WWF PAKISTAN

Natura

A quarterly magazine of WWF-Pakistan

Vol 4, issue 1, 2020

IS CLIMATE CHANGE A HOAX?

EDITORIAL

On 4 April 2020, WWF-Pakistan turns 50.

This is half a century of trial and errors leading to failures and successes. This is half a century of nature conservation in Pakistan!

Since the partition of the Subcontinent in 1947, Pakistan has seen many turbulent times, its history splattered by wars and coups. But amidst all the chaos it was as early as the 1960s that the environment conservation movement was taking roots in the country.

A group of passionate individuals raised their voices to warn against the issues that would eventually become one of the greatest crisis of our time. These individuals were the founding fathers of WWF in Pakistan and the forerunners of the conservation movement across the world.

From conducting surveys to learning more about the state of environment in Pakistan to educating the public, corporates and government departments about the issues that can threaten everything from public health and businesses to national security, the mission of nature conservation has been a long, winding road in Pakistan.

But as we start our 50th year and look back at what we have achieved, we are humbled by what lies ahead. With the current global pandemic strongly believed to have links to environmental issues, the work of environmental NGOs like ours remains critical in avoiding future crises.

Scientists believe that the planet is sending warning signs in the form of natural disasters. But the question is are we listening?

Sana Ahmed

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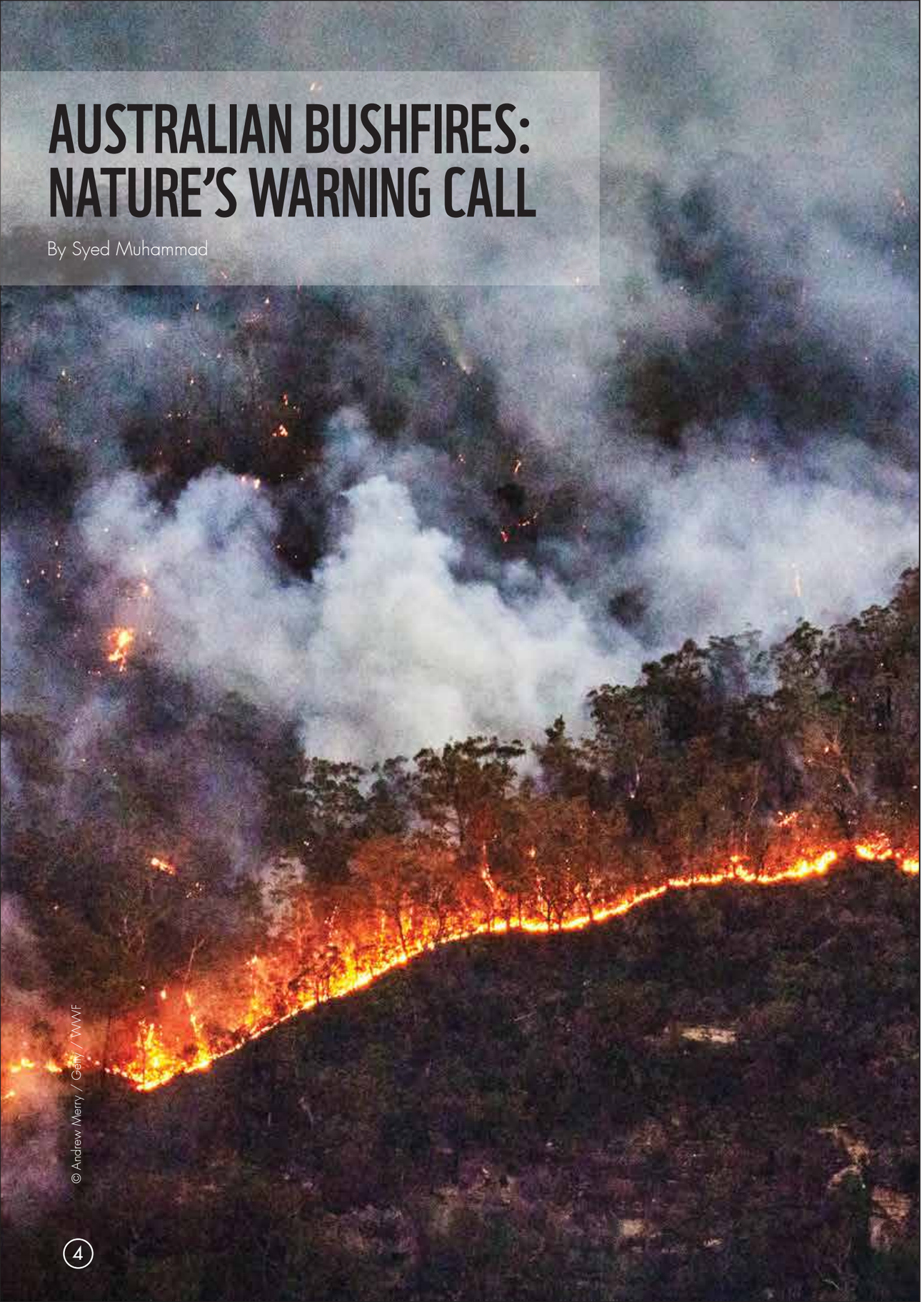
PKR 500

AUSTRALIAN BUSHFIRES: NATURE'S WARNING CALL

By Syed Muhammad



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The land down under is blessed with a mystifying, yet amazing, mixture of fauna and flora. The first European travellers to ever come across this alien land were baffled by its uniqueness – to them it was unimaginable; scientists dismissed the platypus as a hoax, they simply could not believe that a thing like it could even exist. We can all relate to those confused explorers, as we too have traversed the land while leafing through our geography books; been mesmerized by the sight of its exotic biota in pictures; been perplexed and humbled at the same time by the awe-inspiring sights that we witness every other day through videos. Yet, this land has been reduced to ashes in the wake of perhaps the worst bushfire in its centuries-old recorded history.

This particular episode of bushfires has attracted so much attention because it has brought unprecedented destruction in its wake. Millions of hectares of land have been lost and thousands of buildings consumed by this fiery inferno, with everything reduced to mere ashes. The tragedy of the loss of precious human lives, although great in its essence, nevertheless shrunk in comparison to the number of animal casualties: over one billion! In light of recent events, Australia is at risk of losing a significant portion of its wildlife and ecosystems – for good. This is a wakeup call for all of the world, we may not be directly confronted with this issue as of yet but it won't take much time for the wrath of nature to be set upon us in retaliation of our own irresponsibility and negligence.

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Although bushfires are natural and recurring incidences in this realm, humans are by no means innocent bystanders in this tragedy. Before diving deep into the heart of the problem, it is important to analyze exactly

Why is Australia so prone to bushfires?

For one, Australia is a dry land. Although it is surrounded by vast stretches of oceans, the inland regions are mostly either deserts or bushlands – only some of the marginal regions host forests, of which many have shrunk due to deforestation. This naturally provides "dry fuel", in the form of dried out bushes, for combustion. In a natural scenario, all it takes is a single ill-fated bush and a well-targeted lightning bolt to start off a torrent of flames that spread through the whole region like a malignant tumour eating away at its victim's existence. The more likely scenario, however, involves negligence or indifference on the part of people: anything from a campfire to a sparking power line can lead to such a disaster.

Things can be and in fact have worsened by prolonged drought, as was witnessed recently. Lack of rain can lead to further drying up of the vegetation – there's dry and then there's DRY, this makes them more vulnerable to fires. In fact, 2019 was by far the hottest and driest year for Australia with an average temperature level as high as 45oC! This, without doubt, is a direct consequence of global warming. Despite so much direct evidence that shouts in the face of humanity, wailing over our wrongdoings against nature, there are still people who refuse to accept the truth, a lot of them, who are laying the entire blame on Mother Nature – they refuse to accept their wrongs and maintain that human intervention in nature's delicate balance had nothing to do with this hazard.

Well as it turns out, nature is not to blame in this case – yes indeed bush fires are completely natural, but humans have had a "more-than-average" involvement in this deadly affair. It is clear as the summer sky that human activities have indeed worsened if not initiated this catastrophe (as the latter is hard to prove without any solid implicating evidence). To understand this, let us take a broader look: let's zoom out till we see the Australian continent, the Malayan archipelago to its east and the Indian Ocean stretching far and wide all the way to East Africa – this is our stage.

There is a huge, and by huge I mean HUGE, network of sea currents in the Indian Ocean that links Australia with East Africa. This current, under normal circumstances, tends to distribute warm water evenly – this is called the neutral dipole and is deemed to be the ideal state. In a negative dipole, winds from the west push warm waters towards Australia while cold water remains towards the African side. In this case, Australia would receive a series of heavy showers of rain – enough to bring about floods, while on the other side of the current, East Africa would face a drought. The opposite happens in a positive dipole, which is exactly what happened in 2019, leading to droughts in Australia and serious flooding in East Africa.

Not only are the climatic conditions of the two landmasses, despite their distances, interconnected but the fates of their people also hang in the balance while people resist accepting positive changes in their environmental policies. So what does this have to do with the bush fires? Well as it turns out, researchers have found a correlation between global warming and the Indian Ocean Dipole (often shortened as IOD); this coupled with an overall increase in global temperatures and further drying up of an already dry continent can only lead to further complications in this fire issue.

My heart bleeds for the dying gasps of those people and animals that lost their lives. I'd like to keep the loss of animal lives a primary focus here, don't get me wrong – I really am grieved over the painful departure of those people from this world, but it won't be wrong, at any level, to proclaim that animals have lost much more than us. Australia's indigenous fauna already faces severe persecution – many species have been wiped out of existence, like the iconic Thylacine (Tasmanian tiger or Tasmanian wolf; this creature was neither a tiger nor a wolf, it resembled them only superficially as a result of a special kind of evolution called convergent evolution – a one-of-a-kind animal indeed!).

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Many more have been pushed to the brink of extinction, the cute and cuddly koalas (mistakenly referred to as koala bears) for instance had already lost around 95 per cent of their numbers by 2010 in little more than two centuries, this animal now faces staggering odds of survival. Animals naturally tend to evade flames by burrowing (snakes) or by flight (birds and bats) or by agility on the ground (kangaroos, emus, etc.) – koalas can't do any of these things. They tend to climb further up trees, where they are literally sitting ducks until the flames reach all the way up and consume them. And don't be deceived with all the evasive strategies that I just mentioned, escaping these fires, unscathed, takes nothing short of a miracle for these animals – many perish trying, while a multitude die of the wounds and burns later on.


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This devastation is without doubt, our own doing. No matter how many people stand on the grounds of denial, it is pretty much clear to anyone with the slightest hint of rationality that humans are to blame. We've placed our own benefits over the general well-being of the masses – come to think of it, this is precisely the reason for all of our other problems: they result from our apartheid and indifference.

Saving Australia will require much more than an effective system for tackling these fires including everything ranging from quick response units to aerial water bombers and drone surveillance. What we need to do, all of us, is to set straight our priorities and visions – we don't have a planet B. I recall having a conversation with a person who suggested that instead of digging up rocks to discover our past analyzing extinct animals and trying to figure out why they went extinct, we would be better off trying to explore the space for another inhabitable planet. I gave him a polite answer back then, but here I will state it outright:

"If you think that you can survive while this planet dies, you're delusional! If Earth dies, we die and this much is certain."

We need to take all necessary steps and precautions right now, it is indeed now or never, our planet's history is filled with mass extinction events that wiped out all but a little fragment of life every time and this time life may not find a way. ■

Syed Muhammad Khan is a Biologist teacher and Histrory Enthusiast.

CLIMATE CHANGE IS PRETTY SERIOUS AND IT'S ABOUT TIME THAT WE WOULD BE TOO

By Ayoub Hameedi

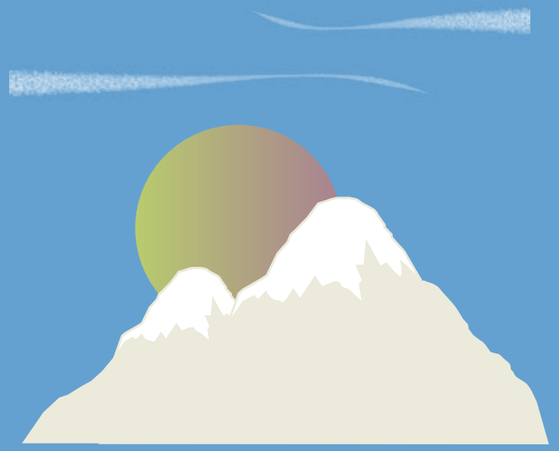
Climate change is certainly the biggest environmental issue of our time. Its negative impacts are threatening the economies and livelihood of the masses across the globe. Rising sea levels are one such example that recognizes no geographical boundary, which can affect both rich and poor equally. However, the difference in coping ability is quite clear as the rich, with access to finances and improved mitigating strategies would end up better than the poor who lack access to both.

A very important question that might arise in minds is how we know that climate change is happening?

Most importantly, how can we say that we are causing the climate to change?

As an environmentalist, I can firmly say that we are causing the climate to change through our excessive emission of carbon dioxide gas across the globe. According to the United States Space Agency NASA, the concentration of CO_2 gas remained below 300 parts-per-million throughout our history before the dawn of the industrial era. Data shows that the concentration of CO_2 started increasing exponentially from the year 1950. In fact, the mid 20th century was the first time that CO_2 concentrations reached 300 parts-per-million in our atmosphere. Since that point on, the concentration of CO_2 is rising with each passing year and, unfortunately, the reading stands at a whopping 413 parts-per-million. As a consequence of increased CO_2 concentration, the global average temperature has already increased by 0.9 degrees and five of the hottest years in our history have occurred since 2010. As the global average temperature increases, it also exacerbates the melting of ice sheets in both North and South poles.

Antarctica contains the largest volume of ice caps on Earth. Unfortunately, it lost an average of 127 billion tonnes of ice each year from 1993 to 2016. Likewise, Greenland lost an average of 286 billion tonnes of ice each year during the same time frame. The story is the same for all of the glaciers located in the Himalayas, Alps, Alaska, Africa and other parts of the world. The rapid melting of ice in both North and South poles is a worrisome fact for all countries across the globe. Antarctica is roughly seven times larger than Greenland. If both of the poles would lose their ice caps completely, the sea level would rise by as much as 222 feet.



Realizing the negative impacts of climate change on economies across the globe, countries came together to sign an agreement that went on to be the most acclaimed agreement ever signed in our history. The Paris Climate Agreement is no doubt a milestone, where all of the signatories joined hands to implement strategies to limit temperature increase to 1.5 degrees. The United States of America (USA) was a part of the Paris Climate Accord under the leadership of Barack Obama. It is quite unfortunate to mention that when Preident Donald J Trump took the US in the opposite direction upon taking the oath and Presidency of USA. However, politicians in other countries across the globe are taking strong actions to mitigate climate change and to limit the temperature increase to 1.5 degrees. Sweden is an excellent example in this regard. Swedish Prime Minister Stefan Löfven and Deputy Prime Minister Isabella Lövin implemented the New Climate Act in 2018 which encourages the Swedish government to take actions on an annual basis to mitigate climate change and to reduce Sweden's overall carbon footprint. Sweden now plans to be carbon neutral by 2045 and also has polluters pay which means all of the point sources of carbon dioxide gas pay a tax of €114 per tonne of emission. The Swedish government has referred to it as a carbon tax. Likewise, Iceland has a carbon tax of USD 31.30 per tonne of CO_2 emission. France has imposed a carbon tax of USD 49.23 per tonne of CO_2 gas emission. Liechtenstein has implemented a carbon tax of USD 96.57 per tonne of CO_2 gas. The state of California in the USA has imposed a CO2 tax of USD 17.67 per tonne of CO2 gas.

An effective implementation of carbon tax is the first step to steer any economy away from fossil fuels and in the direction of clean sources of power production.

It's time that politicians and political parties in Pakistan seriously consider implementing a carbon tax in the country too. The primary responsibility falls on the current ruling party to act as a torchbearer, when it comes to mitigating climate change and reducing greenhouse gas emission in the country. Pakistan is extremely blessed when it comes to solar potential on a year round basis. Thus, if solar photovoltaic panels are installed in the length and breadth of Pakistan, the country can no doubt produce 100 per cent of its electricity from solar PV panels. Balochistan province is the least densely populated province in the country and, simultaneously, it is the largest in terms of area too. It receives solar radiation of 2300 kwh per square metres and thus can act as an engine of solar power for Pakistan. Likewise, wind power has an estimated available theoretical potential of 50 GWs in the country. Even if we harness 50 per cent of this estimated available wind power potential, we would be on track to create a serious dent in the GHGs emission curve. Thus, if both wind and solar PV projects receive needed attention from the federal government and private sector, Pakistan can easily produce 100 per cent clean electricity to satisfy its own needs and export the rest to its neighbours to earn solid revenue. During the last decade, Germany earned €13 billion as revenue through the export of electricity. Likewise, the five largest cities in Pakistan produce at least 10,000 tonnes of waste on a daily basis, all of which ends up in landfills. Energy policymakers in the country can choose to establish waste-to-energy power plants in Pakistan that would use municipal solid waste to produce heat and electricity.

Sweden produces 3 MWs of electricity and heat from each tonne of waste. The same can be the case for Pakistan, provided enough attention from national government is given in this direction.

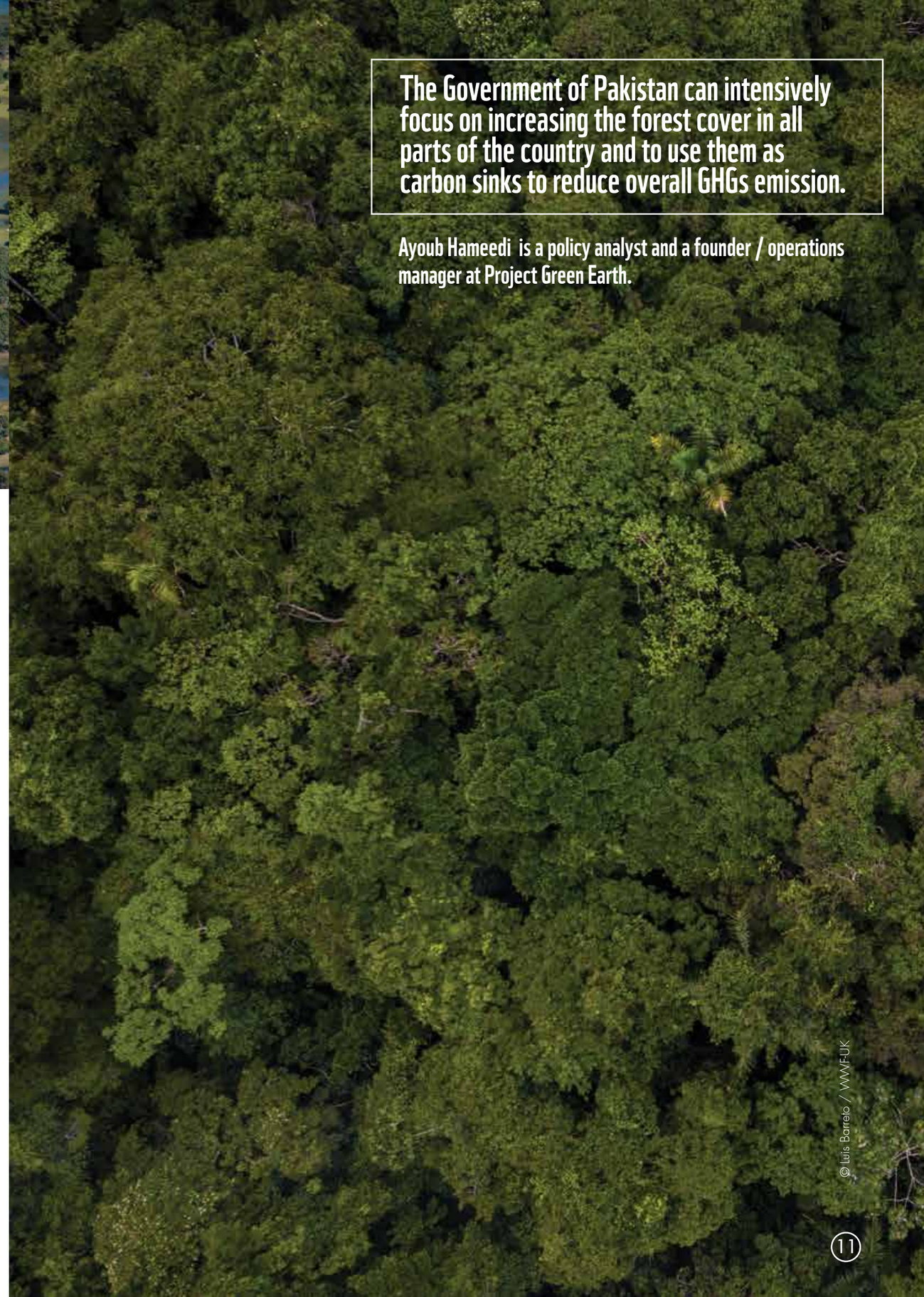
According to the Asian Development Bank (ADB), average temperature in Pakistan has increased by 0.5 degrees during the last 50 years.

The total number of days with heatwaves in Pakistan has increased five times during the last three decades. The sea level along Karachi (a financial lifeline for Pakistan) has increased by 10 centimeters in the last 100 years. All these facts highlight the seriousness of the issue of climate change. A major step to mitigate climate change is to decrease GHGs emission. Enabling a 100 per cent transition to clean energy sources is the first and foremost step to reducing greenhouse gas emission from Pakistan. Simultaneously, the government of Pakistan can intensively focus on increasing the forest cover in all parts of the country and use them as carbon sinks to reduce overall GHGs emission even further. Norway is a perfect example for the government of Pakistan to consider when it comes to neutralizing GHGs emission on an annual basis with the help of forests. Today, Norway has three times more standing wood in its forests than it had a century ago. Norway effectively uses this increase to neutralize 60 per cent of its GHGs emission on an annual basis. This can be the case for Pakistan too. The government and rest of the Parliament can create a dent in the emissions curve through 100 per cent clean electricity production, imposing a carbon tax and increasing the standing forest area to 25 per cent of the total geographical area of the country. Implementing the Paris Climate Agreement is possible for Pakistan. In fact, it will reap numerous financial benefits for the country, first and foremost would be reduced expenditures with reference to the oil import bill. The saved dollars could then be allocated to social programmes to uplift the masses out of poverty in Pakistan.

Summing up, climate change is extremely real and it's about time that we would get serious too. When it comes to politics, the primary responsibility falls on the shoulders of the Green Party Pakistan to build up the people's momentum through awareness campaigns on climate change. Most importantly, it can encourage the government to implement actions we can take to mitigate climate change. We have the needed solutions and knowledge, the only thing we lack is the political will to acknowledge the problem and do what needs to be done to solve the environmental issues of Pakistan. ■

The Government of Pakistan can intensively focus on increasing the forest cover in all parts of the country and to use them as carbon sinks to reduce overall GHGs emission.

Ayoub Hameedi is a policy analyst and a founder / operations manager at Project Green Earth.



ALTERNATE ENERGY

By Nasir Jamal

The world is rapidly heading in the direction of alternate or greener energy solutions – wind, solar, biomass etc. More and more people across the globe are demanding cleaner, sustainable energy to cutreliance on fossil fuels that are to blame for the sharp increase in greenhouse gas (GHG) emissions –especially carbon dioxide – in the last one century or so.

Governments across the globe are formulating policies for the development of greener power generation, employing solar, wind and other alternate technologies, as well as diverting significant amounts of money towards increasing the share of renewables in their overall energy mix. In our neighbourhood in India, renewable energy solutions account for a third of total installed power capacity.

In a departure from the past, governments are designing future electricity baseloads on the basis of a much bigger share of renewable generation in the overall power generation mix. The world's quest for cleaner energy to fight rising global temperatures, which are causing sea levels to rise, glaciers to melt and climate to change has led to the generation of solar power even in the "depth of Alaskan winter".

Pakistan, gifted with abundant renewable energy sources such as sunlight and wind, implemented policies as early as the 2000s to exploit new technologies to decrease its carbon footprint and make electricity affordable for its people. However, the progress made in this area has, thus far, been painfully slow.

Although the country developed its first Alternate and Renewable Energy Policy in 2006, the share of cleaner and environment-friendly power (excluding large hydel power that forms almost 30 per cent) remains less than 5 per cent or roughly 1,900 megawatts in the overall installed power generation mix.

The country added more than 10,000 megawatts of electricity to the grid in the last five years under the multi-billion-dollar China Pakistan Economic Corridor (CPEC) initiative, but only a few hundred megawatts were generated from renewable resources.

Overall, the country produces 1,150 megawatts from wind in the Gharo-Jhimpir wind corridor in Sindh, and around 400 megawatts each from solar. Experts believe that Pakistan can generate at least 36,000 megawatts of wind power only from the Gharo-Jhimpir corridor, while another six wind corridors in Balochistan have the potential to produce several thousand additional megawatts of electricity. Similarly, the potential for solar power across the country is unlimited.

Nevertheless, the incumbent government has shown some seriousness in developing renewable energy. A new Alternate and Renewable Energy Policy was drafted last year, which targets a 25 per cent share for alternate and renewable power in total generation by 2025 and 30 per cent by 2030. The achievement of these targets will enable the government to create an environment-friendly and affordable electricity mix, which at present is heavily tilted in favour of imported fossil fuels.

But, sadly, the draft became controversial no sooner was it shared by the federal government with the provinces, primarily because of the removal of options for cost plus and upfront tariff setting regimes allowed under the 2006 policy along with provisions for competitive bidding. Under the new policy draft, the tariff for new projects – and those already in the pipeline at various stages of development – will be determined only through the process of competitive bidding. Both Sindh and investors have strongly resented this decision.

The new draft policy provision, to subject the already approved alternate energy projects (with a combined generation capacity of nearly 8,000 megawatts) to a competitive bidding process for fresh determination of their tariff is resented by both by the Sindh government, which has approved most of these schemes, and investors who argue that the new provisions should apply on future projects.

Indeed, the policy objective is to bring down tariffs in view of the steep decline in global renewable energy technology prices. At the same time, it must be acknowledged that the policy change has created uncertainty in the market. It is yet not clear if and how many investors will want to renegotiate their tariffs and apply afresh for potentially lower, revised prices.

The country has already lost a lot of time. Pakistan is in its early stages of encouraging the use of alternate energy technologies. The uncertainty created by the draft policy about the future of the projects in the pipeline will not send the right signals to prospective investors. The government needs to move fast to settle this issue, and find a solution that takes care of the interests of both the consumers and investors if the country is to catch up with the rest of the world in this area. ■

Nasir Jamal is a senior journalist at Dawn and writes on issues related to business and the economy.

BECOMING AN ENVIRONMENTALLY FRIENDLY ORGANIZATION

By Farhan Zafar

Pakistan is home to more than 3.2 million economic establishments and 99 per cent of them are small and medium enterprises (SMEs).

Throughout the world, SMEs are considered the bedrock of economic development. While industrial development is the key to sustainable growth in the long run, it is vital for all sectors to incorporate green technology measures and practices, and become environmentally friendly organizations. Given that most organizations and the general public is cognizant of the adverse effects industrialization has on the environment, concrete measures need to be taken rather than just cursory discussions about what needs to be done.

Small and Medium Enterprises Development Authority (SMEDA) is also playing its part in promoting environmentally friendly practices by providing technical assistance to SMEs in order to enhance competitiveness by improving productivity through energy efficiency. Recent efforts made by SMEDA include baseline audits of manufacturing SMEs, which has resulted in annual energy savings of 415,000 Kwh and 223 tons of reduction in CO_2 emissions. Thus, SMEDA advocates adopting energy efficient practices and technologies that cut costs instantly and are also important for the environment.

The Air Quality Index shows that cities in Pakistan are repeatedly ranked at the top of AirVisual's live pollution rankings of major global cities, which is a major cause for concern. Therefore, a lot of effort needs to be made to improve air quality, which has become an impeding caveat for the people living in the metropolitan cities of Pakistan.

At the organizational level, developing an eco-conscious organization begins at the ground level. It is essential for all employees to believe in the company's vision and practice environmentally-friendly habits at the office, in order for the company's mission of sustainability to be realized. By targeting employees' habits that revolve around single-use products, companies can reduce their waste production and environmental / ecological footprint simultaneously. Beyond providing clearly marked recycling bins, it is important to consider all the areas to improve the environment, such as promoting paperless workplaces, supporting green vendors, making green thinking a key part of a company's culture and encouraging green transportation to and from the office, etc. Thus, at the micro level, a number of initiatives can be taken to support the environment.

Another contribution that companies can make is through tree plantations, since trees provide a myriad of benefits. An example in this case is of

Marlyn Nutraceuticals, an American company that planted trees around its facility, resulting in internal heat reduction by as much as 10 per cent.

Moreover, the company has also taken a number of initiatives to go green, including the use of solar energy, a non-freon air conditioning system, safe water discharge, shipping in recycled cardboard boxes and zero use of alcohol solvents or harsh chemicals in the manufacturing process.

Learning from the best practices the world over, manufacturers in Pakistan can adopt practical strategies for manufacturing, which are environmentally friendly, by upgrading old machinery to newer efficient models and revising the process of production that involve greener methods of production. They can also install waste management/ processing units where possible.

According to the Policy for Promotion of SME Finance, the State Bank of Pakistan (SBP) has introduced SME related refinance facilities for the purchase of new imported/ local plant machinery and new generators, to adopt renewable energy projects using solar, wind, biogas and other renewable sources of energy. Special incentives are given by the State Bank of Pakistan to producers and manufacturers for the purpose of technology upgradation and environment protection machinery.

By implementing modern manufacturing standards and using environmentally friendly techniques, SMEs and large scale organizations can help promote a sustainable future. It is time for manufacturers and organizations to be prudent in kick starting initiatives by making sure that they are in compliance with eco-friendly environmental standards and that the negative externalities are brought down to the bare minimum. ■

Farhan Zafar is the Assistant Manager, Policy & Planning Division at Small and Medium Enterprises Development Authority (SMEDA).

FOOD SHORTAGE: IS IT A LOOMING CRISIS?

By Ahmed Iftikhar

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Human beings, since inhabiting Earth, an infinitesimal land in an infinite universe, have been hunting and foraging for food, and for sustenance. Anything that adds to the palette, has been included in the list of things to be consumed.

However, the variety of foods hasn't always been in abundance for everyone. Not at least until the collective escape from poverty. We'll come back to this point later.

Sapiens, since time immemorial, have found themselves in a constant struggle for sustenance. More so, since farming started. Food wasn't dependent anymore on scanty searches, and instead, was cultivated. Animals were bred accordingly, and thus came an entirely new provision of food, in the meat of domesticated animals. Problem 1, the Sapiens had figured out a (relatively) consistent supply of food, that behaved predictably. Problem 2, didn't have a solution up until the age of science was ushered in. Problem 2, in short was control over the yields, i.e. modern day farming! Therefore, invoking various gods, in times of drought, sacrificing men, women, children for an above average yield were commonplace. Society, at large, was always concerned about shortage of food, and with good reason! This problem was so real, and almost imminent that the Bible has an entire parable on it, in which, one of the four horsemen of the apocalypse is famine.

Famine, in addition to the other major ills, has always been looming large, ready to pounce. Ready to take millions of lives, as it has done so throughout the passage of time. Up until the 20th century, famine, the rider of the apocalypse, has been mercurial. In 1798, Thomas Walter Malthus, came up with a theory that quite logically (at least at the time), demonstrated how food production would eventually impact population growth, and invariably affect it. He argued that human population grows more rapidly than food production. And once this state arises, it is checked by wars, diseases and famine. Therefore, controlling the population surge.

© Suri Rautkari / WWFFF

Problem 2 is what we'll be discussing next. In fact, the solution to it. Human beings display very fascinating behaviour when confronted with new challenges. They almost always put forth a better solution. Famine, as it rode throughout history, as a great destroyer and decimator, was finally struck. The blow was fatal.

Cris Rock observed, "This is the first society in history where the poor people are fat." This statement, had it been issued even a century earlier, would have been taken as a joke - however for clearly different reasons. In 1909, Carl Bosch perfected a process, which used methane and steam to pull nitrogen out of the air and turn it into fertilizer on an industrial scale, replacing the massive quantity of bird poop that had been previously needed. Carl Bosch tops the list of the 20th century scientists who saved the greatest number of lives in history, with 2.7 billion. This cannot be taken as one solitary incident. The age of science, the solution to problem 2 has worked wonders in effectively shooting down the horseman.

An average human requires somewhere between, 1,600-3,000 calories per day.

This too, for a healthy lifestyle. Now taking a look at the data, China alone, with a 1.3 billion population provides an average of 3,000 calories per person.

The collective escape from hunger, can be seen, as the world on average has a significantly less percentage of populace that is currently undernourished.

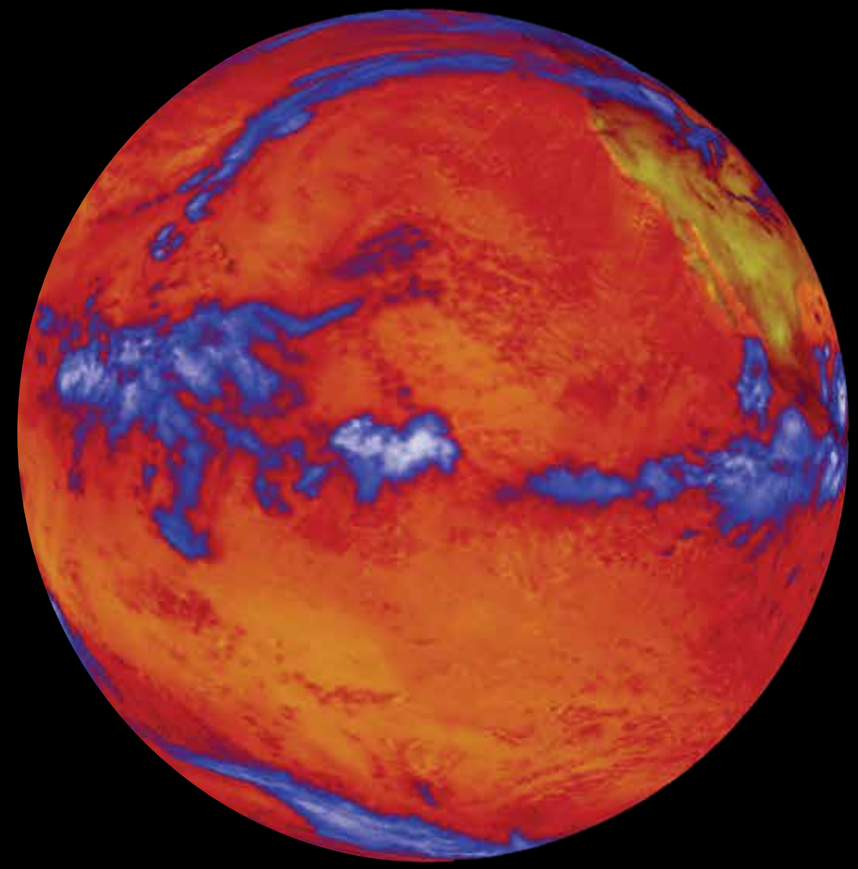
The data collated is arguably contemporary, but even if we take a look at this brief passage, from 1,860 famine deaths per one hundred thousand, have been reduced to almost 0 in today's world. That is the head of the horseman on a plate decimated.

The progression of mankind has been quite a story for anyone who'd peer at them, from a distance, looking at the journey till today. In fact, if and when a being more intelligent than humans discovers life on Earth - it may as well be through the presence of methane; one of the common gasses found in the earth's atmosphere. I'll say this with a very straight face, besides oil production, rice cultivation and sewerage, the collective burps and flatulence produced by livestock is a biomarker of life on Earth. As Neil Degrasse (not so eloquently) puts it, ''yes cow farts could one day help aliens discover Earth''. That is the excess of livestock we have available for us, in addition to the exponential production of agricultural yields. Problem 2 has a solution now. It lies in progress. ■

Ahmed Iftikhar is the Recruitment and Selection Specialist at Descon Engineering Lahore.

IS CLIMATE CHANGE A HOAX?

By Hassan Iftikhar



As the chorus of climate change and its irreversible effects on the environment gets even louder, there are deniers who question the premise and legitimacy of the phenomenon in its entirety. The very notion of negating all credible scientific research and the plethora of studies conducted begs the question, is there an ulterior motive?

Climate change and the effects of global warming, the rising sea level, carbon dioxide emissions, dwindling of wildlife and its natural habitat and reaching a tipping point beyond which there is no return is almost upon us. The time is near for the world to rally together to bring about change that is measurable and tangible. As voices for change, introspection and international regulations grow louder and reverberate the world over, there is still dichotomy over the very issue and their dissenting voices have gained considerable traction.

The debilitating effects of climate change are seen as a partisan left-wing agenda shunned by many global warming skeptics in the USA these days as for them the situation isn't nearly as grievous as it is being portrayed by the mainstream media. One begins to wonder why this is so given that 97 per cent of scientists unanimously avow and endorse how climate change is adversely affecting the world.

"Scientific evidence for warming of the climate system is unequivocal."- says the Intergovernmental Panel on Climate Change. Moreover, the planet's average surface temperature has risen about 1.62 degrees Fahrenheit (0.9 degrees Celsius) since the late 19th century, a change driven largely by increased carbon dioxide and other human-made emissions into the atmosphere. Most of the warming occurred in the past 35 years, with the five warmest years on record taking place since 2010. Not only was 2016 the warmest year on record, but eight of the 12 months that make up the year — from January through September, with the exception of June —were the warmest on record for those respective months.

Despite the multitude of credible scientific research available, climate change is still contested nowadays. With the US backing out of the Paris Climate Agreement on the pretext that it would preclude job creation and furthermore impose inclement regulations on the US economy, it isn't that difficult to read between the lines. With the general opinion of the President and the republican party expressing ambivalence on the credibility of scientific proof in favour of climate change, such a move does not come up as surprise. With politics in the fray and with the clout of fossil fuel conglomerates, political lobbyists and vested interest / stakes involved, this is a massive departure which will derail the progress made so far. The latest estimate is that the world's five largest publicly-owned oil and gas companies spend about US$200 million a year on lobbying to control, delay or block binding climate policy.

That being said, it is also important to look at this objectively. What credible reasoning does the other side has to give for being the proverbial deniers of climate change? Well one of the main rebuttals is there isn't a unanimous agreement on the scientific research which leads to the question of believing how serious is the current global situation. Moreover, apart from the conflicting research according to the naysayers, one major impediment comes in the form of interpretative denial. Here, people do not contest the facts, but interpret them in ways that distort their meaning or importance. For example, one might say climate change is just a natural fluctuation or greenhouse gas accumulation is a consequence, not a cause, of rising temperatures.

The lack of gravitas in the rebuttal to climate change makes it a very adolescent debate given that a majority of people in the US do not believe in the phenomenon. Americans were also more likely than any other western country polled to say they did not know whether the climate was changing or people were responsible – a total of 13 per cent said this. Americans also appear unusually prone to climate-related conspiracy theories, the YouGov data suggests. A total of 17 per cent of those polled agreed that "the idea of manmade global warming is a hoax that was invented to deceive people". Moreover, a total of 52 per cent of Americans who described themselves as "very rightwing" to YouGov insisted global warming was a hoax.

This narrative is all the more endorsed by Donald Trump who previously affirmed that climate change was concocted by the Chinese and that it isn't as serious an issue as is being touted. One thing is certain, facts matter and that when you look at empirical scientific data and research, climate change is real and our world is in peril. We need concrete and concerted measures to make sure the world works towards curtailing this problem. The situation seems all the more dire as the USA has chosen to opt out of the Paris Agreement.

It is time for us to work in unison rather than exploit and thrive in division. Working towards bringing a positive change is in the collective benefit of us all, as the stakeholders involved are the people, the world and humanity and not one country. ■

Hassan Iftikhar is Coordinator Communications and Marketing at WWF-Pakistan.

IN SEARCH OF SOLUTIONS TO HUMAN-WOLF CONFLICT IN NORTHERN PAKISTAN

By Nyal Mueenuddin

As countless shimmering poplars, nestled into the lush river valleys below bold and unforgiving Karakoram peaks, sing a colorful ode to the fading summer with their turning leaves, the people of Gilgit-Baltistan begin to prepare for the long winter ahead. The challenges these weathered mountain people face during the cold months are many – chief among them the age-old conflict between themselves and the wild animals which descend from the mountains above, determined to find food for themselves and their young.

As hearths are lit and shepherds return with their herds from high mountain pastures where heavy snows will soon fall, the animals of the wild begin their own preparations. The brown bear searches for a den to slow its heart rate and begin a six-month hibernation until the arrival of spring. The Himalayan ibex moves to lower altitudes, in search of steep, rocky faces where heavy snow does not amass, and the herd might find enough vegetation to make it through winter. The snow leopard follows the wild goats, to those remote cliffs where it too can manoeuvre, growing itself a thick winter coat to keep warm in the months of subzero temperatures ahead.

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Another apex predator also makes a move, descending from high altitudes in search of food and respite from the cold. Without adaptations to catch prey on the cliffs or in deep snow, nor to survive the harsh cold of winters on the high mountains, the grey wolf moves down towards human settlements in the river valleys. Endowed with a unique and extraordinary capacity to plan, cooperate, and rapidly adapt to changing surroundings, the wolf uses these skills to target the most vulnerable and abundant source of food available – domestic livestock, occasionally left unattended by their human protectors.

The various and often complex relationships between humans and wolves date back tens of thousands of years. Indeed, our evolution as two species have been closely intertwined, as we have cohabitated many of the same spaces since beginnings of civilization. The dogs we today keep in our homes as pets, 'man's best friend', are the descendants of the same wolves that today prey on livestock and are considered by pastoralists around the world as 'man's greatest enemy'. With those wolves, humans domesticated was formed a codependent relationship, in which, in exchange for food and care, these animals provided protection to our homes and our herds, and gave us companionship, loyalty and love. Those that were not domesticated also learned to rely on human settlements for food, though it would not be provided as willingly.

Across Gilgit-Baltistan, the issue of wolf depredation persists as a major threat to the livelihood of pastoralists already struggling to make ends meet. A single pack hunt can leave scores of a herd dead, landing a debilitating blow to already impoverished pastoralist families. Angry and without support from local government or NGOs, locals sometimes resort to killing wolves in retaliation and prevention of future attacks, using tactics such as poisoning of carcasses, shooting, trapping and killing wolf pups, which together pose a serious threat to the future of wolf populations in the region. The practice of poisoning carcasses is particularly harmful, as the carcass might also be found by any number of endangered carnivores, such as bears, foxes, eagles, snow leopards and lynx. The wolf, an apex predator, is a keystone species, meaning it plays a critical role in maintaining the balance and overall health of the ecosystem in which it resides. The wolf plays its part in several ways: by managing populations of wild ungulates, preying on sick, old and weak individuals, which maintains a healthy gene pool within the ungulates of the region. The carcasses left by wolves also represent a vital food source for other endangered carnivores and scavengers. Wolves also keep wild ungulates on the move, allowing areas of delicate and limited vegetation to regenerate.

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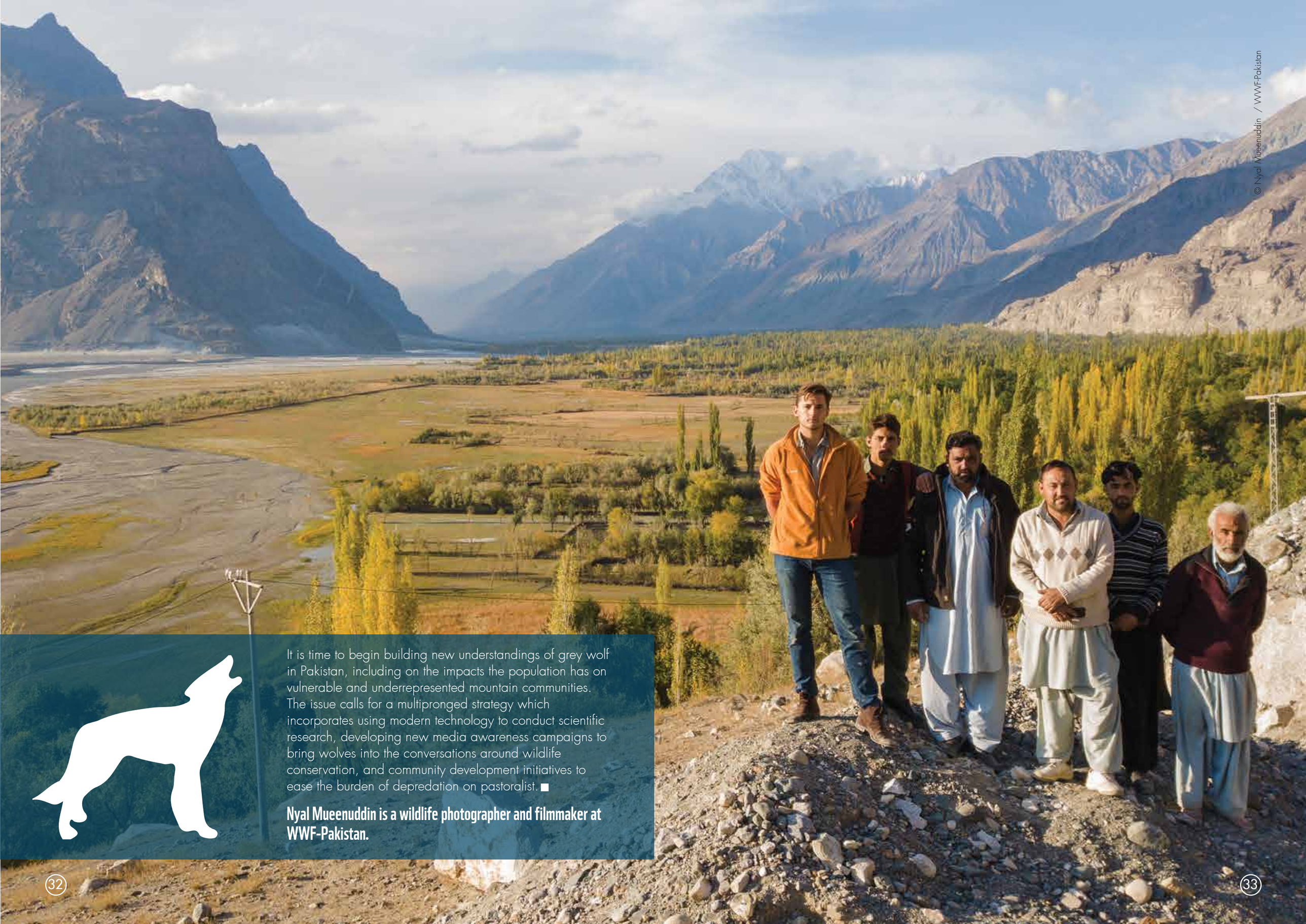
A lack of scientific research, funding and general awareness leave us with a very unclear picture of the current population size, behaviour and spatial distribution of the grey wolf in northern Pakistan, inhibiting our ability to develop effective, research based conservation efforts to manage this important species. Without an exact idea of how many wolves are killed each year in retaliatory killings by pastoralists, we lack the data necessary to trigger the sense of urgency needed to take real steps towards conservation action or to know which areas to focus resources and interventions.

A lack of focus and discussion on the wolf as a species, as well as the issue of wolf-livestock conflict, leaves pastoralist communities vulnerable to the impacts of wolf depredation, and with limited options to protect their livelihoods without resorting to retaliatory killings. Straightforward solutions are, however, available to us to decrease such conflict, such as encouraging the use of predator-proof corrals, cracking down on the illegal hunting of wild ungulates, and developing livestock insurance schemes to compensate pastoralists for losses and reduce the financial burden in case a depredation incident might incur on pastoralist families and community.



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It is time to begin building new understandings of grey wolf in Pakistan, including on the impacts the population has on vulnerable and underrepresented mountain communities. The issue calls for a multipronged strategy which incorporates using modern technology to conduct scientific research, developing new media awareness campaigns to bring wolves into the conversations around wildlife conservation, and community development initiatives to ease the burden of depredation on pastoralist. ■

Nyal Mueenuddin is a wildlife photographer and filmmaker at WWF-Pakistan.

SONMIANI: A MARVEL OF NATURE IN BALOCHISTAN

By Asif Sandeelo

Pakistan is blessed with abundant bounties of nature from wonderous mountains in the north to mangrove forests and a dazzling coastline in the south. Although there are many popular destinations and tourist spots in the country, yet a number of places are not well known and one such place is Sonmiani. Located in the southeast of Balochistan, the coastal town of Sonmiani is one the most popular beaches.

The 65 km long stretch is a 4 to 5 km wide lagoon, which comprises of narrow and shallow channels leading to the Arabian Sea.

Covering a total area of 125 sq. km, Sonmiani Bay is a complex geographical expanse of mudflats, sand dunes and lush mangrove forests. The lagoon is extremely rich in marine biodiversity and is a shelter for various species of wildlife.

Sonmiani is mostly known for the Miani Hor lagoon, an area of great bio-geographic importance. A large portion of the area is replete with biodiverse species found only in dense mangroves. Key species in the area include Avicennia marina, Rhizophora mucronata and Ceriops tagal, which are mangroves that could survive in Miani Hor. The lush green mangrove cover provides a crucial breeding and harvesting ground for various species of fish and shrimps. More than 300 species of fish, about 100 species of crab, shrimps and mollusks are found in the area.

Providing a nurturing environment for the fisheries of the area, Miani Hor is a crucial habitat which helps regulate the ecological cycle of commercial fish species. The presence of mangroves and the protected environment within the lagoon provides an ideal habitat for diverse marine fauna. The landscape is resplendent as the geography varies in texture from sandy and murky shores to mudflats, mangroves as well as man-made structures and a dynamic pelagic system within the lagoon. This is indicative of the importance of the prevailing ecological conditions of the area. Since in general the area is pristine and mostly untouched by man, therefore, its ecosystem remains predominantly undisturbed, making the area of great ecological significance.

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The population of the Indo-Pacific humpback dolphin, which resides inside the lagoon, is ample here. It is estimated that there are about 80 variations of this endangered species, according to the IUCN Red List, which feed and breed within the lagoon. The presence of a reasonably large population of cetaceans i.e. the Indo-Pacific humpback dolphin and the Indo-Pacific black finless porpoise in the Miani Hor lagoon is testament to the innate biodiversity of the area. It is also evident that the food chain in the area is highly complex, involving a number of plants and animals including seaweed and rich phytoplankton.

Because the area is extremely rich in marine biodiversity, fishing is the main occupation of the locals to earn a livelihood. There are three major fisher settlements around the lagoon. Damb is the main fishing town where about 500 fishing boats are based. Sonmiani, which is also a fishermen settlement, used to be a major landing spot and commercial port. However due to increasing siltation of sand and mud brought in by the Winder River, navigating and maneuvering the boats became a major impediment, resulting in the shifting of fishing boats from Sonmiani to Damb. Bera is another settlement in the north of the lagoon, though not as lofty and large as the others. The fishermen based in this town also land their catch at Damb.

Furthermore, the presence of lush mangroves in Miani Hor offer the ideal habitat for shorebirds as well as other migratory and native birds. This area offers a resting place for species such as demoiselle and common cranes, which migrate from their summer breeding grounds in the Central Asia and Europe to the Rann of Kutch. Miani Hor is among a few areas in Pakistan where greater flamingos are known to nest and raise their offspring.

The fishermen communities of the area are well aware of the importance of fisheries and other resources in the area, which is why the local communities support a complete moratorium on cutting mangroves as no one is allowed to use mangrove wood for cooking or any other purposes.

With such a rich landscape consisting of vegetation, marine and terrestrial life, Sonmiani holds tremendous potential for the eco-tourism industry. The place has immense prospects for dolphin watching, bird sighting, mangrove watching and boat safari, which, if developed, can attract great economic and social benefits to the area. With a myriad of distinct bird species found in the deep blue lagoon of Miani Hor, swathed by lush green mangroves, and inhabited by elusive dolphins, Sonmiani offers a serene and captivating view for nature enthusiasts.

However, it is also vital to acknowledge that such areas need proper care and conservational efforts. There have been increasing incidents of unsustainable fishing practices, which are adversely affecting the dolphins in the lagoon. Although, the community has imposed a ban on the harvesting of mangroves for fuel and as construction material, mangroves are still harvested for fodder in some areas. Moreover, camels are allowed to browse in the northern part of the lagoon and in mangrove plantations between Sonmiani and Damb. These practices pose pressure on the ecosystem of the area and need to be monitored, while declaring Miani Hor as a marine protected area.■

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STUBBLE BURNING: REAL CULPRIT OR TROJAN HORSE?

By Raaid Masood

As Lahore ushers in the spring season, the smokey and gaseous winter days slowly give way to relatively brighter, more visible skies ahead. This year, as with the years preceding us, Lahore and the wider Punjab region were caught in the throes of smog – a phenomenon that is increasingly becoming normalized through miscommunication and lack of understanding, as it is through misreporting.

The truth is that, all year round, cities across the subcontinent – stretching from Peshawar in the north-west right down to Dhaka at the mouth of the Ganges – face the acute hazard of air pollution. During the 'winter smog' season, however, at the heart of this discussion is the practice of stubble burning in the two Punjabs and Haryana (India).

Every year, both India and Pakistan squarely lay the blame for winter smog in our cities at the feet of the toiling farmer in these states, whose actions are undoubtedly one of the many significant contributors to this health emergency.

The case for Pakistan, however, is even more perverse. Notwithstanding that wind during winters mostly blows in the west-east direction, in the past four years, four top serving government officials have publicly accused Indian farmers of causing smog in Pakistan. This sentiment is later echoed across elite urban drawing rooms, in an exhibition of classical behavior of passing the buck. In order to search for sustainable, long-lasting solutions, some myths surrounding the causes of smog need to be debunked.

Stubble burning is a practice where residual rice stubble is burnt by farmers in October and November before sowing of the winter crop. They seldom have the financial resources to rent or buy ploughing machines and labour associated with it, so they resort to burning to have the field prepared in time. This results in large plumes of black smoke rising, causing pollution in neighbouring areas. Unbeknownst to many, it is also practiced in April and May at the harvest of the winter crop, but the weather conditions are not conducive for the smoke to cause visible smog in the neighbouring cities. This does not mean that the air quality is any better at this time! Collectively, stubble burning is practiced for a total of six weeks in a 52 week calendar year. According to Chintan Environmental Research and Action Group (CERAG), on its worst day, stubble burning is responsible for only 37 per cent of the smog in our cities. On all other days, it is even less. If stubble burning was the only environmental offence being committed the entire year, it's possible that smog would not even be noticeable. What, then, are the biggest causes of smog?

Collectively, stubble burning is practiced for a total of six weeks in a 52 week calendar year.

According to the government of Punjab's R-Smog report, vehicular emissions are responsible for 43 per cent of air pollution, the single largest offender on the list.

However, this requires some excoriation and nuance. Generally speaking, modern car engines produce only one-fiftieth of the pollution that cars in the 1970s were producing. That is remarkable progress! Pakistan, however, fails to reap the full benefits of this on account of some of the dirtiest fuels with high sulphur content available in the market for our vehicles. According to CERAG, from these vehicles, two-wheelers and freight trucks are the biggest contributors to pollution. That translates into something much more profound: every time you order a meal or a gift item online, which is picked up by a rider and delivered at your doorstep, you are contributing to air pollution. Think about the number of bikes that run in your city alone, multiple times every single day, consuming the dirtiest fuel available, just to cater to your convenience!


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The stark reality is that in order to effectively mitigate smog, a holistic reevaluation of our understanding of it, as well as reshaping our lifestyles, needs to take place. As the first big step, Pakistan needs to shift to cleaner vehicular fuels. Our current urban standard is the use of Euro II grade fuel, which permits up to 500 parts per million (ppm) of sulphur content. Given that the majority of the world community is at the least using Euro IV fuels (50 ppm or less), our sulphur emissions are exorbitantly high. Even that is replaced by worse quality (and cheaper) fuels in rural areas. In contrast, India is currently consuming Euro IV grade fuel and will shift to Euro VI (10-15 ppm) in 2020. According to South Korean automaker Hyundai's country representative, the company like other automakers is unable to introduce the latest cars with the cleanest engines in Pakistan because of unavailability of clean oils. Moving to better fuel makes sense for old cars and new: old cars, while waiting to be phased out, can consume cleaner fuels (to decreased benefits), but new cars simply cannot run on dirty fuels. Similarly, local oil refineries need to be fully upgraded to produce cleaner oil products. This requires hefty government funding but which is money well spent. The fact that they haven't already done so is a measure of criminal negligence. If both fuels and vehicles are upgraded in tandem, getting low grade fuel might actually become more expensive than cleaner fuels following demand-supply dynamics.

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The government also needs to invest in a vast and efficient public transport system so that all vehicular movement, be it cars or two-wheelers, is reduced. While the Punjab government has made strides in introducing buses in many cities across the province, further routes need to be added so that they take you to the last mile. Complimenting this, all online retailers should be incentivized by the government to use this public transport network to deliver products to customers, even if that means waiting an extra day. On the flipside, if a customer really requires a new summer suit to arrive in five hours for the next birthday bash, they should be required to pay with an arm and a leg!

Farmers, with the help of the government, need to have access to ploughing machines and the latest agricultural technology. In addition to this, we as Pakistanis can also use this opportunity to explore other nutritious and sustainable crops like corn or millets that could serve as a substitute to rice, one meal per day. Through increasing awareness about long term benefits of these crops, a burgeoning market for them can be created in urban centres, which will result in less consumption of rice overall. ■

There is also an underlying class war that is seldom discussed with environmental issues. While motorcycles are major contributors to pollution, motorcyclists are some of its biggest victims. The rich, on the other hand, either have the luxury to not go to work, or to have renovations made to their home and office infrastructure to restrict dust from entering. Meanwhile, a lot of lower income groups often have fieldwork duties and are rarely afforded days off . Therefore, as Pakistanis, let the larger conversation not be around which air-purifier works better, but around ways to bring the air quality index (AQI) levels down for all of us.

On a personal level, a thoughtful, considerate approach towards understanding the causes of smog needs adoption, as well as a full appraisal of our own lifestyle. No human is immune from air pollution, and it is all too important for our health to ignore. While some legislation and a lot of misguided rhetoric is present at the government level, henceforth only evidence-based policies need to be developed and fully implemented that address and rectify the real causes of smog, not faux environmental scapegoats.

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