

ATLAS AKHYANA



Maps on Climate Change & Environmental Issues in Asia and Europe

//WHO //WHERE //WHAT //WHY

5 young professionals
Asia and Europe
Maps
SDG 13
Climate Action



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Mr. Francis Josef C. Gasgonia is an Environmental Planner, and Cartographer specialising in participatory land use planning, and geographic information systems (GIS) analysis for environmental conservation, disaster preparedness, and sustainable development. He has a Bachelor's degree in Sociology, and a graduate diploma in Urban and Regional Planning from the University of Santo Tomas, and the University of the Philippines respectively. He has worked on projects in sustainable integrated area development, and facilitated training courses on free and open source software for GIS in the Philippines & Cambodia. He has also conducted cultural heritage mapping activities including archaeological excavations, 3D Photogrammetry of heritage buildings, and documenting underwater shipwrecks. He participated in the Young Professionals Fellowship Program of the Young South East Asian Leaders Initiative by the U.S. Department of State. Francis is an ASEFEdu alumnus.



**Educational project lead,
SCOLAR Academy**

Olesya is a Project Lead at SCOLAR Network, non-profit platform working on educational programs for the youth from 18 Shanghai Cooperation Organisation countries. She previously interned as a consultant, contributing to Sustainability Impact Assessment reports for the European Commission on potential FTAs with Indonesia, Malaysia and the Philippines. Olesya has a strong academic background: her portfolio includes, among others, published articles on issues in international law, editorial position with the student-led academic journal Bristol Law Review, and research with UNU-CRIS in Belgium, where she looked into Russia's and EU's cooperation with Central Asian countries in the field of education. Olesya holds BSc in Politics & International Relations and Master of Laws in Chinese Studies, from the University of Bristol and Yenching Academy of Peking University, respectively. She is a Central Asian history & culture enthusiast and host of "Not Just Silk" podcast. Olesya is an ASEFEdu alumna.

PLANT EMISSIONS OF SULFUR DIOXIDE, MOSCOW REGION | RUSSIA



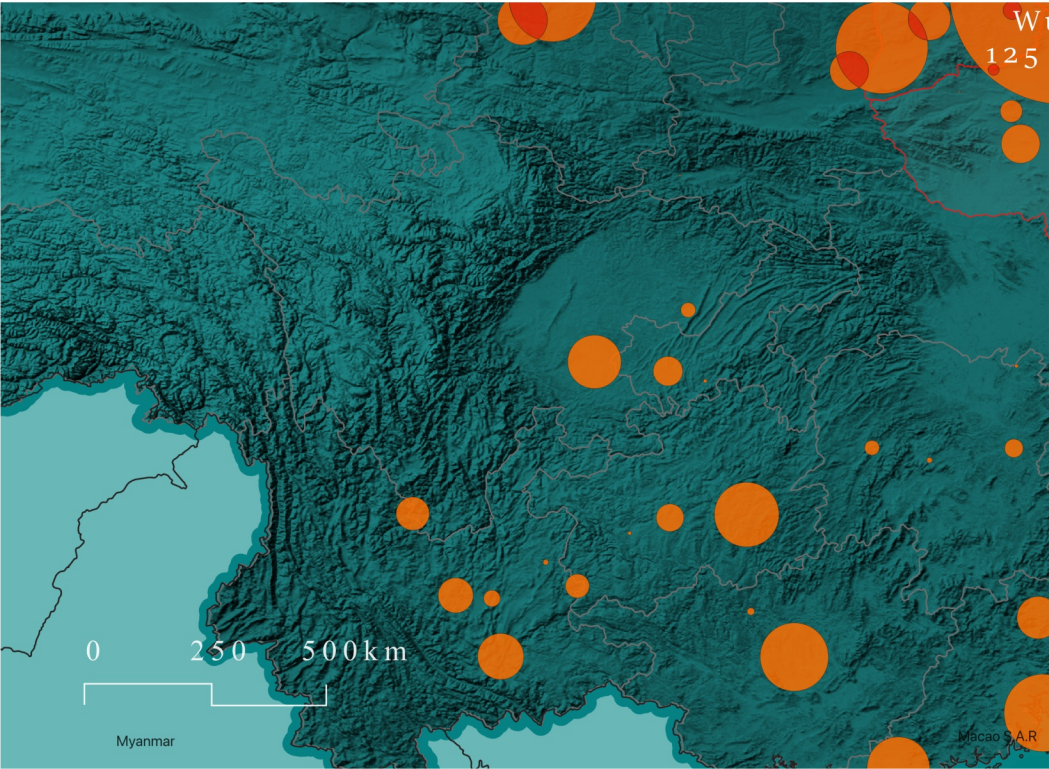
Sulfur dioxide (SO₂) is another harmful ingredient in the emissions can lead to 0.004 more deaths per 100,000 population in China. Another Paired with other gases, like nitrogen oxides and ozone, sulfur dioxide

The map below shows total annual SO₂ emissions from industrial sites and factories. As you can see, plants based in the Northeast provinces, e.g. Heilongjiang, have the highest emissions. According to NASA data, China ranked third on the list of countries with the largest SO₂ emissions, however, it is a drastically decreasing one as Chinese government adopted a new policy. China emitted 1898 kt of SO₂ in 2018, while the biggest cluster of SO₂ emissions ne



CHINA

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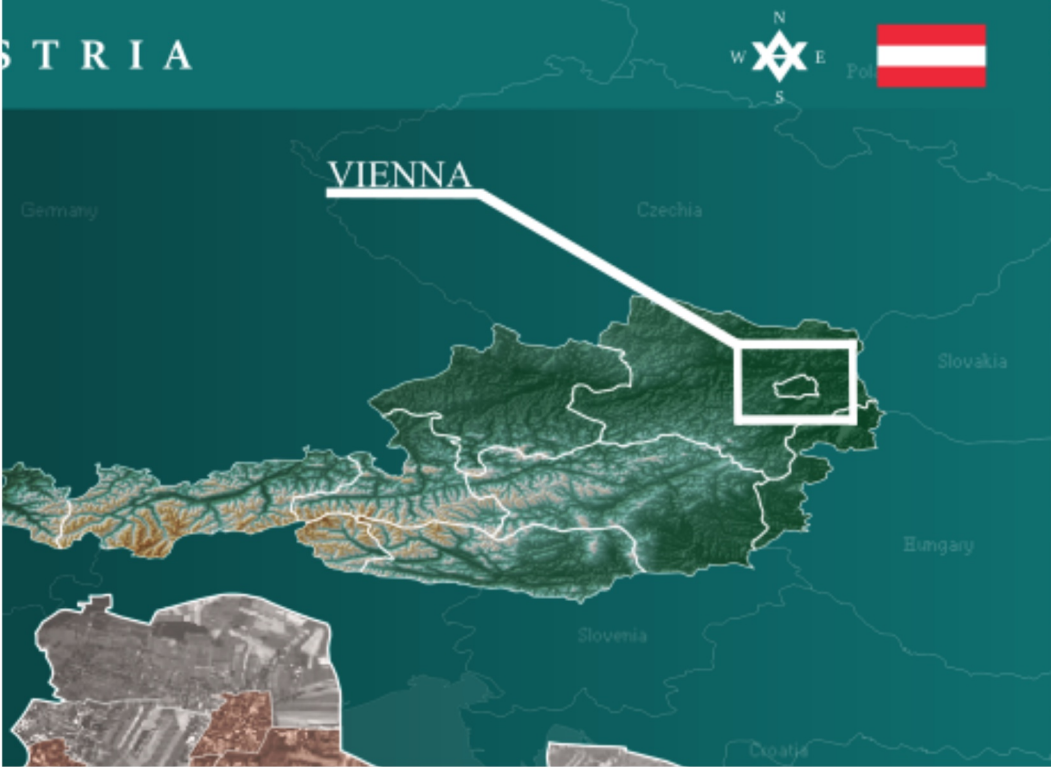


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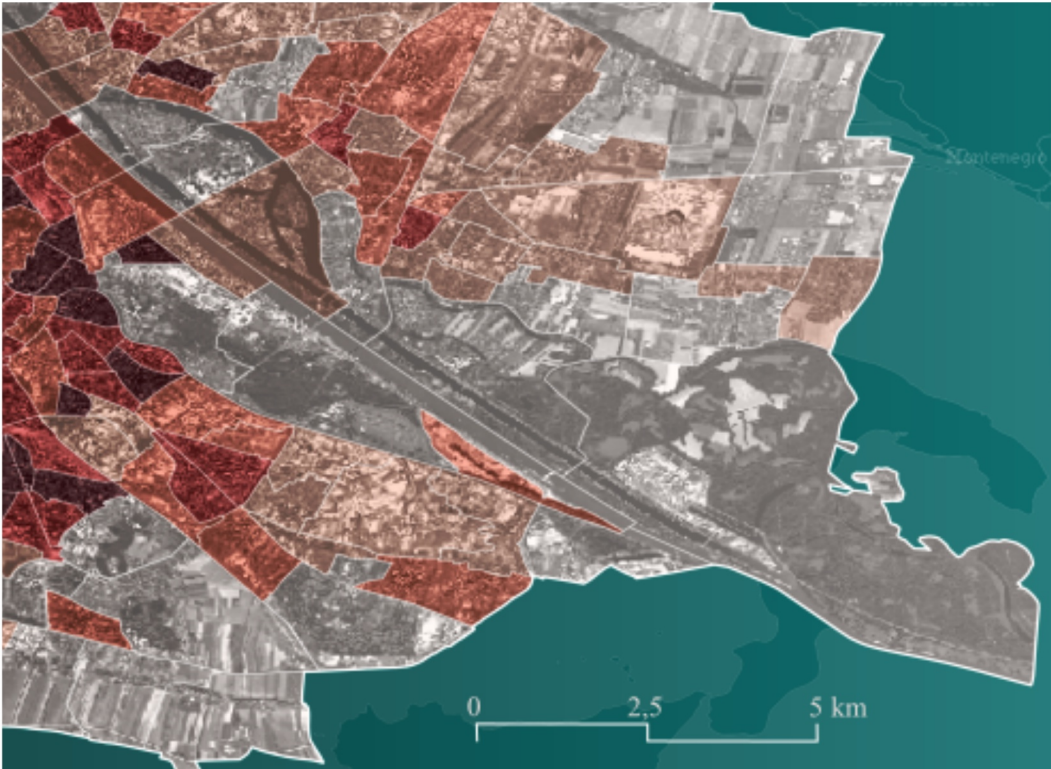


Graduate Student, MODUL University Vienna

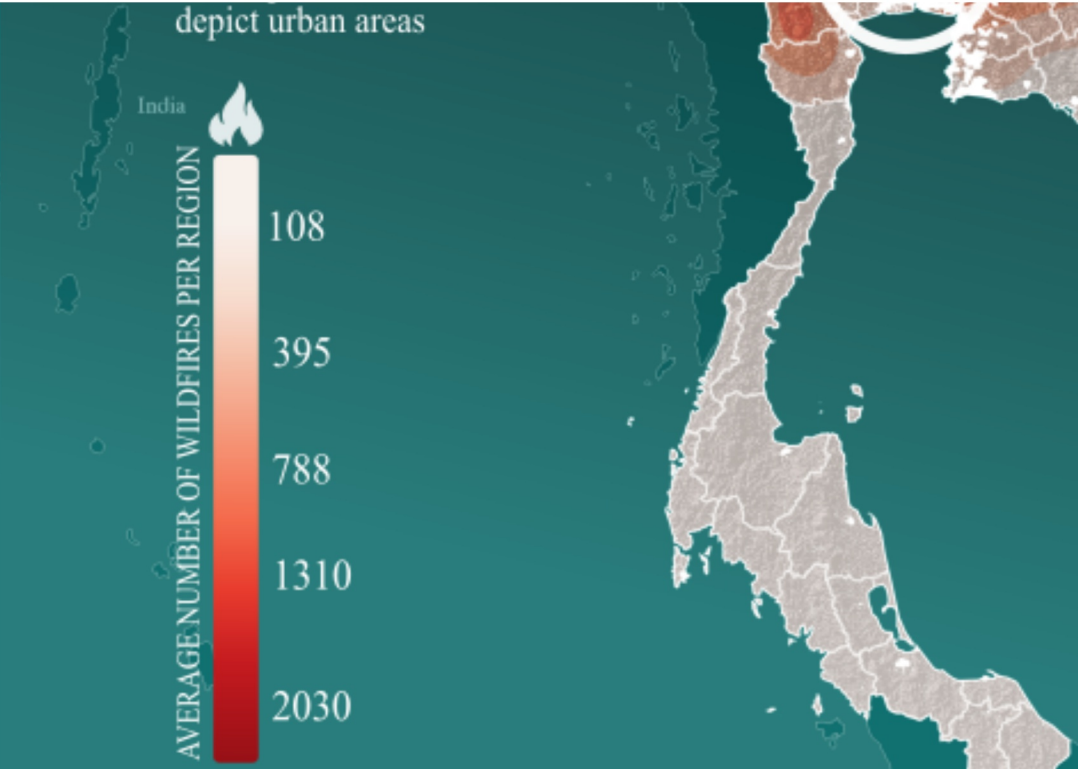
Ana is currently pursuing an MSc in Sustainable Development, Management, and Policy at MODUL University Vienna. Prior to this, she obtained her Bachelor's degree in Business and Economics with a specialization in marketing from the University of Ljubljana. During her undergraduate studies, she partook in a one-year Erasmus+ exchange at the European University Viadrina and one semester at Tecnológico de Monterrey in Mexico. She has worked managing projects as a marketing assistant, social media manager and graphic designer for various companies in Slovenia. Ana is an ASEFEdu alumnus.



A U S T R I A



T H A I L A N D



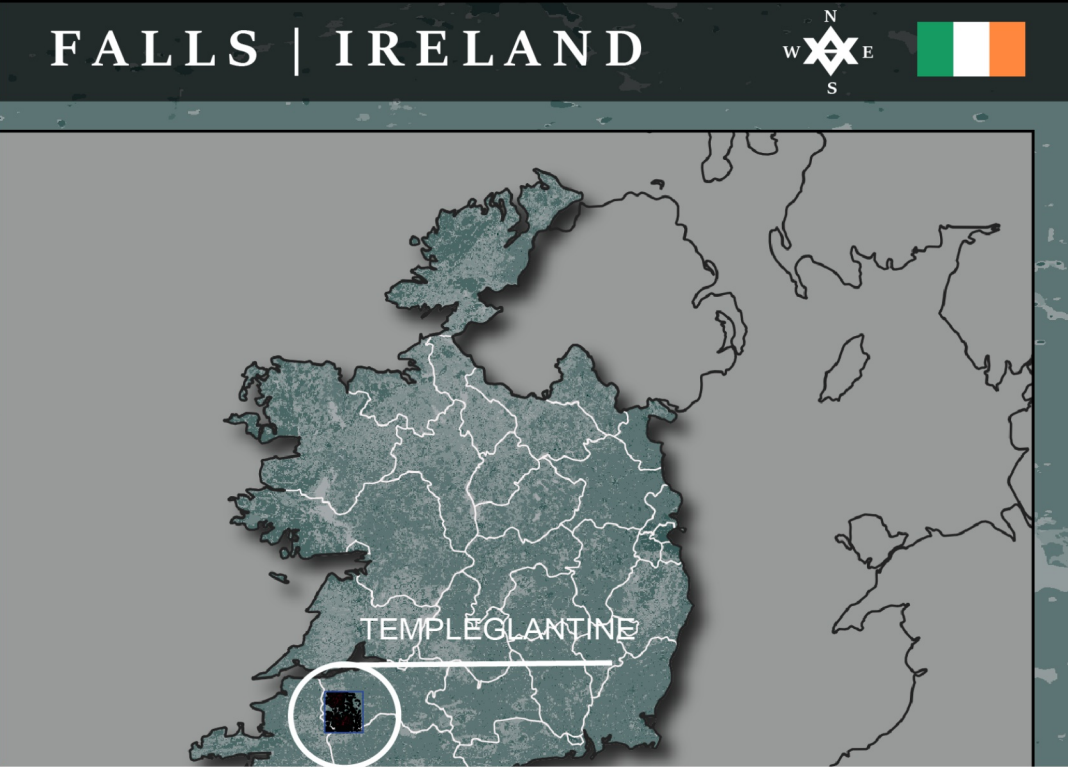
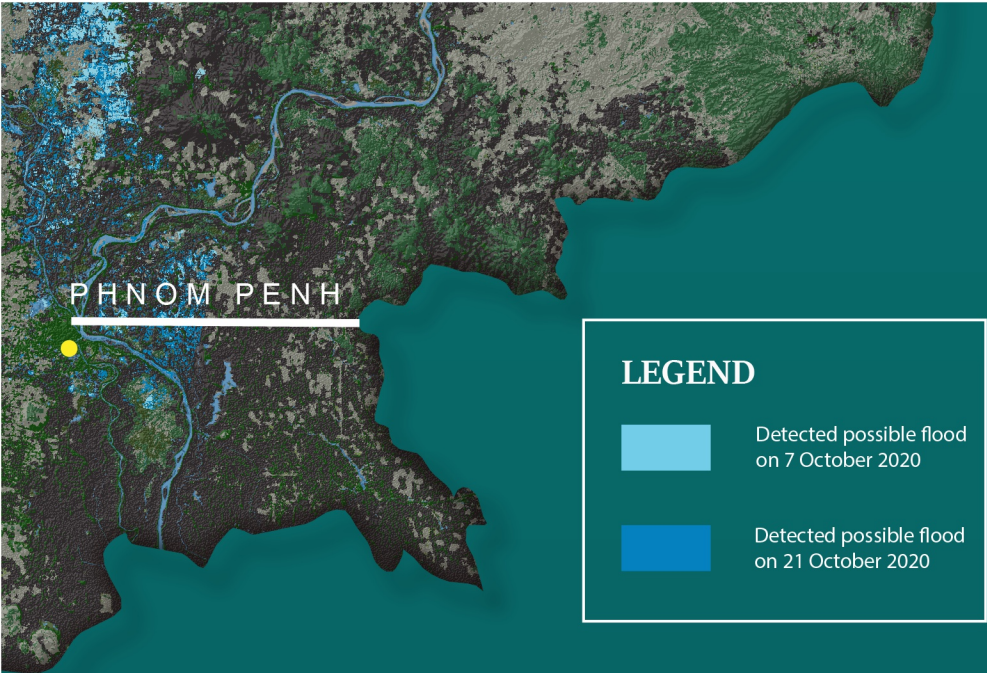


**Bachelor Candidate,
Tianjin University**

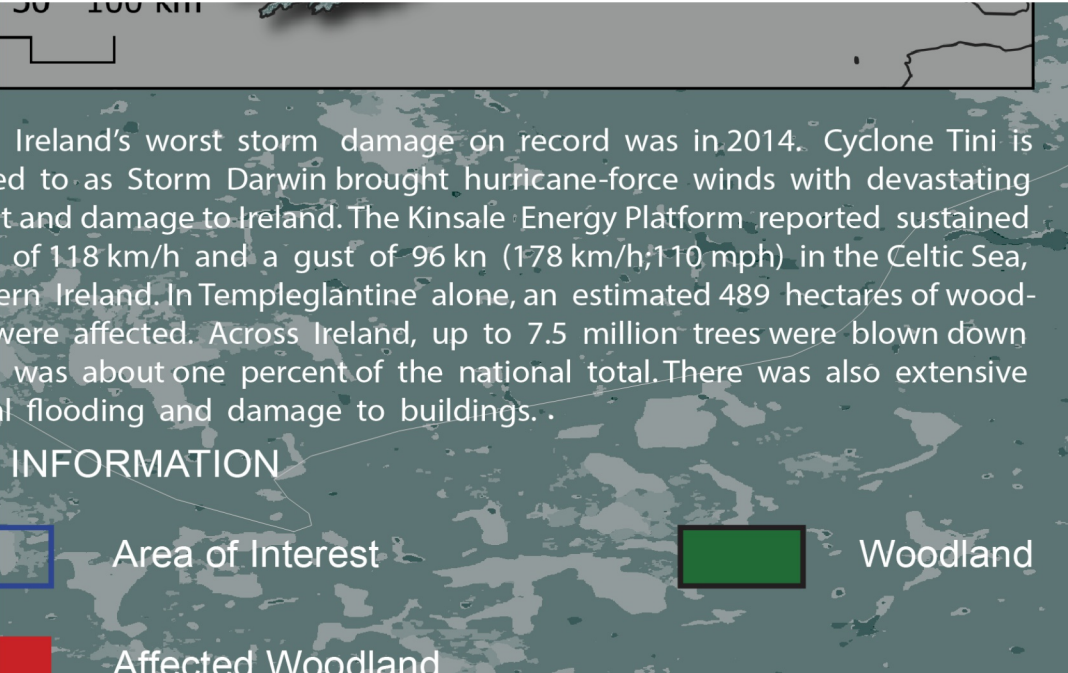
Chan Oudom is a Chinese government scholarship winner in 2019 and he pursues a Bachelor's degree in Civil Engineering at Tianjin University, China. He volunteers in various organizations, such as the Union of Youth Federations of Cambodia, which is also in partnership with 4th ASEF Young Leaders Summit. He contributed as one of the volunteer in Global Citizenship Education Program Diversity Voyage organized by GIFT and supported by National Olympic Committee of Cambodia. He has also taken part in an exchange programme of the Cambodian Youth Action (CYA).



C A M B O D I A

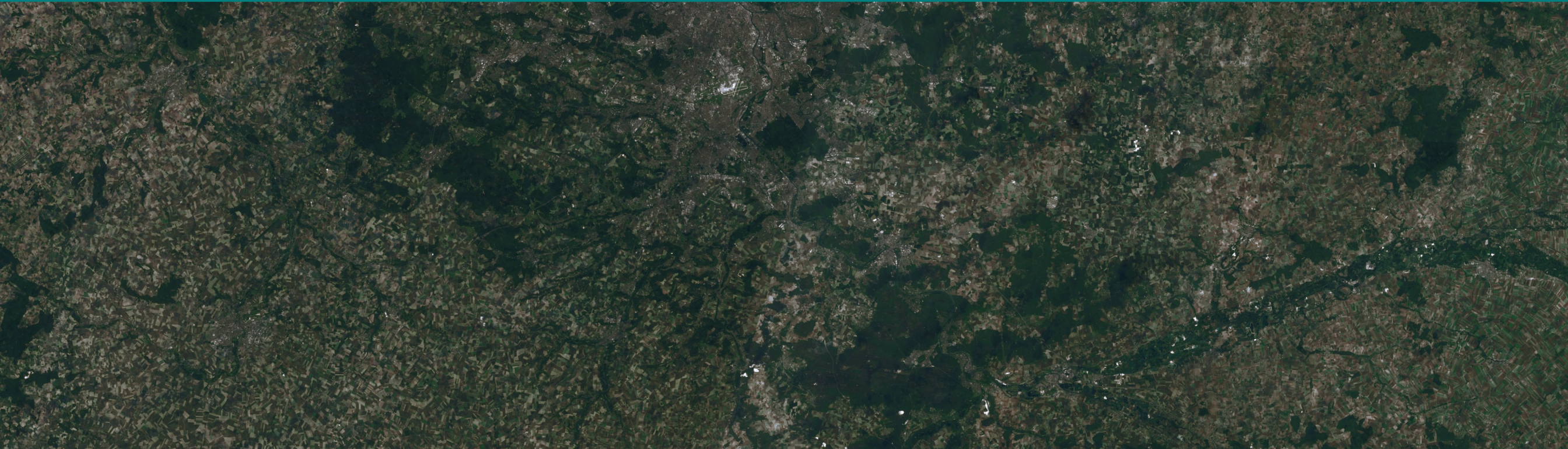


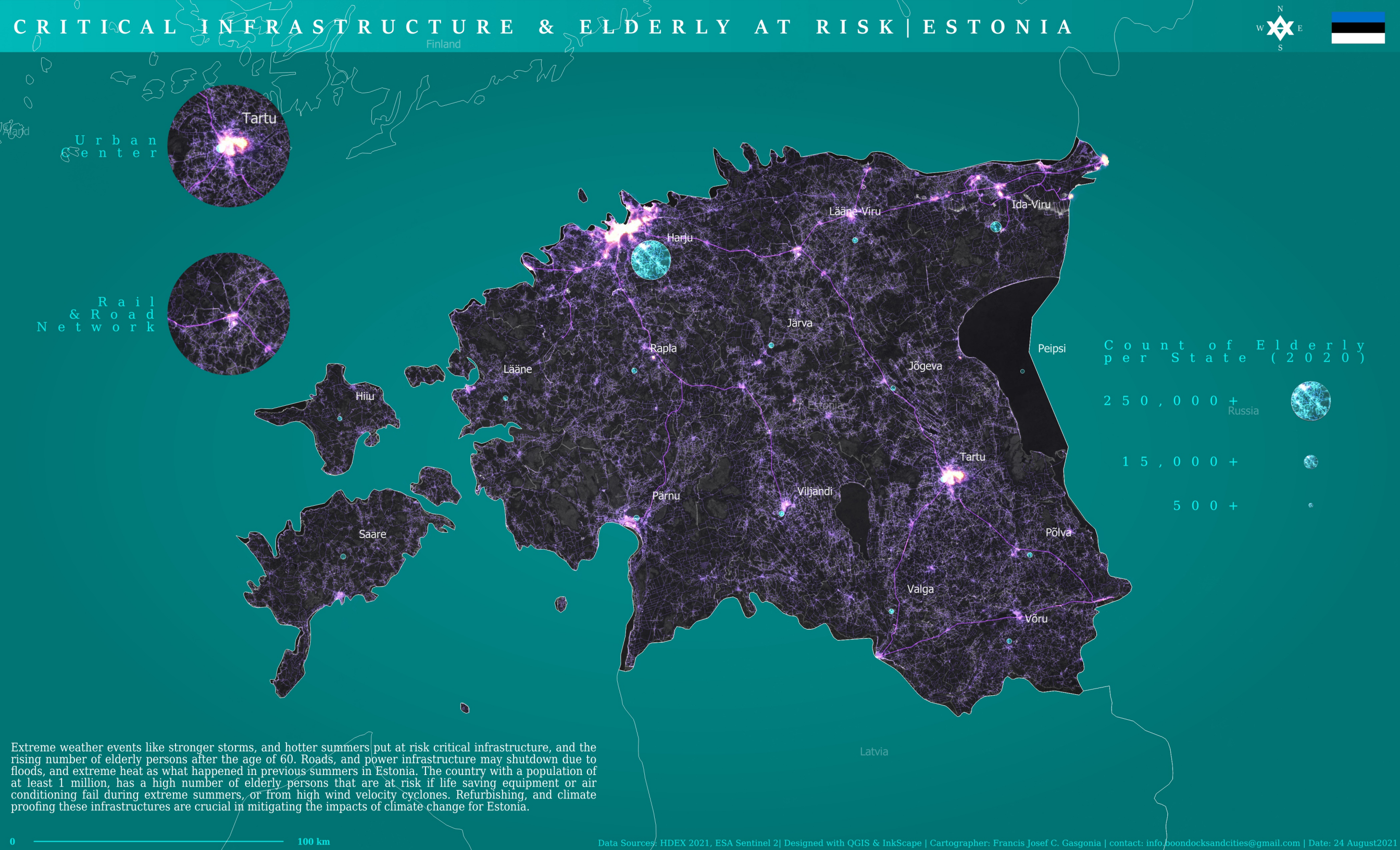
I R E L A N D





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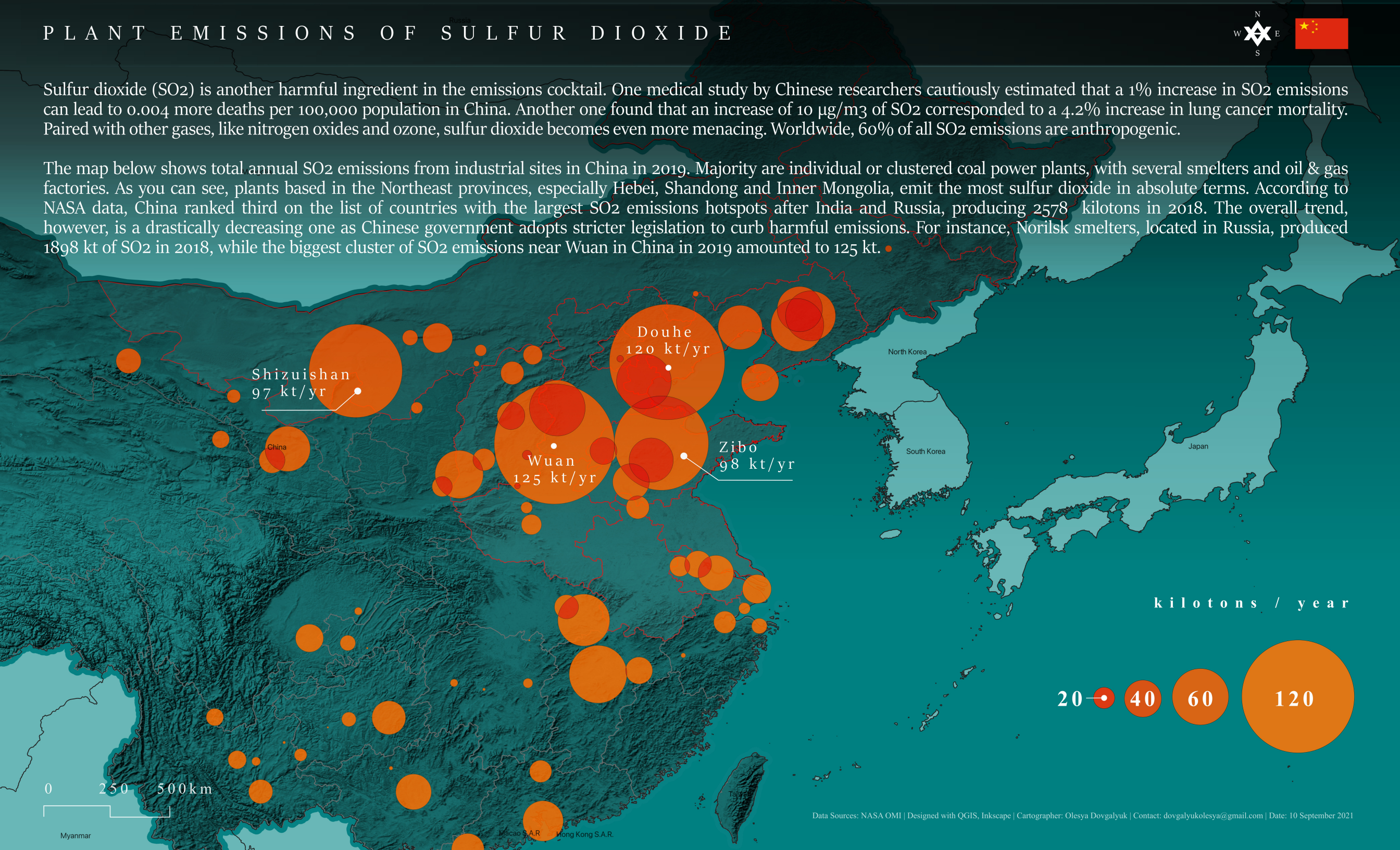


PLANT EMISSIONS OF SULFUR DIOXIDE



Sulfur dioxide (SO₂) is another harmful ingredient in the emissions cocktail. One medical study by Chinese researchers cautiously estimated that a 1% increase in SO₂ emissions can lead to 0.004 more deaths per 100,000 population in China. Another one found that an increase of 10 µg/m³ of SO₂ corresponded to a 4.2% increase in lung cancer mortality. Paired with other gases, like nitrogen oxides and ozone, sulfur dioxide becomes even more menacing. Worldwide, 60% of all SO₂ emissions are anthropogenic.

The map below shows total annual SO₂ emissions from industrial sites in China in 2019. Majority are individual or clustered coal power plants, with several smelters and oil & gas factories. As you can see, plants based in the Northeast provinces, especially Hebei, Shandong and Inner Mongolia, emit the most sulfur dioxide in absolute terms. According to NASA data, China ranked third on the list of countries with the largest SO₂ emissions hotspots after India and Russia, producing 2578 kilotons in 2018. The overall trend, however, is a drastically decreasing one as Chinese government adopts stricter legislation to curb harmful emissions. For instance, Norilsk smelters, located in Russia, produced 1898 kt of SO₂ in 2018, while the biggest cluster of SO₂ emissions near Wuan in China in 2019 amounted to 125 kt.



OPERATING COAL-FIRED POWER STATIONS IN CHINA



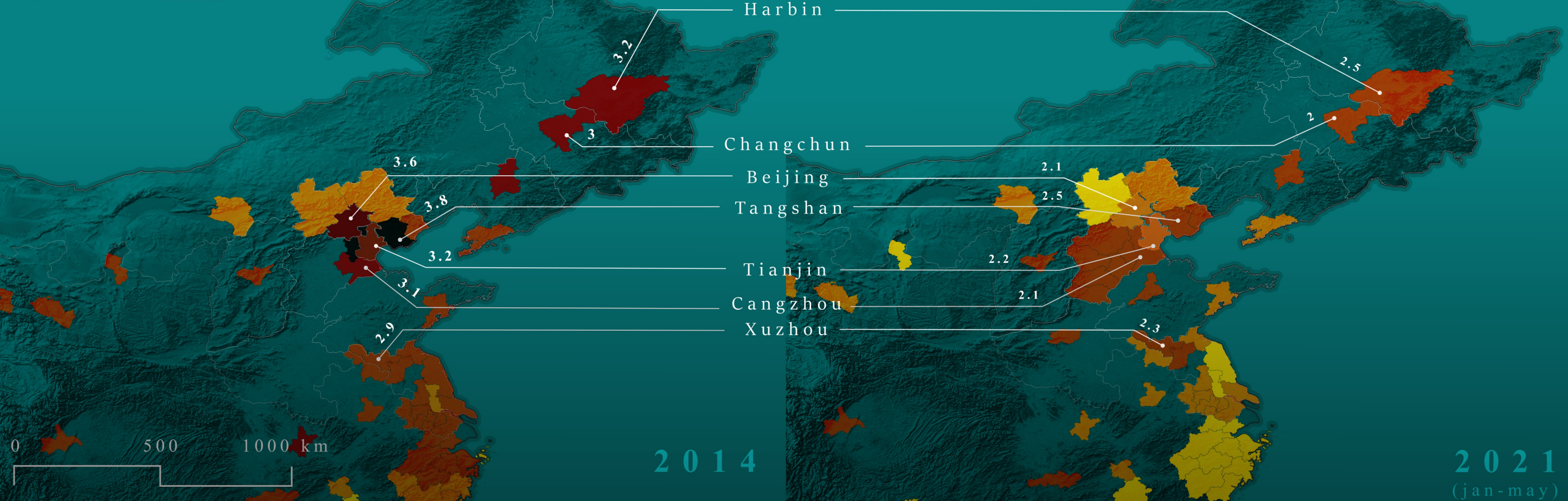
According to Global Energy Monitor, as of July 2021 there are 1087 operating coal-fired power stations in China. On this map, the numbers next to fuming plant icons indicate the number of coal plants located in different provinces of Northeast China. The darker the colour of the province, the more plants there are on its territory.

To put these numbers into context, under the respective Chinese province you can see a country with comparable population size + the number of coal-fired power stations in that country. For instance, Shanxi province and Uzbekistan have a similar number of residents, but Shanxi hosts 71 coal plants, 35 times more than Uzbekistan. Similarly, an eastern coastal province of Shandong has more coal plants than Egypt – and even more than the whole of Russia, the world's sixth biggest producer and third biggest exporter of coal.

In 2020, Chinese government announced its commitments to peak the country's CO₂ emissions by 2030, and to become carbon-neutral by 2060. However, the proportion of coal on China's energy budget expenditure diagram continued rising in 2020, and in 2021 China's state-owned enterprises proposed to build 43 new coal-fired power plants and 18 blast furnaces, which would add around 1.5% to its current annual emissions.



PM_{2.5} EXPOSURE AS A NUMBER OF CIGARETTES SMOKED PER DAY



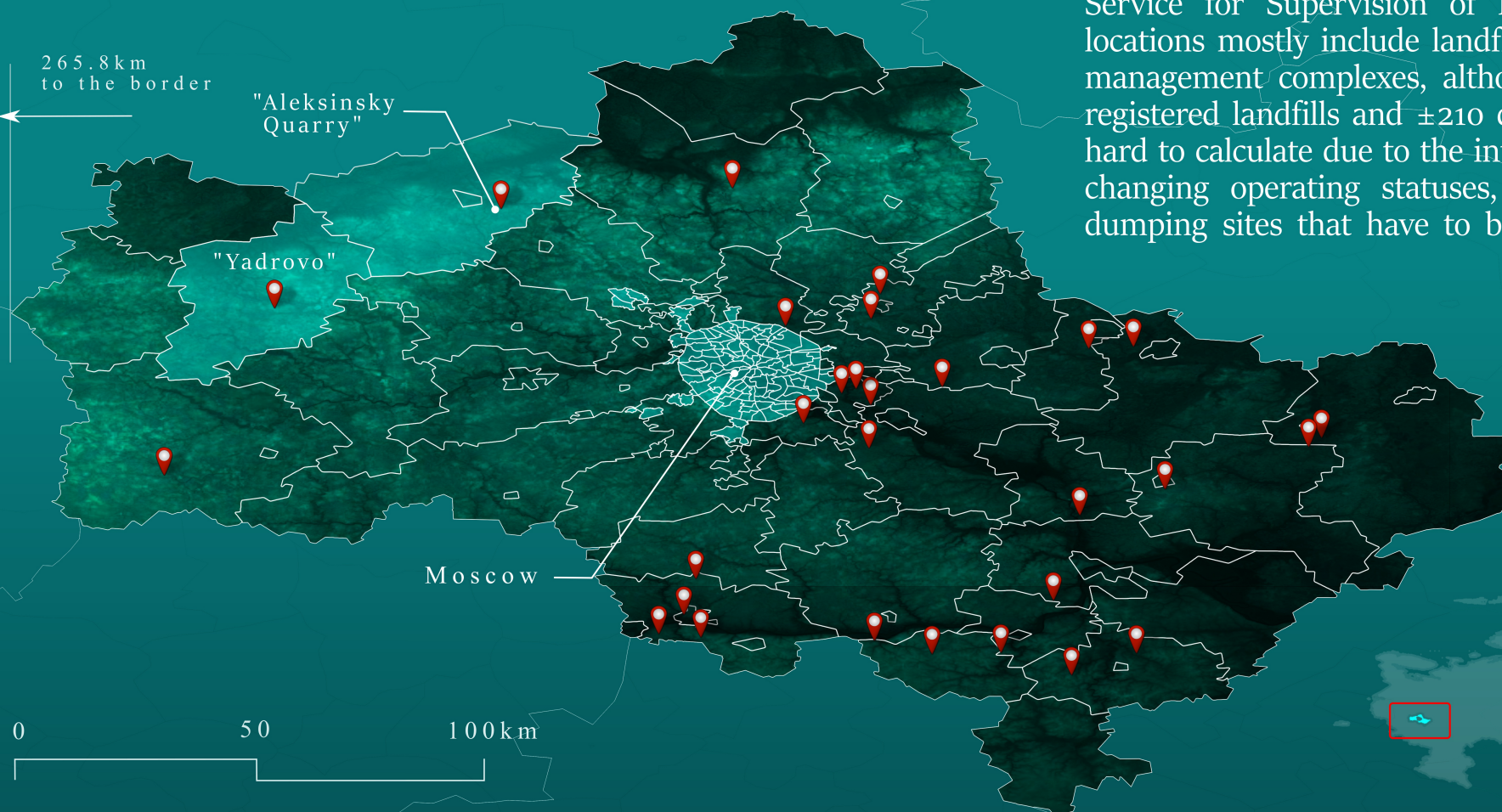
PM_{2.5} is a dangerous particle which is a common by-product of the coal combustion process. Because of its small size, PM_{2.5} can penetrate your bloodstream and cause multiple health problems, including increased likelihood of getting lung cancer. According to Berkley researchers, health impact from daily exposure to 22 µg/m³ of PM_{2.5} compares to smoking 1 cigarette. This map visualises daily exposure to PM_{2.5} in different cities in Northeast China as a daily cigarette intake across the residents in 2014 and in January-May 2021, calculated using the monthly mean indicators registered by China National Environmental Monitoring Centre. For example, if you lived in Beijing in 2014, you would have smoked 3.6 cigarettes every day by inhaling the gray haze that would frequently flood the city. It is not surprising then that after the news-breaking "airpocalypse" episodes in 2013 in Beijing, Air Quality Indices and pollution monitoring apps became important tools for people to consult when adjusting their daily schedules to the spikes & drops in pollution levels.

Considering the threat these particles pose to our health, WHO caps the daily PM_{2.5} exposure standard limited to 25 µg/m³. China's equivalent is 3 times as high: 75 µg/m³ for almost all places, excluding special protected areas like national parks. This is also higher than the national standard in India (60 µg/m³), another Asian giant undergoing fast-paced economic growth, industrialisation and urbanisation. Unfortunately, as you can also see from the map, not only are the air pollution levels still high, but monitoring activities have also not been sufficiently robust. Not all the municipalities have consistent monthly records, not to mention daily coverage, which became available relatively recently.



SOLID WASTE DISPOSAL SITUATION IN MOSCOW REGION | RUSSIA

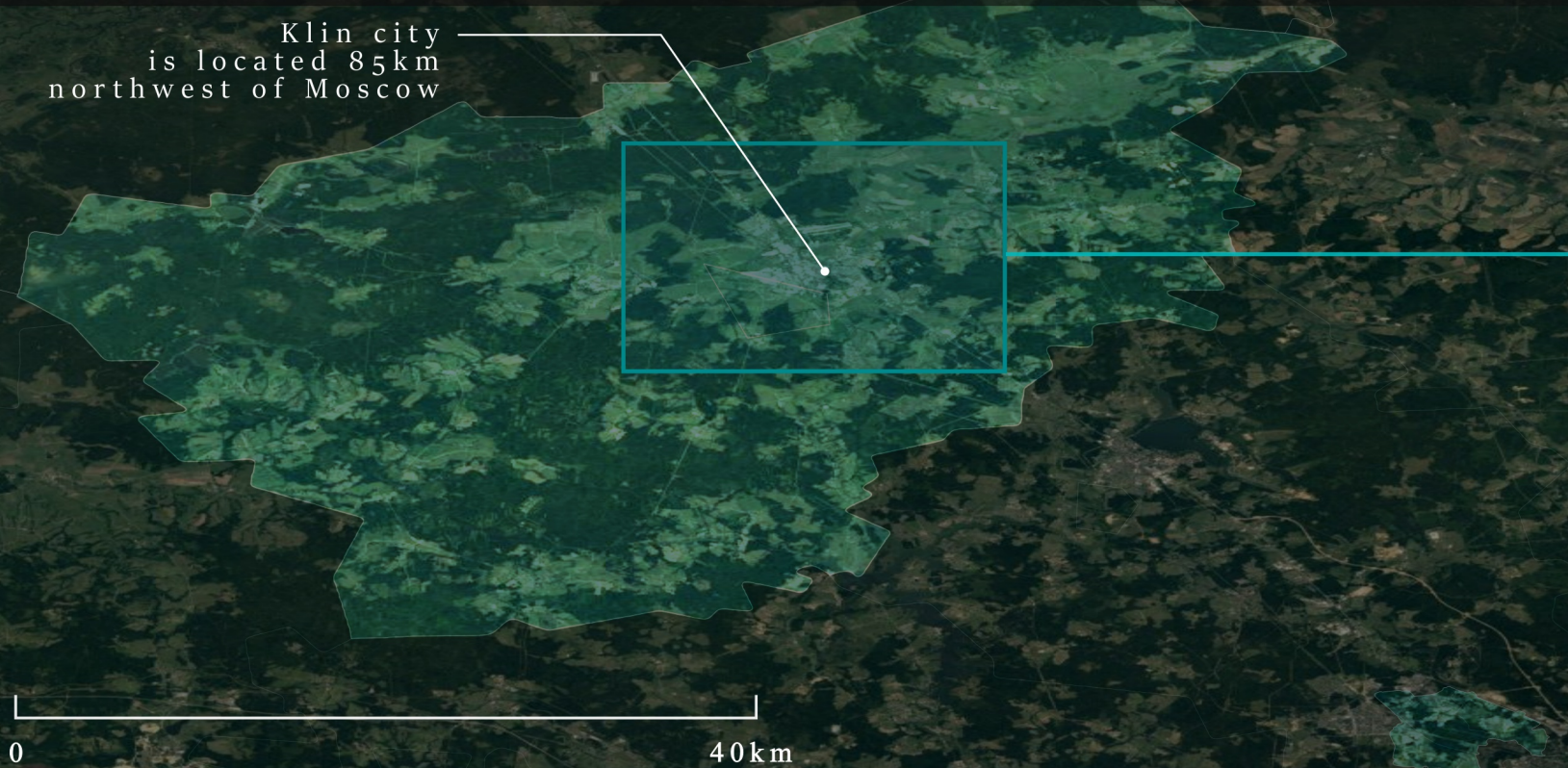
 GRORO-listed landfills / dumping sites



This map shows official waste disposal sites in the Moscow region as listed in GRORO, the national register of approved sites maintained by Russia's Federal Service for Supervision of Natural Resources. The 26-29 publicly listed locations mostly include landfills, as well as several dumping sites and waste management complexes, although some reports quoted the existence of 40 registered landfills and ± 210 dumping sites as of 2020. The exact number is hard to calculate due to the intricate classification system, the sites' constantly changing operating statuses, as well as thousands of "migrating" illegal dumping sites that have to be reported to the authorities every year.

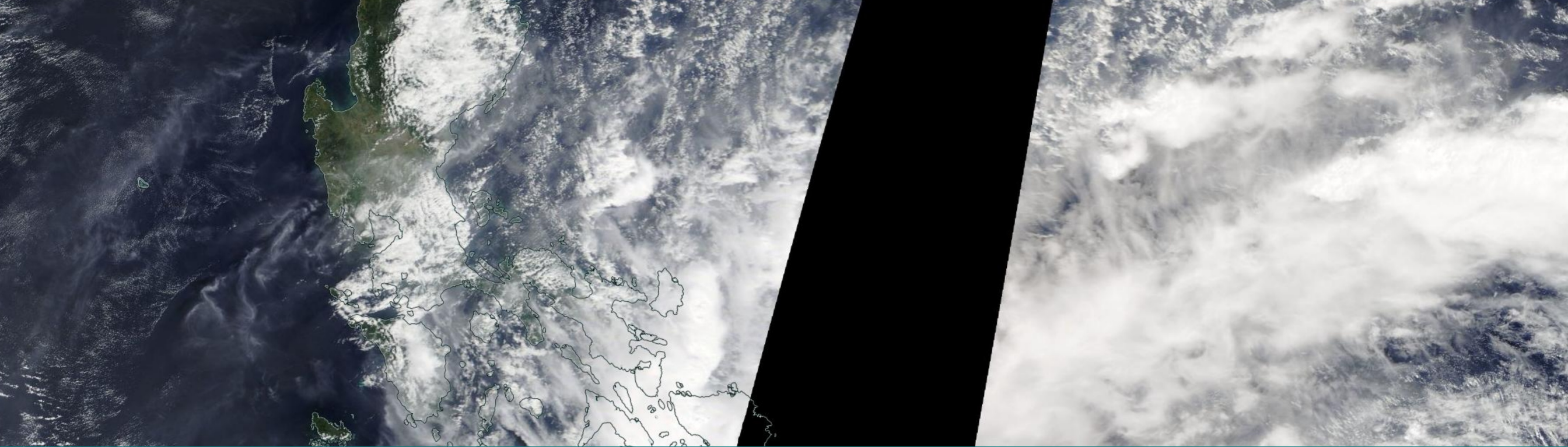
Although the overall number of sites here is smaller than in other regions, Moscow and Moscow region produce as much as 15% of all Russian waste. 90% of this waste has long been destined to rot in the landfills, both legal and illegal, most of which emerged sporadically, without proper environmental assessments. It was only a matter of years before the landfills would reach their full capacity. As they did, the voices of local discontent about the dangers of environmental damage and health impact became louder. A series of scandals broke the news in 2017-2018, when citizens started mass protests against the continuing operation of landfills such as "Yadrovo" (Volokolamsk area) and "Aleksinsky Quarry" (Klin area), which on top of the local waste accepted trash from Moscow. Even though the ensuing nation-wide protests and the realisation of the needed action led the government to adopt multiple reforms, the problem persists due to corruption and patchy criminal responsibility.

CASE STUDY: "ALEKSINSKY QUARRY" LANDFILL IN KLIN AREA, MOSCOW REGION | RUSSIA

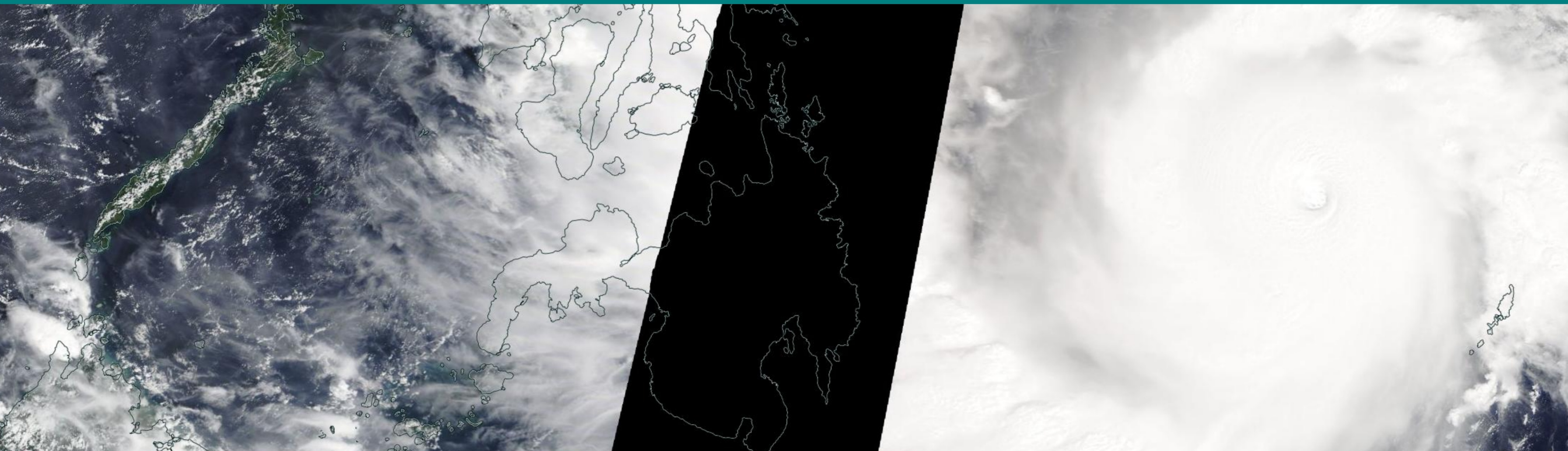


“Aleksinsky Quarry” is one of the notorious landfill mismanagement cases in the Moscow region. Located near the city of Klin, the 20-hectare landfill has been around since 1993, when it replaced the previously-operational sand mining site (hence the name). Since then and until 2015 it has been functioning without the license from the federal register of waste disposal sites (GRORO). In 2013, as the landfill was showing the signs of approaching its full capacity, Presidential decrees prescribing its closure and reclamation were adopted. Nonetheless, in 2014 the site (along many others in the region) started receiving growing amounts of waste from the Moscow city, leading to a series of protests against the local “waste colonialism”, operated by the municipal authorities and private landfill operators. “Aleksinsky Quarry” was included in GRORO in 2015 and its utilisation continued despite the closure prescriptions, ensuing lab measurements of high pollution concentration levels and complaints about the unbearable stink. At the end of 2019, Moscow regional government announced the reclamation of the “Aleksinsky Quarry”. However, on 20 July 2021, half a year after the landfill was officially proclaimed closed, local citizens posted a drone footage allegedly showing continuing operations on the site grounds.





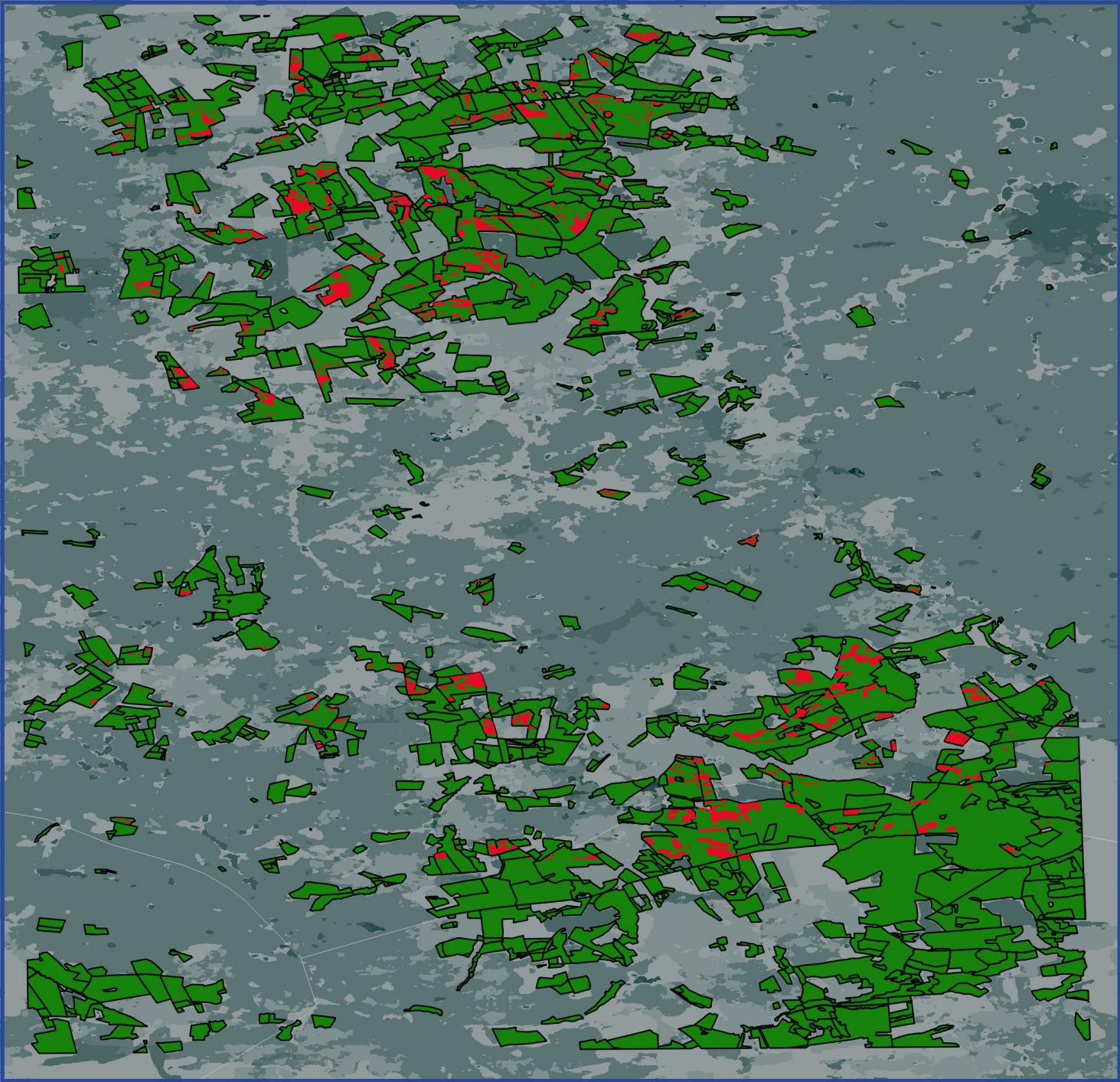
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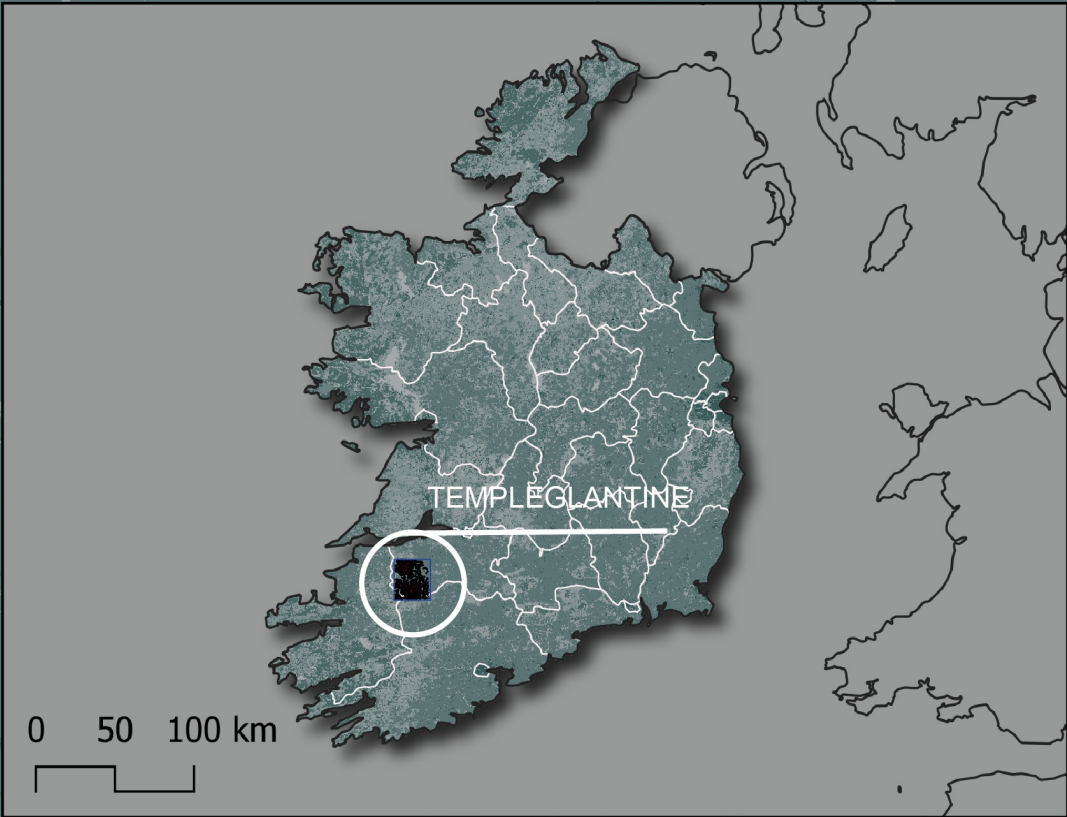
No one was the same after this. The survivors, reporters, responders, volunteers, the government, and not us humanitarian workers would be the same. Living through that experience changed my perspective towards life, death, and my greater respect over the power of nature. I had to change my focus. I had to do something in the bigger picture to ensure that people would not die from these preventable deaths. These disasters could have been avoided I still naively think. Working again for an agro-enterprise project was no longer my priority. I had to move up my plans for Graduate School so I would be equipped with the knowledge, theory, and skills to plan better communities. The common thread that binds all of these deaths were the location of their settlements near hazardous areas and the destruction of their environment. This I must do, I boldly said. Still, I haven't gotten rid of this dreamy idealism that through my plans, and maps as an environmental planner, and cartographer, I would hopefully save more lives. This I owe the dead until I can no longer bear them.



STORM DARVIN BROUGHT WIDESPREAD TREE FALLS | IRELAND



0 2.5 5 km

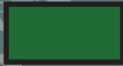


Ireland's worst storm damage on record was in 2014. Cyclone Tini is referred to as Storm Darwin brought hurricane-force winds with devastating impact and damage to Ireland. The Kinsale Energy Platform reported sustained winds of 118 km/h and a gust of 96 kn (178 km/h; 110 mph) in the Celtic Sea, southern Ireland. In Templeglantine alone, an estimated 489 hectares of woodland were affected. Across Ireland, up to 7.5 million trees were blown down which was about one percent of the national total. There was also extensive coastal flooding and damage to buildings.

MAP INFORMATION



Area of Interest



Woodland



Affected Woodland



Rising from the ashes: ASEF Young Leaders map the future for fires

by **Pratibha Singh. Partnerships Lead at the Human Rights Measurement Initiative and Master's student at the University of Auckland**

A year and a half into the pandemic, and the world continues to burn.

Just this month, Algeria, Turkey and Greece have been set aflame as some of the most devastating fires in these countries' histories blaze through the region. With 65 killed in Algeria, the Mediterranean is fast becoming a hotspot for wildfires given increasingly hot weather.

These events add to the growing extreme fire activity experienced across the globe in the last few years.

In December 2019, Australia's hottest and driest year ever sparked fires covering over 40 million acres, lasting several months, leaving 34 people dead and an estimated 3 billion animals displaced or killed. These fires spanned predominantly forested and populated areas and resulted in increasing concern around the consequences of fires to ecosystems, flora and fauna, and people. Dubbed Australia's "Black Summer", while the drivers of these fires are multiple, non-linear and interacting, these unusually intense bushfires have been shown to be exacerbated by human-caused climate change. They have also been expected to result in Australia's "costliest natural disaster to date" (Abram et al., 2021).

Wildfires are those uncontrollable fires that spread across different environments including grasslands and forests. While some wildfires are started naturally, mostly by lightning, others are started by human activity, accidental or intentional. Some of the fires started by humans are linked to deforestation and land-clearing practices for agriculture.

Without discounting the gravity of the fire-related crises we have been experiencing particularly acutely these past few years, it is important to note that humans and ecosystems have also been benefiting from wildfires for millennia. Wildfires provide ecosystem services such as pest control and generate open habitats to allow the development of a wide range of shade-intolerant plants and animals. Indeed, historically wildfires also served to control more catastrophic fires.

The rhetoric of 'wildfires as natural disasters' may miss some of the important ecological and evolutionary feedback processes between biodiversity and wildfires, and also may make it challenging to establish fire management policies in fire-prone areas. Indeed, not all fires can be considered problematic and while Western science catches up,

Indigenous communities around the world have long understood the role of fires in ecosystems and have been practicing environmental management using Indigenous knowledge. However, their knowledge has largely been marginalised as a result of colonisation and the ongoing colonialism of western science and environmental management policies.

As Pausas and Keeley write, the challenge now is "how to maintain the ecosystem services provided by fire in the era of anthropogenic climate change".

Indeed, climate change has increased the risk of wildfires, as increased temperatures mean increasing rates of evaporation and drying out of vegetation that create the "tinderbox conditions" needed to ignite a fire. All you need are: "the right weather and climate conditions, plenty of burnable fuel, and a spark", the former two factors clearly impacted by climate change and humans causing the vast majority of ignitions.

Add to the environmental factors of warmer temperatures, lower levels of rainfall, and strong winds, the social and political choices made around fire suppression as an environmental management policy for decades and the potential for wildfires goes through the roof.

Ultimately, it is important that the political and economic dimensions of environmental management and crises are not lost amidst techno-scientific speak as we grapple with wildfires and climate change. Indeed, environmental management practices reflect particular value systems and ways of relating to the environment.

Anthropogenic causes of wildfires, while immediately traceable to activities like deforestation and logging, are also not separate from the neoliberal, capitalist politico-economic system that casts natural environment as a fictional set of commodities to be controlled, exploited, and extracted as desired by humans and often in the name of development.

It is also not separate from the power relations entrenched by colonisation and ongoing colonialism that shape not only environmental management policies on the ground, but also global trade that in turn patterns land uses. Rising from the ashes of the multiple and intersecting global environmental (and social, political, and economic) crises we are facing will mean acknowledging and respecting other ways of worldmaking and structuring our societies. This will necessarily involve deep commitments to decolonisation and dismantling of oppressive systems.

In this ASEF Youth Leader's Project, Atlas Akhyana maps several ASEM countries with respect to fire-related issues from wildfires in Thailand to extreme urban heat islands in European countries. We attempted to visualize how these may affect the environment and societies we live in today.

sources:

Pausas, J.G., & Keeley, J.E. (2019a). Wildfires misunderstood. *Frontiers in Ecology and the Environment*, 17(8), 430-431. <https://doi-org.ezproxy.auckland.ac.nz/10.1002/fee.2107>

Pausas, J.G., & Keeley, J.E. (2019b). Wildfires as an ecosystem service. *Frontiers in Ecology and the Environment*, 17(5), 289-295. <https://doi-org.ezproxy.auckland.ac.nz/10.1002/fee.2044>

O'Brien, L., & Watson, I. (2014). In Conversation with Uncle Lewis: Bushfires, weather-makers, collective management. *Alternative*, 10(5), 450-461.

Abram et al. (2021) <https://www.nature.com/>

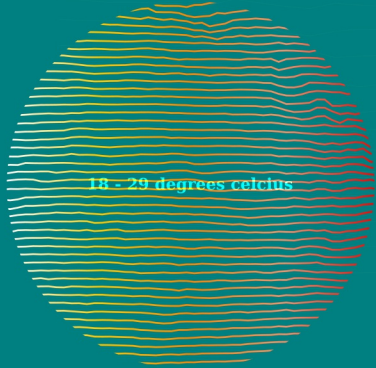
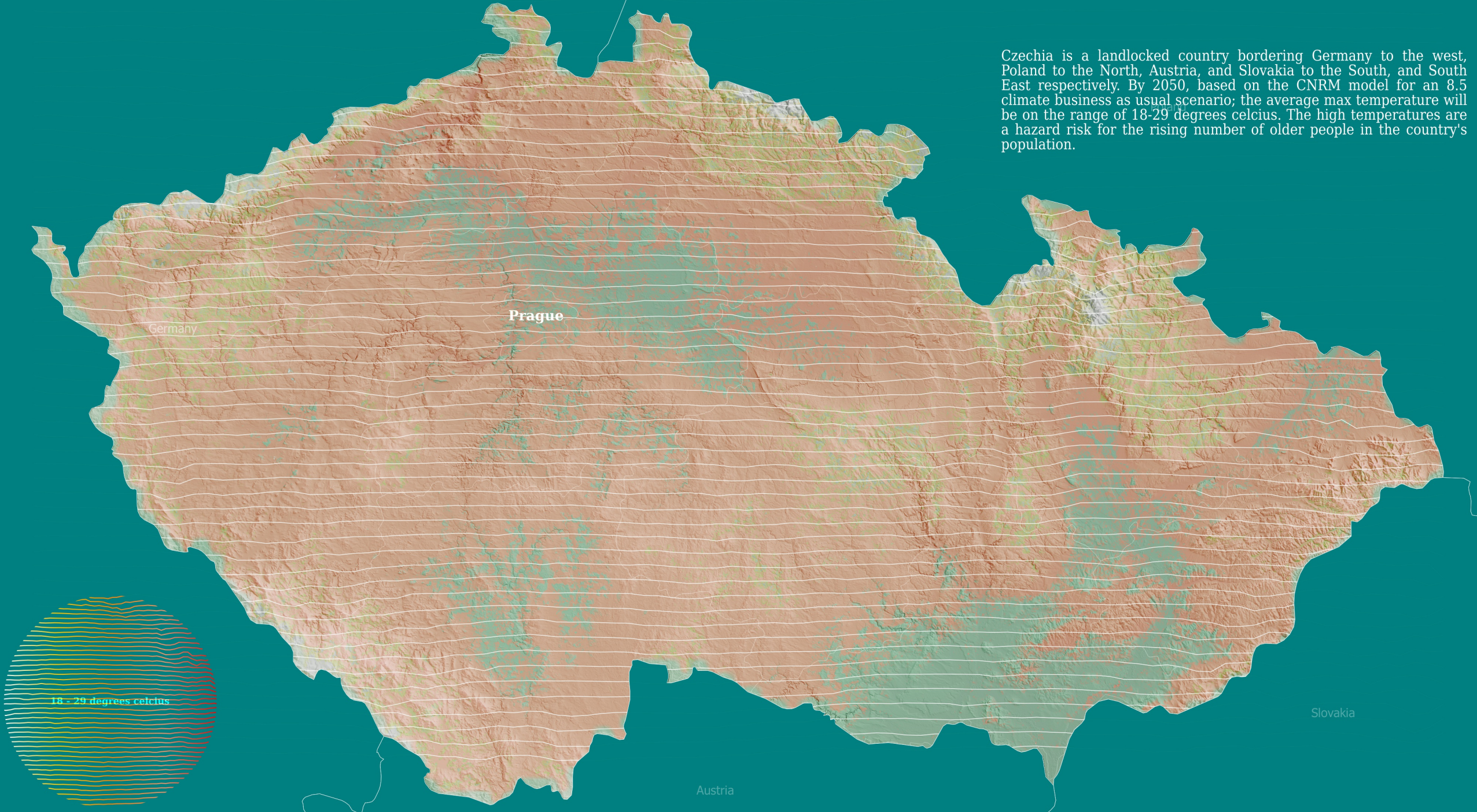
Croatia, officially the Republic of Croatia shares a maritime border across Italy to its west and south-west by the mediterranean sea. Slovenia borders the country to the northwest, northeast you'll find Hungary, to the east is Serbia, while Bosnia and Heerzegovina and Montenegro to the southeast. The capital and her largest city is Zagreb. With an estimated population of more than 4,000,000 people. We took time to ask one of her citizens to sit with us and talk about climate change. Svea is from Zagreb. She's a private educational rehabilitor. For her climate change is "the consequence of human greed and our idea of our superiority in the natural order. Our focus on profit has lead us to view our planet as a resource to be abused and exploited has led to irreversible damage to the natural cycles that now manifest as extreme weather events such as floods, droughts, fires, etc. It is thus a form of violence that causes displacement, poverty, hunger, and loss of life."

Like many young people in her generation she bears witness over the extreme weather events that has happened in recent memory. "I've witnessed heatwaves each summer since primary school (up to three weeks of temperatures being between 38 and 41 degrees Celsius non-stop during the day) as well as severe floods a few years back that created a humanitarian crisis in one part of Croatia. The annual heatwaves make life in the city really difficult, because the heat gets trapped between the buildings and the asphalt gets really hot and prevents the air from cooling in the night. It is especially difficult for the elderly and those with chronic conditions, such as some people in my family. It's impossible for them to leave the house between 9 AM and 9 PM due to the risk of their health taking a sudden turn for the worse in the extreme heat." Svea said, recollecting her experiences.

The unknown future climate situation causes anxiety among the youth. Global Climate Models (GCMs) like this map uses CIMP5 modeled data by the Beijing Climate Center, China Meteorological Administration based on an RCP 8.5 scenario. A projected worst case scenario where development is fossil fuel driven as business as usual. The data was an average of maximum temperatures in Croatia converted from Kelvin to degree Celcius. The top 3 highest temperatures modeled to be projected are Varaždinska 95.56, Medimurska 95.15, and Krapinsko-Zagorska 91.06. The capital Grad Zagreb 88.48. These are simulated models of a future that hopefully may never be.



Czechia is a landlocked country bordering Germany to the west, Poland to the North, Austria, and Slovakia to the South, and South East respectively. By 2050, based on the CNRM model for an 8.5 climate business as usual scenario; the average max temperature will be on the range of 18-29 degrees celcius. The high temperatures are a hazard risk for the rising number of older people in the country's population.



URBAN HEAT VULNERABILITY IN VIENNA | AUSTRIA



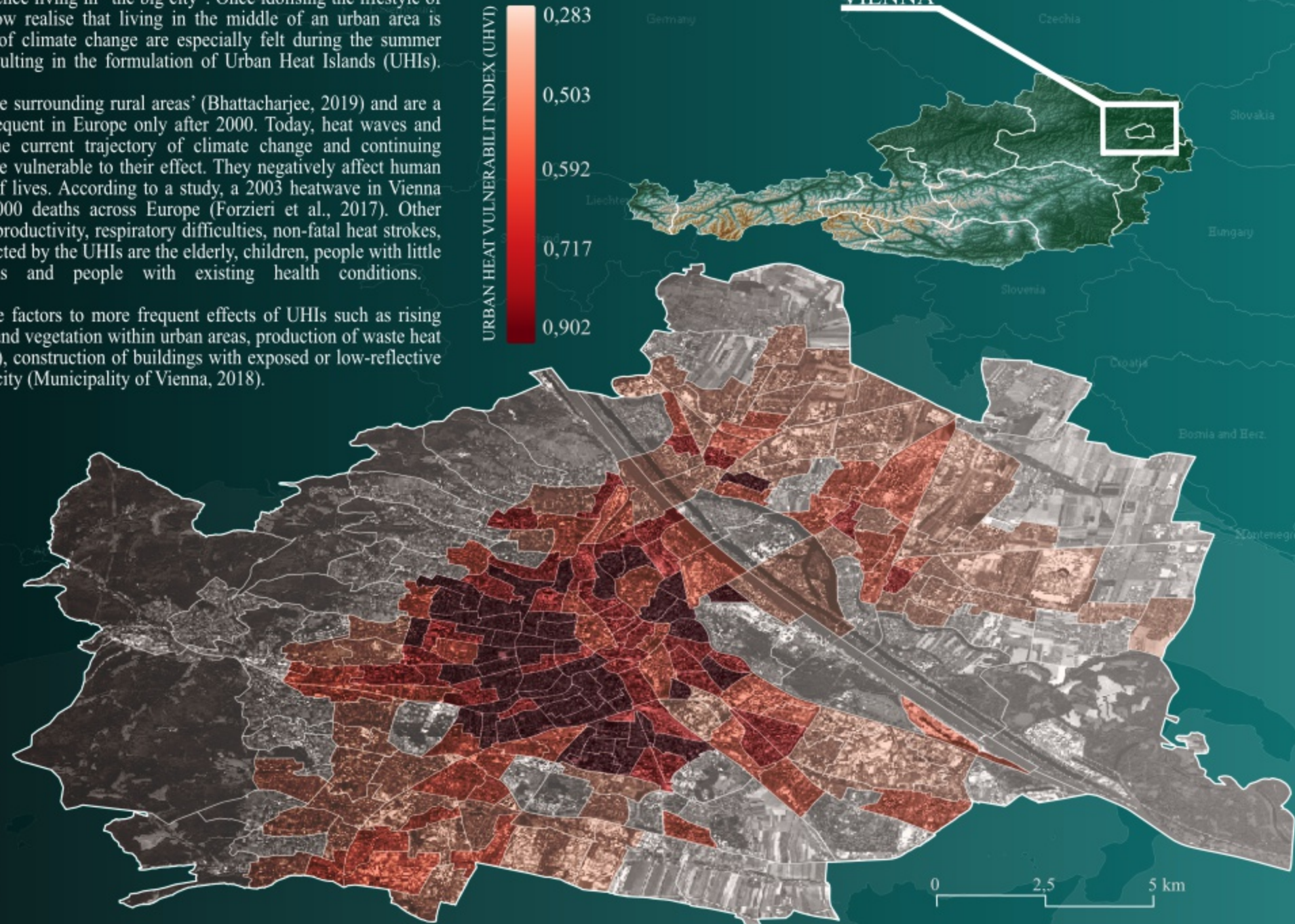
My master studies brought me to Vienna where I get to experience living in “the big city”. Once idolising the lifestyle of six friends (characters) from the series F•R•I•E•N•D•S, I now realise that living in the middle of an urban area is becoming less “glamorous” and enjoyable. Here the effects of climate change are especially felt during the summer months when the city is exposed to more solar radiation resulting in the formulation of Urban Heat Islands (UHIs).

UHIs are defined as ‘relative warmth of a city compared to the surrounding rural areas’ (Bhattacharjee, 2019) and are a relatively new phenomenon as extreme heatwaves became frequent in Europe only after 2000. Today, heat waves and UHIs affect many cities around the world. Considering the current trajectory of climate change and continuing urbanisation trends, cities and communities are becoming more vulnerable to their effect. They negatively affect human health and wellbeing and have even been linked to the loss of lives. According to a study, a 2003 heatwave in Vienna resulted in appx. 180 deaths (Hutter et al., 2007) and 30,000 deaths across Europe (Forzieri et al., 2017). Other consequences are the reduced quality of sleep, wellbeing and productivity, respiratory difficulties, non-fatal heat strokes, and exhaustion (Municipality of Vienna, 2018). Especially affected by the UHIs are the elderly, children, people with little social contact, people with low socioeconomic status and people with existing health conditions.

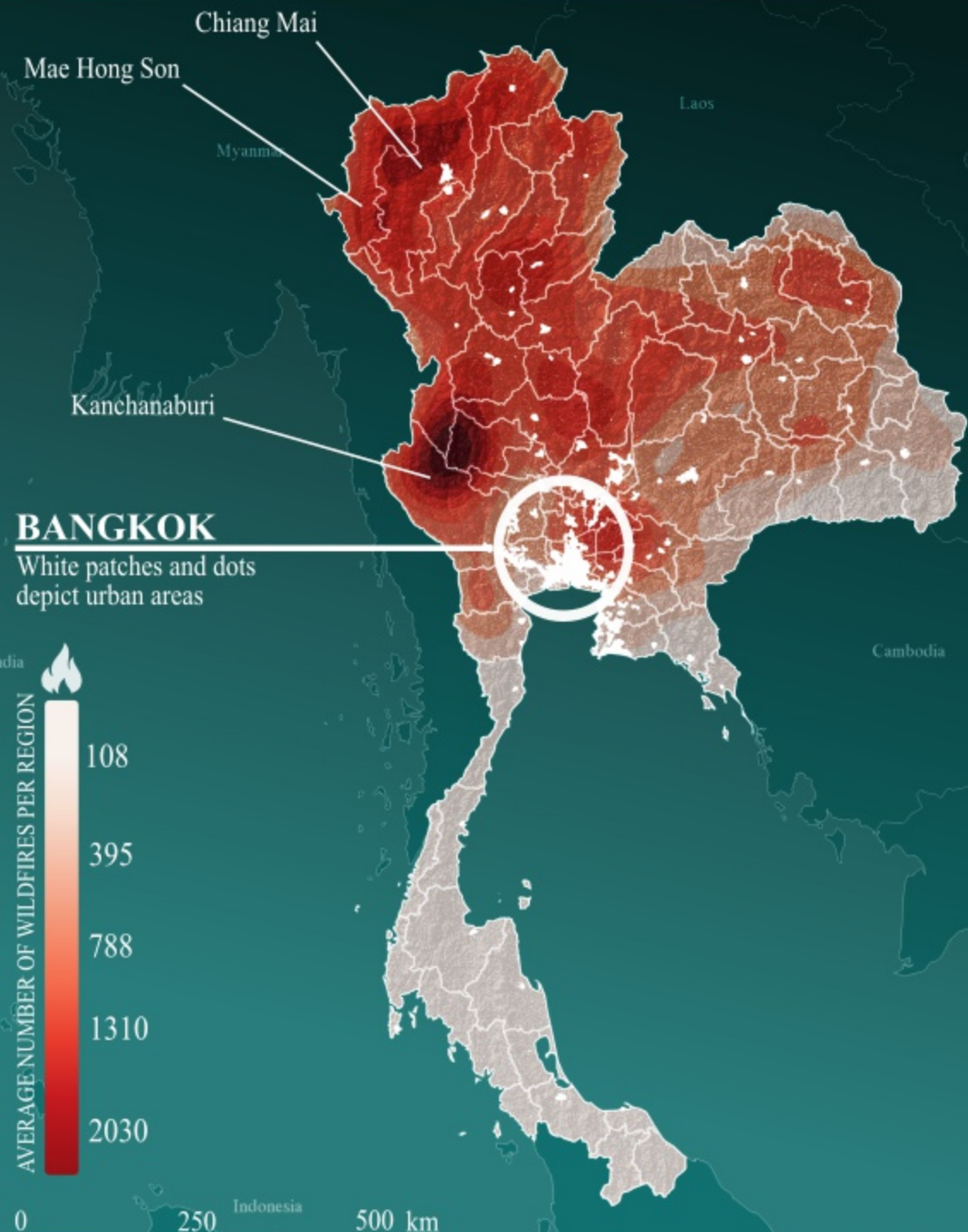
Research by the Municipality of Vienna (2018) links multiple factors to more frequent effects of UHIs such as rising temperatures in the warm months, reduction of green surfaces and vegetation within urban areas, production of waste heat by the industry and anthropogenic heat (e.g., cooking, cooling), construction of buildings with exposed or low-reflective surfaces and infrastructure reducing the wind flow through the city (Municipality of Vienna, 2018).

The map projects the Urban Heat Vulnerability Index (UHVI) Vienna (2019) which was produced by ECOTEN in collaboration with the City of Vienna (Bhattacharjee, 2019). The map points to the spots that are most vulnerable to the effects of extreme heat events. The index was obtained by combining temperature data, data of green and blue infrastructure, and demographic data (Bhattacharjee, 2019). In 2014, 1,7 million people lived in Vienna (Eurostat, 2014) which is expected to increase up to 2 million by 2030 and 2,15 million by 2050 (Statistik Austria, 2020). Because of the rapid urbanisation trend, the city of Vienna already developed the UHI strategy and implementing actions, such as increasing green space, reducing building density, unsealing impermeable surfaces (Municipality of Vienna, 2018), to mitigate the negative effects of UHIs.

People decide to move to big cities not for the lifestyle but rather for social and economic benefits available. The number of people moving to urban areas will continue to increase and Vienna is only one of the many areas experiencing the effects of climate change. Will other countries, especially developing countries, be able to address and mitigate its effects just like Vienna? And for how long can mitigating actions compensate for the more frequent extreme events?



WILDFIRE HOTSPOTS AROUND THE COUNTRY IN 2020 | THAILAND



In addition to the pandemic, Thailand has been dealing with the devastating effects of climate change and human irresponsibility. Varadon, who comes from Japan but is currently situated in Thailand, brought my attention to the negative effects of wildfires. He mentioned that the air quality in Thailand is very bad and results in health issues of locals especially chronically ill, children and the elderly. While you can usually avoid variables negatively affecting your health (e.g., eating unhealthy food or smoking), air pollution is unavoidable and affects the health of people “in silence”.

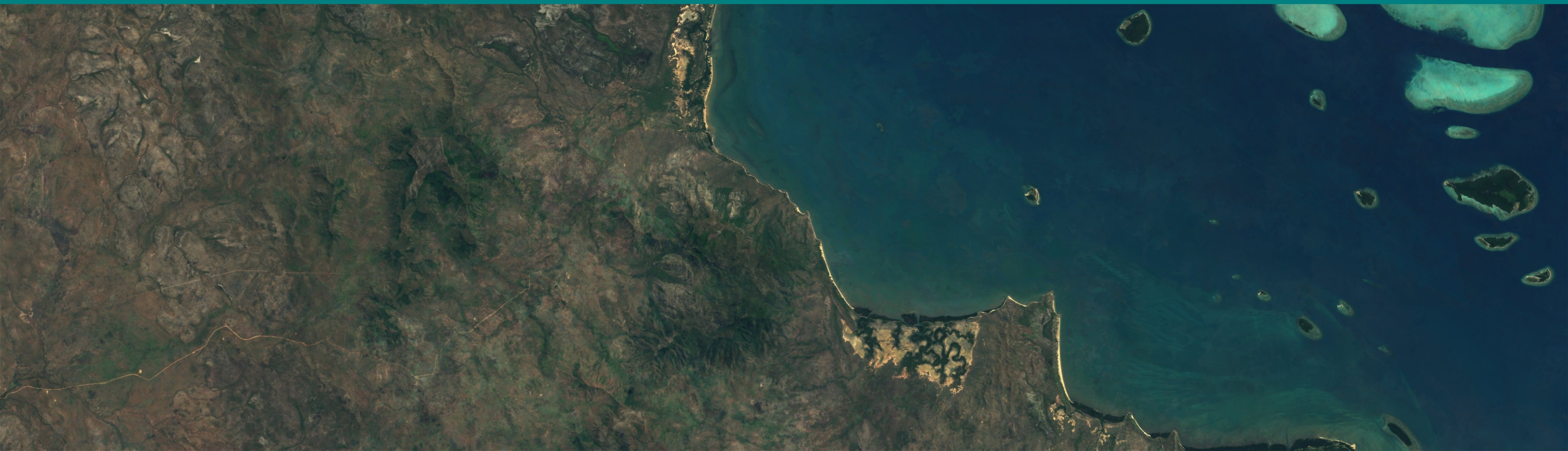
“Fire smoke contains a high concentration of pollutants and fine particles that penetrate into human lungs and cross into the bloodstream, resulting in adverse health impacts, which can result in respiratory problems such as asthma, emphysema, chronic obstructive pulmonary disease and cardiovascular conditions such as chest pain, irregular heart rate, myocardial infarction and cardiac arrest” (Earth.org, 2020).

According to satellite data from the Geo-Informatics and Space Technology Development Agency (GISTDA), a Thai space agency, there were 3 809 fire hotspots in Thailand, 5 061 in Laos, and 10 061 in Myanmar as of 28 March 2020. In 2020, forest fires resulted in increased levels of particulate matter (PM) and ‘unhealthy levels’ of fine dust pollution in multiple provinces. But wildfires also impose a direct threat to biodiversity, loss of the ancient cultural heritage, displace indigenous communities and destroy beautiful landscapes with rich culture, history and heritage.

Human actions in agriculture such as slash-and-burn practices where natural vegetation is cut down and burnt to clear the land for cultivation (Earth.org, 2020) in local and indigenous communities, whose livelihood relies on the forests were blamed for the acceleration of wildfires (WWF, 2020). But Thailand is not the only country fighting wildfires. In disbelief, we have been following the news about wildfires in Brazil, Australia, California and more recently Greece. Climate change is one of the main contributors to the acceleration of wildfires as it is creating conditions in which the wildfires thrive such as long periods of droughts and low levels of humidity, wind patterns, increased land surface temperature (Prasertsri & Littidej, 2020, University of East Anglia, 2020).



WATER | TUBIG | VODA | 물 | اوبه | VESI | NEPO | CY | AGUA | ВОДА | ႁႃႈ



Heavy rain affected north-eastern, central, and western Cambodia since October 2020 due to the passage of tropical storm LINFA and NANGKA, triggering floods that resulted in casualties and damage to property. Tropical storms triggered rains causing floods in 19 of 25 provinces and the capital city (Phnom Penh). I personally never experienced such massive floods before.

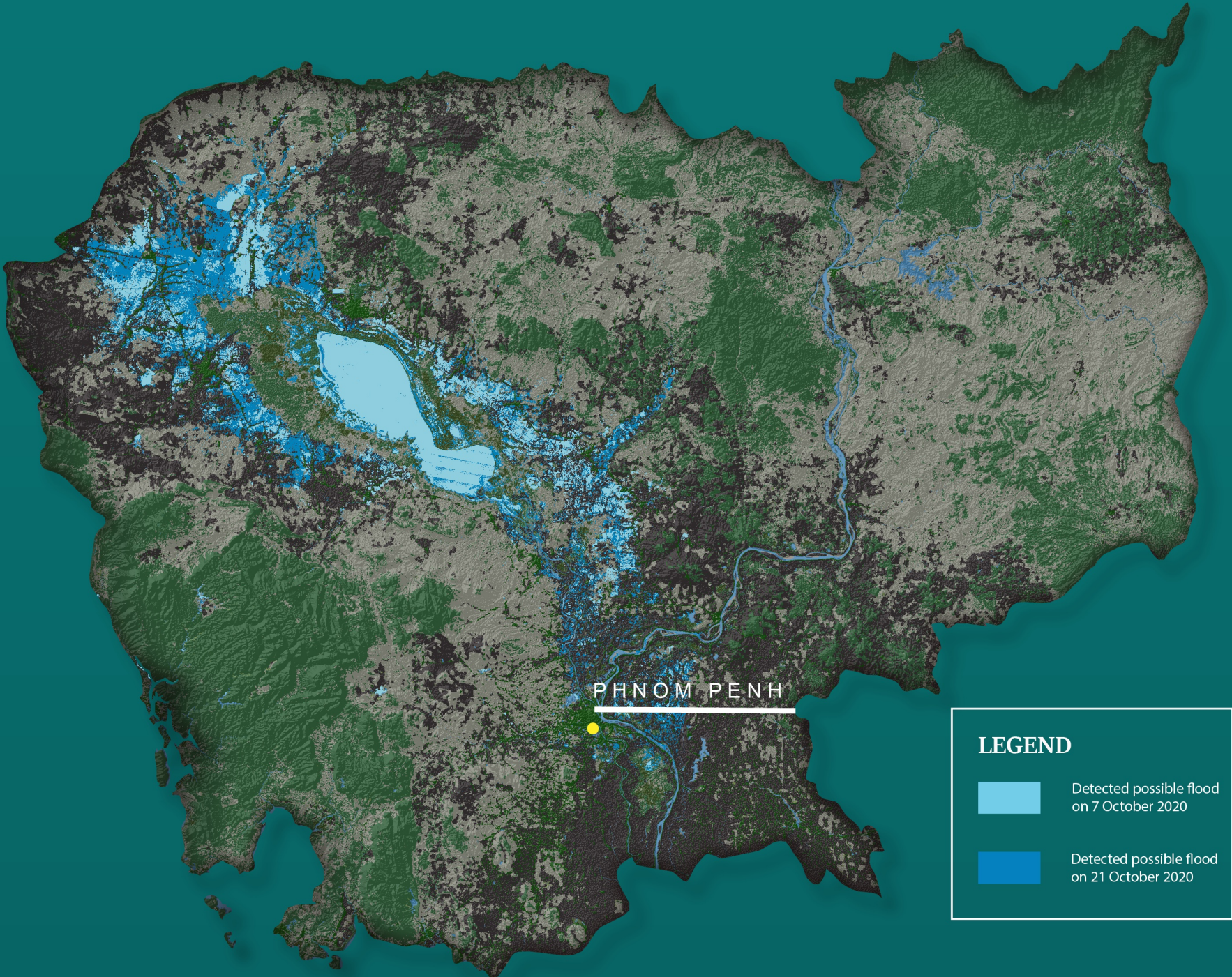
In the past, I have often read about calamities in newspapers or in television, because I live in the capital city, the possibility of facing huge floods was quite rare. However, this was not quite surprising since Cambodia was considered one of the most vulnerable countries in terms of floods. Unfortunately, this time we experienced an extreme weather event in Cambodia. The first indication of the unprecedented intensity of the rainfall came when I saw the National Committee for Disaster Management announced the flood emergency in the beginning of October.

On October 21, more than 131,000 houses in 14 provinces including Phnom Penh were damaged or destroyed and over 156,137 households were displaced by the flash floods. In these areas, houses, infrastructure (roads, schools, health centres) and agricultural land were inundated.

At that time, I volunteered and was assigned by the Union of Youth Federations of Cambodia (UYFC) to assist victims in the periphery of Phnom Penh. My mission at the time was coordinating with the Royal Cambodian Navy to help evacuate victims and their belongings from the navy rescue boats to safety as soon as possible. The tragic scene had haunts me. I still shudder at the mere thought of those scenes. The strong wind brought down many trees which made it difficult for boats to go through. As the boats got closer, we saw the brave navy sailors steered the boat without getting caught in the trees under the flood water. As a consequence of the flood, some of the victims' houses were fully or partly destroyed and they were only able to bring what they can carry with them. You would immediately notice the look of grief in their hearts.

November 2, flash floods claimed the lives of at least 43 people, according to the National Committee for Disaster Management (NCDM). More than 792,000 people were affected by flooding and in need of humanitarian assistance, of which over 388,000 people were recognized as poor and vulnerable households.

Fortunately, we were thankful to the government and other organizations for giving all the victims financial aid to rebuild their houses. The government also promised to look into the cause of the flood and go everything it could to reduce the impact of floods to a minimum in the future.



A c k n o w l e d g e m e n t :

T h i s p r o j e c t w o u l d n o t b e p o s s i b l e
w i t h o u t t h e s u p p o r t f r o m t h e A s i a - E u r o p e
F o u n d a t i o n (A S E F) a n d t h e d e d i c a t i o n o f
v o l u n t e e r - m a p p e r s w h o t o o k t h e t i m e a n d
e f f o r t i n l e a r n i n g Q G I S , a n d c a r t o g r a p h y
f r o m s t a r t t o f i n i s h .

T h a n k y o u v e r y m u c h !

M a r a m i n g S a l a m a t !

M a p p i l y Y o u r s ,

F r a n c i s J o s e f C . G a s g o n i a , E n P .
A t l a s A k h y a n a L e a d e r s h i p i n A c t i o n
P r o j e c t N a v i g a t o r