*Residents collect fish in a drought-affected lake in Bac Ninh province, outside Hanoi, Vietnam. Environment Ministers of ASEAN countries and China, Japan and South Korea gathered in Hanoi from October 26 to October 30 to approve an ASEAN declaration on climate change in preparation for COP-21 in Paris.*

# Climate Change: A text for Paris

*The Bonn draft that will be the basis for the negotiations in COP-21 in Paris is to the general satisfaction of developing countries as well, though contentious issues, such as finance and equity in terms of the carbon budget, remain to be sorted out.*

***By R. Ramachandran***

The upcoming world climate summit in Paris, which will be the 21st Conference of Parties (COP-21) to the United Nations Framework Convention on Climate Change (UNFCCC), marks a major milestone in the efforts of the global community to combat climate change. The 12-day summit of 195 member states scheduled to be held from November 30 to December 11 will set the direction, after 2020, for a world faced with a warming climate, which is already having an adverse impact around the world in various forms, and a looming threat of a global temperature increase of over 2°C by 2100.

For the first time in over 20 years of U.N. climate change negotiations, the Paris Summit is expected to come up with a legally binding universal agreement on keeping global warming below 2°C by controlling greenhouse gas (GHG)—equivalently carbon—emissions. It was in 2011 at COP-17 in Durban, under what is known as the Durban Platform, that the deadline of 2015 was set for arriving at a binding international agreement on limiting GHG emissions that will take effect after 2020 so that the average global surface temperature does not breach the "guard rail" of 2°C—or even the more ambitious limit of 1.5°C—above pre-industrial levels.

The key to achieving this is the set of Intended Nationally Determined Contributions (INDCs) by individual member-states, which detail the steps and measures that each country can take voluntarily towards achieving the main objective of the UNFCCC as stated in its Article 2, which is "to achieve, in accordance with the relevant provisions of the Convention, stabilisation of GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. The core of the Paris Agreement will be the INDCs as well as the process of implementation of the agreement.

The Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP) established by COP-17, was entrusted with the task of arriving at an appropriate negotiating text towards evolving "a protocol, another legal instrument or an agreed outcome with legal force under the Convention applicable to all Parties". While the ADP invited all the member-states to communicate their INDCs before COP-21 got under way, it was only at COP-20 in Lima in December last year that the nature, scope and framework of the INDCs were decided upon.

This article was first published in the December 11, 2015 issue of Frontline. Reproduced with permission. While the article was written before the Paris Conference, it eloquently describes the background to COP-21.

## About the Author

**Dr. R. Ramachandran**, an NSTS Scholar, obtained his Masters in Physics from St. Stephen's College, Delhi and his Ph.D. in Theoretical Physics from TIFR. He has scripted and directed several science films. He is a Member and Past President of the Indian Science Writers Association and has been a part of the Prime Minister's Council on Climate Change. He has been associated with Frontline for a long time.

*The Circular Pavilion, an experimental construction built with reusable materials on the forecourt of the City Hall in Paris for COP-21.*

## Old Pledge in New Name

It is instructive to know the origin of the concept of INDCs, in a context where the very future of the world is at stake. Noting that "that the largest share of historical and current global emissions of GHG originated in developed countries, that per capita emissions in developing countries are still relatively low and that the share of global emissions originating in developing countries will grow to meet their social and development needs," the UNFCCC sets out the core principles of the Convention in its Article 3.

Article 3.1 says: "The Parties should protect the climate system… on the basis of equity and in accordance with their common but differentiated responsibilities (CBDR) and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof." The Convention also obliges (Article 4) developed countries to provide finance and technology to developing countries and recognises that the GHG mitigation adaptation actions of developing countries are dependent on the extent of financial and technology support that they receive from the developed countries.

Right from the beginning, the very phrase "historical responsibilities" has been anathema to the developed countries, whose carbon emissions of the past are responsible for the current state of a warming earth since industrialisation began. Between 1880 and now, the earth has warmed by about 0.85°C. But the developed countries prefer to ignore the historically accumulated stocks of carbon emissions, which have shrunk the available carbon space for the economic growth of the developing countries, but focus only on limiting the current carbon flows towards which they want all countries to participate equally without any differentiation.

At COP-15, in 2009 in Copenhagen, developed countries led by the United States virtually hijacked the negotiations and changed track towards a "I-will-do-what-I-can" approach instead of the original goal of arriving at legally binding "topdown" mandated targets of emission reduction for developed countries. In the post-Copenhagen phase of UNFCCC negotiations, the distinction between developed and developing countries has slowly got eroded and the core principles of the Convention, especially those of equity and CBDR, are also practically being abandoned.

## Commitments at Cancun

At COP-16, in Cancun, Mexico, in 2010, the basic architecture of this "bottom-up" scheme, premised on unilateral emission reduction commitments by all countries started to emerge. While these commitments were supposed to be measurable, reportable and verifiable (MRV), there was no talk of any "review" of these pledges in terms of their adequacy in guarding against the impending climate disaster. These "Cancun pledges" were supposed to be for the pre-2020 period, which essentially replaced the top-down prescriptive Kyoto process, whose Second Commitment Period ends in 2020. For the post-2020 period, this unilateral pledge has now acquired the new name of INDC.

The crucial question is, do these pledges add up to prevent a catastrophic and irreversible climate change? They would at least tend to if the declarations are anywhere close to the fair share of emission reductions as required by science to avoid a temperature rise of more than 2°C (or 1.5°C) by the turn of the century. As we will see, the combined INDCs of all countries fall well short of staying within the limit of 2°C temperature rise.

COP-20 had also requested the UNFCCC secretariat to prepare, by November 1, a synthesis report on the aggregate effect of the INDCs communicated by Parties by October 1. As on November 18, 137 INDCs, representing 165 Parties have been submitted to the UNFCCC, but by October 1 only 119 INDCs, representing 147 Parties, had been received. (This constant difference of 28 between the number of submissions and the number of Parties is because the INDCs of the 28 European Union countries is included in a single E.U. submission.)

Therefore, the level of emissions covered by the synthesis report (SR) is only a subset of the total global emissions. However, the 119 submissions represent 75 per cent of the Parties (including the major emitters) who accounted for 85 to 88 per cent of global emissions in 2012.

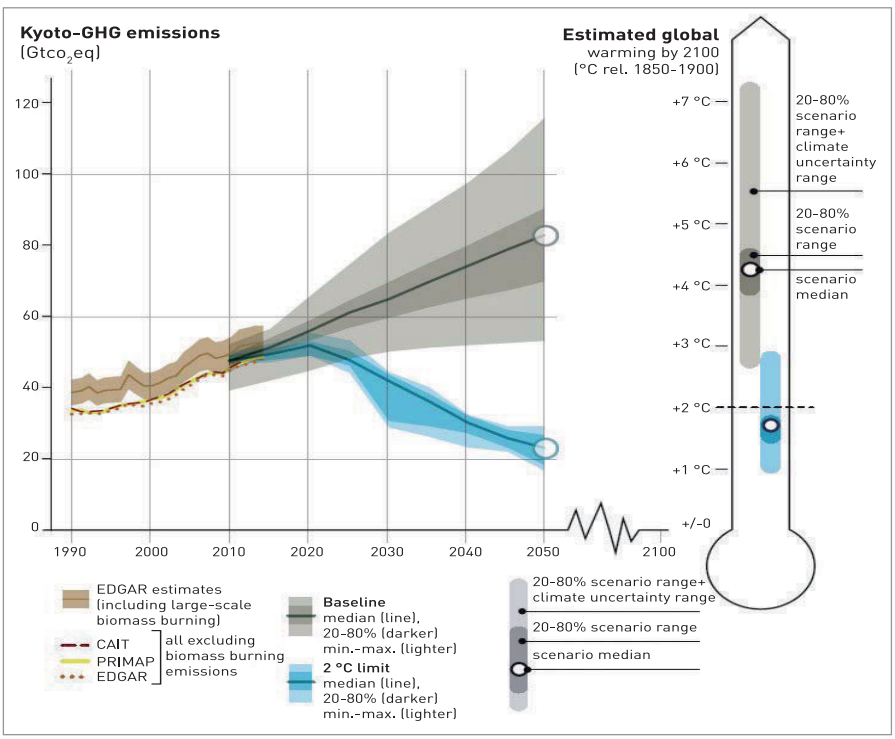


*Figure 1: Historical GHG emissions & projections up to 2050*

## Emissions Gap Report

The INDC data have also been used by the United Nations Environment Programme's Emissions Gap Report (EGR) for 2015, whose conclusions too are roughly the same as those of the SR. The Intergovernmental Panel on Climate Change (IPCC) in its Fifth Assessment Report (AR5) concluded that to limit global warming to below 2°C (with 66 per cent probability), the remaining cumulative GHG emissions—called the carbon budget—should be about 1,000 gigatonnes of $CO_2$ equivalent ($GtCO_2$ eq). In 2014, the total global emissions amounted to about 52.7 $GtCO_2$ eq. Of this, emissions from fossil fuel and industry accounted for 35.5 $GtCO_2$ eq. If the trend continues, the entire budget, basically the atmospheric carbon sink, will be exhausted in the next 20 years. According to the EGR's most recent assessment, on the basis of current trends net carbon emissions will have to be reduced to zero between 2060 and 2075.

According to the EGR, the median emission level in 2030 in scenarios that have a greater than 66 per cent chance of keeping the temperature rise below 2°C is 42 $GtCO_2$ eq. For a 1.5°C pathway, it is 39 $GtCO_2$ eq (*Figure 1*). The EGR says that these pathways are characterized by modest emission reductions compared with current policies until 2020, assuming that they are in line with the Cancun pledges (whose aggregate is estimated to be 52-54 $GtCO_2$ eq). This, therefore, implies that deep and stringent emission control will be required in later decades, including reliance on "negative emission technologies" such as bioenergy and carbon capture. But enhanced action before 2020 would ease the burden and reduce the overall cost of transitioning to least-cost pathways after 2020.

Among the G20 countries, 13 have made Cancun pledges (counting E.U. members as one) and three have not. Of these, only six have been assessed by EGR to be on track, four are not and three cannot be assessed because of insufficient data. It must be noted, as the report too points out, being on track does not mean that the country has taken stringent mitigation measures. It depends on the level of ambition in the original pledge.

The EGR says the implementation of the INDCs is estimated to result in aggregate emission levels of 54 $GtCO_2$ eq in 2025 and 56 $GtCO_2$ eq in 2030 (*Table 1 a & b*). (The SR estimates are slightly different.) Global cumulative emissions after 2011 are expected to reach about 542 $GtCO_2$ eq in 2025 and about 748 $GtCO_2$ eq in 2030 (*Figure 2*). That is, even with full implementation of the INDCs, three-fourths of the available carbon budget will be exhausted by 2030 itself. The EGR has also assessed the emissions gap for 2025 and 2030 assuming full implementation of the INDCs. Many countries, particularly the developing ones, have submitted "unconditional" INDCs as well as "conditional" INDCs, the latter indicating stronger mitigation actions conditional upon availability of external finance and technology support.

The EGR estimates that even with the full implementation of the unconditional INDCs and the least cost emission level for a pathway under the 2°C limit, the global emissions will be 7 $GtCO_2$ eq higher in 2025 and 14 $GtCO_2$ eq higher in 2030, assuming that the Cancun pledges have been fulfilled up to 2020. When conditional INDCs are included, the emissions gaps are estimated to reduce to 5 $GtCO_2$ eq and 12 $GtCO_2$ eq, respectively. The EGR adds that if countries that are yet to submit, their INDCs were to reduce their emissions at the same percentage below current levels as those that have already submitted the estimated gaps will be further narrowed by 1 $GtCO_2$ eq in 2025 and 0.5 $GtCO_2$ eq in 2030 (*Table 1 a & b; Figure 3*).

But, more pertinently, unconditional INDCs result in emission level estimates in 2030 that are consistent with scenarios that, with a greater than 66 per cent chance, limit the average global warming to below 3.5°C until 2100, which is indeed already a frightful scenario for the future. If we take the INDC estimates with their inherent uncertainties, this temperature rise could either fall to 3°C or increase to 4°C. If conditional INDCs are included, the emission level estimates become more consistent with a less than 3-3.5°C average temperature increase by 2100 with a greater than 66 per cent chance. While these numbers do indicate greater mitigation efforts compared with a projection of current policies, the submitted contributions are far from enough and the emission gaps both in 2025 and 2030 will be very significant, says the EGR.

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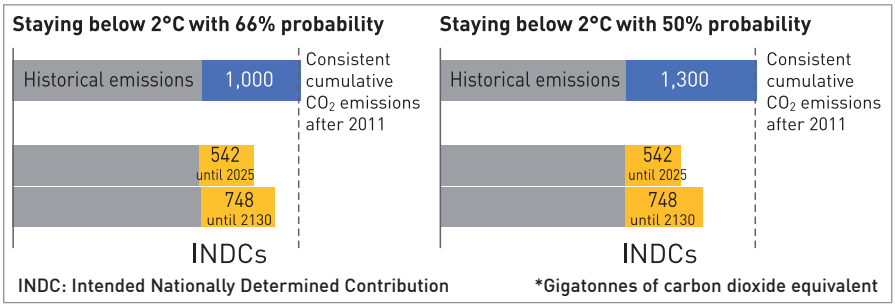


*Figure 2: Cumulative $CO_2$ emissions ($GtCO_2eq$*)*

## The Developed do Little

It is clear from the assessment that much more beyond the INDCs needs to be done, particularly by the developed countries. The announcement of a 26 per cent reduction by the U.S., the world's second highest emitter, from 2005 levels by 2030 is abysmally low, which actually amounts to a mere 9 per cent below the 1990 level, the IPCC baseline. The E.U., with its commitment to reduce emissions by 40 per cent from 1990 levels, fares much better, though still less compared with its fair share.

In terms of the fair share of the carbon budget, after accounting for their historical responsibilities, their current shares fall well short. For example, the U.S.'s INDC amounts to just a fifth of its fair share, Japan's is one-tenth of its fair share, the E.U.'s represents just over a fifth of its fair share and the Russian offer represents nearly zero contribution towards its fair share. A number of recent studies indicate that significant reduction potential by 2030, beyond INDCs, exists, and this could narrow the emissions gap in 2030 by 5-10 $GtCO_2$ eq/year. But that requires more ambitious measures on the part of the developed countries. Whether that will be forthcoming before the Paris Agreement kicks in remains to be seen.

## More than Just Mitigation

Combating climate change is much more than mitigation, particularly from the perspective of developing countries. It includes adaptation (to climate change), finance, technology transfer and capacity-building. While the Lima decisions were being drafted, there was an attempt early on by the developed countries to restrict the scope of the INDCs to mitigation alone. But following criticism from developing countries, the INDCs were required to be comprehensive, reflecting all elements. Thus, the scope of INDCs was left open, without an emphasis on mitigation, and the Lima decision only invites member-states to communicate their INDCs without making it mandatory. In the submitted INDCs, while all Parties have included information on mitigation, only 100 have included the adaptation component, none of the developed countries has indicated the finance and technology support as required under Article 4.

*Table 1 (a & b): Emissions gap assessment estimates*

| Scenario | Global total emissions (range) $Gtco_2eq$ | Emission reduction compared to baseline (range) $Gtco_2eq$ | Emission reduction compared to current policy trajectory (range) $Gtco_2eq$ | Distance to the 2 °C pathway (range) $Gtco_2eq$ |
|---|---|---|---|---|
| **a. 2025** | | | | |
| Baseline | 61 (57-64) | n/a | n/a | 13 (9-17) |
| Current policy trajectory | 57 (55-58) | 4 (3-6) | n/a | 9 (7-10) |
| Unconditional INDCs | 54 (53-58) | 7 (3-8) | 3 (0-4) | 7 (5-10) |
| Conditional INDCs | 53 (52-56) | 8 (5-9) | 4 (1-5) | 5 (4-8) |
| 2 °C pathways | 48 (46-50) | 13 (11-15) | 9 (7-11) | 0 (0) |
| **b. 2030** | | | | |
| Baseline | 65 (60-70) | n/a | n/a | 23 (18-28) |
| Current policy trajectory | 60 (58-62) | 5 (3-7) | n/a | 18 (16-20) |
| Unconditional INDCs | 56 (54-59) | 9 (6-11) | 4 (1-6) | 14 (12-17) |
| Conditional INDCs | 54 (52-57) | 11 (8-13) | 6 (3-8) | 12 (10-15) |
| 2 °C pathways | 42 (31-44) | 23 (21-34) | 18 (16-29) | 0 (0) |

The baseline scenario is "Business as Usual" from 2010 emission levels.

## A 'Lopsided' Non-Paper

The Paris agreement will decide how the INDCs will be implemented. Its effective implementation will depend critically on the establishment of a robust and transparent follow up and review framework that will cover aspects of finance and technology support to developing countries. But the negotiating text that was drawn up in Bonn in October suggests that the final agreement may not include review and finance components at all.

The process of drafting the negotiating text by the ADP co-chairs Daniel Reifsnyder of the U.S. and Ahmad Djoghlaf of Algeria, began in February 2015 (the Geneva text). After its various revised versions through the ADP meetings in June and September in Bonn, the cochairs threw a surprise on the opening day plenary at the penultimate session of the ADP before COP-21, which was also held in Bonn from October 19 to 23. They produced a negotiating text drafted by them on October 5, referred to as a "non-paper", which did not reflect the proposals of developing countries at all and was, therefore, unacceptable to them. The non-paper had two parts, a nine-page document for the Paris agreement, which is to take effect post-2020, and a 10-page document containing a decision on pre-2020 actions. The G-77+China, representing 134 developing countries, led the protest against the text and called for text insertions in the non-paper to accommodate their proposals and make it a balanced text. They found the original text "unbalanced" and "lopsided" in favour of developed countries.

Ambassador Nozipho Mxakato- Diseko of South Africa, speaking on behalf of G77+China, did not mince words when she said that the cochairs' text "seemed to attempt to rewrite, reinterpret and replace the Convention. It was extremely

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unbalanced and lopsided to the extent that it jeopardised the interests of developing countries". The developing countries' strong objections to the text forced the co-chairs to allow insertions of proposals by developing countries to be made in the opening plenary of the ADP session, following which a revised 34-page "nonpaper" was issued at 4 a.m. on October 20.

This text was then negotiated upon by seven different spin-off groups, each covering a certain part of the text, on October 21. At this stage Laurence Tubiana, Special Representative of the French Minister of Foreign Affairs, who spoke on behalf of the incoming French presidency of the COP, made it clear that there was not going to be any Plan B at Paris and urged the negotiators to find a solution in Bonn itself. Meanwhile, Reifsnyder caused another controversy by limiting the spin-off group meetings to the Parties and not allowing observers (non-governmental organisations and the like) to be present. This remained a contentious and unresolved issue with the developing countries until the end of the ADP meeting.

## Question of Finance

In the end, there was progress towards consolidating the text as a Party-owned text, rather than the co-chairs', in all the spin-off groups, except on the finance front, which was left for Paris to decide after developed countries stalled any movement forward. In fact, there were attempts by developed countries to introduce new terms and concepts, including new definitions, that are not part of the UNFCCC into the text. For example, a new definition for REDD+ (which refers to Reducing Emissions from Deforestation and Forest Degradation, including conservation and enhancing forests' carbon stocks and is understood operationally) was sought to be introduced. There was also an attempt to introduce a new term "climate forcers". This was clearly to bring into the agreement's ambit, besides GHG, short-lived climate forcers, such as black carbon and methane, for the emissions of which developing countries are now being implicated.

But the most contentious term, which relates to finance, was "countries in need of support". This new term, as the commentary

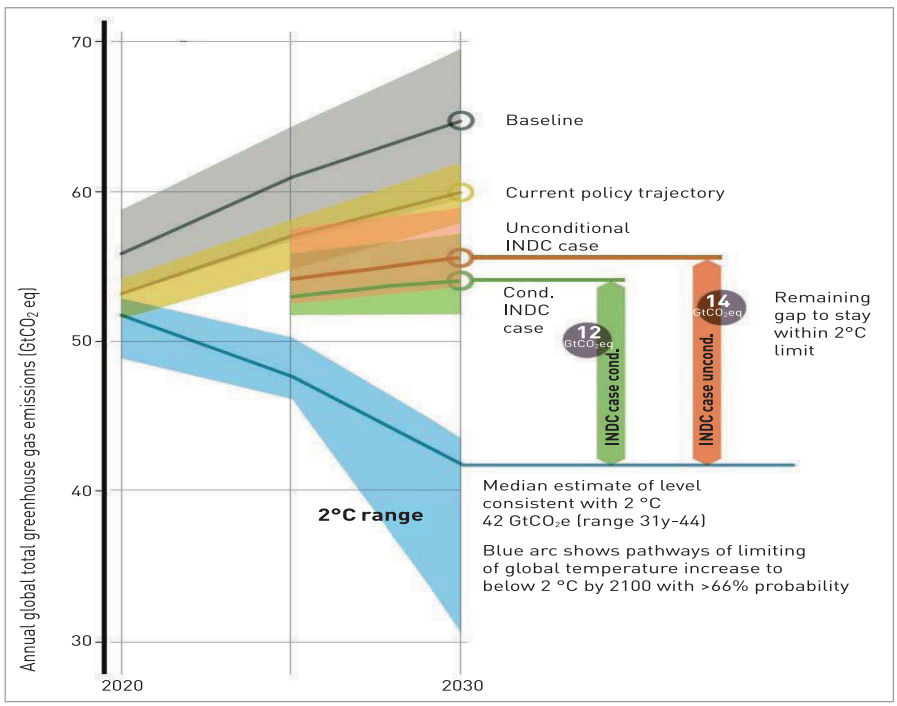


*Figure 3: The emissions gap*

by Third World Network (TWN) pointed out, would actually amount to a dilution of the developed countries' commitment to provide new and additional finance, based on their historical responsibilities, for developing countries to take climate actions, especially on adaptation. This was clearly an attempt to change the distinction between developed and developing countries made in the UNFCCC. In accordance with the principle of CBDR, the Convention categorises countries as Annex I, Annex II and non-Annex I countries, the first referring to "developed country Parties", the second referring to Annex I minus countries with economies in transition, and the third essentially to developing countries. Accordingly, there is a differentiation in terms of commitments, with Annex-I countries required to reduce GHG emissions and Annex II countries providing new and financial resources for climate action by non-Annex I countries.

The argument of developed countries is that the new agreement must reflect the new realities and that the world had changed considerably since 1992 when the Convention was signed. The central question, according to them, was who provides what for whom? The developing countries' perspective is that the annexes in the Convention are based on historical responsibilities and not on the level of economic development. For example, even those G77 countries, or ex-G77 countries, which are now part of the Organisation for Economic Cooperation and Development (OECD) remain as non-Annex I countries. The obligations under the Convention, they point out, flow from this CBDR principle to provide finance, technology transfer and so on.

## Sticky Points

Their objections finally succeeded, with the final version of the negotiating text, which was issued on October 23, retaining the original differentiation under the Convention. In spite of the tumultuous start to the Bonn meeting, and the contentious negotiations, the final draft was to the general satisfaction of developing countries as well, which they said was "balanced" and "Party-owned". The 55-page draft now consists of a draft agreement that is to be finally negotiated in Paris and will take effect post-2020, an accompanying draft decision of the ADP, and a draft decision on pre-2020 climate actions.

But, as mentioned earlier, finance remains a sticky point, with developed

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# What India Plans to do

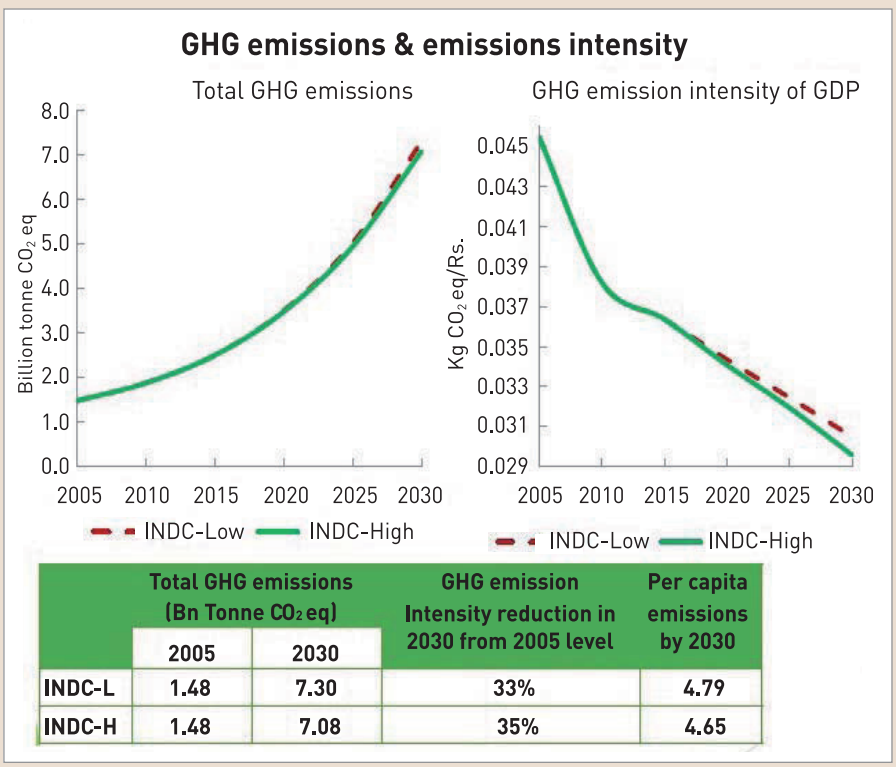
The main quantitative target contained in the Intended Nationally Determined Contributions (INDCs) that India's Ministry of Environment, Forest and Climate Change submitted to the United Nations Framework Convention on Climate Change on October 2 (October 1, according to UTC, or Coordinated Universal Time) is the reduction in emissions intensity (EI) in terms of gross domestic product (GDP) by 33-35 per cent by 2030 from the 2005 level (see *Figure*). EI is defined as the greenhouse gas (GHG) emissions (measured in tonnes of $CO_2$ equivalent) per unit of GDP.

One important way of achieving this is by changing the fuel mix in the energy basket and moving towards non-fossil fuel-based energy sources. According to the submitted document, India plans to achieve a 40 per cent share in its energy basket from solar, wind, hydro, biomass and nuclear energy.

In January 2010, as part of the Nationally Appropriate Mitigation Action under the Bali Action Plan of COP-13, India announced a reduction in its EI by 20-25 per cent by 2020 from the 2005 level as a voluntary measure. According to the document submitted, as a result of a slew of policy measures, the EI decreased by 12 per cent between 2005 and 2010, and so India was well on its way to achieving that declared goal by 2020. A quantitative analysis by researchers of the Tata Institute of Social Sciences (TISS) shows that even a business-as-usual scenario, based on growth trends in different economic sectors (and the corresponding growth in their contributions to the GDP) and the trend of change in the fuel mix in the energy basket up to 2008 itself, should be able to achieve an EI reduction by about 45 per cent.

Specifically, the analysis assumes a 2.6 per cent growth in agriculture (contributing 6.5 per cent to the GDP), a 6.6 per cent growth in the industrial sector (contributing 25 per cent) and an 8.1 per cent growth in the services sector (contributing 68 per cent). Clearly, the services sector, which is less energy (and emissions) intensive but contributes the greatest share to the GDP and is also the fastest growing, is the key factor in the EI reduction and does not really call for any overly ambitious plan towards increasing non-fossil-fuel-based energy sources.

But, as the analysis points out, if the industrial sector were to grow at a faster rate (say 9.5 per cent like China, as indeed the Twelfth Plan envisages) and contribute about 40 per cent to the GDP, the EI target would require a greater share of less emissions intensive energy sources: renewables and nuclear. In both scenarios, it is assumed that a continuous improvement in energy efficiencies (similar to the trend during 1998-2008) would be achieved, which may be difficult in reality. That too would need to be offset through a higher share of renewables. The current share of non-fossil- fuel-based energy is 31 per cent of the total installed capacity of about 240 gigawatts (GW). The current annual per capita electricity consumption is about 650 kilowatthours (kWh), and the




| | Total GHG emissions (Bn Tonne $CO_2$ eq) | | GHG emission Intensity reduction in 2030 from 2005 level | Per capita emissions by 2030 |
|---|---|---|---|---|
| | 2005 | 2030 | | |
| INDC-L | 1.48 | 7.30 | 33% | 4.79 |
| INDC-H | 1.48 | 7.08 | 35% | 4.65 |

*Greenhouse gas emissions and emissions intensity for India*

*Power generation capacity (%)*

| Fuel/source | 2005 | 2015 | 2031/32 |
|---|---|---|---|
| Coal | 55 | 61 | 57 |
| Gas | 10 | 8 | 3 |
| Diesel | 1 | -- | -- |
| Hydro | 26 | 17 | 9 |
| Nuclear | 3 | 2 | 2 |
| Wind | 5 | 9 | 10 |
| Solar | -- | 1 | 18 |
| Biomass | -- | 2 | 1 |
| Waste to energy | -- | -- | -- |
| **Total** | **100** | **100** | **100** |

**Power generation capacity and fuel capacity: Projections for 2031-32**

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projected demand in 2030 (for a high-end rate of economic growth) is 1,700 kWh, assuming a population of 1.5 billion by then. According to the government's background press briefing in the run-up to COP-21, the projected installed capacity in 2030 to achieve this is 800 GW. A 40 per cent share of renewables in power generation (see table) amounts to about 300+ GW of installed capacity (compared with the current 35 GW).

Renewables together are expected to contribute 175 GW by 2022 and 250+ GW by 2030. Of this, solar power alone is expected to reach 100 GW and about 150 GW respectively from the current capacity of about 4 GW. From the current share of 1-2 per cent, solar power is expected to jump to 18 per cent of the installed capacity in 2030. This will entail enormous challenges in terms of investment, both domestic and external, and access to new and more efficient solar energy technologies. The INDC document lists several technologies in the renewable energy sector that India would require to meet the technological challenges in achieving the target.

The share of nuclear energy is given as just 2 per cent, which, even with the high-end projection of 800 GW, works out to only 16 GW of nuclear power by 2030. This is just one-fourth of the Department of Atomic Energy's projection of 63 GW by 2032. The same figure is also quoted in the INDC document, which says: "Efforts are being made to achieve 63 GW installed capacity by the year 2032, if supply of fuel is ensured". The current installed nuclear capacity is 5,780 megawatts (MW) and six more reactors with an installed capacity of 4,300 MW are at different stages of commissioning and construction, which would take it to only 10,000 MW (10 GW) by about 2020.

"That [about 16 GW] is what we realistically expect in the nuclear sector," said a senior official of the government involved in climate change matters. The caveat regarding fuel supply will actually not be the real reason for not meeting the target. Since a large fraction of plants are expected to be installed through foreign nuclear suppliers, the real reason will be the lack of movement forward on that front because of civil nuclear liability constraints imposed on suppliers by the domestic Act of 2010. Given the higher cost of imported nuclear plants (Rs.12-15 crore/MWe as against Rs.7-8 crore for domestic plants), availability of adequate finance will also be a serious constraint.

## A Major Constraint

In fact, access to finance will be a major constraint for all non-fossil fuel energy sources. An estimate by researchers at the TISS puts the total investments required to achieve the 40 per cent goal as Rs.30-35 lakh crore (about a third of India's annual GDP) over the next 15 years. According to the document, NITI Aayog (National Institution for Transforming India) has estimated that the cost towards mitigation activities for moderate low carbon development, which would include investments towards renewable energy sources, would be around $834 billion (about Rs.50 lakh crore) up to 2030.

The third major component of the INDC India presented is the creation of an additional carbon sink of 2.5 to three billion tonnes of $CO_2$ equivalent through additional forest and tree cover by 2030. According to the Ministry, forests and tree cover has increased from 23.4 per cent in 2005 to 24 per cent of India's geographical area (which is about 330 million hectares) in 2013. In terms of carbon sink capacity, this is stated to be an increase by about 5 per cent, from 6,621.5 million tonnes of $CO_2$ equivalent in 2005 to 6,941 million tonnes in 2013. The INDC document says that initiatives like the Green India Mission aim to further increase the forest/ tree cover to the extent of 5 million ha and improve the quality of forest/ tree cover on another 5 million ha of forest/non-forest lands, which is expected to enhance the carbon sequestration by about 100 million tonnes $CO_2$ equivalent annually towards the stated goal for 2030. And, eventually, 33 per cent of the total area will be brought under forest cover, says the document. As in the case of power generation, there is an apparent contradiction here too. As D. Raghunandan of the Delhi Science Forum points out in an article posted on the DSF website:

"[The document] also continues to bracket this with tree cover and casually speaking of 'compensatory afforestation' for various infrastructure or industrial projects." Indeed, according to the document, there is a proposed devolution of about $6 billion under compensatory afforestation to the States. "The ecological services performed by a forest are not merely carbon sequestration in trees, but also by the vast diversity of flora and the soil. Loss of forest, therefore, simply cannot be 'compensated' by planting trees somewhere else," says Raghunandan. "Contrary to the rosy picture painted in the INDC, the present government is pursuing policies for dismantling environmental regulations, especially pertaining to forests, in order to favour extractive and other industries, infrastructure such as highways, and so on," he adds.

He also severely criticises the proposed implementation through the back door of the T.S.R. Subramanian Committee Report, which had been rejected by the relevant parliamentary committee after a public uproar. The new government recommendation is that only those areas with over 70 per cent canopy constitute "no-go" forest areas.

"This," he says, "would open up forests to ruthless exploitation supposedly to be offset by planting trees elsewhere." Referring to a recent government circular that recommends handing over so-called degraded forest land to industries for commercial forestry and other purposes, he asks: "How can the 33 per cent forest cover target be taken seriously in such circumstances?"

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countries evading the issue throughout the Bonn negotiations. This, as developing countries pointed out, they could do by keeping observers out of the negotiation rooms. At a press conference, Ambassador Nozipho Mxakato-Diseko said that developing countries had stated their common position on finance in the core agreement. "However," she said, throughout the negotiations, developed country Parties have not negotiated in the hope that finance will be dealt with outside the agreement, where developing countries are weakest, and it translates into ODA (official development assistance) as opposed to their obligations [on finance] under the UNFCCC. In the [Bonn draft] agreement, there is nothing on finance."

Before the Bonn meeting, an OECD report, dated October 7, on climate finance in 2013-14 was also released. This claimed that $60 billion (against the $100 billion goal) had been distributed as climate finance. This report has been widely criticised for not reflecting the real situation on climate finance to developing countries. According to Rajasree Ray, India's climate finance negotiator at Bonn, the OECD calculations include non-concessional loans and existing ODA provided to developing countries.

Another glaring omission in the discussions around the negotiating text is the principle of equity and how it is to be incorporated into the agreement in terms of the carbon budget. There is only a general refrain on the agreement being aligned with the principles of the Convention. In India's INDC document, too, for example, there is only a passing reference to equity. It says: "The critical issue for developing nations is the gap between their equitable share of the global carbon space and the actual share of carbon space that will be accessible to them… the genuine requirements of developing countries like India for an equitable carbon and development space to achieve sustainable development and eradication of poverty needs to be safeguarded."

But queries to the Indian negotiating team during the background briefing as to how it plans to have this important aspect included in the agreement and what kind of carbon budget formulation it favours for the equity principle to be implemented, elicited no clear response. If implementation of equity is not reflected in the agreement, it will be a major setback from the perspective of developing countries.

"Of the 748 Gt of $CO_2$, which is 75 per cent of the available carbon budget, India's share is most likely to be less than 10 per cent," says T. Jayaraman, a climate change expert at the Tata Institute of Social Sciences (TISS). "After 2030, which is only 15 years away, only one-fourth of carbon space will remain. India will need to exert itself to the utmost to get a fair share of even this remaining space." But the negotiators of the Ministry of Environment, Forest and Climate Change seem to be ignoring the equity issue altogether, which will tell heavily on the Indian growth scenario, especially for the poor of the country.