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# WILDFIRES AND CLIMATE CRISIS: THE NEED FOR INTERNATIONAL COOPERATION

**MEGNA SURESH AND DHANASREE JAYARAM**

## INTRODUCTION

As the climate crisis unfolds itself across the globe, even amidst the COVID-19 pandemic, countries around the world are expected to come together to tackle this global issue. While there are several effects of climate change, one of the less discussed, yet most palpable, is a wildfire. As temperatures rise, the risk of wildfires increases, as has been seen in several parts of the world, including India, the United States (US), Australia, etc. Wildfires are not solely caused by climate change. Various factors contribute to them, such as lightning, industrial accidents, deforestation, poor agricultural practices, wilful arson, etc., with climate change acting as a risk multiplier.

In recent years, the world has witnessed several wildfires. Climate change influences the nature of these fires, and renders them more catastrophic. These widespread, devastating fires have become

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an expected annual phenomenon in several parts of the world, at times characterised by lengthier fire seasons and increased severity of the fires. In 2019-2020, nearly 45 million acres of land was burnt during the wildfires that blazed through many parts of Australia.<sup>1</sup> The World Weather Attribution (WWA)—an international scientific community—in its rapid analysis of the Australian bushfires, concluded that climate change has increased the probability of such fires by more than 30 per cent since 1900.<sup>23</sup> In 2021 (till April), India has witnessed numerous catastrophic fires in the forests of Uttarakhand and many other states. Both increasing temperatures and a lack of soil moisture owing to deficient rainfall are known to have increased the occurrence of such wildfires, even in the spring season.<sup>4</sup> Similar wildfires have also been reported in other regions, such as the Arctic, the Amazon, North America, and Central Asia, among others. The 2019 fires in the Amazon in South America caught the attention of the entire world, as an estimated 3,500 square miles of Amazon forests were reported to be scorched.<sup>5</sup> All these events, therefore, can be seen as manifestations of climate change, with disastrous implications for ecological and human security. Yet, one has to acknowledge the fact that during 2003-2015, the total area scorched by wildfires decreased by 25 per cent. This is primarily due to changes in land use policies (for example, conversion of forests or savannahs into agricultural or urban lands) and other such human interventions that come with their own downsides.<sup>6</sup>

1. Lily Hess, "World on Fire 2020", *Landscape News*, October 20, 2020, <https://news.globallandscapesforum.org/47794/fires-2020-experts-explain-the-global-wildfire-crisis/>. Accessed on April 22, 2021.
2. Geert Jan van Oldenborgh, et al., "Attribution of the Australian Bushfire Risk to Anthropogenic Climate Change", *Natural Hazards and Earth System Sciences*, vol. 21, no. 3, 2021, pp. 941-60, <https://www.worldweatherattribution.org/bushfires-in-australia-2019-2020/>. Accessed on April 22, 2021.
3. Daisy Dunne, "Explainer: How Climate Change is affecting Wildfires around the World", *Carbon Brief*, July 14, 2020, <https://www.carbonbrief.org/explainer-how-climate-change-is-affecting-wildfires-around-the-world>. Accessed on April 22, 2021.
4. Raju Sajwan and Manmeet Singh, "Climate Change is Real", *Down to Earth*, April 6, 2021, <https://www.downtoearth.org.in/news/climate-change/climate-change-is-real-six-months-on-uttarakhand-forests-still-ablaze-76318>. Accessed on April 22, 2021.
5. CBS/AFP, "Brazil's Bolsonaro Says He Will Accept Aid to Fight Amazon Fires", CBS News, August 27, 2019, <https://www.cbsnews.com/news/amazon-wildfires-brazil-spurns-20-million-aid-offer-from-g-7-nations-today-2019-08-27/>. Accessed on April 22, 2021.
6. Daisy Dunne, n. 3.

What is important to note here is that not only do increasing temperatures contribute to such wildfires, but such disasters also contribute to climate change, by releasing large amounts of greenhouse gases (GHGs) into the atmosphere. Their impact on forests is particularly worrisome, as “even though forests make up only 10% of the total area burned, their higher carbon storage capacity means that they are responsible for one quarter of all fire-related carbon dioxide emissions.”<sup>7</sup> As wildfires increase dramatically, so will the effects of global warming, according to scientific studies. Thus, it is vital for the international community to cooperate to deal with these wildfires specifically, and the worsening climate crisis broadly.

Against this background, the article outlines the existing scientific literature on attribution of wildfires to climate change, and their impacts. The study analyses recent cases (especially during 2019-2021) of wildfires around the world, including India. The article looks into the role of international frameworks in dealing with wildfires and explores the ways in which these wildfires have necessitated deployment of military forces and equipment on more than one occasion, leading to the understanding that militaries would be one of the primary actors in the task of reducing their impacts in most contexts. Finally, the article argues for a more concerted and coordinated approach at the international level to tackle wildfires, and the climate crisis in general through vigorous climate diplomacy.

### **INTERLINKAGES BETWEEN WILDFIRES AND CLIMATE CRISIS**

As an overwhelming amount of scientific literature shows, climate change is playing a crucial role in exacerbating wildfires globally. These fires depend on a number of natural and human-made factors (some of which are related to climate variability too) such as temperature, precipitation, wind speed, soil moisture, nature of ecosystems, lightning, industrial accidents, slash-and-burn techniques (used commonly by agriculturalists), debris burning, to name just a few.

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7. World Wide Fund For Nature, “Fires, Forests and the Future: A Crisis Raging out of Control”, [https://wwf.panda.org/discover/our\\_focus/forests\\_practice/forest\\_publications\\_news\\_and\\_reports/fires\\_forests/](https://wwf.panda.org/discover/our_focus/forests_practice/forest_publications_news_and_reports/fires_forests/). Accessed on April 22, 2021.

If one takes examples of recent fires during 2019-2021, one could find the interconnectedness between them and climate change. In the case of Australia, the country has been experiencing drought for the past few years, which was one of the reasons that contributed to the widespread 2019-2020 bushfires that engulfed many parts of the country, infamously also known as the 'Black Summer' fires. According to scientific literature, the extreme weather conditions were created as a result of both Indian Ocean Dipole (refers to "an oscillation that occurs in the sea-surface temperature between the western and eastern tropical Indian Ocean, analogous to the El Niño-Southern Oscillation in the Pacific Ocean") and Southern Annual Mode (refers to "the north-south movement of the westerly wind belt that circles around Antarctica") moving into a strong positive phase.<sup>8</sup> Both these phenomena could be increasingly influenced by climate change too, apart from naturally occurring weather and climate variabilities.<sup>9</sup> As a result of the devastating fires, over 19 million hectares, including the habitats of several fauna/avifauna, were burnt while more than 3,000 homes were destroyed, and around 33 people and many animals were killed. According to reports, economic recovery, infrastructure reconstruction, and ecological restoration would take a long time.<sup>10</sup>

In 2019, in Indonesia, around 1.64 million hectares were reportedly scorched by wildfires (as per satellite data), most of which was "idle land" (covered with forests once upon a time, but now largely degraded scrublands due to repeated cycles of burning). With large-scale deforestation and conversion of land into degraded patches, the risk of fires spreading into wider areas increases too. Most often, these fires are known to be triggered by human-induced factors, such as

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8. David Kramer, "What Caused Australia's Disastrous Wildfires? It's Complicated", *Physics Today*, vol. 73, no. 3, 2020, p. 26, <https://doi.org/10.1063/PT.3.4428>. Accessed on April 23, 2021.
  9. Nat Johnson, "Meet ENSO's Neighbor, the Indian Ocean Dipole", *Climate Gov*, February 27, 2020, <https://www.climate.gov/news-features/blogs/enso/meet-ensoe2%80%99s-neighbor-indian-ocean-dipole>. Accessed on April 23, 2021.
  10. Alexander I. Filkov, et al., "Impact of Australia's Catastrophic 2019/20 Bushfire Season on Communities and Environment. Retrospective Analysis and Current Trends", *Journal of Safety Science and Resilience*, vol. 1, no. 1, 2020, pp. 44-56.

land clearing burning techniques, which are known to be commonly employed by agriculturalists and plantation owners.<sup>11</sup> Indonesia has received support from international frameworks such as the Green Climate Fund (GCF) and REDD-plus (“reducing emissions from deforestation and forest degradation in developing countries”) to tackle these fires effectively as they also contribute to climate change.<sup>12</sup> As per an estimate, the 2019 Indonesian fires “pumped at least 708 million tons of carbon dioxide equivalent (CO<sub>2</sub>e) in the atmosphere, largely as a result of burning of carbon-rich peatlands.”<sup>13</sup>

Climate change is resulting in shorter winters and drier and windier weather conditions in regions such as Siberia and other parts of Russia. These variabilities intensify fires by aiding them to spread over larger areas. The 2020 fires in Siberia were more widespread than the previous ones, and generated humungous amount of carbon emissions, as these fires are mostly attributed to burning of peat (natural carbon-rich) soil.<sup>14</sup> The thawing of permafrost peatlands (which were perpetually frozen), triggered by climate change, renders it more vulnerable to wildfires, thereby releasing the stored carbon into the atmosphere and compounding global warming.<sup>15</sup>

Tackling the 2019 fires of Amazon, as already described, became an international priority, as this biome acts as a critical defence mechanism against the climate change crisis by absorbing around five per cent of global carbon emissions (2 billion tons of carbon dioxide)

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11. News Desk, “Fires in Indonesia Burn 1.6 Million Hectares”, *The Jakarta Post*, December 2, 2019, <https://www.thejakartapost.com/life/2019/12/02/fires-in-indonesia-burn-1-6m-ha-of-land-mostly-former-forests-satellite-data.html>. Accessed on April 23, 2021.
  12. Reuters Staff, “Indonesia Gets UN Funds to Fight Climate Change, Deforestation”, Reuters, August 27, 2021, <https://www.reuters.com/article/uk-indonesia-environment-idUKKBN25N1DA>. Accessed on April 24, 2021.
  13. Hans Nicholas Jong, “Indonesia Fires Emitted Double the Carbon of Amazon Fires, Research Shows”, Mongabay, November 25, 2019, <https://news.mongabay.com/2019/11/indonesia-fires-amazon-carbon-emissions-peatland/>. Accessed on April 24, 2021.
  14. Kasha Patel, “Another Intense Summer of Fires in Siberia”, *Earth Observatory*, <https://earthobservatory.nasa.gov/images/147083/another-intense-summer-of-fires-in-siberia>. Accessed on April 23, 2021.
  15. Alexandra Witze, “The Arctic is Burning Like Never Before”, *Nature*, no. 585, 2020, pp. 336-37, <https://www.nature.com/articles/d41586-020-02568-y>. Accessed on April 25, 2021.

annually.<sup>16</sup> However, currently the rainforest has become a victim of both natural and human-induced changes, including deforestation, drought, and global warming. In the coming years, the Amazon is expected to become a net carbon emitter rather than acting as a climate sink, as was the case so far.<sup>17</sup> The Amazon rainforest is fire-resistant, but the 2019 forest fires showed that it is fast reaching its tipping point. As fires affect biodiversity repeatedly, the latter loses its ability to rebound, as at times the deforested lands give way to highly inflammable vegetation.

In the US, a series of wildfires has occurred, leading to the loss of lives of several people, destruction of property, and displacement. According to a report of the Intergovernmental Panel on Climate Change (IPCC),<sup>18</sup> wildfires are worsening around the world. From notable incidents in Australia (previously elaborated) and the US—such as in Oregon, Washington, and California, with severe damage reported from the ground—it is clear that the disastrous effects of such wildfires are not restricted to developing countries alone; the rich countries are equally affected. California alone witnessed 17,425 fire alerts ('high confidence') in 2020.<sup>19</sup> The 2019 wildfires resulted in damage amounting to approximately US\$ 4.5 billion in Alaska and California. During the fire season, Alaska had witnessed record-breaking heat and dry conditions. Based on the Fourth National Climate Assessment report, with the worsening

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16. Anna Jean Kaiser, "AP Explains: Role of the Amazon in Global Climate Change", The Associated Press, August 17, 2019, <https://apnews.com/article/384fdb5ee7654667b53ddb49efce8023>. Accessed on April 25, 2021.

17. Fiona Harvey, "Tropical Forests Losing Their Ability to Absorb Carbon, Study finds", *The Guardian*, March 4, 2020, <https://www.theguardian.com/environment/2020/mar/04/tropical-forests-losing-their-ability-to-absorb-carbon-study-finds>. Accessed on April 25, 2021.

18. Ove Hoegh-Guldberg, et al., "Impacts of 1.5°C Global Warming on Natural and Human Systems", in V. Masson-Delmotte, et al. (eds.), *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*, 2018, <https://www.ipcc.ch/sr15/chapter/chapter-3/>. Accessed on April 25, 2021.

19. Nancy Harris, Thailynn Munroe and Kelly Levin, "The Climate Loop: 6 Ways Global Warming is Fuelling US Fires", *World Economic Forum*, [https://www.weforum.org/agenda/2020/09/climate-feedback-climate-change-forest-fires/?utm\\_source=sfmc&utm\\_medium=email&utm\\_campaign=2732953\\_Agenda\\_weekly-2October2020&utm\\_term&emailType=Newsletter](https://www.weforum.org/agenda/2020/09/climate-feedback-climate-change-forest-fires/?utm_source=sfmc&utm_medium=email&utm_campaign=2732953_Agenda_weekly-2October2020&utm_term&emailType=Newsletter). Accessed on April 26, 2021.

climate crisis, and taking into consideration other factors such as ecosystem, geography, etc., “the annual area burned in the western United States could increase 2-6 times from the present.”<sup>20</sup>

What needs to be kept in mind is that the effects of such wildfires are not restricted to just one country. For instance, the smoke plumes from Siberia travel to neighbouring Alaska, and in the case of Indonesian fires, the resultant haze affects Singapore, Malaysia, and other countries in Southeast Asia. Hence, wildfires can no longer be considered an intra-state issue. On the one hand, they have regional implications, as they may affect health, ecological and economic security of neighbouring countries too. On the other, with its lasting impact on the climate through GHG emissions, this forms a vicious cycle that needs to be broken.

### **WILDFIRES IN INDIA**

According to Global Forest Watch, India witnessed around 81,000 fire alerts during April 1-14, 2021—way higher as compared to 2020, or even before. With rising temperatures, and drier and warmer conditions in many parts of the country, including in the hilly/mountainous regions, “even a small ignition is likely to become widespread”, as stated by Indian scientists. According to India’s Meteorological Department, the temperatures during the first three months of 2021 were warmer than usual; and, more importantly, March was “the third warmest in 121 years.” Most of the fire alerts originate in northern and central parts of India, with states such as Maharashtra, Madhya Pradesh, Odisha, and Uttarakhand being the most affected.<sup>21</sup> Usually, the fire season extends from February to June, but the intensity of wildfires is contingent on other factors such as weather and climate.

As in other parts of the world, rising temperatures and warmer weather conditions lead to accelerated drying of leaves, wood, etc., which are exceedingly inflammable. Fires have become more

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20. James M. Vose, et al., “Forests”, in D. R. Reidmiller, et al. (eds.), *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment*, Vol. II (Washington, D.C., USA: U.S. Global Change Research Program, 2018), pp. 232-67, <https://nca2018.globalchange.gov/chapter/6/>. Accessed on April 26, 2021.

21. Dakshiani Palicha, “Forest Fires in India”, *Down to Earth*, April 19, 2021, <https://www.downtoearth.org.in/news/forests/forest-fires-in-india-alerts-since-april-1-nearly-double-that-of-2020-76559>. Accessed on April 27, 2021.



common in India's Northeast too, particularly Mizoram. In April 2021, with the continuous efforts of local communities, along with the Air Force, Border Security Force, Assam Rifles and firefighting teams, the fire was controlled in Mizoram.<sup>22</sup> Though the cause(s) of the fire is still unclear, the long dry season and deficient rainfall have been pinpointed as probable factors. Even though wildfire has been a common occurrence in the state, the widespread nature of these fires is indeed unprecedented. As per a report brought out by the Ministry of Environment, Forest and Climate Change (MoEFCC), four districts of Mizoram—Lunglei, Mamit, Aizawl and Champhai—are among “the top 20 districts in India according to the total number of fire detections for the period 2003-2016,” thereby pointing towards the fact that many parts of this state are highly fire-prone.<sup>23</sup>

Even in the case of Uttarakhand, the state received only 10.9 mm of rainfall during January-March 2021, as against the normal 54.9 mm.<sup>24</sup> In Madhya Pradesh, wildfires destroyed large swathes of forest resources possessing enormous economic and environmental value.<sup>25</sup> Hence, in India too, the combination of climate change and human interventions is generating intentional and unintentional fires in several parts of the country that are known to have a huge impact on human and economic security, especially since many communities are dependent on these resources for their livelihood and survival.

### **THE MILITARY'S ROLE IN 'FIGHTING' WILDFIRES**

In the majority of cases of widespread, uncontrollable wildfires, the militaries and/or paramilitary forces are called in to control the situation. In many cases, they are summoned as a last resort, when

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22. DTE Staff, “Forest Fire in Two Districts of Mizoram”, *Down to Earth*, April 25, 2021, <https://www.downtoearth.org.in/news/natural-disasters/forest-fire-in-two-districts-of-mizoram-iaf-helicopters-to-help-put-it-down-76671>. Accessed on April 27, 2021.

23. Ibid.

24. DTE Staff, “Still Burning: Forest Fires Continue to Rage in Uttarakhand”, *Down to Earth*, April 14, 2021, <https://www.downtoearth.org.in/video/climate-change/still-burning-forest-fires-continue-to-rage-in-uttarakhand-76487>. Accessed on May 27, 2021.

25. Nikhar Gokhale and Mukta Joshi, “Draft Amendment to Forest Conservation Act May Dilute Protection to Forests”, *Down to Earth*, March 25, 2021, <https://www.downtoearth.org.in/news/forests/draft-amendment-to-forest-conservation-act-may-dilute-protection-to-forests-76145>. Accessed on May 27, 2021.

firefighting teams, civilian disaster response forces, and other non-military actors fail to deal with the fires effectively. However, as has been seen in recent cases, the military's role has only increased over time.

In the California fires, the National Guard was roped in to deal with them. The state even recognises the involvement of the National Guard in such preventive efforts to reduce the risk of large-scale impact of fires as necessary.<sup>26</sup> In Brazil, the government deployed military personnel to protect the Amazon as a precautionary measure in 2020 to avoid the spreading of forest fires, just as they did in 2019. In the Australian bushfire, defence forces were mobilised to neutralise the fires, as well as engage in relief operations.<sup>27</sup> In India, too, the army and air force have been brought in from time to time in order to extinguish fires in states such as Uttarakhand, Mizoram, etc.<sup>28</sup>

These examples show that, as much as traditional security, the military would be forced to engage with issues that are normally considered part of the civilian governance domain, especially with the worsening climate crisis, and increasing frequency and intensity of various types of disasters. Hence, the security institutions and actors will also have to prepare themselves for acting upon more and more issues that are typically considered non-traditional security concerns.

## **INTERNATIONAL COOPERATION TO CURB WILDFIRES**

The need to tackle wildfires has caught public, political, and international attention, especially since the 1990s. The Food and Agriculture Organisation (FAO) has been involved in helping countries develop fire management capabilities and reduce the effects of fires on people's lives and property, vegetation cover, natural resources, soils, and the atmosphere, which are all ultimately linked with responses to the climate change crisis itself. These

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26. Martin Kuz, "In the War on Wildfire, California Turns to Military", *The Christian Science Monitor*, August 19, 2019, <https://www.csmonitor.com/USA/Military/2019/0819/In-the-war-on-wildfire-California-turns-to-the-military>. Accessed on April 27, 2021.

27. Steven Stashwick, "Massive Australian Effort to Provide Relief from Raging Bushfires", *The Diplomat*, January 1, 2020, <https://thediplomat.com/2020/01/massive-australian-military-effort-to-provide-relief-from-raging-bushfires/>. Accessed on April 27, 2021.

28. Scroll Staff, "Uttarakhand Forest Fires: Army, Air Force Help Douse Flames, Which Have Left Six Dead", *Scroll*, May 1, 2016, <https://scroll.in/latest/807446/uttarakhand-forest-fires-army-air-force-to-help-douse-flames-which-have-left-six-dead>. Accessed on April 27, 2021.

frameworks have been and are an intrinsic part of the international community's efforts to achieve Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs), as these broader international frameworks have and are focused upon issues such as forest management, biodiversity, and environmental sustainability. Forests, covering a large percentage (over 30 per cent) of the world's land area, are critical ecosystems that provide vital goods and services upon which humankind is dependent. Not only do they store carbon, and offer habitat for different species, but also play a part in alleviation of land degradation and desertification.<sup>29</sup>

All the three Rio conventions, derived from the 1992 United Nations Conference on Environment and Development—Convention of Biological Diversity (CBD), Convention to Combat Desertification (UNCCD) and Framework Convention on Climate Change (UNFCCC)—acknowledge the critical role played by forests in the maintenance of balance of nature, and protection of the planet. What one should also emphasise is the fact that the same summit also gave rise to the “Statement of Forest Principles, a set of principles to underpin the sustainable management of forests worldwide.”<sup>30</sup> These principles are also focused on adopting appropriate measures to protect forests from fires. The UN General Assembly (UNGA) also adopted a non-legally binding instrument on all types of forests, urging all the member states to implement various national policies to strengthen forest governance, particularly by analysing and addressing the threats to forests. It recognises the fact that deforestation causes severe harm to the health of ecosystems, thereby affecting human, land and livestock health, as well as various sectors that are dependent on the forests such as ecotourism.<sup>31</sup>

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29. Elisa Morgera and Maria Teresa Cirelli, “Forest Fire and the Law”, Food and Agriculture Organisation, no. 99, 2009, <https://globalpact.informea.org/sites/default/files/documents/MON-081623.pdf>. Accessed on April 28, 2021.

30. World Rainforest Movement, “Forest Principles—Report of the United Nations Conference on Environment and Development”, United Nations, 1992, <https://wrm.org.uy/other-relevant-information/forest-principles-report-of-the-united-nations-conference-on-environment-and-development/>. Accessed on April 29, 2021.

31. United Nations Framework Convention on Climate Change, “The Rio Conventions Action on Forests”, [https://unfccc.int/resource/docs/publications/rio\\_20\\_forests\\_brochure.pdf](https://unfccc.int/resource/docs/publications/rio_20_forests_brochure.pdf). Accessed on April 29, 2021.

The CBD calls on member states to adopt national measures and policies to conserve forest resources, and promote sustainable forest management. It recognises human-induced, ‘uncontrolled’ forest fires as a major threat to forest biodiversity. It seeks support from the FAO and other international agencies, such as the International Tropical Timber Organisation (ITTO) and Global Fire Monitoring Center (GFMC) to understand and assess the impact of fires on forest biodiversity, and develop a certain set of guidelines to manage fires, and undertake community-based steps towards both management and prevention of fires.<sup>32</sup> The UNCCD, on the other hand, calls for action to combat land degradation and desertification that includes forest-related governance measures. As wildfires result in soil erosion and stunted vegetative growth, they aggravate land degradation. Hence, it is of utmost importance for countries to prevent them, including by rendering the forests healthy by removing fire-prone vegetation, restoring ecological degraded lands, etc. In turn, desertification also increases the risk of wildfires.<sup>33</sup>

The UNFCCC emphasises the need for countries to adopt sustainable methods for forest protection, as forests act as a carbon sink, and help preserve the stability of the climate. With the well-acknowledged role of forests in climate mitigation (reduction of GHG emissions) and adaptation (coping with the effects of climate change), international agreements such as the Kyoto Protocol have also incorporated sustainable forest management as a part of broader climate action. ‘Land Use, Land-Use Change and Forestry’ (LULUCF) constitutes a major cost-effective means for offsetting GHG emissions.<sup>34</sup> Furthermore, as the international community gears up to achieve net zero emissions targets—that is, balancing of GHG

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32. Convention on Biological Diversity, “Forest Biological Diversity”, SBSTTA 7, Recommendation VII/6, November 2001, <https://www.cbd.int/recommendation/sbstta/?id=7046>. Accessed on April 29, 2021.

33. The Faculty of Law, “United Nations Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa (UNCCD)”, University of Oslo, June 17, 1996, <https://www.jus.uio.no/english/services/library/treaties/06/6-02/combat-desertification.xml>. Accessed on April 29, 2021.

34. United Nations Framework Convention on Climate Change, “Land Use, Land-Use Change and Forestry”, United Nations: Climate Change, <https://unfccc.int/topics/land-use/workstreams/land-use--land-use-change-and-forestry-lulucf/background>. Accessed on April 29, 2021.

emissions by removing them from the atmosphere using natural and artificial sinks to stabilise global temperature—forests are once again emerging as a pivotal part of these efforts of not only nation states, but also corporations and other stakeholders who have adopted similar commitments.<sup>35</sup>

Under the 2015 Paris Agreement, most countries have agreed to tackle the adverse effects of environmental disasters, such as wildfires, that cause tremendous damage to different types of biomes, indicating the requirement for instituting more robust disaster risk management mechanisms to deal with them. Massive wildfires as seen in the Amazon, Australia, and other countries make it harder for the international community to achieve the Paris goals.<sup>36</sup> Increasingly, the UN and its programmes/agencies such as the UNFCCC (specifically the REDD-plus programme), FAO, United Nations Development Programme (UNDP), and United Nations Environment Programme (UNEP) have been cooperating and coordinating their efforts to help countries' national and local governments deal with, and prevent, wildfires. For example, they are engaged in providing policy support and advice to Indonesian authorities in decreasing GHG emissions emanating from peatland and forest fires.<sup>37</sup> These fires generate smoke particles and black carbon that are not only bad for the climate, but also for human health. Hence, international organisations essentially consider wildfires a threat to ecological security and human welfare.

### THE INDIAN POLICY SCENARIO ON WILDFIRES

India's policies on tackling wildfires are mainly drawn from Forest Fire Prevention and Management (FFPM) scheme. The country's National Forest Policy reinforces the need for taking precautions to prevent wildfires. India has also benefited from a Technical

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35. Derek Nighbor, "Sustainable Forest Management Will Help Drive Our Net Zero Future", Forest Products Association of Canada, March 19, 2021, <https://www.fpac.ca/sustainable-forest-management-will-help-drive%E2%80%AFour-net-zero-future/>. Accessed on April 29, 2021.

36. Navin Singh Khadka, "Amazon Fires: Forest Loss Challenges Paris Climate Ambition", BBC, August 28, 2021, <https://www.bbc.com/news/science-environment-49484530>. Accessed on April 30, 2021.

37. Johan Kieft, "Smart Management of Wildfires Can Help Curb Global Heating", United Nations Environment Programme, December 16, 2019, <https://www.unep.org/news-and-stories/story/smart-management-wildfires-can-help-curb-global-heating>. Accessed on April 30, 2021.

Cooperation Programme (TCP) project on Training in Forest Fire Management Planning, aided by the FAO. Through this programme, a holistic review and analysis of the existing laws and regulations concerning wildfire management was conducted; a context-specific training package was designed; training courses were offered to forestry officials and planners across the country; and so on.<sup>38</sup>

Even though fires are employed as a land management tool, India's traditional, national laws strictly prohibit setting fire in forests as per the Indian Forest Act, 1927 and Wildlife Protection Act, 1972, with the exception that the forest department may use controlled fire in certain situations for land management. After the need for a national level strategy was recognised by the MoEFCC—also voiced by the National Green Tribunal (NGT) in a 2017 ruling that stated that the ministry needed to hold consultations with the states, and adopt national policies for FFPM—the National Action Plan on Forest Fires (NAPFF) was launched in 2018.<sup>39</sup>

Though the overall framework of the FFPM is designed and sponsored by the centre, standard operating procedures (SOPs) outlining the basic practices and requirements, are laid down by the states. At the state level, many states, including Andhra Pradesh, Assam, Chhattisgarh and Himachal Pradesh, among others, have actively tried to incorporate FFPM into their overall forestry policies. For example, under the Chhattisgarh State Forest Policy, the state seeks to use Geographic Information System (GIS) and remote sensing for fire control, while Himachal Pradesh promotes the adoption of effective communication systems.<sup>40</sup>

### **CAN CLIMATE DIPLOMACY ADDRESS WILDFIRES?**

Climate diplomacy stands for the effective integration of climate change-related issues into the foreign policy agenda, whereby a

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38. Satendra and Ashutosh Dev Kaushik, "Forest Fire Disaster Management", National Institute of Disaster Management, Ministry of Home Affairs, Government of India, 2014, <https://nidm.gov.in/pdf/pubs/forest%20fire.pdf>. Accessed on May 1, 2021.

39. Ministry of Environment, Forest and Climate Change and the World Bank, "Strengthening Forest Fire Management in India", The World Bank, October 9, 2018, <https://www.worldbank.org/en/news/press-release/2018/10/09/strengthened-forest-fire-management-to-help-india-meet-its-climate-change-goals>. Accessed on April 30, 2021.

40. Ibid.

nation state balances between national interest and international cooperation.<sup>41</sup> Hence, addressing domestic vulnerabilities through diplomatic initiatives in the climate change arena can be considered a part of climate diplomacy. At the same time, an inclusive and comprehensive global climate diplomacy can be a valuable tool for tackling global and regional challenges, such as wildfires.

India needs to focus on a more holistic integration of national and state-level forest policies with climate policy. These interconnected issues require further collaboration and coordination between different ministries and agencies at the national and state levels of forest governance. Here, through climate diplomacy, India could learn some of the existing best practices from around the world, and adopt context-specific guidelines, which could strengthen the NAPFF. In recent times, countries such as Mexico and the US have revamped their forest policies owing to the changing nature of threats, and the interlinked problem of climate change. As international norms demand greater integration of various existing policies to ensure climate sensitivity, more international partnerships would help a country like India to achieve its Paris goals. For instance, in Mexico, forest management policies were revamped in 2013—transitioning from promoting “total suppression of fires” to recognising the “ecological and social role of forest fire, acknowledging that some fires can also be beneficial”—that is, from “total suppression of fire” to “fire management”.<sup>42</sup> In 2014, the US adopted the National Cohesive Wildland Fire Management Strategy, which seeks to adopt a coordinated policy involving a wide range of actors, including governments, agencies, non-governmental organisations, and others. It is aimed at three major goals—“resilient landscapes”, “fire adapted communities”, “safe and effective wildfire response”.<sup>43</sup>

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41. Dhanasree Jayaram, *Climate Diplomacy and Emerging Economies: India as a Case Study* (Abingdon, UK: Routledge, 2021).

42. Alfredo Nolasco Morales, “Mexico’s National Forest Fire Management Program”, World Bank Blogs, December 4, 2017, <https://blogs.worldbank.org/endpovertyinsouthasia/mexico-s-national-forest-fire-management-program>. Accessed on April 30, 2021.

43. United States Department of the Interior and United States Department of Agriculture, “The National Strategy: The Final Phase in the Development of the National Cohesive Wildland Fire Management Strategy”, Forests and Rangelands, <https://www.forestsandrangelands.gov/strategy/thestrategy.shtml>. Accessed on May 2, 2021.

Through climate diplomacy, India could lead the efforts of developing countries in building and deploying technologies to tackle wildfires too. For instance, early warning systems have proven to be an effective method to detect and prevent widespread fires globally. Along with improving satellite remote-sensing technologies, terrestrial-based early detection systems by local-level forest departments are of equal importance. In this respect, capacity-building, training, recruitment, and technical assistance are critical.

India is a major emerging economy and a significant player in global governance-related issues, including climate change. It has already placed climate change as a major cornerstone of its foreign policy agenda too. Through initiatives such as the International Solar Alliance (ISA) and Coalition of Disaster Resilient Infrastructure (CDRI), India has shown that it can also be called a global climate leader. However, India needs to also incorporate other areas of concern into its climate diplomacy agenda, including wildfires. Since many countries seem to be affected by similar problems, climate diplomacy—through bilateral, multilateral, and minilateral forums—could address the ways in which wildfires can be tackled and prevented globally. While technical and capacity-building assistance could be sought from the international organisations from time to time, most importantly, India may require financial assistance to deal with this problem. Hence climate diplomacy could pave the way for assistance from international donors and financiers in this regard.