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point. Nevertheless, there is still a significant shortfall compared to the minimum requirement of 3400 TWh. If the need is fixed at 8500 TWh, the short fall would be enormous. The situation is illustrated in Figure 1.

Thus, the overall conclusion remains the same as that in ref. (1). The future needs of electricity in India cannot be met from renewable energy sources alone, even if the electricity needs are kept to a minimum and the potential of renewable energy sources is fully exploited.

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S. P. SUKHATME

Department of Mechanical Engineering,
Indian Institute of Technology Bombay,
Powai,
Mumbai 400 076, India
e-mail: spsiitb@yahoo.co.uk

Mitigating pollution may help prevent violent conflicts

Decreased social security is a potential risk of climate change, which makes mitigating the effects increasingly urgent. Environmental change produced by climate change could strain societies vulnerable to conflict enough to induce violent outbreaks[1]. Recently, it has been proposed that reducing the emission of short-term climate changing pollutants (i.e. black carbon and methane) can slow down the effects of climate change[2], making these measures of interest.

Reducing the emission of black carbon and methane may slow down the rate of rising global temperature[2], which is an important component of reducing the risk of potential violent conflicts. Black carbon and methane, both potent climate-change inducers, are less-publicized pollutants that cycle quickly through the atmosphere. Measures taken to lower their emissions would prevent global temperatures from rising a critical 2°C above pre-industrial periods by 2050 and simultaneously increasing global crop production[2].

Research has shown that, historically, rapid changes in temperature are associated with violent conflicts. For example, there is a correlation between rising or falling of temperatures and the risk of wars[3,4]. Indeed, rising temperatures may also increase social tensions in the Middle East, increasing the risk of conflicts[5]. The reason why unstable global temperatures are associated with violence is unclear. However, one reason could be that unstable temperatures lower agricultural production, causing societies to fight over resources[3–5]. Therefore, increased crop yield due to mitigation of black carbon and methane could help ease the strain of rapidly changing temperatures.

Another potential danger that arises from increasing global temperatures is the possibility of flooding. Sea levels will rise rapidly over the next century[6], which is possibly due to climate change-induced melting of glaciers and ice caps[7]. Rising sea levels may increase flooding, which can cause violent conflict. An example is the flooding of New Orleans by Hurricane Katrina, where the natural disaster caused chaos by exploiting pre-existing social vulnerabilities[8]. How will flooding affect an area that is less financially and socially stable? In an impoverished megacity such as Lagos, it could destabilize the city and its surrounding region by creating an even more severe conflict[9]. Thus slowing down the effects of climate change via reduced black carbon and methane missions would likely reduce the risks of flooding, which would subsequently reduce the risk of violence in socially fragile coastal cities.

Climate change is intervening with the course of our future; executing means of slowing it down could help prevent violent conflicts. However, it must be stressed that climate change alone is unlikely to induce conflicts, though their causes are never one-dimensional. They arise from complex interactions between political, economic and environmental conditions. Still, decreased living conditions created by climate change will likely strain pre-existing social vulnerabilities within unstable impoverished regions. Thus, reducing the emissions of black carbon and methane could have great influence in preventing violence.

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ALVIN Y. CHAN

Department of Ecology and Evolutionary Biology,
University of California,
621 Young Drive South, Los Angeles,
CA 90095-1606, USA
e-mail: cyh@ucla.edu