Review of: "[Commentary] India’s steps towards carbon dioxide monitoring in public assembly spaces for ventilation measurement for airborne infection control and other factors"

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Potential competing interests: No potential competing interests to declare.

The commentary, “India’s steps towards carbon dioxide monitoring …” by Raja Singh is a short introduction to the formulation of guidelines for quantifying indoor air quality where indoor carbon dioxide monitoring is treated as a measure of ventilation. The objective of the commentary is clear and the author has also re-confirmed that in response to the reviewers’ comments. In this scenario, I wish to put up the following two paragraphs.

The use of carbon dioxide (CO_2) as a proxy method for the ventilation analysis in a closed space is an interesting subject but some quantitative data should have been included on (i) the type of instruments to measure the CO_2 concentration, (ii) the noted range of indoor CO_2 concentration and (iii) the trend of concentration variation with per capita volume. A typical example of my personal experience is 800-1200 ppm for a volume of 18 m^3, obtained with handheld carbon dioxide metre Model GCH-2018. This is much higher than the open air, surface level CO_2 concentration varying widely over about 410–540 ppm, depending on the population and urban congestion. The global CO_2 of about 421 ppm that we often speak of, is the mean value over the whole atmospheric column and averaged over all populated and unmanned regions.

The other fact is that people may often get interested to CO_2 as greenhouse gas that is of immense importance in relation to environmental issues. The enhanced atmospheric CO_2 caused by human activities, such as urbanisation, fossil fuel burning and deforestation has been a vital factor to the climate change and to the future of civilisation. Indeed I also got attracted to the title seeing the key phrase “India’s steps towards carbon dioxide monitoring”. The author has informed that the topic of the commentary was initiated in public interest. In this connection, it may be relevant to put up a paragraph of information and some questions to the general reader. Countries like Japan [1], USA [2, 3] and China [4] have launched dedicated satellite-based sensors for global CO_2 monitoring. Is India planning for any similar endeavour? India is a large and highly populated country with high energy consumption, a large portion of the installed generation capacity being dependent on fossil fuels. Many individual studies have been carried out so far on various aspects of CO_2 in the Indian context, such as simulation of climatic variability with CO_2 enhancement [5], time series of CO_2 concentration [6, 7], association of CO_2 with rainfall [8] and monsoon circulation [9], diurnal and seasonal variations [10], sequestration potential [11] and comparison of the recent CO_2 column averages of several Indian sites at global level including COVID-19 situation [12]. Nevertheless, it is not known if any country level integrated effort has been initiated in India for both indoor and outdoor CO_2 monitoring.

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