



## Development of climate policies in India – an outlook

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#### General Note



Article is recommended to print as color version in recycled paper. *Save Trees, Save Climate.*

#### ABSTRACT

The following document is an original research article on the development of national policies adopted by the Government of India in combating climate change. These policies have been taken from the Intended Nationally Determined Contributions (INDC) submitted to the UNFCCC during Paris agreement. The agreement adopted these INDCs and has agreed to the IPCC's recommendation for a 2 °C over the pre-industrial levels. In this paper, we take a look at the policies GoI has put forward and the hurdles the government had to face over the past few decades to

reach here. We discuss on the fairness and ambitiousness of the policies to assess the importance of the political and economic events that led to the framework of policies put forward in INDC.

**Keywords:** INDC, fairness, ambitiousness, GoI

## 1. INTRODUCTION

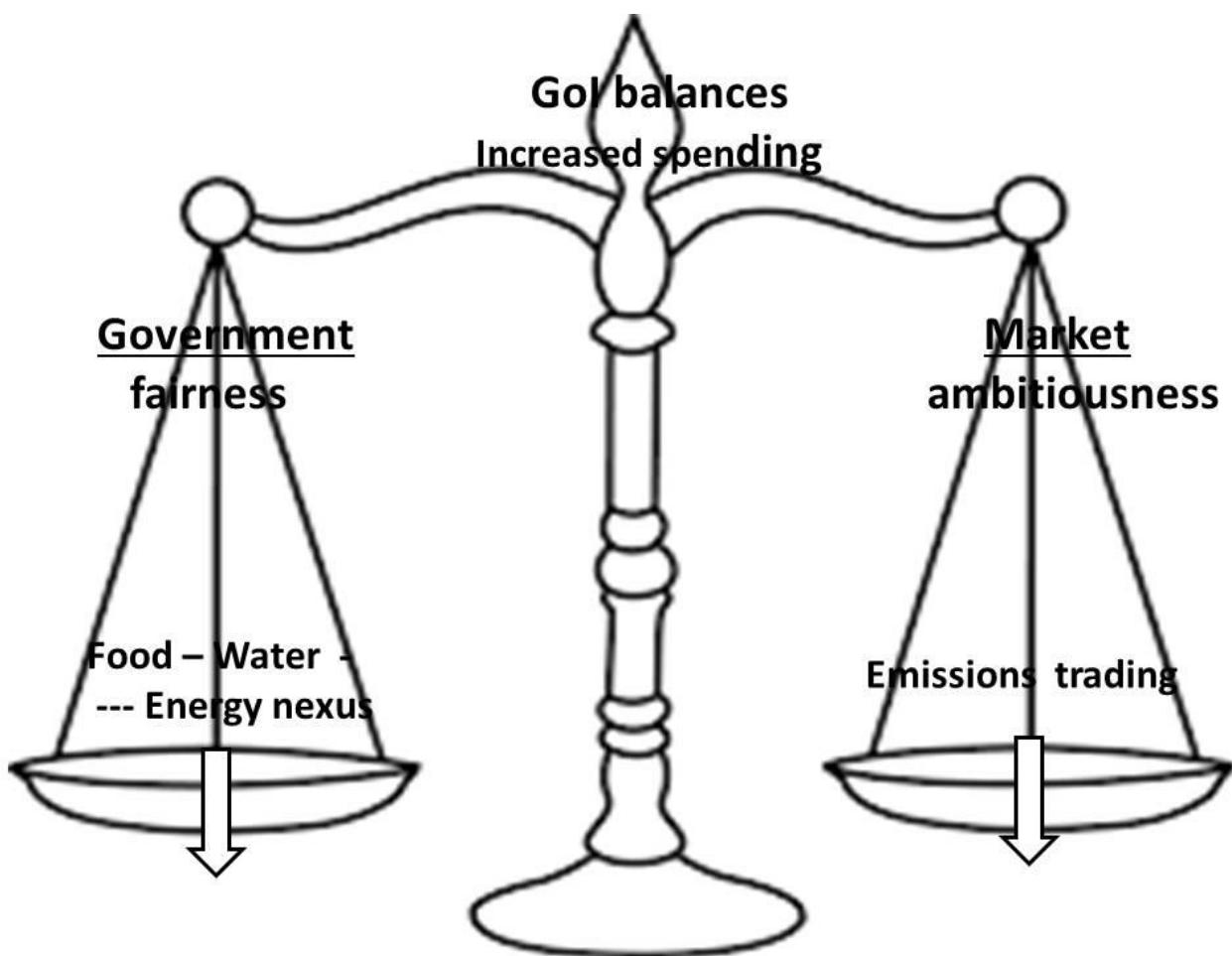
The 2015 United Nations Climate Change Conference, COP 21 (Hulme, 2016) was held in Paris, France, from 30 November to 12 December 2015. This was a major event in the field of climate change and evolved as 'Paris Agreement' under the umbrella of UNFCCC with the explicit goal to "pursue efforts to limit the [global] temperature increase to 1.5 °C above pre-industrial levels". During the conference, India's then Environment Minister Prakash Javadekar said the accord (Paris Agreement) also supported the right to development and the efforts to harmonize development with environment, while protecting the interests of the most vulnerable. In scientific terms, what Mr. Javadekar was referring to was a 'fair and ambitious' climate agreement to meet the 1.5°C target.

A major challenge in global climate change negotiations is to find a scheme for differentiation of GHG mitigation commitments among countries that can be accepted as "fair" by all or at least most governments. A lion's share of emissions comes from the industrialized countries. Based on this history of emissions, developing countries like India (representing G77) have been arguing for a differentiation based common resource allotment commonly referred to as CBDR-RC of the Article 3 of UNFCCC. This argument is based on the 'basic needs' principle, also known as the 'right to development', and could be considered a special expression of the capability principle – the least capable countries could have a less ambitious reduction effort to secure their basic needs. 'Fairness' in these developing countries is defined such that in meeting emissions mitigation targets, the necessary goods and services (like poverty eradication and economic growth) cannot be sacrificed in the name of climate change (Dipayan Dey, 2015). They lack the capacity to fully implement climate mitigation policies like the developed nations. From the bureaucratic documents published by the GoI, we refer to basic needs as mainly the complex interconnected chain of food-energy-water web designed to meet sustainable goals. GoI has been demanding for this exemption from climate change on the basis of 'fairness' so loudly that many news-writers and leaders are criticizing India for 'hiding behind the poor' (Jaeger & Michaelowa, 2016).

Figure 1 relates to how the government tries to balance fairness with the market's ambitiousness. Government has been promoting the fairness of policies in the core ministries, like agriculture, water and electricity. Simultaneously, GoI has been trying to improve the ambitiousness in the market by providing incentives and deterrents in the form of market control policies to provide a shift in the growth trajectory into a more 'green' direction (like lower taxes and increased spending on alternate sources of energy like the solar and wind power). The market has been reacting to the

new direction of mitigations trajectory by trying to maximize its emissions-reduction profit (Mathews, 2010). It's a fine delicate balance (Fig.1) that the GoI has to maintain so that the development of the unprivileged is not sacrificed in the move for climate change mitigation. In this scenario, it seems like sound policy for the Indian government in the public sector dominated market to intervene by increasing the spending on the market on various renewable forms of energy and on technologies like smart cities, green buildings etc.

It needs to be verified by independent assessments about the effect of such 'government spending' on a) climate change and environment b) the people and society at large c) private organizations and market. Only such evaluations will bring to focus the efficacy of the above-said government policy. These three factors are really a slightly modified form of the pillars of sustainable development. All the policies adopted by GoI in encouraging the private sector should therefore address all of the economic, societal and environmental aspects.



**Figure 1** Balance between India's government and market policies

## 2. METHODS AND DISCUSSIONS

### 2.1. Early days of climate policies in India

In its initial days of climate change policy making in the 90's, at the time of Kyoto Protocol, India's reforms mainly depended on its economic priorities and not on environmental development. At that time the poverty level was so high, that there was no question of environmental concerns. Poverty eradication and GDP and industrial growth remained their only concern. Slowly, there was a transition of the economy towards liberalization; which started in 1991 and moving towards a market oriented economy and towards more Foreign Direct Investments. During the 90's also, the wide application of Kyoto mechanisms was not accepted; ie. improved energy efficiency and environmentally benign industrial projects were not encouraged and neither were there any emissions capping mechanisms government or private. Thus the idea of climate mitigation, if it did even exist, was neither "fair" nor "ambitious". At the beginning of this century, there was a strong shift in policies and to the development of institutional capacity for a fair" and ambitious" regime and to more market-based ambitious schemes. The basic concept that we should try to maximize our reward in climate change mitigation with new and innovative schemes forms the backbone of this new set of schemes adopted by India. This reward maximizing behavior has brought in many ambitious schemes in mitigating the emissions. From the indifference that governed the policy in 90s, now the situation is of seeking monetary reward for emissions reductions as seen by the implementation of Performance Achieve and Trade (PAT).It can be seen clearly in the Intended Nationally Determined Contribution (INDC), that India submitted to the COP 21 in Paris, including the targets to lower the emissions intensity of GDP by 33% to 35% by 2030 below 2005 levels.

### 2.2. Recent developments in climate change policies

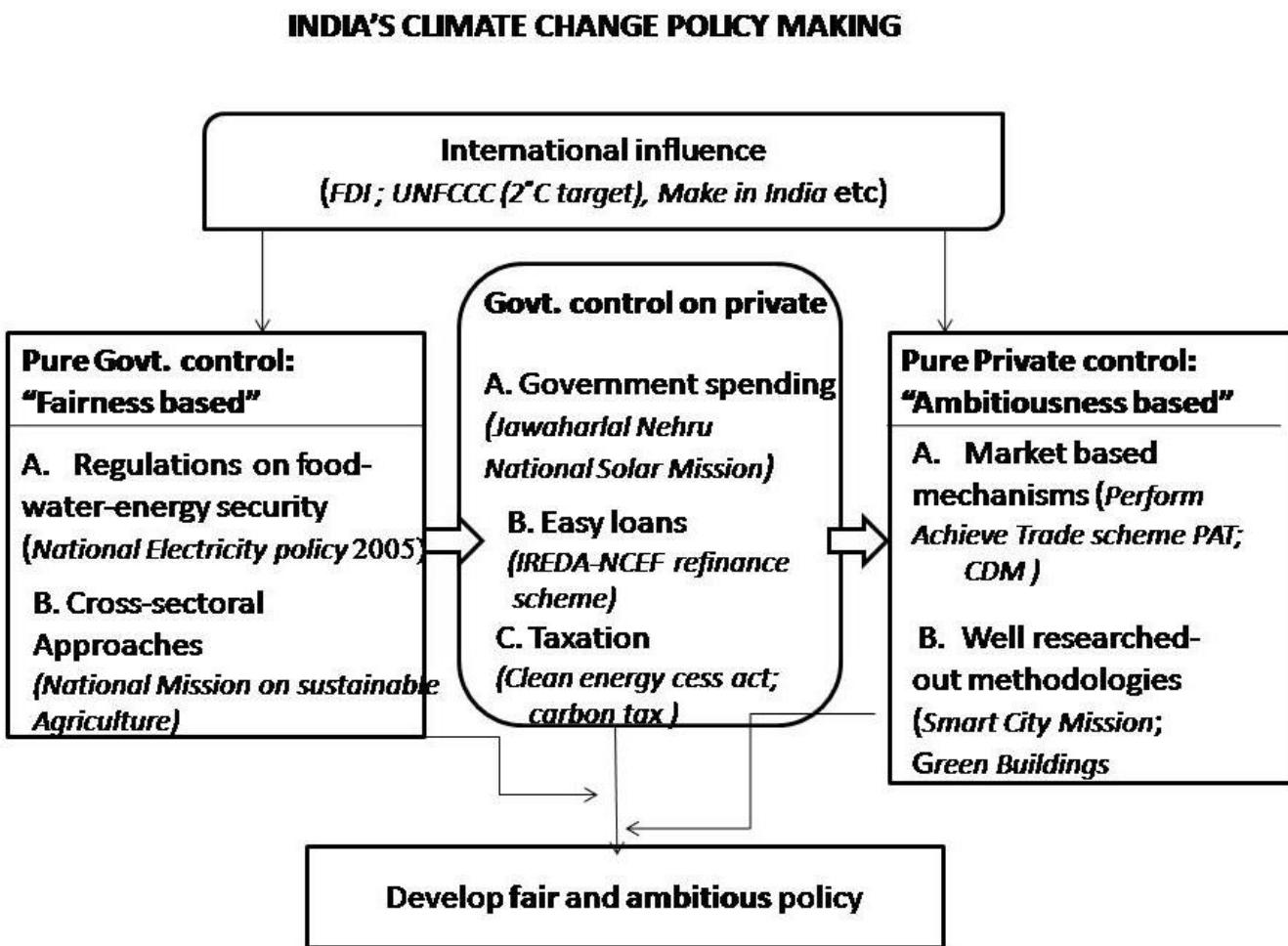
While the economists and climate change experts have the view that excessive fairness will lead to over exploitation of the environment as is seen happening today, India follows the conservative view that excessive ambitiousness will lead to overexploitation of the human resource. International pressure for the 1.5°C against the evident high poverty levels in India requires striking a balance between the two. Based on this, Indian policy makers have tried to lead to a moderately fair and ambitious policy as the Fig 2 shows. The figure indicates that the government has segregated the climate change framework into strictly public, controlled market and free market policies.

#### 2.2 a) Pure Government policies:

Governmental policies on climate change mitigation had and still has its roots on the basic needs approach measured by absolute poverty in India.

When there is an inability to accept mitigation policies in full this leads to adaptation strategies. Traditionally, till the turn of this decade, these adaptation plans have been prepared to meet sectoral-goals in a piece-wise fashion. They used to focus on sectoral and project-based activities, without adequate consideration of cross-sectoral interactions among the three climate-sensitive sectors of agriculture-water-electricity. It has been seen that single-sector impact models that ignore the complex interdependencies present in human and environmental systems will generally inadequately represent the spatial patterns of climate change (Harrison et al., 2016). The GoI has been trying to

incorporate these new cross-sectoral approaches (though not yet in a systematic scientific fashion) into its adaptation policies as given below.



**Figure 2** India's political-economic outlook in the framework of climate change

In India the main source of food is agriculture and hence the country's policies on climate change will definitely be linked to the agricultural output. Agricultural yields are sensitive to weather conditions and as our climate becomes ever more extreme, more frequent droughts may reduce crop yields in India. Higher global food prices will likely thus squeeze consumers' income in the process by producing food inflation. India has recognized this feature and new drought resistant crops are being developed. For example, The National Mission on Sustainable Agriculture (NMSA) focuses on new technologies and practices in cultivation which are less water consuming (thus enhancing water security as well). India's National Water Mission (NWM) tries to conserve water and reduce wastage of electricity because an energy inflation can also be expected due to energy shortage (due to drought). Ripples of this energy

inflation will be felt by the entire economy since energy is the main driver of production in all fields. Thus the cross-sectoral approach to food-water-energy nexus can be expected to be much more effective and fruitful in the long-term than the individual sectoral approach (Rasul & Sharma, 2016).

### **2.2 b) Government controlled market policies:**

In the author's point of view, the economic model that will suit India best is a policy similar to the directed technical change model of (Acemoglu et al., 2012). He has argued for an innovative growth model in which government interventions (a combination of carbon taxes and increased spending) could redirect private investments towards green technologies. They posit that, provided that 'clean' and 'dirty' inputs are sufficiently substitutable, a suitable government intervention in the form of certain policies (like strict environmental rules) could result in permanent shifting from 'dirty' inputs to 'clean' inputs. The only difficulty would be to decide on the exact nature of the control policies, and one opinion, as already proposed, would be to introduce huge governmental spending on the energy market, like in alternate sources of energy and other green growth initiatives. This would stimulate the green economy in a poor country like India. This is what we have shown in Fig 1 and Fig 2 (the governmental control over the market to direct it in a green growth trajectory).

Very recently, since about 2008, and especially after the new government took over in 2014, the government has started developing climate adaptation and mitigation programs through encouragement of the private sector (Tushaar Shah, 2016). These market control policies include increased government spending on renewable and alternate sources of energy and providing affordable loans to startups in these sectors. Also taxation of the private sectors dealing with these carbon products is a step in this direction. In his 2015 budget, finance minister Arun Jaitley introduced a de-facto carbon tax on petroleum products – petrol and diesel and dirty coal. In fact, the big green initiative of this budget was the increase of cess on coal—from Rs 100 per ton to Rs 200 per ton. The Economic Survey estimates that the cess of Rs 100 per ton of coal is equivalent to a carbon tax of US \$1 per ton of CO<sub>2</sub>.

### **2.2 c) Market-centered policies**

One of the main deadlocks in mitigation negotiations occurs due to the fact that the fossil fuel emissions are strongly coupled to the economic growth; therefore a decrease in usage of fossil fuels will result in lesser economic growth. It becomes imperative that we develop carbon-free emissions that are beneficial to the society at large. Thus developing carbon-free emissions that give profit to the markets is the goal. This marks the transition to viewing the emissions prices as a '*ration*' where trading is frowned upon, to a quantity based equity to be traded on the market. Then climate change mitigation becomes an opportunity sharing game rather than a burden sharing one (Zhang & Shi, 2014). Thus the people can view and treat climate emissions reductions as a possible way of economic growth. GoI has recognized these developments and has been successful in implementing schemes which differ psychologically from the ordinary tax-based system where the 'taxes' or money is imposed on the industries compared to that where organizations enthusiastically participate in the policy implementation by maximizing their reward (an example being the PAT scheme described before).

Under the marketable permits system, like the PAT scheme or the ETS, instead of government fining the firms for polluting the environment, it makes the right to pollute tradable. It allows the firms to buy and sell the right to pollute among themselves. The government just sets an emission cap i.e. the amount of pollution it is willing to allow. These schemes are still in their first phase, and much more needs to be done before it can be fully functional and reduce the emissions in India in the same manner in which it is successful in the EU.

A major example of the usage of emissions as a commodity to be traded was the Clean Development Mechanism where the industrialized countries paid in terms of huge projects to industries in the developing nations to reduce the emissions. In fact the method became such a strong incentive for countries like India where firms were supposed to have made millions of unjust dollars profit just by implementation of these emissions reducers which they bought as certificates from the EU-ETS.

For the successful implementation of industries that are both green and are economically profitable it is imperative to develop and adopt well researched out methodologies with funding from private enterprises who will then use it. Examples are the construction of smart cities with the aid of UAE based construction firms, development of green buildings, better connectivity and technologies resulting in green transportation, all with the support of private firms (shown in Fig 2). This goes a long way in directing the economy on the green growth path.

### 3. CONCLUSIONS

There are other political and economic events that either aid or deter the climate change policies (like the increased spending on non-fossil fuels) of the government. The fall in the price of crude oil, for instance, reduces the market price of oil (energy) and makes it difficult for the government to shift into more costly alternate forms of energy. This makes the climate change mitigation policies tougher for the government and less attractive for the private firms. The government then automatically starts looking at adaptation strategies to counter the climate change like more carbon taxes on oil and subsidies on renewable energy (need to spend more on renewable forms of energy).

### SUMMARY OF THE DISCUSSIONS

- 1) In the last century, India's climate change priorities were null and the reforms were based on economic priorities and not on environmental development. At that time the poverty level was intense and there was no possibility for environmental laws. Poverty eradication and GDP and industrial growth remained their only concern. After the transition to liberalization, the country started moving forward in its climate change policies as well.
- 2) Governmental policy are still primarily influenced by poverty and development. But the country has embarked on climate policies that are more efficient. Cross-sectoral policies are given emphasis.

3) In my view, the economic model that will suit India best is a policy advocated by (Acemoglu et al., 2012). He has argued for a green growth model in which government interventions (in the form of increased governmental spending) could redirect private investments towards green technologies.

4) In a market supported economy, developing carbon-free emissions that give profit to the markets is the goal. This marks the transition to viewing the emissions prices as a '*ration*' where the trading is not favored, to a quantity based equity to be traded on the market.

## FUTURE ISSUES

I believe the policy making on climate change in the country is only in its incipient stage and a lot more analysis and studies are required before the country can claim to address this issue. These studies then need to be implemented as laws by the GoI and then the country can legally pay attention to the climate change due to heavy emissions in the country.

## DISCLOSURE STATEMENT

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