

INDIA'S SUSTAINABLE DEVELOPMENT LED APPROACH TO CLIMATE MITIGATION FOR PARIS

AUGUST 2015

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SUMMARY

What should India put forward as the mitigation component of its climate contribution? India has dual interests in climate negotiations: safeguarding adequate energy for development, and promoting an effective international agreement to limit its climate vulnerability. To balance these interests, India should pledge well-developed sector-specific actions that maximize synergies across development and climate outcomes. This approach will avoid lock-in to a high carbon growth path while enhancing development. Sectoral actions could include an additional component conditional on availability of international climate finance. In addition, an updated emissions intensity target would serve as a useful complement to sectorally focused action.

The Stakes in Paris

The core element of the Paris 2015 climate agreement is the 'intended nationally determined contribution' (INDC) that each country is expected to put forward. For India, both adaptation and mitigation are essential aspects of a future climate regime: adaptation is needed because some warming is inevitable, and mitigation is required because there are limits to adaptation. Since mitigation raises questions about possible trade-offs with development, this brief focuses on India's mitigation contribution.

INDCs, as the name suggests, are meant to be driven by national rather than global considerations. There is an ongoing debate about whether such a pledge-based system based on national interests can deliver sufficient global climate action. Under this approach, the prospects for an effective climate outcome lie in generating a virtuous cycle of over-compliance and accelerated mitigation action, rather than a race to the bottom resulting in the least possible effort.

Given this, what are India's interests in Paris? First, as an emerging economy starting from a low economic base, India has to ensure rapid and adequate sustainable development to meet the aspirations of its population. Second, as a country deeply vulnerable to climate change impacts, India should also aggressively support momentum toward accelerated global mitigation. While India has historically focused on the first objective, the second is equally important.

India's challenge is to balance these dual interests. Accelerating global action requires signaling a strong Indian mitigation contribution to keep the pressure on industrialized countries, while at the same time ensuring that our ability to use energy for development is not curtailed. To inform this balance, the Centre for Policy Research, along with our partners, produced a set of briefs (summarized here) that examine energy and development linkages in order to inform India's INDC.

The key message that emerges is: As a rapidly growing economy starting from a low base of development, India's most effective contribution to climate change is to avoid lock-in to a high carbon growth path. This should be accomplished through a sustainable development-led approach that promotes development and climate gains simultaneously. Thus, while energy use and emissions will invariably grow, they will do so at a decreasing rate as we 'bend the curve' of emissions by focusing on actions in specific sectors. An updated emissions intensity target can serve as a useful complement to such sectorally focused action.

Energy Needs for Sustainable Development

Climate policy should be embedded in an understanding of India's domestic energy context. India starts from a low base of development and faces a sizeable task of poverty eradication ahead. Table 1 indicates that in terms of poverty rates, GDP/capita, and the multi-dimensional poverty index, India is well below not only industrialized countries, but

also other emerging economies. Moreover, energy, and particularly electricity, consumption levels in India, at 760 KWh/cap in 2012, are far below the world average of 3101 KWh/cap (World Bank 2015). Yet, considerable evidence indicates that increases in human development and meeting basic needs are strongly correlated with energy (Lamb and Rao 2015; Rao et al. 2014). India's legitimate need for more energy is also supported by the substantial body of work analyzing the share of a future global carbon budget to which India should have access (Jayaraman et al. 2011). In sum, to meet its development needs, India will require substantial increases in its energy production and consumption.

TABLE 1: India's Development Challenge

	Population % below \$2 a day (PPP) (most recent 2000-2007)	GDP per capita (PPP) in 2010 (constant 2005 international \$)	Multi dimensional Poverty Index (MPI) - % of MPI Poor People
US	<2%	42,338	NA
EU (27)	<2%	NA	NA
China	36.3%	6,816	12.5%
Russia	<2%	14,183	1.3%
Germany	<2%	33,445	NA
Brazil	9.9%	10,056	2.7%
South Africa	35.7%	9,477	13.4%
India	75.6%	3,214	53.7%
Bangladesh	81.3%	1,488	57.8%

Source: World Bank. Available at: <http://data.worldbank.org/indicator/SI.POV.ZDAY> & <http://data.worldbank.org/indicator/NY.GDP.PCAP.PP.KD>
 Alkire, S. Roche, JM. Santos, ME. and Seth, S (November 2011) <http://ophi.queh.ox.ac.uk>
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However, estimating and predicting these needs is extremely challenging because India is a rapidly changing economy going through at least three structural transitions: demographic, urbanization and infrastructure. The demographic transition implies that India is expected to add at least 10 million people to the job market each year for the next two decades (FICCI-Ernst & Young 2013, 8), which may well require a shift towards a more manufacturing-led, and therefore energy intensive, growth. Urbanization will lead to about 200 million more Indians moving to urban spaces in the next twenty years (Planning Commission 2013, 318). And both will require massive infrastructure increases; estimates suggest that that two-thirds of the buildings stock to exist in 2030 is yet to be built (Kumar et al. 2010). All three transitions carry enormous implications for future energy needs. However, they also suggest uncertainties in the quantum of energy required, because actual needs will depend on how the transitions are undertaken as well as the technologies available.

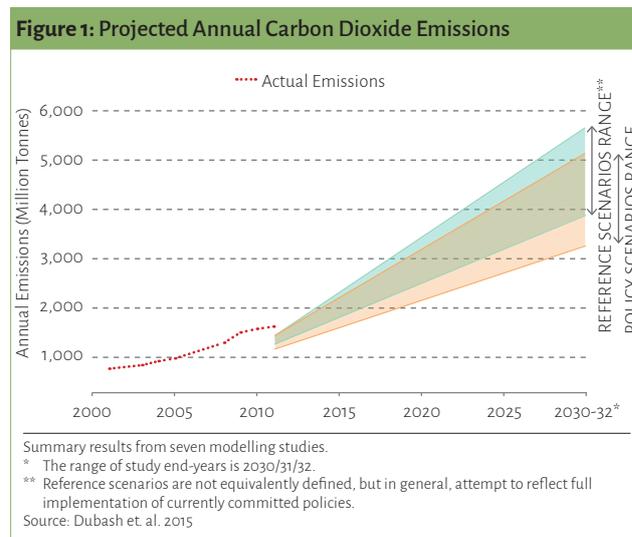
These transitions certainly pose a challenge, but also bring opportunities. The manner in which future energy needs are met provides an opportunity for progress on other objectives of the development process, such as improving energy security, building an inclusive society, and enhancing local environmental quality. In recognition of this fact, there is growing recognition of the value of a multiple objectives framework to analyse energy policy that combines economic, social and environmental metrics within a larger sustainable development framework (Dubash et al. 2013; Sreenivas and

lyer 2014; CSTEP 2015). From a national planning perspective, therefore, it is not only necessary to understand future energy trends, but also the potential for pursuing multiple additional objectives of development policy.

India's Future Energy Needs

Future Indian energy trends and consequent carbon emissions, are, however, very hard to predict with confidence (See *CPR Policy Brief: India's Energy and Climate Policy*). Our review of seven national models suggests that both absolute amounts as well as shares of different fuels (coal, oil, gas and renewables) diverge considerably across projections. A partial exception is coal use, on which there is broad agreement on at least a doubling by 2030, even with some policy intervention. However, other fuel estimates diverge widely, particularly for future renewable energy.

Carbon emissions are projected to increase by between two and three times current levels by 2030 under reference cases (with no additional policies beyond existing ones), although per capita emissions would remain well below today's global average levels (See Figure 1). This is an extremely large range for a short, fifteen year period. This uncertainty is, in part, due to the large structural changes described above, which make it hard to formulate consistent assumptions across models.



This broad range of emissions, and the variation in underlying assumptions about the future, poses challenges for Indian policymakers seeking to design an ambitious economy-wide emissions pledge for 2030. In particular, the available results are simply insufficient to assess a feasible year at which emissions could peak (as China has done) while avoiding limits on Indian development prospects. At best, the results –with a generous dose of additional assumptions¹ – can tentatively suggest an update of India's 2020 Copenhagen pledge for emissions intensity.² Carbon intensity projections suggest that reference cases and policy scenarios overlap at around the range of 35-45% below 2005 emission levels by 2030. This range provides a guide toward a relatively conservative emissions intensity pledge.

However, for India to add to the global momentum for climate mitigation will require more than a conservative intensity pledge. Exploring more creative options will require examining the opportunities latent in India's ongoing economic transitions, and diving deeper into the potential in specific sectors.

Scope for Sustainable Development-Led Climate Policy

Explicit consideration of the synergies between energy and development suggest a way to address both India's objectives – preserving development space and contributing to global mitigation. These opportunities may be substantial. For example, expanding public transport would both provide liveable cities and reduce emissions. Enhanced energy efficiency would reduce dependence on imported fuels and socially disruptive fossil fuel extraction at home, and also reduce carbon emissions.

Global modelling studies provide strong evidence for these synergies. Our review of South Asian results from global modelling studies shows that there are strong complementarities between energy security, local environmental gains and climate mitigation (See CPR Policy Brief: *Development and Climate Policy Synergies*). This evidence strongly supports India's 'co-benefits' approach articulated in the National Action Plan on Climate Change. It also suggests a way forward for a positive Indian climate contribution based on emphasizing sustainable development.

Moreover, there are some indications from national energy studies (discussed above) that considering the multiple objectives associated with energy policy are a necessity rather than an option. For example, under some projections, and without mitigating actions, import dependence of coal and gas could more than double to as high as 52% and 70%, respectively, by 2030 (Dubash et al. 2015). From a local environmental perspective, the projected coal increases would also increase particulate pollution, doubling their already considerable health effects.

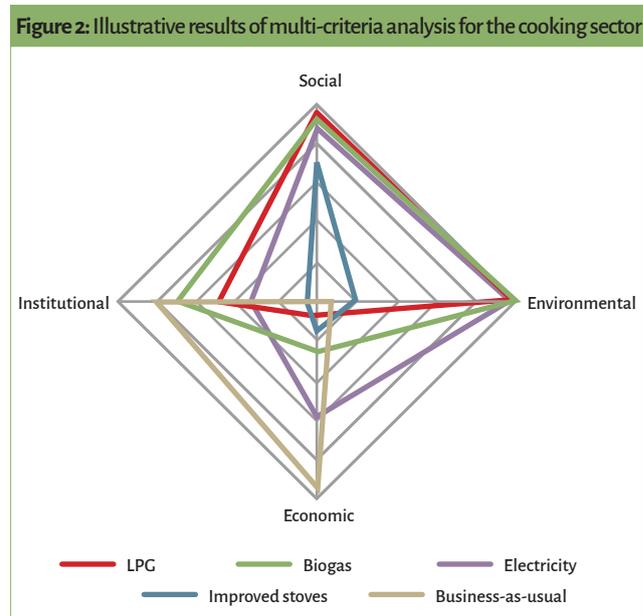
These findings suggest that far from undermining India's development chances, there are approaches to energy policy that enhance development prospects, while also yielding climate gains. This result shifts the INDC discussion beyond trade-offs, to an exploration of synergies.

Operationalizing Sector-Specific Sustainable Development Policies

While the 'co-benefits' approach is an accepted concept in Indian climate policy, there has been limited progress towards operationalizing it. To do so requires a sector-by sector analysis to identify areas of maximal synergy and minimal trade-offs between development and climate objectives. It also requires a consistent approach that takes account of the multiple objectives – economic, social and environmental – of alternative policy options.

Our study develops a 'multi-criteria decision analysis' (MCDA) approach to this problem, using the examples of energy

efficiency in buildings and alternative fuel sources for the rural cooking sector (See CPR Policy Brief: *An Approach to Sustainable Development Based Energy and Climate Policy*). Indicative results, illustrated in Figure 2, show that explicit consideration of multiple objectives allows for more reasoned decision making, explicit consideration of the weight given to each objective, and an informed basis for prioritization of action across policies and sectors. It also allows for the consideration of implementation challenges, an important consideration in Indian policymaking.



Source: CPR Policy Brief: *An Approach to Sustainable Development Based Energy and Climate Policy* (2015)

The use of a standard methodology such as MCDA has a further advantage: it provides the basis for determining which actions are justified based on national priorities, and which are "additional" actions that would require global climate finance. For example, if the government is considering subsidies for efficient appliances, an MCDA approach that includes distributional outcomes among its objectives would reveal that subsidizing widely used super-efficient fans is inclusive, while subsidizing super-efficient air conditioners would disproportionately benefit the rich. Based on these results, India could argue that it would subsidize efficient fans with domestic resources, because they meet our sustainable development criterion, but would need international financial support to subsidize air conditioners, because doing so would yield additional climate gains. An MCDA approach could therefore identify, based on a transparent approach, conditional pledges for additional actions that could be taken with additional global financial support.

Elements of an Indian Climate Contribution

Based on the discussion above, India's approach to its mitigation contribution for the post-Paris climate regime should be built around a strong and consistent narrative, which supports two concrete action elements.

India is a rapidly growing emerging economy with considerable future development, and hence energy, needs. Since these are hard to quantify because of future large scale

structural transitions, India's most effective contribution to climate change is to take immediate and definite sectoral actions to avoid lock-in to a high carbon development path. Given the rapid changes in India's economy in the next couple of decades, guessing when India might peak exposes the country to an undue risk of limiting its development prospects. However, an updated emissions intensity target, as an outside envelope, can be a useful complement to sectoral actions.

Consequently, India should first emphasize and implement a series of actions in 5-10 key sectors, carefully selected using a multiple development objectives framework. Presentation of concrete implementation actions, both existing and those to be undertaken in the coming years, are more important than numerical targets. These concrete actions will signal credibility by showing that India's contribution is immediate, structural, and definite. While detailed actions are beyond the scope of this note, examples of sectors where specific actions should be laid out might include:

- concrete measures to shift from road to rail freight;
- expansion of public transport systems in cities;
- rapid increase in energy efficiency programs; and
- development of the regulatory and legal framework for massive expansion of renewable energy.

ENDNOTES

1. See Dubash et al. (2015) for details.
2. India had earlier pledged that the emissions intensity of its GDP in 2020 would be 20-25% below 2005 levels.

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Also, as discussed above, each action could include an additional component that would be conditional on international climate finance.

Second, India should pledge an updated emissions intensity target for 2030, as an update of the 2020 Copenhagen pledge. While the exact figure is a matter of political judgement, this pledge should be relatively conservative, given the large structural changes expected, and the need to preserve development space. One approach would be to set the pledge at the overlap between the low-end of the business as usual projections and the high end of the policy projections which, according to our study and assumptions, is approximately 35% to 45% below 2005 levels of emissions by 2030.

Together, but with an emphasis on the sectoral actions, this pledge signals that India is serious about addressing global climate change, and also serious about addressing the substantial development challenge that lies ahead. Based on a multiple objectives framework and a concrete approach for its operationalization, it signals intellectual leadership in bringing together the twin challenges of accelerating sustainable development and mitigating climate change.

ACKNOWLEDGEMENTS

This Policy Brief is produced by the Centre for Policy Research (CPR). It summarizes work produced in partnership with the International Institute for Applied Systems Analysis (IIASA), the Energy Research Centre, and the Prayas (Energy Group) as part of a larger project: Toward a Robust Development Focused INDC. This document is an output from a project funded by the Climate and Development Knowledge Network (CDKN). CDKN is a programme funded by the UK Department for International Development (DFID) and the Netherlands Directorate-General for International Cooperation (DGIS) for the benefit of developing countries. The views expressed and information contained in it are not necessarily those of or endorsed by DFID, DGIS or the entities managing the delivery of CDKN, which can accept no responsibility or liability for such views, completeness or accuracy of the information or for any reliance placed on them. We are also grateful for additional financial support from the Oak Foundation. All responsibility for analysis and views expressed in this report rests with the authors.