	759
South Korea	615

Source: Agencies, Global Carbon Project, 2013

we need to balance it along with environment on equal footings.

India is the third largest producer of GHGs, which is 6 per cent of the total GHG emissions of the planet (World Resources Institute 2014). Its share of global GHG emissions has almost doubled in the last quarter of a century and now, with an accelerated economic growth, it is increasing at a faster rate. With the projections being made by various national and international agencies, its

### India's INDCs – A progressive roadmap for the future

"India's climate action plan submitted to the United Nations is 'comprehensive, ambitious and progressive' which would help reduce emission intensity by 33-35 per cent by 2030", the then Environment Minister Shri Prakash Javadekar said after India declared/disclosed its INDCs on 2 October (Gandhi Jayanti), 2015. He further said, "The developed

### India's INDCs Commitment by 2030

- To put forward and further propagate a healthy and sustainable way of living based on traditions and values of conservation and moderation.
- To adopt a climate friendly and a cleaner path than the one followed hitherto by others at corresponding level of economic development.
- To reduce the emissions intensity of its GDP by 33–35 per cent by 2030 from 2005 levels.
- To achieve about 40 per cent cumulative electric power installed capacity from non-fossil fuel based energy resources by 2030 with the help of transfer of technology and low cost international finance including from Green Climate Fund (GCF).
- To create an additional carbon sink of 2.5–3 billion tonnes of CO <sub>2</sub> equivalent through additional forest and tree cover by 2030.
- To better adapt to climate change by enhancing investments in development programmes in sectors vulnerable to climate change, particularly agriculture, water resources, Himalayan region, coastal regions, health and disaster management.
- To mobilise domestic and additional funds from developed countries to implement the above mitigation and adaptation actions in view of resource required and the resource gap.
- To build capacities, create domestic framework, and international architecture for quick diffusion of cutting edge climate technology in India and for joint collaborative R&D for such future technologies

Source: India's INDCs, October, 2015, MoEF & CC

the right strategy, policy measures, and actions.

### Intended measures by India to tackle climate change – are we doing enough?

There was a huge pressure on India from the international community to declare its future climate change actions including INDCs. The Prime Minister of India was also very keen that India takes a front seat in delivering very strong and dynamic actions against climate change in comparison to rest of the world since India is one of the worst sufferers of climate change. India has currently targeted renewable energy capacity of 175,000 MW by 2022; which could be more than doubled by the end of 2030. An

earlier target of installing 20,000 MW by 2022 of solar energy has been raised five-fold to 1,00,000 MW and similarly, wind power capacity of 60,000 MW has also been put in place, which would be crucial in the abatement of 326 million tonnes of CO<sub>2</sub> equivalent.

In addition, India is determined for many dynamic initiatives, which would include introduction to new, more efficient and cleaner technologies in thermal power generation, promotion of renewable energy and increasing share of alternative fuels in the overall fuel mix, reducing emissions and waste from transportation sector, promotion of energy efficiency in economy, industry, transportation, building and appliances, development of climate resilient infrastructure, and

full implementation of *Green India Mission* and other afforestation schemes. The initiatives also comprise of widening the scope of Perform, Achieve and Trade (PAT) scheme, a market based energy efficiency trading mechanism that at present covers 478 plants in eight energy-intensive industrial sectors, accounting for one-third of the total energy consumption in the countries. The scheme has been deepened to include additional sectors, such as railways, electricity distribution, and refineries in the next cycle and cover more than half the commercial energy consumed in India. Moreover, India is undertaking many dynamic, proactive adaptation and mitigation measures through the formulation of appropriate policy guidelines and having right strategies and an implementation framework in place through eight of its climate change missions as prescribed by the Prime Minister's National Action Plan on Climate Change (NAPCC).

### INDCs of China and the USA by 2020–30 in comparison to India's INDCs

Being the largest emitter of GHGs, China's climate action commitment was under the international radar and it has clearly shown efforts aimed at enhancing GHG emission reduction actions by lowering the GHG emission per unit of GDP by 60-65 per cent from the 2005 levels. It has planned to double its wind power capacity to 200 GW and install 100 GW of solar power capacity. It has also planned to increase the share of green buildings, heading towards low-carbon communities and has planned to increase the share of green buildings, heading towards low-carbon communities and technologies. The country has

definitely put forward an ambitious contribution declaration to bring down GHG emissions.

China is followed by the USA, which is the second largest GHG emitter. The US has undertaken substantial policy action to reduce its emissions, taking the necessary steps to place it on a path to achieve the 2020 target of reducing emissions in the range of 17 per cent below the 2005 levels in 2020. Additional action to achieve the 2025 target represents a substantial acceleration of the current pace of GHG emission reductions. According to the US, achieving the 2025 target would require a further emission reduction of 9-11 per cent beyond its 2020 target compared to the 2005 baseline and a substantial acceleration of the 2005-2020 annual pace of reduction, to 2.3-2.8 per cent per year, or an approximate doubling. Table 2 presents a comparative data analysis of the INDCs of India, China and the USA.

A total of 151 countries, including India, China and the USA, representing more than 87 per cent of global GHG emissions, have submitted their intended national

#### China's INDCs Commitment by 2030

- Achieve CO<sub>2</sub> peaking around 2030 and making best efforts to peak early.
- Lower CO<sub>2</sub> emissions per unit of GDP by 60-65 per cent from the 2005 levels.
- To increase the share of non-fossil fuels in primary energy consumption to around 20 per cent.
- To increase the forest stock volume by around 4.5 billion cubic metres on the 2005 level.

Source: unfccc.int, 2015

climate action plans to the United Nations. The European Union has pledged 40 per cent reduction in carbon emission of 1990 levels by 2030, while 10 per cent cuts could be additional target seeking a fair climate regime in the Paris Agreement. Brazil, Russia, India, China, and South Africa together form the BRICS, wherein Brazil has pledged to increase its renewable share, mostly hydro, by 45 per cent uptill 2030; Russian federation has pledged 6-11 per cent reduction level below 1990 by making maximum use of forests to absorb CO<sub>2</sub>, while South Africa said that its emissions would peak between 2020 and 2050, and decline later. Eastern countries like Japan and South Korea have also pledged a reduction of 26 per cent and 37 per cent, respectively in carbon emissions by 2030. To help achieve such ambitious targets it is important that the advanced economies keep their promise of

#### USA'S INDCs Commitment by 2030

- The USA intends to achieve an economy-wide target of reducing its greenhouse gas emissions by 26-28 per cent below its 2005 levels by 2025 and to make best efforts to reduce its emissions by 28 per cent. The USA will introduce domestic carbon trading system.
- The US target covers all greenhouse gases included in the 2014 Inventory of United States Greenhouse Gas Emissions and Sinks.
- The US will only have about 30 per cent of its electricity capacity on non-fossils.
- It has introduced changes in domestic laws for decarbonization of economy.

Source: unfccc.int, 2015

providing \$100 billion per year to help developing nations mitigate the effects of climate change.

Under the INDCs, India does not commit to absolute cuts in emission levels unlike bigger emitters, such as the USA, European Union or China, but plans to slow down the pace of emission growth without hurting economic development. China's per capita CO<sub>2</sub> emissions in 2030 are projected be about 12 tonnes, similar to the USA, but again four times higher than India (Centre for Science and Environment, New Delhi, India, 2015), which might not prove to be in line with keeping the global temperature rise within a manageable limits. India's INDC is unique and one of the most ambitious INDCs, not only among developing countries but also in comparison to INDCs of most of the developed countries.

#### International Solar Alliance (ISA)

India's Prime Minister Shri Narendra Modi and then French President Mr. François Hollande launched the International Solar Alliance (ISA) at the COP21 Climate Conference in Paris on 30 November 2015 as a special platform for mutual cooperation among 121 solar resource-rich countries lying fully or partially between the Tropic of Cancer and the Tropic of Capricorn. The alliance includes 121 countries that support the "Declaration on the occasion to launch the international solar alliance of countries dedicated to the promotion of solar energy". This international solar collaboration sets an encouraging tone as the representatives of over 121 countries gathered at the earliest stage of COP21 conference to reach a new agreement to ramp up renewable energy – particularly solar energy. It also has the

**Table 2. INDCs of India vs China and the USA**

Category	China	The USA	India
Electricity production (2014)*	5,649,500 GWh	4,297,300 GWh	1,208,400 GWh
GDP**	US \$11, 212 (Billions)	US\$18.125 (Billions)	US \$2, 308 (Billions)
Share of global GHG Emission	25.36 per cent	14.4 per cent	6.96 per cent
Per capita CO <sub>2</sub> Emissions (2011)***	6.7 tonnes per capita	17 tonnes per capita	1.7 tonnes per capita
Share of renewable Energy Mix in 2014	9.6 per cent	10 per cent	8.2 per cent
Pledge to reduce carbon intensity of the output	60-65 per cent	26-28 per cent	33-35 per cent
Share of non-fossil fuel electricity generation	20 per cent	30 per cent	40 per cent
Absolute cuts in emission Level	Has committed	Has committed	Has not committed

Source: The Ministry of New & Renewable Energy (MNRE), Government of India, 2014; \*BP Statistical Review of World Energy, 2015; \*\*knoema.com, World GDP Ranking, 2015; \*\*\*The World Bank, 2015

potential to propel international solar markets forward while fighting climate change, improving global health, and boosting economies. This international alliance will facilitate widespread implementation of solar projects and infrastructure of these 121 tropical countries.

This new alliance is seen as a symbol of India's unique leadership in centre-staging solar as a clean energy on the global arena. New Delhi will be the headquarter of this alliance and the Government of India has already committed to finance its secretariat for the first five years. International organisations, such as The World Bank, the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP), the International Renewable Energy Agency (IRENA), and many others will partner this initiative. This international alliance brings together developed and developing countries to expand energy access, accelerate solar power deployment, and stimulate

economic development. Backed by \$1 trillion investment, the alliance should drive down the costs of solar power, making it affordable for a growing number of communities. India has emerged as the natural leader for this alliance with its ambitious targets to install 175 GW of renewable energy out of which 100 GW would come from solar basket, by 2022 and non-

fossil fuel electricity generating systems accounting for 40 per cent of the cumulative installed capacity by 2030.

“The protection of the environment and the mother planet is an article of faith,” Indian Prime Minister Shri Narendra Modi said at a Joint news conference with French President Mr. Emmanuel Macron recently in



Launching the International Solar Alliance are India's Prime Minister Shri Narendra Modi and then French President Mr. Francois Hollande



Prime Minister Shri Narendra Modi with French President Mr. Emmanuel Macron at a joint news conference in Paris

Paris. The two leaders, who met for the first time, announced no contracts or new initiatives. “We are both convinced that our countries have to do a lot for the ecological and environmental transition and the fight against global warming.” French President said, adding that France would go above and beyond its Paris Agreement commitments. He said that he planned a visit to India before year-end for a first summit of the International Solar Alliance, an initiative launched by New Delhi and Paris during the Paris Climate Change Talks. He added the Alliance would lead to concrete measures in favour of solar energy and commit the companies of both nations. The Alliance seeks

to mobilise more than a trillion dollars by 2030 and bring together well over 121 solar rich countries to deliver solar energy to some of the Planet’s poorest.

### Ten significant take aways from the Paris Agreement

1. The Paris Agreement sets a goal of keeping the warming well below 2°C and also for the first time agrees to pursue efforts to limit the increase in temperature to 1.5°C.
2. Under the Agreement, all countries will communicate their emission reduction

targets every five years, starting in 2020. Targets must be submitted 9-12 months before they are finalised, creating time for other countries and civil societies to seek clarity about the target submitted.

3. Each target should reflect progress from the prior one, reflecting the highest possible ambition that each country can achieve this durable long-term framework and will drive the greater emission reduction ambition as technologies improve and circumstances improve.

### India's Contribution to ISA

**NTPC to contribute \$1 million to the corpus fund of \$15 million that India is providing to the ISA**

The Indian Renewable Energy Development Agency (IREDA) and the Solar Energy Corporation of India (SECI), both of them arms of the Ministry of New and Renewable Energy (MNRE) have already committed **\$1 million each**

Coal India & NALCO are also likely to announce similar contributions soon

India has also set aside five acres of land in Gurgaon, next to the National Institute of Solar Energy, to house the headquarters of the ISA

### THE \$6.4 TRILLION CLEAN TECHNOLOGY MARKET IN DEVELOPING COUNTRIES

**\$6.4 TRILLION** expected to be invested over the next decade

**19%** Growth in clean technology investments in developing countries in 2012

**\$1.6 TRILLION** ACCESSIBLE TO SMALL- AND MEDIUM-SIZED ENTERPRISES (SMEs)

4. To help inform further domestic and global efforts, the Agreement puts in place a mechanism to assess collective progress on global mitigation action using the best available science. This process will begin in 2018 and occur every five years to help inform countries' future targets and strategies.
5. This mitigation component of the Agreement, combined with a broad push on innovation and technology, will help significantly scale up energy investments in the coming years – investments that will accelerate cost reduction for renewable energy and other low-carbon solutions. This set of actions will create a mutually reinforcing cycle in which enhanced mitigation increases investment and this allows additional mitigation by driving down costs.
6. To help make sure that all countries are living up to their commitments, this will send a market signal to the private sector and investors that countries are serious about meeting the targets they have set.
7. A critical component of the Agreement, the transparency

- framework agreed to by Parties, ensures that all countries are on a level playing field with a flexibility for developing countries with less capacity.
8. For the first time, the Agreement requires all countries to report on national inventories of emissions by source. This break-up will give an unprecedented clarity to the public's understanding of emission and pollution in countries throughout the world.
  9. Also, countries are required to report on information necessary to track progress made in implementing and achieving the targets and strategic countries have put forward.
  10. To help and ensure that countries are meeting transparency requirements, countries are subject to a comprehensive technical expert review process that analyses whether reporting is in line with the standards adopted. Countries will also engage in a multi-lateral review with their peers to share their experience and lessons learned.

The year 2016 was again pivotal in charting out the roadmap towards limiting global warming in COP22 at Marrakech, Morocco during November-December, following the conclusion of the 21st session of the Conference of the Parties (COP21) in Paris, where “Marrakech Action Proclamation” – a shift towards a new era of implementation and action on Climate Change including the intended nationally determined contributions (INDCs) and Sustainable Development, is signed by the heads of the States, heads of the Governments and the delegations from all over the world, which is going to be very crucial in furtherance of the climate action, Sustainable Development Goal (SDG) No 13.

In her speech, the Executive Secretary of the UN Framework Convention on Climate Change Ms. Patricia Espinosa summed up the central outcomes of the UN Climate Change Conference COP22 in Marrakech, along with outlining the next steps for international, national and local climate action:

*First, I saw unparalleled political will to act on climate change. The momentum that carried us from hundreds of thousands of people in the streets at the People's Climate March in 2014... to an ambitious agreement in Paris last year has not diminished.*





**(Marrakech, 17 November 2016)** A shift towards a new era of implementation and action on climate change and sustainable development has been signed by Heads of State, Heads of Government and Delegations from all over the world through the Marrakech Action Proclamation.

The Proclamation celebrates the unstoppable global momentum on climate change and sustainable development actions by governments, businesses, investors, sub-regional government and cities. It calls for the highest political commitment to build on that momentum so that climate action can fully support the achievements of the Sustainable Development Goals for the benefit of people and the planet.

The Marrakech Action Proclamation was read out to a full plenary at the UN Climate Change Conference in Marrakech (COP22).

*Political will brought the Paris Agreement into force just days before this year's conference in Marrakech, setting a tone for the meeting and allowing us to hold the historic first Conference of the Parties to the Paris Agreement.*

*Second, Marrakech featured close cooperation to advance critical issues, which can be seen in the conference outcomes. Governments took a crucial step towards writing the rules of the Paris Agreement. They outlined the finance, technology and capacity building support that enables the developing world to move to low-emission development and build resilience. Marrakech featured long-term de-carbonization plans from major emitters and medium-income countries.*

*The Marrakech Action Proclamation unites nations in the determination to implement the Paris Agreement and UN Sustainable Development Goals.*

*This is all very positive and shows that governments are willing to work together. It also sends a strong signal that we have unstoppable global momentum on climate change and sustainable development.*

*Third and finally, Marrakech shined a light on movement in markets and in the private sector. And it highlighted climate actions by local governments.*

*In markets, we see a transformation to low-emission. The clean energy market is growing and now it makes more sense to choose renewable energy over all others. Investors are moving to cleaner, greener assets to secure stable returns. Throughout the private sector, we see high efficiency operations, sustainable supply chains and products that reduce consumer's climate footprint.*

*Local governments are moving in the same direction. From cleaner air and adequate water to educated workers who can thrive in the green economy, community-level climate action clearly benefits people.*

*This is why what comes next is so important – our actions over the coming months and years will make a positive difference in the lives of billions of people.*

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