Intentional Forest Fires and COVID-19

2020 Forest Fire Season

- In the **Brazilian Amazon**, the main fire season runs from August-October. Experts believe this year will see yet another season of intense fire events.
- In **Indonesia**, the dry season is April-October. Indonesia's national weather agency predicts a milder dry season this year compared to 2019, when the El Niño system fueled higher temperatures and more intense fires.
    - Indonesia has 36% of the world's tropical forest peatlands. Carbon-rich peatlands are estimated to cover move than 20 million hectares, mainly in Sumatra, Kalimantan and Papua. Fires on peatlands can enter the soil, smolder for months underground and resurface when conditions are favorable. Forty-four percent of the 2019 fires were on carbon-rich peatlands.

Intentionally Set Forest Fires

In Brazil, Indonesia and across the topics, landgrabbers, companies and ranchers intentionally set forest fires to clear land. These fires in Brazil and Indonesia are not inevitable, and they are not natural.

Forest Fires in Brazil, Indonesia and Across the Tropics Are Not Natural

- Globally, only around 4% of all forest fires have natural causes such as lightning or extreme weather events. In all other cases, humans are responsible, either by deliberately clearing the land or by carelessness.
- Fires are *not* a normal part of the ecosystem in the humid tropical forests in the Amazon, Southeast Asia and Mesoamerica. Undisturbed, closed canopy rainforests normally have little flammable material. Forest fires only became a major problem there since about 1980 due to deforestation, logging and climate change.
- Fire with natural ignition, like lightning, in an ecosystem as humid as the Amazon rainforest is extremely rare.

Forest Fires Are Intentionally Set

- There are several different types of intentionally set forest fires in the tropics that are problematic. These include fires set to resolve land conflicts, or fires set for a range of other purposes that cause accidental damage. However, the most problematic and damaging fires are those intentionally set by landgrabbers to clear forested land.

Brazil

- In Brazil, intentionally set fires are a tactic used by land grabbers to illegally take over public land. Lands classified as "unclaimed public lands"—public lands that have not been officially designated for a specific land use or formally registered as government property—are often targeted.

    - In 2019, government policies and pronouncements led to a sharp up-tick in deforestation and intentionally set fires on unclaimed public land in 2019. The trend is continuing in 2020.
    - In 2019, unclaimed public lands—together with "land with no information"—accounted for 38% of deforestation and 30% of the lands that burned down; this grew to 46% of all deforestation in the first quarter of 2020.
- In the Amazon, intentionally set forest fires are carried out in two ways. They are set to clear standing trees, **or** the trees are first removed (through chainsaws and other means), then fires are set to burn the remaining vegetation to the ground. The second approach was far more common in 2019.
- Fires associated with deforestation for cattle ranching are partly due to three meatpacking companies—JBS, Minerva and Marfrig, which handle about 50% of the beef raised in the Amazon—failing to meet their commitments to keep cattle from deforested areas out of their slaughterhouses. Much of this is related to cattle laundering, with ranches selling to other ranches, which then sell to these companies.
- Brazilian beef exports continue to rise, contributing to further livestock expansion in the Amazon, which is the main driver behind deforestation and fires. Brazil is expected to export 2 million tons of beef this year, 8.3% more than last year, earning US$8 billion, 4.6% more. Growing exports to China are a major factor in this case.
- Logging increases the prevalence and severity of fires by making the forest drier and increasing flammable material.

Indonesia

- In Indonesia, clearing land for palm oil and pulp plantations is a major cause of fires. Industrial-scale plantations account for nearly half of deforestation in the country.
- Two large companies, Asia Pulp & Paper and APRIL, are responsible for a large share of the fires in pulp concessions.

Impact of Forest Fires on Health

- The inhalation of smoke and particles from forest fires is a major health hazard affecting millions of people each year. Consistent evidence indicates that fire smoke exposure is associated with respiratory morbidity and mortality. (While morbidity refers to the level of health and well-being, mortality is related to death.) This means that inhaling the air polluted by wildfire smoke can cause short- and long-term diseases that range from wheezing and coughing to more serious diseases, such as asthma, pneumonia, chronic obstructive pulmonary disease (COPD) and lung cancer.

- Forest fires emit smoke composed of a mix of hazardous materials that pollutes the air. Particulate matter (PM)—especially those of less than 2.5 micrometers ($PM_{2.5}$)—is one the most concerning as they are very small particles that can travel and impact the air quality for hundreds of kilometers.

- A systematic review of wildfire smoke in more than 10 countries showed that, in almost all studies, the air pollutant levels increased dramatically during fire events and can

result in severe levels of exposure. Tropical peat fires also emit (per unit of carbon burned) 3 to 6 times more particulate matter than fires on grasslands and forests.

- Globally, fire is the primary cause of elevated mortality from air pollution across much of the tropics. Fire emissions are responsible for 5% to 8% of the 3.3 million annual premature deaths from poor outdoor air quality.
- Between 2008 and 2015, wildfires caused an annual average of 297 fatalities globally (both civilians and firefighters).
- Smoke from fires can spread for hundreds of kilometers and affect neighboring states and countries. For example, smoke from the 2019 Amazon fires swept into major Brazilian cities.

Brazil

- Inhaling wildfire smoke has also been associated with asthma, COPD and other respiratory diseases in the Brazilian Amazon.
- During the extreme drought that affected the southwestern Amazon region in 2005, over 40 thousand people in the Brazilian state of Acre sought medical care due to persistent smoke.
- The Amazon fires in 1998 and 1999 caused around 13,000 in-hospital respiratory treatments.

Indonesia

- If current trends continue, exposure to air pollution from Indonesian fires will cause about 36,000 premature deaths per year on average across Indonesia, Singapore and Malaysia over the next few decades.
- During the 2019 Indonesian fires nearly 1 million people suffered from acute respiratory infections. As of September 2019, over 900,000 people had reported acute fire-related respiratory health diseases.
- The haze from Indonesian fires often spreads to other Southeast Asian countries, increasing air pollution and respiratory infections in these regions. A Harvard-Columbia study found the 2015 haze from the Indonesian fires, which spread to Malaysia and Singapore, resulted in 100,300 excess deaths across the three countries.

- Fires are especially dangerous when peat soils burn. Peat produces high emissions of particulate matter, carbon monoxide and other compounds of incomplete combustion, which are particularly detrimental to respiratory health.

Collision of COVID-19 and Forests

- It is likely the pandemic will continue into the fires season, which could increase the morbidity and mortality of COVID-19.

- High exposure to wildfire smoke can weaken the body's ability to fight infections and affect people's lungs, making them more vulnerable to COVID-19.

- The World Health Organization (WHO) has recognized the link between poor air quality and the severity of COVID-19 cases, although it is still too early to confirm a causal relationship. Doctors For Clean Air and the European Public Health Alliance have made similar statements.

- Preliminary research released during the coronavirus pandemic has shown that people with two conditions tied to air pollution, inflammatory lung disease and coronary heart disease, face a higher risk for severe COVID-19.
- Additional preliminary research released during the coronavirus pandemic suggests air pollution has a negative impact on the morbidity and mortality of COVID-19 patients, based on analyses of cases in Italy, the U.S., the UK and four countries in Europe.
- Researchers have found long-term exposure to air pollution can compromise respiratory, cardiac and other systems, and that people with underlying pollution-related conditions are more seriously ill from COVID-19. Research on another coronavirus that caused the SARS outbreak in 2003 also found a link between air pollution and SARS mortality in China.

Healthcare Systems

- Together, fires and COVID-19 will likely strain health care resources in the impacted regions and drive them to their limit. Outbreaks of fires will likely drive up the number of serious COVID-19 cases and add further pressure on medical specialists and critical intensive care units (ICU) in hospitals.
- Wildfires will increase pressure on healthcare systems, due to increased emergency visits and hospital admissions from patients seeking care for respiratory symptoms. It is estimated that the 2019-2020 Australian wildfires caused 1,124 hospitalizations for cardiovascular problems, 2,027 hospitalizations for respiratory problems and 1,305 visits to emergency departments for asthma.

Evacuations

- Wildfires can trigger large-scale emergency evacuations that may lead to a second wave of COVID-19. Close contact with someone infected is one of the main modes of transmission of the virus. When people are put in overcrowded shelters, they are forced to be in close contact, making them vulnerable to contract COVID-19. For example, 80,000 people were evacuated in California in the 2016 fires, tens of thousands were evacuated in the 2019-2020 Australian bushfire and hundreds were evacuated during Indonesia's 2019 fires.

Firefighting

- Firefighters are especially vulnerable to COVID-19. The National Wildfire Coordinating Group in the United States has noted that close, overlapping living conditions in forest

fire command posts lends itself to rapid spreading of contagious microorganisms and outbreaks have a history of spreading from incident to incident as people are reassigned.

- The coronavirus pandemic is also hindering efforts to fight fires and to build support for conservation efforts and environmental law enforcement. In fire-prone states in the U.S., the pandemic has already strained emergency resources. Firefighters across the country are also ill or under quarantine, hindering preparation for the upcoming fire season. Help from other countries for tackling fires will likely be lower as they would be dealing with their own coronavirus outbreaks.

Indonesia

- The annual burning season in Indonesia, which usually lasts several months, has left over a million people with a history of respiratory ailments, putting them at greater risk of suffering more acutely from COVID-19.
- The 2020 fire season in Indonesia also coincided with the peak of COVID-19, adding pressure on its healthcare system, which already lacks medical staff and facilities.
- In Southeast Asia, government officials are asking police officers and army workers to carry out emergency operations in cities, increasing the threat of illegal logging, poaching and wildfires. Lockdowns have also stalled NGO efforts to conduct forest protection work. As a result, deforestation and wildfires will likely increase in these regions**.**
- The distancing measures have already impacted efforts to prevent forest fires by rehabilitating degraded peatlands. The pandemic forced a halt to construction of some of the infrastructure to rewet drained peat areas.

Stopping Intentional Forest Fires

Brazil

- Managing Amazonian fires requires understanding what is burning and why. Tackling deforestation is key—forest clearance is a major source of ignition and augments the flammability of remaining forests by increasing edge density, raising regional temperatures and reducing rainfall.
- The government decision in August 2019 to prohibit burning for 60 days and to send troops to stop the fires did temporarily reduce the number of fires. It should continue to take similar measures in 2020, while also prioritizing steps to limit illegal land grabbing and deforestation.
- Almost one-third of the hotspots registered in 2019 involved land grabbing of undesignated public lands, which is theft of Brazilian public assets, and that intensified in the first quarter of 2020. The government should prioritize prosecution of those involved in illegal land grabbing of undesignated state and federal lands and impose criminal penalties on those setting fires in those areas.
- Indigenous territories and protected areas have effectively reduced fires in Brazil, although this protection has declined because of reduced environmental regulation. The government should reverse its policies designed to limit the demarcation and titling of Indigenous and Quilombola lands and weaken protected areas and increase its efforts to stop illegal encroachment and violence in these areas.

- One cannot solve wildfire problems without addressing the reality that land speculators and ranchers are deliberately setting these fires as part of efforts to remove forests. As Erika Berenguer from Oxford University says, addressing only the fires "is like me taking paracetamol because I have a toothache: it's going to reduce the pain, but if it's a cavity, it's not going to cure it."
- Brazil can learn from the successful experiences of community fire management in other Latin American countries such as Guatemala and Mexico.
- Brazil could improve its monitoring system to forecast the location and intensity of fires and expand the number of volunteer fire brigades to fight fires which occur on private farms, in protected areas and within Indigenous lands.

Indonesia

- Indonesia needs to prosecute companies that hold forest or plantation concessions where illegal forests occur. (Land conversion by fire is illegal under Law No. 32/2009.)
- The government should accelerate the titling of Adat community forest areas and include all the mapped Adat community forest areas into the government's One Map initiative.
- The government peatland conversion moratorium should be enforced more rigorously, expanded to include secondary forests and logged forests, and made permanent.
- Governments need to reflood many peatlands in Indonesia to reduce fire risk. Protecting peatlands through eliminating all fires on such lands would prevent an average 24,000 excess deaths per year.
- Disseminating accurate, publicly available materials about plantation and logging concessions; the extent, location and effects of fires and hotspots; and prevalence, location, and severity of respiratory diseases and COVID-19 infections is essential for effectively addressing these problems.