Episode 38

September 22, 2022. Episode 38 A Mary and the Climate Summit in New York City, held September 20, 2022

Mary noted that talks with the most prominent speakers at the Climate Summit held September 20, 2022, Al Gore and John Kerry, were inexplicably called Fireside Chats, although neither a real wood nor fake wood fire was used as a backdrop on the stage. Neither Al Gore nor John Kerry spoke about PM 2.5 pollution from Industrial nor Residential Wood Burning, and neither noted the September 14, 2022, vote of the European Union to stop subsidizing some biomass (wood) burning. Mary noted that Al Gore said that Natural Gas has Methane leaks 3% of the time, and Al Gore thought that this is a significant problem. Al Gore concluded that Methane Leaks 3% of the time make Natural Gas more polluting than Coal. Mary noted that although she respects Al Gore for starting discussion about climate change years before other people, she thinks Al Gore at the Climate Summit was not factual in his statement that Coal emitted less harmful pollutants than Natural Gas. Mary agreed with John Kerry that a cleaner "bridge" than biomass (wood) burning, which "bridge" is Natural Gas, is necessary for at least a few years, until wind and solar production increases. Mary noted that John Kerry, who presently works for the Biden administration, realistically addressed the problem of methane leaks by saying that the methane leaks from Natural Gas could be stopped. John Kerry also said that Natural Gas is still needed as the cleanest fossil fuel "bridge" to the clean renewable energy sources of Wind and Solar. Mary has been saying that Natural Gas is the cleanest fossil fuel that can be used as a "bridge" to the clean energy of Wind and Solar, to replace biomass (wood) burning for residential heating, for seventeen years. Highly polluting wood burning, whether it is in wood burning fireplaces, uncertified wood stoves, certified wood stoves, or wood pellet stoves, can be replaced by a "bridge" natural gas furnace for residential home heating. Mary calculated the CO2 emissions of Natural Gas if the 3% leak (using Al Gore's statement that the Methane Leak CO2 is 80% more harmful than the CO2 of coal emissions) is included, still only emits 51.20% of the CO2 that Coal emits. Mary also did a calculation from the chart from Families for Clean Air, which compared the weight of PM 2.5 emitted annually. The weights were one sixth of a pound for Natural Gas, 27 pounds for a wood pellet stove, 97 pounds for a certified wood stove and 244 pounds for an uncertified wood stove. Also, the Natural Gas weights would not increase over time, but wood burning emissions might very well increase over time, as wood stoves aged or were not maintained under laboratory conditions. Given the weights from the Families for Clean Air chart, a wood pellet stove emits 16,200 times more PM 2.5 than a natural gas furnace, a certified wood stove emits 58,200 times more PM 2.5 than a natural gas furnace, and an uncertified wood stove emits 146,400 times more PM 2.5 than a natural gas furnace.

Episode 38 B Wendy and PM 2.5 in Brazil wildfire (wood) smoke causes cancer deaths

Wendy noted that Long-term exposure to fine particles 2.5 micrometer in diameter (PM2.5) has been linked to cancer mortality. However, the effect of wildfire related PM2.5 exposure on cancer mortality risk is unknown. A statistical study evaluated the association between wildfire related PM2.5 and site-specific cancer mortality in Brazil, from 2010 to 2016. Nationwide cancer death records were collected during 2010–2016 from the Brazilian Mortality Information System. Death records were linked with municipal-level wildfire- and non-wildfire-related PM2.5 concentrations. In total, 1,332,526 adult cancer deaths (age greater than or equal to 20 years), from 5,565 Brazilian municipalities, covering 136 million adults were included. The mean annual wildfire-related PM2.5 concentration was 2.38 microgram per meter cubed, and the annual non-wildfire-related PM2.5 concentration was 8.20 micrograms per meter cubed. For all cancers combined, the attributable deaths were 37 per 100,000 population and ranged from 18 per 100,000 in the Northeast Region of Brazil to 71 per 100,000 in the Central-West Region. Wildfire-related PM2.5 attributable cancer deaths ranged from 0 to 822 per 100,000 population for municipalities during the study period, assuming the association is causal. In total, there were 53,135 cancer deaths attributable to 2-year average wildfire-related PM2.5 exposure from 2010 to 2016. Though the highest cancer mortality rate was in the South Region, the number of attributable cancer deaths per 100,000 population was higher in the Central-West Region (75 per 100,000). Males and people 60 years or older experienced a higher cancer burden. Along with increased cancer cases and higher wildfire-related PM2.5 exposure, the number of attributable cancer deaths was more pronounced in 2015 and 2016, which is consistent with the high wildfire-related PM2.5 exposure in those years.

Episode 38 C Wendy and Northern California Children face trauma left by the wildfires

Wendy noted that smoke from a wood-burning neighbor's chimney was perceived by two children, at first, like canaries in a coalmine, to be threatening. Mary noted that the children were judged "well adjusted" when they categorized wood burning chimney smoke as different than wildfire smoke, and therefore didn't fear breathing wood burning smoke from their neighbor's chimney. Mary knew that PM 2.5 in wood smoke emitted from residential wood burning is the same kind of PM 2.5 wood smoke emitted from wildfires, except it is not temporary like a wildfire, unless the residential wood burning is shut down. Wendy noted that after wildfires in Northern California, two children sensed danger because a burnt wood smoke smell wafted over their garden. The smell transported the two sisters back to memories of a wildfire that swept through their former home. From the back of a minivan the sisters saw flames surrounding their trailer in Northern California wine country. They abandoned their belongings, including one sister's favorite doll, and left without their cat, who was scared by the fire. The family walked down dark paths lit by burning trees and plants. The older sister was calm. The younger sister vomited. Many children who survive Northern California wildfires are experiencing lasting psychological trauma, including anxiety, depression, and post-traumatic stress disorder. Children may also develop sleep or attention problems or have trouble in school. If left unaddressed, emotional trauma can lead to chronic health problems, mental illness, and addictions. Since 2020, the state has required physicians participating in the state's low-income Medicaid program to screen children and adults for potentially traumatic events related to adverse childhood experiences. In the state's latest A C E (Adverse Childhood Experiences) report, which was conducted between January 2020 and September 2021, it was found that children and adults were at higher risk of toxic stress or trauma if they lived in northern counties, a mainly rural region affected by fires. Wildfires not only affect the respiratory system but can contribute to the attention deficit hyperactivity disorder, autism, impaired school performance, and memory problems. The sisters found their cat curled up under a neighbor's trailer 15 days after they evacuated. His legs had severe burns. For the first few years after the fire, the younger sister had nightmares filled with flames, ashes, and charred houses. She woke with a start to the sound of fire truck sirens. In their new home, when the sisters smelled smoke on their patio earlier this year, they soon realized it was coming from a neighbor's chimney. They felt safe and returned to the house.

Episode 38 D Wendy and Campfire meals without wood smoke, with propane stoves and griddles, which can be shut off with a switch
Wendy had always gone camping with a propane stove for cooking food and heating coffee. She came across a website called lets camp smore front slash fire ban camping recipes for people who hadn't been so fortunate as she had been, and now could turn to propane stoves and griddles to try new recipes.
What can you cook when there is a wood fire ban at a campsite? At lets camp smore dot com there is a collection of recipes that you can make when wood fire ban restrictions are in place at campsites. Usually allowed are propane appliances, such as a propane stove, or propane griddle, acceptable because the heat turns off with a switch. Fire restrictions vary by stage and location. Some campsites do not allow wood fires under any circumstance. It is your responsibility to check out the wood fire restrictions or bans in the area before and during camping. Following are the names of 11 of the 65 recipes at the lets camp smore website that can be safely made during a wood fire ban. This includes propane camping stoves, or a propane griddle, such as Blackstone. Also a few no-cook and make-ahead recipes. Make Breakfast Croissant Sandwiches on the Blackstone griddle. Pesto Grilled Cheese Sandwiches. Make these skillet recipes on a camp stove or propane grill. Blackstone Kielbasa, Tortellini, & Spinach Casserole is easy to make on a flat top propane griddle. Chicken Fried Rice. Grilled Fire Ban Camping Recipes for a propane Griddle. Chipotle Lime Shrimp Skewers and Cajun Corn Salad Camping Desserts Made Without a Campfire red, white and blue grilled dessert and S'more Quesadillas made on your flat-top propane griddle. Camper Stove Recipes Pasta with Clam Sauce is a great non-perishable meal to make while camping, it uses only dry or canned ingredients! Make Crab Salad at home and take it out for the first night of camping. TikTok-inspired Nori Sushi Wraps with canned tuna, avocado, and cucumbers. Restrictions are not going away anytime soon. Hopefully, these Fire Ban Camping Recipes make your next camping trip a little easier!

Episode 38 E Wendy and Washington State PM 2.5 Comment Period, September 27 to November 2, 2022
Wendy noted that, in Washington State, the Washington Department of Ecology opened public comment on a new initiative to improve air quality in overburdened communities that are highly impacted by air pollution. The initiative is part of Washington's landmark Climate Commitment Act, which the Legislature passed in 2021. It will eventually lead to new strategies for improving air quality in overburdened communities. "Everyone deserves to breathe clean air, but we know that some communities in Washington are exposed to higher levels of air pollution than others," said the Ecology Director. "We're excited to

listen to people most impacted by air pollution and develop new ways to addressing this problem." Environmental justice is fair treatment of and involvement of all people with respect to environmental laws, and regulations. Under the Climate Commitment Act, Ecology must identify which Washington communities are vulnerable to "criteria" air pollution, expand air quality monitoring in these areas, and later develop plans to reduce these air pollutants. The U.S. Environmental Protection Agency classifies six criteria pollutants that contribute to health issues, beginning with PM 2.5 particulate matter. The Comment period will focus on identifying overburdened communities highly impacted by air pollution. Ecology seeks Comment from organizations, environmental justice advocates, Tribal governments, the general public, and disproportionately affected communities until November 2, 2022. Seven public comment sessions will be held online to maximize participation. Ecology has been receiving recommendations from the Governor-appointed Environmental Justice Council members. Submit comments online, by mail, voice mail, or in a public comment session. Mail to: Erin Torrone, Department of Ecology, P.O. Box 47600, Olympia, Washington, 98504-7600 or leave a comment at 564-200-4426. There will be seven online opportunities for public participation. The format for each session is an overview of the air quality initiative, followed by a question-and-answer period, and then public comment. Tuesday, September 27 at 1 p.m. Thursday, September 29 at 6 p.m. Wednesday, Oct. 12 at 6 p.m. Tuesday, Oct. 18 at 1 p.m. Thursday, Oct. 20 at 6 p.m. Wednesday, Oct. 26 at 1 p.m. Tuesday, Nov. 1 at 6 p.m. Contact information, Susan Woodward, Communications Manager, susan.woodward@ecy.wa.gov 360-688-8070. Notice from Washington State, Vancouver.

Episode 38 F 1 of 2 Wendy and Columbia, South America, PM 2.5 C O P D
Wendy noted that in the medical Journal Lancet, a journalist reporting from Bogota stated that in Columbia, "Without a doubt, exposure to biomass and wood smoke is an important risk factor in rural areas, especially those where kitchens still operate inside" and "Huge numbers of Colombian's have chronic obstructive pulmonary disease (C O P D), driven by tobacco use and air pollution." The article asked the question, "What is required to achieve C O P D control?"
For maximum effect and to ultimately eliminate the disease, new C O P D therapies must be precise and target the specific molecular pathways or endotypes responsible for disease expression. These therapies might be more effective versions of the inhaled or orally administered small molecules, that are already available, but could also include stem-cell or other regenerative approaches, nanotechnology delivery systems, or gene therapy. Available treatments improve some important disease manifestations. But several needs remain unmet, including the elimination of respiratory symptoms and tissue inflammation, reversal of airway remodeling, lung regeneration, and control of secondary systemic pathology. The influenza vaccination could reduce C O P D exacerbations. COVID-19 vaccines are likely to reduce infections in patients with C O P D. All public health workers need to recognize that the effects of primary prevention measures are immense and incomparable to any treatment that could be offered to patients with already established C O P D. Indoor pollutants. The health effects of indoor air pollution related to indoor energy sources (residential wood burning) are substantial, and improved management of this lifelong risk factor will help to eliminate C O P D. Wood smoke adversely affects respiratory health and disproportionately affects women and children in low-income settings. Installation of kitchen chimneys and improved biomass stoves reduce the effects of indoor air pollution. Improved stove and ventilation system designs also attenuate lung function decline and reduce the incidence of C O P D. Interventions to replace biomass stoves with clean fuel (biogas or liquefied petroleum gas) stoves were unsuccessful in the long-term because of financial and infrastructure problems, low awareness, and sociocultural barriers. Interventions to move away from biomass towards cleaner fuels are not always feasible in rural communities or for those with low socioeconomic status.

Episode 38 F 2 of 2 Wendy and Columbia, South America, PM 2.5 C O P D
Wendy noted that, in Columbia, The FRESH AIR project has helped to identify factors that are essential to the successful implementation of health interventions in a Low Middle Income Country (L M I C). When fuel sources cannot be changed, improving ventilation and reducing the proximity of children to smoke within the home are key factors that can be improved via public awareness. Portable high-efficiency particulate air cleaner use significantly improved several respiratory outcomes. Many organizations promote the concept that access to clean air is a right and not a privilege. In 2018, the first W H O conference on air quality and health emphasized the need to include health arguments in advocacy efforts to improve air quality globally. In 2021, W H O revised its air quality standards and declared that there are no thresholds for health effects: anything but clean air is harmful. A commitment by stakeholders to effect change has led to a commitment paper in Europe signed by more than 50 medical societies and patient organizations representing different diseases. The W H O Breathe Life campaign encourages cities to improve air quality through multiple measures. As part of the Healthy Air initiative, the American Lung Association (A L A) also

analyzes data from official air-quality monitors and releases an annual State of the Air report that allows citizens to look up air quality in their community. Conclusions and recommendations. It is quite possible that the elimination of C O P D is not achievable. In this Commission, we have attempted to reset the conversation about COPD to emphasize the importance of non-tobacco risk factors and primary prevention.

Episode 38 G Cameron and a village in British Columbia, Canada increases rebates in a Wood Smoke Reduction Program, and removes “Stove Exchange” from the program name

Cameron noted that, in Valemount, British Columbia, Canada, there were changes to the provincial Wood Stove Exchange Program. It has been renamed the provincial Community Wood Smoke Reduction Program. The name was changed to more clearly state the goal of the program, to reduce wood smoke exposure in B C communities. The program offers people incentives to change out non certified, or non Environmental Protection Agency Canadian Standards Association, E P A, C S A approved, wood stoves for cleaner heating options. It also helps educate residents on more efficient operating techniques for wood-burning appliances, about wood smoke and its health effects. Valemount’s Clean Air Task Force has been working with the exchange program for several years. With the name change comes some changes to the overall program, but the task force says they will continue to work with village staff to ensure the success of the wood stove exchange program and maximize its benefits to the community. Propane-fired appliances will no longer be accepted as a replacement for a wood-burning appliance. This is in alignment with the climate targets in the Clean B C Roadmap to 2030. Residents will be able to receive up to $1300 to exchange to a E P A, C S A certified wood stove, $1750 to exchange to a pellet stove and $3500 to exchange to a heat pump. An addition to the incentive program is the option to install an electric insert for a $400 rebate. If residents have an existing E P A, C S A certified wood stove in use, but want to install a heat pump, they will have the option of keeping the wood stove as well. Last, if someone wants to remove and destroy any non-certified wood stove without exchanging it for another heat source, there is an additional rebate of $300 available to them. The rebates from the province are higher for the Village of Valemount than other areas because Valemount has a “Red Air Zone” status. This means that the air quality measures well below the Canadian Ambient Air Quality Standards (C A A Q S). “Implementing these positive changes to the program and increasing the rebate amounts to switch out for cleaner heating options are meant to see the reduction of harmful particulate matter released into the air which will improve overall air quality in the community,”said the Village of Valemount Community Wood Smoke Reduction Program Coordinator.

Episode 38 H 1 of 2 Island and PM 2.5 can cause lung cancer in non-smokers

Island noted that a team of researchers at Francis Crick Institute (F C I) and University College London (U C L), funded by Cancer Research U K, have identified a non-small cell lung cancer (N S C L C) mechanism driven by fine particulate matter (PM2.5), particles that are 2.5 microns or less in diameter, which are found in 90% of wood smoke. The researchers found that PM 2.5 can cause lung cancer in non-smokers. Air pollution acts as a trigger for lung cancer. The mechanism by which air pollution may induce non-small cell lung cancer in never-smokers was researched. Scientists found that fine particulate matter of 2.5 micrometer size, (PM 2.5) triggers inflammation in the lungs and causes lung cells with pre-existing mutations to start forming a tumor. The finding may lead to new approaches to lung cancer prevention and points out the importance of reducing air pollution for human health. The World Health Organization (W H O) reports that lung cancer was the most common cause of cancer death in 2020, accounting for 1.8 million deaths globally. There are 2 main types of lung cancer, depending on the size of the cancer cells: small cell lung cancer (S C L C) and non-small cell lung cancer (N S C L C). N S C L C is far more common, accounting for 8 out of 10 lung cancer diagnoses. About 10% to 20% of lung cancers happen in people who have never smoked or smoked fewer than 100 cigarettes in their lifetime, according to the Centers for Disease Control (C D C). A team of researchers at the Francis Crick Institute (F C I) and University College London (U C L) looked at ‘never-smokers’ who developed non-small cell lung cancer. The scientists noticed most of them lived in areas where air pollution levels exceeded W H O guidelines. Although air pollution has been associated with lung cancer incidence for at least 20 years, the exact mechanism by which small pollutant particles in the air cause lung cancer had not been identified. Now, the team of researchers at F C I and U C L, funded by Cancer Research U K, have identified a non-small cell lung cancer mechanism driven by fine particulate matter (PM2.5), particles that are 2.5 microns or less in diameter, which are found in 90% of wood smoke. The researchers have demonstrated that air pollution wakes these cells up in the lungs, encouraging them to grow and potentially form tumors.

Episode 38 H 2 of 2 Island and PM 2.5 can cause lung cancer in non-smokers

The study group leader, professor of cancer medicine at University College London, principal group leader at the Francis Crick Institute, and chief clinician at Cancer Research UK presented these findings at the ESMO Congress 2022, the European Society for Medical Oncology's annual conference, on September 10, 2022. A thoracic oncology specialist and associate clinical professor in medical oncology at City of Hope Cancer Center, described the study as "a turning point in our understanding of the environmental contributions to lung cancer in never smokers". A director of thoracic oncology at the University of Colorado, said "Air pollution was recognized as a cause of lung cancer in never smokers by the W H O more than a decade ago […] will this insight alter behavior more than the W H O announcement? No. But if [the] mechanism is robust maybe we will study prevention options in a new way."
Proof that air pollution causes lung cancer. The researchers looked at the health data of 463,679 people in England, South Korea, and Taiwan. PM2.5 pollution was found to be correlated with global lung cancer risk in never-smokers. The researchers then set out to establish causation through laboratory studies on mice. They found that exposure to air pollution causes a dramatic increase in the number, size, and grade of cancers in mice with pre-existing mutations in E G F R and K R A S genes. This finding supports the idea that pollution is not simply correlated to lung cancer but may actually cause it. How pollution causes cancer. The researchers found no evidence of a DNA mutation from environmental causes in the lung cancer genomes of never-smokers. So, they sought to understand how air pollution can cause cancer without causing DNA mutations.
They found that air pollution exposure in both mice and humans results in an inflammatory response involving interleukin-1beta (I L 1 B) that transforms lung epithelial cells into a progenitor stem cell state. If the stem cell has the E G F R or K R A S mutation, there is an increased risk of a tumor being initiated. In line with the findings of a previous large clinical trial, the researchers found that blocking I L 1 B with Canakinumab (a monoclonal antibody), inhibited lung cancer initiation in mice.
In other news about PM 2.5, Island noted that a study in Hong Kong, China showed PM 2.5 exacerbates rhinitis. Island also noted a study in Shanghai, China showed that acute exposure to air pollutants increases the risk of acute glaucoma. Ambient air pollution is related to the onset and progression of ocular disease. However, the effect of air pollutants on acute glaucoma remains unclear.

Episode 38 I Island and a UK story about Utah mental health during a PM 2.5 pollution inversion
While in the U K, Island noted a Utah County, Utah story about maintaining mental health during a PM 2.5 pollution inversion. The article began with the questions, Have you noticed that there has been a gray layer around Utah County for the past month? Have you also noticed that you feel unusually gloomy or irritable? It turns out that there is a likely correlation between these things. In a study conducted by a clinical colleague and others, it was found that there was a "significant association" between long-term exposure to PM2.5 (particulate matter in the air) and anxiety or depression. "Our findings support the hypothesis of a long-term relationship between PM 2.5 exposure and depression, as well as supporting hypotheses of possible associations between PM 2.5 long-term exposure and fear," she explained. When asked about the size of these dangerous particles, a leading physician in Port St. Lucie, Florida said "The most important pollution molecule is PM2.5 which is "fine dust" measuring up to 2.5 microns in size." While much of the science behind this correlation is still under investigation, "various air pollutants, and in particular PM 2.5, have been found to be associated with poor mental health and long exposure to PM2.5 has been associated with an increased risk of new depressive symptoms," said a Professor and others. Furthermore, a researcher also explained that "[Since] P.M2.5 are so small… they can make it all the way into the lungs and into the bloodstream. They're also small enough to cross the blood-brain barrier… and that's where people get into trouble." Fortunately, the U S government and other medical institutions are aware of this danger, are working to minimize it and have provided suggestions for staying safe during the high PM 2.5 pollution times. The American Lung Association recommends "Checking your area's air pollution forecasts," which can be done by visiting airnow.gov. The American Lung Association also recommends avoiding outdoor activities and exposure whenever possible when air pollution reaches dangerous levels. The doctor also makes the following recommendations: 1. Stay indoors if the pollution is unhealthy; 2. Exercise indoors on the bad days; 3. Escape to a location where pollution is less (if possible); 4. Be sure to take all prescribed medications. As record-breaking heat waves cool and summer fires burn across the country, a muddled atmosphere is warning us of the toxic effects these events can have on our minds and bodies. While we are blessed to live in a beautiful state with lots to do outside, if pollution levels are high, please keep yourself safe by considering staying indoors and waiting for the skies to clear especially if you are prone to mental illness. Island also noted an article about pleas for action on PM 2.5 pollution from traffic in the Nottingham

area of the U K, with a quote from the article that you can “taste the pollution”. The Nottingham city council is aiming to make Nottingham the first city in the U K 'carbon neutral', with a target of 2028. One of the ways it is seeking to achieve this is through reducing pollutant levels from traffic.

Episode 38 J Gerda and a German Climate Envoy who is U S born and a former head of Greenpeace
Gerda noted that Germany remains committed to phasing out coal as a source of power by 2030 even as it reactivates coal-fired power plants, the country's climate envoy said. Germany says it took the step to get through the coming winter amid energy shortages as a result of Russia’s war in Ukraine. The German Climate envoy spoke about the German Mission to the United Nations on Sept. 19, 2022, in New York. Morgan said the country remains committed to phasing out coal as a source of power by 2030 even as it reactivates coal-fired power plants to get through this coming winter amid energy shortages as a result of Russia's war in Ukraine. “We are at a crossroads right now,” she said, adding that the war in Ukraine shows how interlinked energy security and independence are with climate security and peace. The U.S.-born former international head of Greenpeace stepped into the role of Germany's special envoy for international climate action in March. Now a German citizen, she is also state secretary. Ten months ago, in her role at Greenpeace, she chastised world leaders for being “weak” on phasing down coal rather than phasing it out altogether. More circumspect as a government official, she now says the dirty fuel is bitter medicine that her country is forced to take this winter, echoing the sentiment of the country's Green party. “We are in the middle of a Russian war of aggression,” she said. “We need to assure that our citizens have enough heat for the winter." She said the decision to burn more coal is “a hard pill to swallow.” She did, however, emphasize that the war in Ukraine “has made it ever more clear why we have to phase out fossil fuels.” European Union countries are spending billions this year on fossil fuel subsidies to offset high prices. The bloc has drawn fierce criticism for including natural gas, a fossil fuel, and nuclear power in a list of sustainable activities. The bloc also signed a deal this year with Egypt and Israel to help with new gas exploration. Morgan said Germany's first priority remains renewable energy and energy efficiency, with a target to reach carbon neutrality by 2045. The second priority, she said, is replacing Russian gas, oil and coal. In a signal of its intention to do this, Berlin announced last week that it seized Russian state-controlled company Rosneft’s stakes in refineries in Germany under a law allowing the seizure of assets deemed key to national energy supply that are owned by potentially hostile foreign entities, according to risk consultancy Eurasia Group. Germany had previously seized assets of Russian state-controlled gas firm Gazprom, which has disrupted natural gas deliveries to Germany due to what it says are technical problems, an explanation German officials reject as political maneuvering. Historically, the United States, China and the European Union, of which Germany is a weighty member, have emitted 53% of the carbon dioxide in the air since 1959. In contrast, all of Africa and South America have each emitted just 3% of CO2 in the atmosphere over the same period of time. Recent devastating flooding in Pakistan and drought in the Horn of Africa, including looming famine in Somalia, have been blamed in part on climate change. As international executive director of Greenpeace, the current German Climate Envoy had called on holding major greenhouse gas emitting nations to account, and compelling them to foot the bill for the energy transition under the “polluter pays principle." In her new role as Germany’s climate envoy, she said the country has been listening to the most vulnerable countries and supports climate financing to assist communities around the world that are grappling with the affects of climate change. “The world is literally on fire,” she said. “We need to take this very seriously.”

Episode 38 K 1 of 2 Gerda and France’s rules on wood burning
Gerda noted, in France, the rules on fires and log burners for heating homes. Currently, 5 percent of households in France are using wood-based heating methods, a significant increase compared to the previous year. The French Fuel Heating Federation (FF3C) expects to need to produce the equivalent of 2.4 million tons of wood this year. This contrasts with 1.8 million tons produced in the winter of 2021. Between 2020 and 2021, FF3C saw a 41% increase in sales of wood pellet stoves and a 120% increase in wood pellet boiler sales. The FF3C released a warning to Consumers that there could be a “five to 15% supply shortage.” 85% of wood pellets are produced in France, while 15% are mainly sourced from Russia and Belarus. The price per bag of wood pellets has also increased. From spring 2022 to fall 2022, the price per bag of wood pellets has increased from €6.5 to €8. According to Propellet, an association of wood pellet-based heating workers, the market may grow in the near future, despite the goal of adding new production lines and plans to double production capacity by 2028 remaining constrained. Open or traditional fireplaces without a glass exterior are inefficient. 85% of the energy produced by burning logs is discharged through the chimney. Closed wood fireplaces, wood stoves, and wood pellet stoves, burn at high temperatures. 85% of the energy produced from burning logs

is recovered in closed fireplaces. Expensive log burners can also be hooked up to a hot water system. Open fireplaces cause more air pollution than closed fireplaces, which emit less particulates. HOW ABOUT POLLUTION TO NEIGHBORS? With the goal of reducing particulate emissions by 50% by 2030, the French government is encouraging homes to move to closed fireplaces through subsidies. The Aux-Savoie (French Alps) bans the open-air fireplaces from January 1st, 2022. 41 municipalities in the Arve valley, known for high pollution levels, ban open-air fireplaces. Beginning in 2022, the construction of new fireplaces is prohibited. What are French regulations for fireplaces or wood and wood pellet stoves? In general, all over France you can use chimneys or wood or pellet stoves (Poel a Bois in French) according to local regulations (city hall or mairie). Often cleaning must be done at least yearly.

Episode 38 K 2 of 2 Gerda and France's rules on wood burning
In Paris and the surrounding area the rules are slightly different. City-specific regulations on fireplaces can be made at the municipal level, but Auxavoie is currently the only province with a complete ban on log-burning fireplaces. Technically, PPAs (Air Conservation Plan) reserves the right to ban the use of inefficient wood heating. "Closed" chimneys (such as log burners) must respect emission and performance standards for new or existing installations. For example, if the device is used as a primary heating system, it must not emit more than 16 milligram of particulates per cubic meter. New devices must have a 5-star rating by the 'Green Flame Label' for use in the 'Sensitive Zone' Subsidy. Some cities, such as Lyon and Grenoble, have introduced incentive programs to encourage households to move away from inefficient wood-burning stoves that contribute to particulate pollution, especially in urban areas. 'Prime Air Bois' offers up to €2,000 (depending on household resources) if you agree to replace your old appliances with new ones bearing the '7 Star Green Flame' label. Replace. The French government hopes to replace 600,000 inefficient, open chimney appliances across the country by 2025. Fireplace homes nationwide can apply for MaPrimeRenov. Environmentally friendly device. Fuel type regulations. As of September 1, 2022, firewood sold will be required to carry a moisture label indicating whether the wood is 'ready to use' (dried) or needs to be dried before use. Households are not allowed to burn dirty, painted or varnished wood (this may include old furniture or wood salvaged from construction sites). Waste such as milk cartons, plastic packaging and magazines, toxic or corrosive substances, and moth-eaten wood (I don't know how this would regulated, says the journalist in an aside) is not allowed to be burned in Paris and Ile de France. The rules are slightly different in the surrounding areas of Paris and Ile de France. Lighting fires and wood-burning stoves is now completely banned in most parts of Paris. You can't use wood burning as your primary heating system (the journalist added, no, I don't know how they check this).The "sensitive zones" of Paris and Ile-de-France have some specific rules that apply differently than the rest of France. You can look up a list of "sensitive zones" in Ile de France.

Episode 38 L 1 of 3 Ishan and an Indian Bio-Composter to Stamp Out Farm Fires in India
Ishan noted that roughly a quarter of the lung-damaging PM 2.5 particles suspended in the air at the time of Diwali were sourced to farm fires. A journalist wrote "Farm fires form a significant source of pollution that chokes the Delhi, India, Capital, especially in the run-up to, and around the festival season. Given this, the failure to find a viable solution means that other steps to clean Delhi's air may only give sub-optimal results. The dreadful season of farm fires is upon us, and there are ominous signs that there will be no respite from hazardous air pollution in Delhi and its surrounding regions (Delhi-National Capital Region (NCR)) this winter. According to the Punjab Remote Sensing Centre, which started recording farm fires on September 15, Punjab reported 22 paddy stubble burning incidents in the last four days. Farmers burn crop residue because it is a quick and cheap way to clear the fields for the sowing of the Rabi season wheat crop, for which the window is narrow. Unfortunately, the stubble-burning season also coincides with unfavorable meteorological conditions in Delhi (N C R), turning the Capital's air noxious. Indeed, with temperatures falling and an anti-cyclone setting in as the monsoon withdraws, the air quality in Delhi has already started deteriorating."

Episode 38 L 2 of 3 Ishan and an Indian Bio-Composter to Stamp Out Farm Fires in India
Ishan noted a second, related article, with the title "Delhi, Punjab hold hands to curb stubble burning, experts say air pollution works like slow poison". Ishan noted that over 99 per cent of India's population is breathing air that exceeds the World Health Organization's health-based guidelines with respect to PM 2.5.

Stubble burning is one of the major contributors to Delhi's air pollution during winter every year. Air pollution has a massive impact on human health in India and is the second biggest risk factor for disease. In India, 35 per cent of C O P D is due to cigarette and tobacco smoking while 65 per cent of C O P D patients are non-smokers. Every year, during the Diwali season, Delhi experiences a thick blanket of smog. This layer of pollution is partly due to the firecrackers, but a major contributor is the burning of stubble in the neighboring states. The Delhi and Punjab governments have joined hands to use Pusa bio-decomposer, a microbial solution that can decompose paddy straw in 15 to 20 days, on 5,000 acres of land in the agrarian state to prevent stubble burning which is a major cause of air pollution. The move comes days after the Centre rejected the request of Aam Aadmi Party (A A P*)* governments in the two states to help them provide cash incentives to farmers in Punjab for not burning stubble. There was a Joint meeting with the Punjab Agriculture Minister and officials of the Indian Agricultural Research Institute (I A R I) Pusa regarding stubble pollution. Free spraying of bio-decomposer will be done in some areas of Punjab as a pilot project this year under the supervision of I A R I," the Delhi Environment Minister tweeted. Air pollution has a massive impact on human health in India. It is the second biggest risk factor for disease. Over 99 per cent of India's population is breathing air that exceeds the World Health Organization's health-based guidelines with respect to PM 2.5, a report by Greenpeace India stated. According to the key findings in the report titled "Different Air Under One Sky", the greatest proportion of people living in India are exposed to PM 2.5 concentrations more than five times the W H O annual average guideline. Increase in air pollution means higher health issues.

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The senior consultant, Pulmonary and Critical Care, at Indraprastha Apollo Hospital said any health issues impacted by air pollution can't be seen or observed in a short span. "Air pollution has a long-term impact on the health of the people. It is like a slow poison and creeps up just as slowly. If the impact of air pollution was immediate, we would have been able to tackle it in the initial stage. It is an invisible enemy; it keeps harming the body without one being aware. One would not know how poor air is affecting a person's quality of life until it starts hampering his daily chores and efficiency decreases," the doctor explained. The director, Internal Medicine, at Fortis Hospital in Shalimar Bagh in the capital said, "If we specifically talk about air pollution, people have developed respiratory issues, lung-related diseases. This means that patients have more of shortness of breath, their asthmatic and COPD situation appears to be worsening as air pollution goes up." He painted a grim picture. "Patients with chronic sinusitis are coming back since their attacks are more frequent. Air pollution is also linked to cardiovascular diseases and lung cancer; there can be some developmental issues in newborn babies as well," the doctor said. "In India, 35% of C O P D is due to cigarette and tobacco smoking while 65 per cent of C O P D patients are non-smokers," said the principal director and head at Max super specialty hospital, Saket, New Delhi. In non-smokers, C O P D is usually seen in women who have been exposed to smoke coming from a chulha in the early part of their lives. In addition, exposure to air pollution, both indoors and outdoors, also leads to C O P D. "Recurrent childhood infections could also cause this disease at an older age as uncontrolled asthma," the doctor added. How are kids impacted by the worsening air quality? A consultant pediatrician, at Jain Multi-specialty Hospital said that poor air quality is a major cause of health problems in children. "Air pollution is affecting the fetus and continues to do so all its life. We have seen increased lower respiratory tract infection, allergies, asthma, bronchitis. Hospitalization has also been on the rise for children. Researchers looked at fine particulate matter data from the EPA (PM2.5), or the fine particles that can penetrate the lungs and pass into the bloodstream, finding the children's blood contained markers of systemic inflammation. Additionally, PM2.5, which refers to particulate matter measuring 2.5 micrometers or smaller by the EPA, was linked to lower cardiac autonomic regulation assessed using an electrocardiogram. Specifically, researchers used data files maintained by the EPA, which have daily air quality summary information from each outdoor monitor in the country. Air pollution is also responsible for poor cognitive functioning of the brain; there is a rise in ADHD, and overall growth and development is also getting affected," the doctor said. He added that there is an increased risk of diabetes, cardiovascular diseases, and skin allergies. "We definitely need to be worried that our children are at risk all because we can't give them cleaner air to breathe," the doctor said.

Episode 38 M Ishan and Indonesia, East Asia Greenpeace lawsuits to enact PM 2.5 standards in South Asia

Ishan noted that Greenpeace East Asia was saying no to pollution: inspiring actions in East Asian peoples' fight for clean air. The Greenpeace article stated that "Air pollution affects everyone across the globe and is one of the biggest environmental risks for premature death", according to the World Health Organization

(W H O). In 2021, W H O tightened its annual average air quality guidelines. The revised guidelines stipulated the average annual PM2.5 concentration, fine particulate matter smaller than 2.5 millionths of a meter, to not exceed 5 micrometers per meter cubed, as exposure to even low concentrations of fine particles is linked to significant health risks such as premature death and respiratory-related diseases. Greenpeace went on to say "We need governments to develop and enforce strong air quality policies to protect the people's health and the planet. Citizens around the world are coming together to demand clean air and to prompt governments for the implementation of real solutions. Here are some Greenpeace air pollution campaigns, organized by concerned citizens fighting for their right to clean air, and the successes achieved in this long journey in tackling air pollution." In Indonesia Activists held banners after the advocacy team from Ibukota (Capital) Coalition, which accompanied 32 citizens in the citizen's lawsuit over Air Pollution in Jakarta, registered a counter-memorandum of appeal at the Central Jakarta District Court. Home to more than 10.5 million people Jakarta, Indonesia is one of the most polluted cities in the world according to the Swiss air quality technology company I Q A I R. The main sources of the city's air pollution are emissions from transportation, industrial facilities, and coal-fired power plants in neighboring provinces and satellite cities. In 2019, a group of 32 Jakarta residents, including Greenpeace campaigners, filed a lawsuit against the Indonesian President Joko Widodo, the governor of Jakarta and others due to the government's inaction on air pollution and negligence of health risks. They demanded that Jarkarta's local government and other surrounding regions take serious action to control air pollution, including transboundary air pollution. The lawsuit was not meant to seek compensation from the government but simply to urge the authorities to take more action for clean air. Since the lawsuit was filed in 2019, the verdict had been postponed eight times over the last two years due to the Covid-19 situation and administrative reasons. But in September 2021, the Central District Court in Jakarta finally ruled that the defendants neglected the citizens' rights to clean air and ordered implementation of monitoring stations and other measures to improve the capital's air quality. A year has passed since the verdict and the Indonesian government has yet to implement any significant action against air pollution in Jakarta. In January 2022, the 32 citizens involved registered a counter-appeal memorandum with the Jakarta Central District Court as a further legal step against the appeal filed by the four state accused officials.

Episode 38 N Ishan and Thailand, East Asia Greenpeace lawsuits to enact PM 2.5 standards in South Asia
Ishan noted that Greenpeace Thailand has been campaigning for many years to increase public awareness on the importance of PM2.5 standards under the #RightToCleanAir campaign. One of their requests was that the government tighten the PM2.5 ambient standard to protect people's lives. In January 2022, Greenpeace Thailand partnered with the Environmental Law Foundation (EnLaw) to submit a petition letter to the Ministry of Natural Resources and Environment and the Ministry of Industry. While the two ministries responded with their intentions to plan for improving air quality, no specific promises of actions or policies were made to monitor PM2.5. Two months later, the Civil Society Organizations (C S O's) and environmental advocates filed a lawsuit against three public departments, the National Environment Board, Ministry of Natural Resources and Environment, and the Ministry of Industry, for neglecting their mandate to protect Thai citizens' basic rights to clean air. In July 2022, the National Environment Council announced a revised ambient air PM2.5 standard to take effect in 2023. The new standard is to reduce the safe amount of PM2.5 particulates in the atmosphere from an average 50 micrograms per cubic meter to 37.5 micrograms per meter cubed in any 24 hour period. This long-awaited victory is due to the team's steadfast advocacy and mastery of social media discussions.

Episode 38 O Ishan and Malaysia, East Asia Greenpeace lawsuits to enact PM 2.5 standards in South Asia
Ishan noted that, in Malaysia, haze has become a common issue in the last few decades, driven by slash and burn agricultural practices and peat fires both domestically and transboundary. In 2019, Malaysia experienced severe haze pollution, triggering school closures and disrupting air travel. Several Malaysian companies operating in Indonesia have been pinpointed as having played a part in the haze problem. To address the issues of haze, Greenpeace Malaysia filed a landmark complaint along with CERAH, a civil society movement organization for tackling haze pollution, for the recognition of basic human rights to clean, haze-free air. This prompted a roundtable discussion on the issue by the Human Rights Commission of Malaysia. In an effort to raise further awareness of the issue, Greenpeace Malaysia collaborated with political artists and activists on a series of art interventions on air pollution around Kuala Lumpur that went viral on social media. To mark the UN's International Day of Clean Air for Blue Skies on 7 September, art duo co2 created an art piece for Greenpeace titled "To Dream of Blue Skies", made from thousands of blue sky photos submitted by concerned citizens around the world.

Episode 38 P Ishan and Turkey, East Asia Greenpeace lawsuits to enact PM 2.5 standards in South Asia

Ishan noted that Turkey relies heavily on fossil fuels for energy, as fossil fuel power accounts for 83% of the country's electricity supply, according to the Climate Transparency Report. The country's reliance on coal and its constant investment in new power plants has been an on-going problem and brings more health threats to the local communities, with summer wildfires worsening the problem. According to the Dark Report 2021 published by the 'Right to Clean Air Platform', more than 30,000 people die each year from respiratory illnesses caused by air pollution. Greenpeace Turkey has been working with local communities to tackle the issues of air pollution. They have cooperated with 15 other N G O s and professional organizations to run the 'Right to Clean Air Platform', worked on an EU-funded health project on climate change and environment "Ç İ S İ P" and successfully stopped the Turkish Parliament's 2019 Article 45 to initiate a two-year investment in private coal power plants. At the beginning of 2020, after months of hard campaigning from Greenpeace, the government temporarily shut down five coal-fired power plants and the partial unit of one plant. 'The Right to Clean Air Platform Turkey' is now calling on the government to align with the W H O's 2021 new air quality annual average guideline. In 2022, the Ministry of Environment made the draft regulations for the year 2029; the PM2.5 limit value in the draft regulation was aimed to decrease from annual average 30 micrograms per meter cubed in 2021 to 25 micrograms per meter cubed by 2029, but it is still five to six times higher than the W H O updated guideline. The empowerment and cooperation of organizations and local residents are the main driving forces to change air quality. In the past two years, the number of signatures for Greenpeace M E D's online petition for its clean air campaign has reached as high as 116,000, a show of solidarity and concern for what is happening to our air and to our planet. These inspiring campaigns proved that citizens and organizations have the power to propel actions from the government when unified. As we all live under one sky, each and everyone of us has the right and ability to change our circumstances to demand Clean Air NOW.

Added to each Episode 38 A to M Youtube and Tiktok video.

Mary noted that the focus of Residents Against Wood Smoke Emission Particulates (RAWSEP) is on the health effects to near neighbors of living next to residential wood burning, in those hyper-localized areas where the source of particulate pollution, PM 2.5, is concentrated. PM 2.5, particulate matter of 2.5 micrometer size, is the perfect size to infiltrate the human lung, causing a cascade of human health problems. Wood smoke consists of 90% PM 2.5. Residential PM 2.5 monitors can be purchased by neighbors from PurpleAir for less than $300, and their locations are put on the online PurpleAir Map, along with data uploaded every 10 minutes, available to the general public, and of course to governmental authorities. Neighbors of Residential Wood Burners would like their PurpleAir PM 2.5 monitor data to be used to regulate and shut down Residential Wood Burning detected at neighbors' fence lines that exceeds the World Health Organization (W H O) standards of 5 micrograms per meter cubed or future US standards of 8 micrograms per meter cubed. There could even be court-ordered monitoring using a neighbor-owned PurpleAir PM 2.5 monitor as a "breathalyzer" (similar to car breathalyzers court ordered for repeat drunk drivers) to turn off the ignition of a neighboring indoor wood stove when levels of PM 2.5 in a near neighbor's yard is exceeded. In this way governmental authorities would not have to check the make and model of an appliance and would not have to rely on unreliable certification and other worthless assurances of levels of wood stove particulate emissions by the company that manufactured it. PurpleAir monitors also provide data every 10 minutes 24 hours a day, and data can be downloaded from the map by governmental authorities the day after the PM 2.5 levels are exceeded, during normal government working hours. PurpleAir PM 2.5 monitors are so reliable and accurate they are put on U S AirNow Smoke and Fire maps alongside $100,000 Environmental Protection Agency (E P A) monitors, correlated to the EPA monitors with a simple mathematical formula. But to publicize this, it is necessary to point out that living hyper-localized next to a residential wood burner is essentially the same as living hyper-localized next to any kind of PM 2.5 emitting wood burning appliance, next to a PM 2.5 emitting wood burning wildfire or next to a PM 2.5 emitting industrial biomass (wood) burning facility.