

VANCOUVER YOUTH MODEL UNITED NATIONS 2020



UNITED NATIONS ENVIRONMENT PROGRAMME

BACKGROUNDER A



VANCOUVER YOUTH MODEL UNITED NATIONS 2020

United Nations Environment Program

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Dear Delegates,

My name is Emma-Jane Morgan Burns, and I have the utmost honour of being your Director of the United Nations Environment Program for VYMUN 2020. I hope that you, as delegates, will be able to find a passion for current affairs and global diplomacy throughout this educational experience. The topics we will be discussing for this conference will be Megafire Management and Reduction and Sustainable Nutrient Management.

Megafires pose serious threats to our health and environment, and it is critical to discuss international mechanisms to reduce such fires. Every fire season, wildfires grow bigger, displacing thousands of people and scorching vulnerable ecosystems. There is a direct link between global warming and the increase in wildfires, making it difficult to pinpoint one solution for the issue. However, I hope that delegates will be able to tap into the resources laid out in this backgrounder as well as their additional research to present the committee with distinguished resolutions.

The second topic is Sustainable Nutrient Management. Despite common knowledge, fertilizer is a serious pollutant. The nutrient industry accounts for a decent portion of carbon emission and ecosystem degradation, exacerbating climate change. The situation of fertilizer use is unique in every country; there is no one cause behind the issue. Delegates must be prepared to identify the major issues in their region and bring to committee innovative solutions for nutrient and food management for the next decades.

If you have any questions or concerns, please don't hesitate to contact me at unep@vymun.com. I look forward to meeting everyone.

Sincerely,

Emma-Jane Burns
Director of UNEP | VYMUN 2020

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Megafires Reduction and Management

Questions to Consider

1. What current wildfire management plans does your country utilize?
2. What wildland firefighting techniques should UNEP states employ for fighting megafires?
3. How can the UNEP help nations pay for megafire management and recovery costs?
4. How can the states minimize human loss in megafires?

Overview

Massive wildfires throughout Australia, Indonesia, California, the Amazon, and the Congo Basin brought international attention to the risks of extended periods of hot and dry climate induced by global warming. Today, the average global temperature is over one degree higher than last century and continues to climb annually.¹ The regions most affected by global warming are left with significantly drier and hotter climates. In these dry conditions, the risk of wildfires and megafires rises exponentially.

A megafire covers over 400 square kilometres and is intensified by drought and hot climate. Megafires are difficult to control, and will usually burn all available vegetation before extinguishing. The number of global fires has risen two and a half times since 2001, with nearly five million fires larger than a square kilometre in 2019.² Last year, Australia, Brazil, the Democratic Republic of the Congo, the Russian Federation, and the United States all fell victim to unprecedented megafires. The Australian 2019 - 2020 wildfire season is the heaviest on record, with an area the size of Britain having been burned.³

Megafires cause loss of habitat and biodiversity, destruction of towns and industrial areas, and a higher risk of lung cancer due to increased smoke inhalation in children. Megafires have been defined by UNEP climate expert Niklas Hagelberg as “the new normal.”⁴ Nations are unprepared to deal with new intense fire seasons. Unfortunately, as the climate warms and snowpacks decrease, the fire season is lengthening each year. The compounded result is more intense fires for a significantly longer period of time.

The causes behind megafires are complex, but the issue can primarily be attributed to global warming. The total suppression policy, which is an extreme fire-preventative measure, has led to the accumulation of dense trees and thick undergrowth in forests. The unburnt accumulation of forest material serves as unnaturally high amounts of ‘fuel’ to burn in the case of rare but increasingly deadly megafires. To prepare for the ‘new normal,’ UNEP member states are pressed to decide on fire fighting policy, fire suppression policy, a plan for displaced communities,

¹<https://www.unenvironment.org/news-and-stories/story/perfect-storm-when-climate-change-stokes-wildfires-marine-heatwaves-and>

² Ibid.

³ Ibid.

⁴ Ibid.

rehabilitation for burnt forests and lost biodiversity, and ultimately the implementation of policies to reduce global warming as a whole.

Timeline

Late Silurian Period: Wildfires burn during the end of the Silurian geologic period, an estimated 420 million years ago. Evidence is preserved and later discovered in charcoal fossils of the rhyniophyte plant in Wales.⁵

October 7th, 1871: The Peshtigo fire in Wisconsin and Michigan burn 1.2 million acres, making it one of the deadliest wildfires in North American history.⁶ The fire kills over one thousand people, and leaves tens of thousands homeless.⁷

August 17, 1892: In Eberswalde, Germany, the International Union of Forest Research Organizations (IUFRO) is founded to promote international collaboration in the study of forests and forest fires. The founders of the organization are Austria, Germany, and Switzerland; however, by the turn of the century, the United States, Canada, and Japan also became members.⁸

1911: The Pulaski Fire Fighting Tool is invented by Ed Pulaski, an assistant ranger of the United States Forest Service.⁹ Used for constructing fire breaks, this combination of an axe and an adze is still used to this day.

January 13, 1939: The Black Friday Bushfires in Victoria Australia burn 5 million acres, making it one of the largest wildfires in history.¹⁰ The ash from the blazes reaches New Zealand.

May 18, 2002: The Cerro Grande Report Prescribed Fire Investigation Report finds that federal personnel failed to properly implement and plan the Cerro Grande Prescribed Fire.¹¹ The Cerro Grande Prescribed fire was one of the first planned fires of the twenty-first century, that unfortunately burnt out of control. The Cerro Grande fire displaces 400 families in Los Alamos, New Mexico, United States.¹²

October 2003: The International Wildland Fire Summit is held in Sydney, Australia¹³.

2006: The Food and Agriculture Organization (FAO) of the United Nations establishes the Fire Management Voluntary Guidelines in Rome, Italy.¹⁴ The guidelines are developed by the Forest Resources Development Service of the FAO Forest Department.¹⁵

⁵ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1544139>

⁶ <https://www.nps.gov/subjects/fire/wildfire-history-timeline.htm#:~:text=October%20%2C%201871%2D%20The%20worst,fires%20in%20North%20American%20history&text=Artist%20rendering%20of%20people%20fleeing,buildings%20and%20killed%20200%20people.>

⁷ Ibid.

⁸ <https://foresthistor.org/research-explore/us-forest-service-history/places/research-sites/>

⁹ Ibid.

¹⁰ <http://www.fao.org/3/j9255e/j9255e00.htm>

¹¹ Ibid.

¹² Ibid.

¹³ https://gfmc.online/iwfc/summit_2003-introduction.html

¹⁴ <http://www.fao.org/3/j9255e/j9255e00.htm>

¹⁵ Ibid.

June 28, 2007: The Greek forest fires begin. By the end of the year, a total of 670,000 acres burn.¹⁶ The forest fire becomes a political issue in the 2007 Greek legislative election when opposing parties blame each other for inadequate fire responses.¹⁷

August 2019: The megafires in the Amazon Basin peak. Over one and a half soccer fields of the Amazon rainforest is burned to the ground per minute every day.¹⁸

November 1, 2019: The UNEP's Emissions Gap Report suggests that unless carbon emissions drop by nearly eight percent by 2030, the world will miss the opportunity to fulfill the Paris Climate Agreement, hence ensuring the rise of megafires this century.

November 12, 2019: Australia declares a state of emergency due to megafires erupting across the country, with fires most notably concentrated in New South Wales.¹⁹ 25.5 million acres, an area approximately the same size as South Korea, are burning by the end of the fire season.²⁰

Historical Analysis

Wildfires have raged across earth's landscapes since the emergence of plant life on land nearly 420 million years ago.²¹ From wildfires in the prehistoric era to fires in the twenty-first century, it is clear that fire is a necessity for forest health. Wildfires clear out dead undergrowth, creating space for new organic life; they thin out tree canopies, allowing smaller plants to thrive, and clear land for meadows and smaller plants. Many ecosystems have evolved to succeed with fire; certain trees, such as the lodgepole pine tree, rely on fire for reproduction, and wildlife, such as the black-backed woodpecker, rely on dead trees after fire for nesting. The creation of meadows by forest fires allows new flowers to grow on the forest floor. This phenomenon makes way for small mammals and their habitats which, in turn, feed larger carnivores. Hence, wildfires should be a natural and healthy part of forest life.

However, in the past two centuries, a new type of fire has been on the rise: megafires. While wildfires can be healthy for certain ecosystems, the Director of the UNEP Global Resource Information Database has warned that large wildfires and megafires can permanently damage biodiversity and endanger human populations.²² According to the UNEP, the leading cause behind the rise of megafires is global warming. The global average temperature has risen 1.1 degrees since the beginning of last century.²³ In warmer conditions, fires can thrive on an unprecedented scale, burning up everything in their path. The fires' only constraint is the amount of burnable organic matter. Higher temperatures increase the risk of wildfires, accelerate drought, and dry out

¹⁶ <https://www.thoughtco.com/worlds-worst-wildfires-3555052>

¹⁷ Ibid.

¹⁸ <https://www.cnn.com/2019/08/23/americas/amazon-wildfires-411/index.html>

¹⁹ <https://reliefweb.int/report/australia/state-emergency-declared-nsw-12-nov-2019>

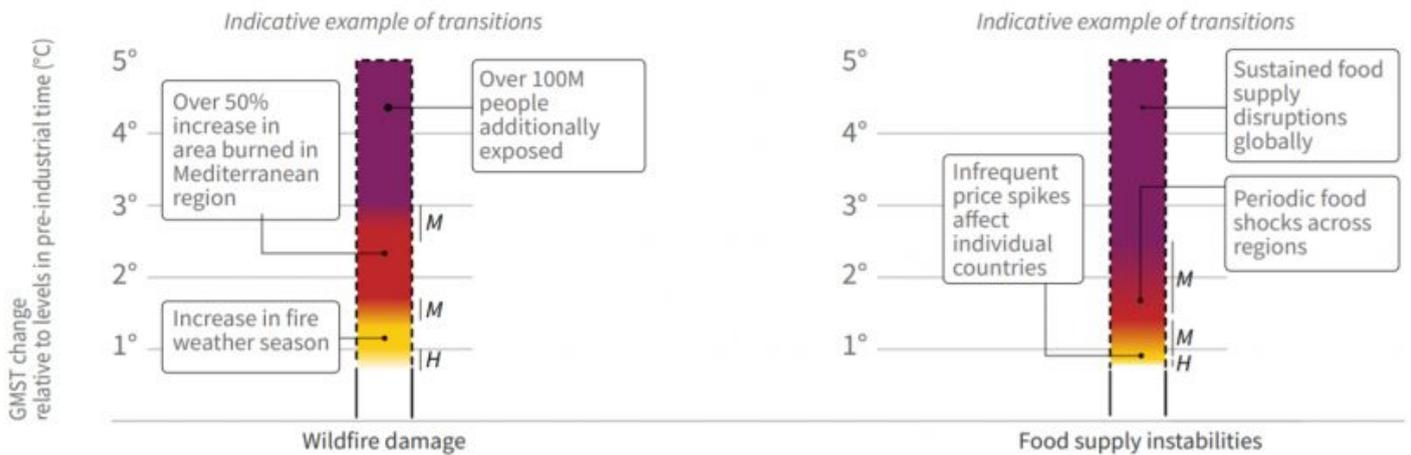
²⁰ <https://www.unenvironment.org/news-and-stories/story/perfect-storm-when-climate-change-stokes-wildfires-marine-heatwaves-and>

²¹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1544139>

²² Ibid.

²³ <https://www.unenvironment.org/news-and-stories/story/are-megafires-new-normal>

vegetation. Global warming allows for longer summers, extending fire seasons in every country up to forty to eighty days longer than in the 1970s.²⁴



A UNEP graph depicting the rise in fires and temperatures.²⁵

Not only has the number of global megafires risen since the nineteenth century, but the severity of the fires has also been on an upward trend. In 1871, the Peshtigo fire in Wisconsin and Michigan burned just under three million acres, making it, at that time, one of the deadliest wildfires in history.²⁶ Then, in 1910, a massive wildfire dubbed the “Big Burn” burned three million acres of North American land, stretching across Idaho, Montana, Washington, and British Columbia.²⁷ In January 1939, the Black Friday bushfires in Victoria, Australia blazed five million acres, killing 160 people and leaving 15,000 homeless.²⁸ As forest fires became a severe threat to public safety in the twentieth century, governments were forced to take action. In 1908, the United States implemented the Forest Fires Emergency Act—the first federal fire policy enacted.²⁹

As wildfires were deemed a public enemy, governments in North America and Europe implemented a “zero burn” policy, attempting to prevent every possible wildfire.³⁰ This policy prevents natural and healthy forest burning and thereby increases the risk of megafires. For instance, before the nineteenth century, when firefighting did not exist to the same extent as it does currently, forests were patchy as a result of frequent small wildfires. Fires regularly burned, killing out dead undergrowth, and thinning out forest vegetation, making forests more resilient to fire. However, as

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https://www.ted.com/talks/paul_hessburg_why_wildfires_have_gotten_worse_and_what_we_can_do_about_it

²⁵ Ibid.

²⁶ <https://www.nps.gov/subjects/fire/wildfire-history-timeline.htm#:~:text=October%20%2C%201871%2D%20The%20worst,fires%20in%20North%20American%20history&text=Artist%20rendering%20of%20people%20fleeing,buildings%20and%20killed%20200%20people.>

²⁷ Ibid.

²⁸ Ibid.

²⁹ Ibid.

³⁰ Ibid.

countries succeeded in preventing forest fires, they simultaneously made forests more densely vegetated with thicker undergrowth, making them more susceptible to fire.

In the past 40 years, under the “zero burn” policy, the United States has succeeded in preventing nearly 95% to 98% of wildfires.³¹ As a result, US forests are now up to five times denser than in the 1930s. In Europe, forests have grown larger since the 1940s, in part due to fire fighting. Firefighters thought that putting out every wildfire was helpful to long-term wildfire control. In reality, “zero burn” policies created a perfect spawning point for megafires. The “zero burn” policy is often seen by critics as a fire fighting mismanagement that contributes to the rising rates of megafires.

Past Action

Several agencies within the UN work on problems regarding megafires management. For instance, the FAO and UNEP look at sustainable forest management, while the Office for Coordination of Humanitarian Affairs and the World Health Organization (WHO) work on human health protection and international megafire response coordination.³² The 2002 World Summit for Sustainable Development (WSSD) in Johannesburg, South Africa, brought together the UN organizations, governments, and non-governmental organizations together to lay a basic groundwork for the development of an action programme to combat out-of-control wildfires.³³

In 2003, the International Wildland Fire Summit was hosted in Australia. The Summit was tasked with addressing the vulnerability of current ecosystems to wildfires and megafires. It established the “Strategy for Future Development of International Cooperation in Wildland Fire Management,” a document that provided numerous recommendations for fighting wildfires. Notably, it includes a template for cooperative multinational aid for wildfire management and an Incident Command System (ICS) that would set an international standard response to wildfires.³⁴ Although the summits took significant strides towards international cooperation in combating wildfires, they did not examine the root causes of wildfires and megafires. The frameworks for aid also seem largely ineffective when it comes to megafires, as the fires continue to increase annually.

In 2006, the FAO developed the Fire Management Voluntary Guidelines, intending to help nations foster high-quality fire management policies. The guidelines outline the importance of an integrated fire management approach between prescribed burning and putting out fires. They also stress the greenhouse gas emissions that wildfires produce.³⁵

The UNEP has been collecting data on wildfires since 2003. At the Second Global Session of the UN Science Policy Business Forum and UN Environment Assembly in March 2019, the UNEP World Environment Situation Room (WESR) was relaunched.³⁶ With the launch came the re-release of all the data collected by the UNEP and other institutions on out-of-control wildfires. Through WESR, the UNEP was able to identify a rise in wildfire activity since 2003. They verified that the wildfires in

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https://www.ted.com/talks/paul_hessburg_why_wildfires_have_gotten_worse_and_what_we_can_do_about_it

³² <http://www.fao.org/3/y5507e/y5507e02.htm>

³³ Ibid.

³⁴ Ibid.

³⁵ <http://www.fao.org/forestry/firemanagement/en/>

³⁶ <https://un-spbf.org/big-data/work-on-big-data-gets-a-big-boost/>

2019 were an unprecedented and unusual environmental activity. The relaunch of WESR has allowed UNEP member states to access more information and data on wildfires.

However, the world still lacks a structured policy and a unified inter-governmental resolution when it comes to combating megafires on a global scale. Current governments, more or less, have been left to fend for themselves. Developing nations in Africa, such as the Democratic Republic of the Congo and Angola, have very little resources to combat megafires and are desperate for international coordination and aid.

Current Situation

The 2019 megafire season was unparalleled by any other fire season in the twenty-first century. In 2019, the Global Forest Watch recorded more than 4.5 million fires within one square kilometre—two and a half more fires than in 2001.³⁷ Brazil, the Democratic Republic of the Congo, Angola, Russia, and the United States all fell victim to unprecedented megafires. By December 2019, more than 250,000 acres of American land was burned, with five people dead and USD 163 million spent on fire suppression efforts.³⁸

In 2018, California experienced its deadliest wildland fire, with the death toll in the hundreds and thousands of homes destroyed. Jerry Brown, the Governor of California, declared the fires as “not the new normal, but the new abnormal” and that the California Fire Fighting Service expects wildfires rates to rise in the next two decades.³⁹

In November 2019, Australia declared a state of emergency due to the out-of-control megafires erupting in New South Wales and across the country.⁴⁰ 25.5 million acres, or a landmass the size of South Korea, burned. Throughout the bushfire season, an estimated one billion animals perished in the flames, and nearly one hundred people died.⁴¹ Megafires in Southwestern Australia were uncontrollable, ravishing over 3000 structures. By February 2020, the fires died out due to rains, which brought an end to the fire season.⁴²

The forest fires in the Amazon Basin in 2019 were an 80% increase compared to 2018 and the worst recorded in the past decade.⁴³ In August of 2019, more than one and a half soccer fields of rainforest were burned to the ground in the Amazon per minute daily. Smoke regions blanketed Brazil, Paraguay, and Bolivia at levels hazardous for human health. France, Canada, Germany, Italy, Japan, the United Kingdom, and the United States promised USD 22 million to be donated to fire suppression in the Amazon. However, in the Democratic Republic of the Congo and Angola, thousands of out-of-control wildfires burnt at levels higher than in the Amazon. With little international attention and little resources, forest fires in these regions continue to burn, destabilizing the ecosystem and the communities that rely on it. Emmanuel Macron, the president

³⁷<https://www.unenvironment.org/news-and-stories/story/perfect-storm-when-climate-change-stokes-wildfires-marine-heatwaves-and>

³⁸ <https://gacc.nifc.gov/sacc/predictive/intelligence/NationalLargeIncidentYTDReport.pdf>

³⁹ <https://www.nytimes.com/2018/11/12/us/california-fires-camp-fire.html>

⁴⁰ Ibid.

⁴¹ Ibid.

⁴²<https://www.theverge.com/2020/1/3/21048891/australia-wildfires-koalas-climate-change-bushfires-deaths-animals-damage>

⁴³ <https://www.cnn.com/2019/08/23/americas/amazon-wildfires-411/index.html>

of France and leader of the Amazon Forest Fund Initiative, tweeted that he “was considering the possibility of launching a similar [Amazon] initiative” in sub-Saharan Africa. However, to date, no African centred initiative has been launched.⁴⁴

Slash-and-Burn for Farming

For the past 12,000 years, farmers burned forests to clear land for farming, a practice that allowed civilizations to create enough land to grow a sufficient amount of food. The practice is commonly referred to as slash-and-burn farming.⁴⁵ Ash created from the fires provides fertilization and eradicates weeds from the farming land. However, modern-day slash-and-burn practices are a large burden to carbon emission rates and can cause permanent deforestation. In Southeast Asia and the Amazon Basin, slashing and burning for palm oil cultivation is a major source of global fires. As more farmers in rural areas use slash-and-burn to create land for cultivation, more fires will rage out of control, and larger megafires will erupt. With the practice of slash-and-burn on the rise, global warming temperatures have made slash-and-burn techniques even riskier.

Although burning the forest for crops is outlawed, these laws often remain unenforced in the developing world. In Indonesia, farmers will use dry conditions from July to October to burn down forests to clear land for pulp, palm oil, and paper plantations. Greenpeace International revealed that large palm oil corporations in Indonesia appear to “operate outside of the law for years with little sanction” when it comes to slash-and-burn due to corruption within the government.⁴⁶ Due to the fiscal benefits of burning among others, governments often refrain from enforcing burning for crops, worsening the megafire epidemic.

Smoke Impacts

A severe human health hazard that results from wildland fires is smoke. Megafires create smoke clouds that can cover hundreds of square kilometres, drastically degrading air quality in the area an average of two to three weeks after the fire has been put out. Smoke causes chronic health issues such as asthma, cancer, emphysema, and lung cancer.⁴⁷ The elderly, people with chronic lung and heart conditions, pregnant women, infants, and young children are at a higher risk of experiencing health effects due to smoke.⁴⁸ In March 2020, Australia recorded the worst-ever air quality rate in Sydney. The air quality was recorded as 400µg/m³, a rate which WHO calls “hazardous.”⁴⁹ Decent air quality is a necessity for a healthy life, and it is deteriorating fast as megafires grow.

Financial Impacts

⁴⁴ <https://www.bbc.com/news/world-africa-49471644>

⁴⁵ <https://www.sciencedaily.com/releases/2009/08/090817073502.htm>

⁴⁶ <https://www.nationalgeographic.org/encyclopedia/megafire/>

⁴⁷ http://www.bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Guidelines%20and%20Manuals/Health-Environment/BCCDC_WildFire_FactSheet_HealthEffects.pdf

⁴⁸ https://www.nps.gov/subjects/fire/wildfire-history-timeline.htm#:~:text=October%20%2C%201871%2D%20The%20worst,fires%20in%20North%20American%20history&text=Artist%20rendering%20of%20people%20fleeing,buildings%20and%20killed%20200%20people.http://www.bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Guidelines%20and%20Manuals/Health-Environment/BCCDC_WildFire_FactSheet_HealthEffects.pdf

⁴⁹ <https://airqualitynews.com/2020/03/25/smoke-from-australian-bushfires-was-more-deadly-than-the-fires-themselves/#:~:text=Due%20to%20the%20fires%2C%20parts,may%20experience%20serious%20health%20effects.>

Megafire reduction and suppression is no frugal endeavour. In Canada, USD 1 billion has been used for firefighting and protection in the decade,⁵⁰ and in the United States, USD 2.4 billion was invested in fire services in 2017 alone.⁵¹ According to the British Broadcasting Network, Australia spent up to USD 35.53 billion a day on fire fighting and other fire countering actions at the height of the December 2019 wildland fires.⁵² Typical expenditures include fire preparedness, fire fighting, equipment, and recovery costs. Even the world's most developed nations are unable to bear the costs of megafires—Australia has accepted USD 61.8 million in aid during and following the 2019 fire season, yet remains in firefighting debt.⁵³ Developing nations, such as Indonesia, Angola, or the Democratic Republic of the Congo, face similar fires yet are severely under-equipped to fight them and unable to pay for full firefighting costs.

Housing

Wildfires do not respect the lines of the forest to the community. They do not stop when they reach the end of the woods. Fires will tear through communities, burning up homes and stores, leaving entire towns homeless in their wake. Unfortunately, as population density rises, more homes are being built in previous wildlands. Many times, new homes are built in high-risk wildfire zones. In California, 1.2 million homes are scheduled to be built in a high-risk fire area before 2050.⁵⁴ Wildfires are inevitable, but building new homes in dangerous locations is concerning for many wildfire experts. Stephen Strader, a researcher at Villanova University, stated that wildfires are “interacting more and more with us—not just because they are getting larger, but because we’re building in wildfire-prone regions.”⁵⁵ In developing countries, where the homes are mostly uninsured and poorly built, the problem is exacerbated. In 2008, fires burned over 3.6 million hectares of tribal grazing land in Ghanzi, Botswana, disrupting the community and their source of food and income.⁵⁶

Possible Solutions

Prescribed Burning

Putting out all wildfires has been described by the United States Forest Service as “well-intentioned but ineffective land management.”⁵⁷ Periodic brief wildfires are natural and healthy parts of forest life that eliminate undergrowth and help new trees sprout. Without a few brief fires, larger fires are more likely to start because there is an excessive amount of undergrowth and organic matter for ‘fuel.’ Prescribed burning is the intentional burning of sections of the forest to burn off dead organic matter in wildlands, limiting the destructive impact of wildfires. Although prescribed burning can help limit the size of megafires, it is hard to implement. Prescribed burning is expensive, and the breadth of wildland firefighting money goes to managing out-of-control megafires, making prescribed fires less fiscally viable. Prescribed burns are also dangerous, as they can burn out of

⁵⁰<https://www.nrcan.gc.ca/climate-change/impacts-adaptations/climate-change-impacts-forests/forest-change-indicators/cost-fire-protection/17783>

⁵¹ <https://www.fs.usda.gov/about-agency/budget-performance/cost-fire-operations>

⁵² <https://www.bbc.com/news/business-50862349>

⁵³<https://www.redcross.org.au/news-and-media/news/australian-bushfires-how-we-are-using-funds#:~:text=As%20at%2030%20June%202020,over%20the%20last%20three%20months.>

⁵⁴

https://www.builderonline.com/article/more-than-1-million-homes-planned-for-high-risk-fire-areas-in-california_c

⁵⁵ Ibid.

⁵⁶ <https://www.thenewhumanitarian.org/report/93072/global-developing-countries-hardest-hit-wildfires>

⁵⁷ <https://www.nationalgeographic.org/encyclopedia/megafire/>

control. In 2000, a prescribed fire was launched in Cerro Grande, United States.⁵⁸ Unfortunately, the prescribed fire quickly burnt out of control, displacing 400 families, and costing an estimated USD 1 billion in damage.⁵⁹ Although prescribed burning is dangerous, it is an effective tool to limit the size of larger, more damaging megafires.⁶⁰

Multinational Fire Fighting and Fire Disaster Recovery Fund

A multinational megafires management fund could help nations that are struggling under the financial burden of wildfires. The fund could be sponsored by UNEP members and other non-governmental organizations. A fire management fund could not only be specific to fighting megafires, but also funding megafire reduction. Although a fund program could be helpful, megafires cannot simply be resolved through money. Proper fire fighting infrastructure must be in place in every nation, with each country equipped with a national fire fighting department and region-specific fire fighting stations. Another issue with a firefighting fund is how the money will be distributed; an outside organization may need to help decide which countries receive compensation.

Agricultural Burning Ban and Enforcement

Crop burning is often the culprit behind megafires in Southeast Asia, the Amazon Basin, and sub-Saharan Africa. Although crop burning is illegal in most states, in a few nations, such as Brazil, burning forest to clear land is legal to promote the farming industry.⁶¹ In Malaysia and Indonesia, crop burning is illegal; however, a lack of governance and enforcement against burning has allowed this practice to continue.⁶² To prevent megafires from catching alight, UNEP states, especially developing nations, could strengthen their agricultural burning laws. Not only do laws need to be strengthened, but also the penalties and enforcement of said laws. Although it can be simple to emplace a law, it still requires a significant investment of funds to enforce the law. Many nations, such as Brazil and Indonesia, are lax on these laws, as multiple industries can profit from burning crops, hence making this solution difficult to implement.

Megafire Infrastructure Planning

Infrastructure in wildfire risk areas could, by law, be required to be fire-resilient. Governments could prevent the building of infrastructure in high-risk wildfire areas, and turn their attention towards enforcing fire-resistant construction, thus saving lives that could be lost in megafires. Materials that are fire resilient include cement, bricks, precast shapes, ceramics, and fire clay.⁶³ In addition to using these materials, builders must also consider aspects of non combustible landscaping. As this building process is expensive, fire-resistant infrastructure is unfeasible to implement in some developing countries. Additionally, no material is 100% fireproof, so building

⁵⁸<https://www.usnews.com/news/best-states/new-mexico/articles/2020-05-17/fire-remains-burned-into-new-mexicos-memory-20-years-later#:~:text=May%2010%2C%202000%2C%20was%20the,though%20no%20one%20would%20perish.>

⁵⁹ Ibid.

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https://www.ted.com/talks/paul_hessburg_why_wildfires_have_gotten_worse_and_what_we_can_do_about_it

⁶¹https://www.washingtonpost.com/world/the_americas/why-brazilian-farmers-are-burning-the-rainforest--and-why-its-difficult-for-bolsonaro-to-stop-them/2019/09/05/3be5fb92-ca72-11e9-9615-8f1a32962e04_story.html

⁶² <https://www.bbc.com/news/world-asia-34265922>

⁶³ <https://www.hunker.com/12444429/what-materials-are-fireproof>

fire-resilient infrastructure does not guarantee the structure will stand in a fire. As such, countries with limited budgets may look to more permanent infrastructure or research solutions to achieve long-term fire resilience.

Megafires Research

Modern-day megafires have only begun to occur within the past 30 years.⁶⁴ Although the UNEP has established wildfires rise in frequency and severity to climate change, little research has been done on megafires. Research is needed within the field to analyze how megafires commence in the first place to prevent them and to discover the best megafire management techniques. Fire departments are often left alone to determine fire management techniques and can be overwhelmed by the severity of megafires.⁶⁵ State-funded research into prevention and combating megafires is needed to support firefighters in their efforts to properly address megafires. Furthermore, a specific UNEP Megafire council could be established with a team of researchers from leading universities to focus on research and policy implementation for wildfires. As wildfires blaze larger & larger, it is imperative to create focused and dedicated research teams to study innovative solutions for a new wildfire generation.

Bloc Positions

Nations Affected by Megafires

High GDP

High GDP countries affected by wildlands fires have established programs for fire management, including national fire fighting systems, burn plans, and funded regional fire fighting stations. Countries include the United States of America, Australia, Canada, Russia, and Sweden. These nations can fund their firefighting programs, but in extreme fire seasons, they may accept donations to help fight fires, such as in the case of Australia. Although these nations have the funds for megafires prevention, oftentimes, fire management is not a national priority. In 2016, Russia cut its firefighting service personnel by 20%;⁶⁶ likewise, in 2019, the United States made financial cuts to fire service programs by USD 1.5 million.⁶⁷ In February 2020, Alberta, Canada announced provincial wildfire-fighting funding cuts by 9.1%.⁶⁸ To be prepared for future fires, high GDP nations may be inclined to reevaluate and refund firefighting programs. This bloc has the ability to fund megafires research and have wildfire recovery funds in place; however, these countries may need to continue to press for funding.

Moderate to Low GDP

Moderate to low GDP nations affected by wildfires are often unable to pay for fire forces, fire disaster recovery, or megafires prevention. Examples of nations in this bloc include the Democratic Republic of the Congo, Indonesia, Brazil, Papua New Guinea, and Madagascar. Although some national forest fighting infrastructure may be in place, these nations are often unable to sufficiently

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https://www.ted.com/talks/paul_hessburg_why_wildfires_have_gotten_worse_and_what_we_can_do_about_it

⁶⁵ Ibid.

⁶⁶ <https://firerescuemagazine.firefighternation.com/2016/09/01/russian-fire-service-reform/#gref>

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<https://www.iafc.org/blogs/blog/iafc/2018/02/16/fire-service-programs-cut-by-president-trump-s-fy-2019-budget>

⁶⁸ <https://www.aupe.org/news/news-and-updates/alberta-government-playing-fire>

fund firefighting programs. Wildland preparedness within these nations is poor, meaning that when fires do strike, the impacts are devastating. For example, in the DRC, fires have been raging since 2019 with little end in sight and limited ability to stop the fires from spreading.

Further, these nations often rely on slash-and-burn for their economies. Malaysia, Brazil, and Indonesia allow the deliberate starting of fires to clear land for agriculture, which leads to many megafires. These nations may seek help to strengthen their respective anti-slash-and-burn and enforcement policies to prevent out-of-control fires from starting in rural areas.

Nations Unaffected by Megafires

High GDP

High GDP nations significantly impacted by megafires are looking to implement long-term plans for megafire prevention and management. These nations are often able to pay for their own fire fighting industry and have the funds to implement fire prevention tactics such as a prescribed burn. Example nations are Finland, Spain, Portugal, and Japan. Although these nations have the funds, there may be little political will to fund firefighting programs. However, with the rise of global temperatures, wildfires can easily become a reality for these countries. These nations should be funding preventative research and infrastructure given their economic power; this includes building fire resistant infrastructure and landscaping and implementing prescribed burn laws, among others. Additionally, many of these nations likely have dedicated resources and researchers to attacking climate change as a whole.

Low GDP

Low GDP nations unaffected by megafires are unable to pay for long-term wildfire management programs and, thus, put themselves at risk for megafires in the future. Some nations in this bloc include Zambia, Jamaica, Sri Lanka, and Morocco. Lower GDP nations oftentimes do not have a sufficient amount of wildfire fighting infrastructure, making them very vulnerable to the consequences of megafires. These nations are looking to secure long term plans against wildfires, strengthen anti slash-and-burn laws, and create preventative laws against potential megafires. Because air quality in one area of the world equates to rising temperatures for Earth as a whole, countries need to work together to ensure every nation is best protected from potential fires. While nations with low GDPs often cannot fund research and development, more prosperous nations with the willingness and ability to should step in. This includes funding and potentially leasing fire-resilient infrastructure and sharing resources and policies that have been proven to combat the fires.

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