

Policy watch: pollution versus health

According to the World Health Organization (WHO) report¹, around 7 million annual premature deaths occur due to exposure to air pollution. The data reveals stronger link between both indoor and outdoor air pollution exposure and cardiovascular diseases and cancer. The report confirms that air pollution is the world's single largest environmental health risk and reducing air pollution could save millions of lives¹.

WHO estimates indoor air pollution caused 4.3 million deaths due to household cooking over coal/biomass stoves. This new estimate is explained by better information about pollution exposures among the estimated 2.9 billion people living in homes using biomass/coal as their primary cooking fuel. In case of outdoor air pollution, there were 3.7 million estimated deaths from urban and rural sources worldwide².

About 69% of the Indian population is dependent on biomass for primary cooking fuel; out of this, 87% of the population is rural and 29% is urban³. Poor women and children are the most affected. According to a study⁴, contribution of urban households to emission growth is six times that of rural households in China; countrywide analysis like this is needed to get better idea about the difference between rural and urban pollution levels. Activities like biomass burning for cooking and to clear agricultural land, diesel used for agriculture pumps/tractors are generally not considered in most of the studies.

According to an earlier WHO report⁵, the global action plan for countries to control premature deaths due to non-communicable diseases sets nine targets, namely reduction in cardiovascular diseases, cancer, chronic respiratory diseases, diabetes, tobacco use, unhealthy diet, physical inactivity and harmful use of alcohol but India has taken the unprecedented step of setting a tenth target to address household air pollution.

Two main approaches are generally used to reduce carbon intensity: one is to reduce energy intensity by promoting technological progress and increasing energy efficiency and the other is to reduce the carbon emission factor by improving the energy mix. The major contributor to the global outdoor pollution is coal-based energy. One country which is pivotal to the future of coal is China. 'In China, to control air pollution means to control coal', says Sylvie Cornot-Gandolphe (French Institute of International Relations in Paris). This statement is not only applicable to China but also to India and Southeast Asia, the regions which are set to become the biggest drivers of coal demand. The International Energy Agency (IEA) predicts that India will become the second largest consumer of coal, overtaking the US in the next five years⁶.

In India, coal serves the biggest fraction (55%) of energy mix (Figure 1) followed by crude oil and natural gas whereas renewables fulfill a fraction (7–8%) of the demand. In November 2014,

*The New York Times*⁷ reported that India's coal mining plans may represent the biggest obstacle to a global climate pact.

According to Krishnan Pallassana (India Director at The Climate Group), there will be a gap [between electricity demand and supply] that has to be met with fossil-fuel power generation. But the issue is what type of coal and is it efficient enough? The big problem in India is poor-quality coal and old power plants. He believes that coal will remain the main source of electricity generation for the next 20 years (Figure 2), but there is huge scope to use it more efficiently and curb CO₂ emissions (Figure 3).

Like China, India is also pursuing alternatives to coal. The present government has doubled an existing tax of 50 rupees (US\$ 0.80) per tonne of coal mined or imported, to further finance a national Clean Energy Fund. It has also increased India's solar target for 2020 fivefold from 20 to 100 GW. Some argue that for initial energy access, local renewables and micro-grids are much cheaper than building grid connections to a coal-fired plant⁸. Laszlo Varro (IEA) points out that this is for the later stages of access; however, decentralized solar power is unlikely to suffice in a country such as India.

Ultimately the technological progress in alternative energy over the period of time has not reached a level where it can be used to boost the economy. Hence coal/petroleum products remain an easy

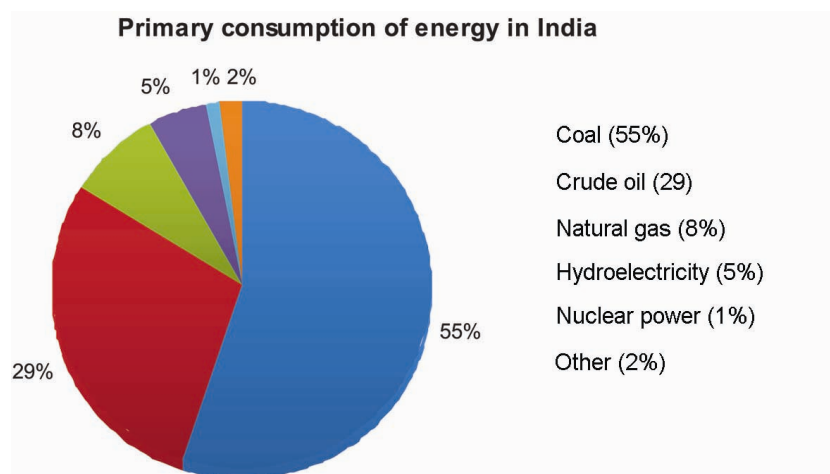


Figure 1. Percentage-wise energy mix in India.

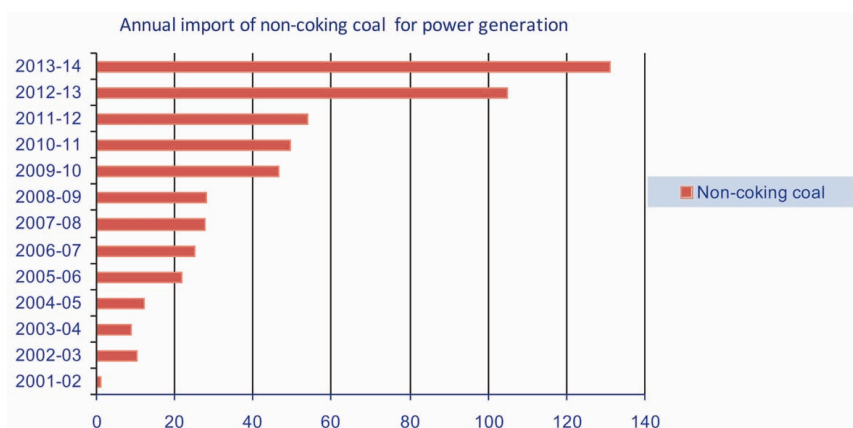


Figure 2. Year-wise import of non-coking coal for thermal power sector in India¹¹.

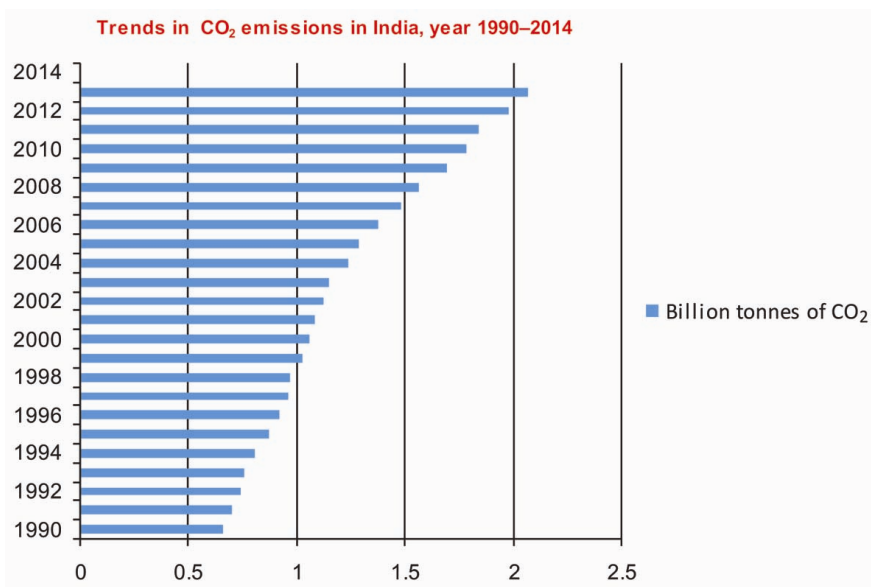


Figure 3. Trends in year-wise CO₂ emissions in India¹².

and cheaper option as industrial and urban growth driver. This is the reason why policy support is needed for renewables. One interesting example is the dramatic development of wind energy in China in the past decade. With continuous policy support, China became the largest wind-energy provider worldwide in 2010, although certain installed wind power capacity is not connected to the grid⁹. Wind energy has become China's third-largest energy source, behind coal and hydropower.

'Excessive air pollution is often a by-product of unsustainable policies in sectors such as transport, energy, waste management and industry. In most cases, healthier strategies will also be more economical in the long term due to health-care cost savings as well as climate gains', says Carlos Dora (WHO Coordinator for Public Health, Environmental and Social Determinants of Health)¹⁰.

Two parts of the world where coal is in irreversible structural decline is the

US and Europe. Half of the US power generation came from coal until 2008, when the tide turned: closing an old fleet of coal-fired power stations, higher production and transport costs, new competitors (shale gas and renewables) and tougher air pollution standards drove towards a decline in coal use. Can India and China try some policy innovations like USA to reduce their emissions without disturbing economic progress?

1. WHO, Burden of disease from ambient and household air pollution, World Health Organization, Geneva, 2015.
2. WHO, Ambient (outdoor) air quality and health. World Health Organization Fact sheet N°313, World Health Organization, Geneva, 2014.
3. www.iea.org/publications/freepublications/publication/cooking.pdf
4. Zhu, Q. and Wei, T., *Environmental Policy and Governance*, published online in Wiley Online Library (wileyonlinelibrary.com), 2015; doi:10.1002/eet.1675.
5. WHO, India: first to adapt the Global Monitoring Framework on noncommunicable diseases (NCDs), World Health Organization, Geneva, January 2015.
6. van Renssen, S., *Nature Climate Change*, 2015, 5, 2015; www.nature.com/nature-climatechange
7. Harris, G., *The New York Times*, 2014.
8. Energy access: why coal is not the way out of energy poverty, Carbon Tracker Initiative, 2014.
9. <http://about.bnef.com/press-releases/china-was-worlds-largest-wind-market-in-2012/>
10. WHO, 7 million premature deaths annually linked to air pollution, World Health Organization, Geneva, 2015.
11. Press Information Bureau, India, Year-wise import of coal, 2012.
12. www.edgar.jrc.ec.europa.eu/.../jrc-2014-trends-in-global-co2-emissions-2014

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