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Losing our forests

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Losing our forests

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Tel : + 92 42 111 993 725
Fax : + 92 42 35862358
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Editorial

Miles before I sleep

As is customary, when the year comes to an end and a new one starts, we must take stock of what has been accomplished and what remains to be achieved. Certain issues such as climate change, water scarcity and deforestation remain amongst the top environmental concerns for Pakistan.

A significant event in 2013 has been the return of the great Indian bustard to Cholistan desert, Pakistan. Although the species is internationally protected, its hunting persists and special licenses were recently issued to dignitaries of the Gulf region. According to some news stories Pakistan will observe a moratorium on hunting during the 2014-15 season to replenish Houbara Bustard stocks but the reality remains to be seen.

In this issue we also include a special report by environmental journalist Raza Kharral, who shares his concerns about the alarming rate of deforestation in the country and strategies that must be implemented in order to curb it. We also explore the often forgotten role that the media must play in highlighting the environmental issues of concern, which the average citizen may not be aware of, as well as ways to address them. With the increase in news channels as well as daily publications over the last decade, the potential to reach an even greater audience through print and electronic media cannot be ignored.

Let us also not forget the strides made in recognizing the damage done to River Ravi through industrial effluents and the setting-up of the River Ravi Commission this year. Plans are yet to be finalised on the proposed bioremediation plant but we remain hopeful that a long-term solution will be achieved.

Happy New Year, may 2014 be a successful year for environmental conservation! As Robert Frost put it, 'And miles to go before I sleep.'

All Photos: Zahoor Salmi / WWF–Pakistan

Saving Ravi

Sohail Ali Naqvi tells us there is hope to save the River Ravi with the formation of the River Ravi Commission

River Ravi, known as Parushani or Iravati in Vedic times and Hydraotes to the ancient Greeks, has contours around the historic city of Lahore. For centuries the Ravi has supported life around it; witnessed wars, invasions, political conflicts, and has watched Lahore become the cosmopolitan city that it is today. Long gone are its glorious days when poets and story tellers set their narratives around it, the Ravi today portrays a dismal picture of neglect, rot and decay.

The River Ravi, which is 894km long, is the smallest of the five main eastern tributaries of the River Indus. It starts from the glacier fields in Bara Bhangal, Himachal Pardesh, India and enters Pakistan in the Shakargarh *tehsil* of Sialkot district before flowing past the city of Lahore, later joining the River Chenab. Once a healthy river, it irrigated crops that provided food to the whole country, supplied a large variety of fish and other aquatic life, and was a recreational spot for locals. It is now a dump for municipal and industrial waste. Lahore's master plan has various discharge points carrying sewage, which is eventually dispelled into the river. For industries, as well, discharging wastewater in the Ravi is an easier option, to avoid financial cost of treating the contaminated water. As a result, the river receives 47 per cent of the total municipal and industrial discharge of all rivers in Pakistan, raising concerns of environmentalists and society in general.

In 2012, a writ petition was submitted to the Green Bench of the Lahore High Court on the discharge of untreated municipal and industrial wastewater into the Ravi by the Public Interest Litigation Association of Pakistan (PILAP), Pakistan Environmental Lawyers Association (PELA) and Lahore Conservation Society. The petition resulted in the formation of the Ravi Commission (RCC) which aimed to revive the ecology of the river. The commission, which included representatives of government departments and non-governmental organizations (NGOs), was directed by the High Court to find a feasible solution to save the river which has now been reduced to a dump. WWF-Pakistan is the only NGO working actively in this commission, providing technical expertise as well as coordination.

The commission, immediately after its formation, started working on selecting suitable technology to clean the river. The challenge was to select an option which was indigenous, relevant to the local ecology and economically feasible. After

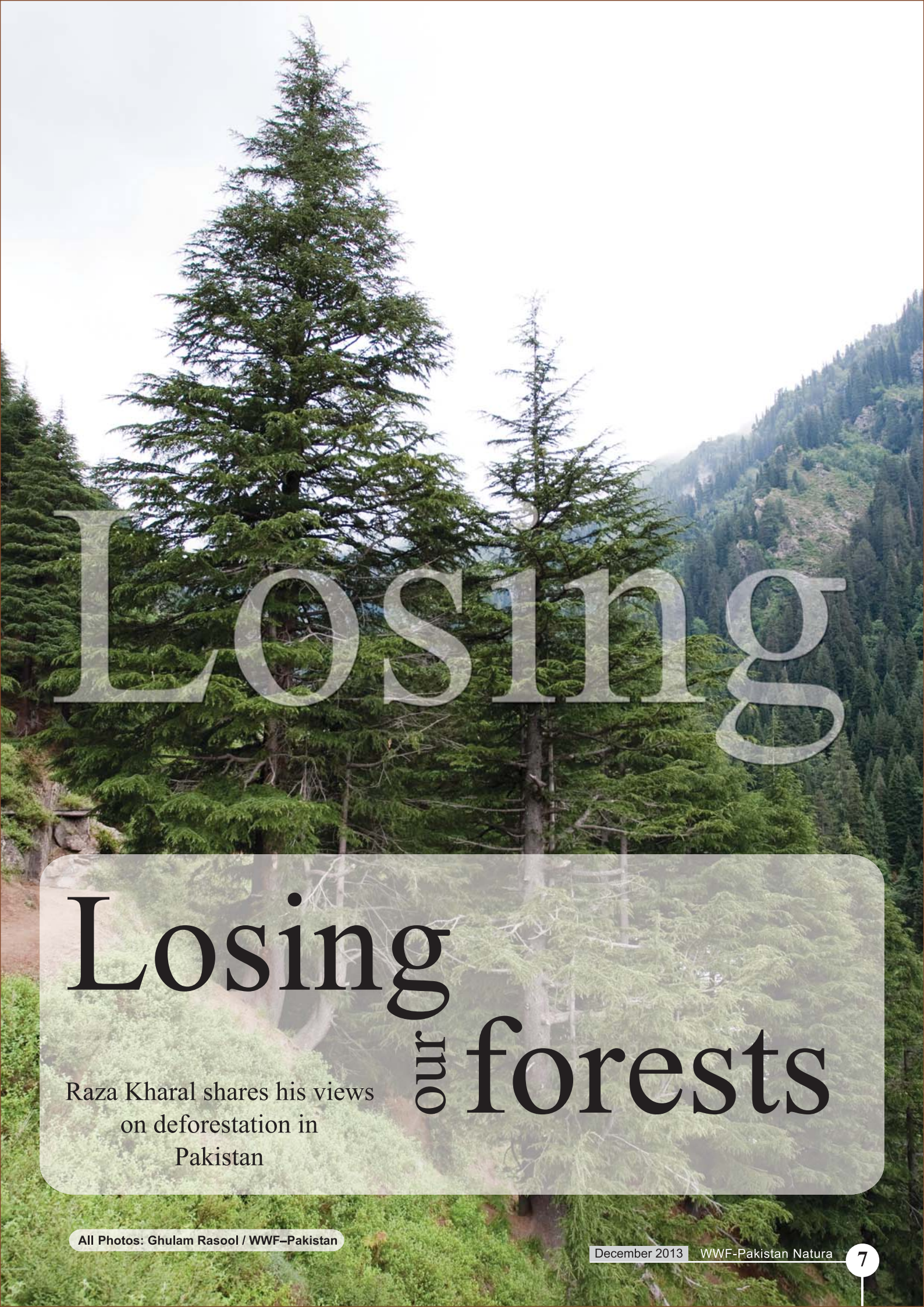
conducting many studies, it was decided that the construction of wetlands through bio-remediation treatment was the most suitable option. Bio-remediation is the use of micro-organisms, plants and enzymes to remove pollutants from the water. Constructed wetlands (CWs) are engineered systems which are designed and constructed to utilize the natural processes and microbial consortia for treating wastewater.

Through studies, the commission also observed that more than 1,380 industrial units were issued notices by the Environment Protection Department for non-compliance to the National Environmental Quality Standards (NEQS) in discharging their effluents. Additionally, there are 105 industrial units which are discharging heavy metals above safe limits. Only 29 industries are complying to NEQS with wastewater treatment plants in Lahore. Data was collected from different sources and it was observed that drains in Lahore are, directly and indirectly, discharging wastewater into the River Ravi without any treatment. The more toxic drains are Hudiara drain, Farrukhabad nallah, Bakar mandi nallah, and Munshi hospital.

The commission submitted its findings to the court and suggested the construction of a wetland, initially as a demonstration project, for 10 cusecs of wastewater in Lahore. A piece of land at Babu Sabu, covering an area of about 53 hectares, has been proposed for the development of constructed wetlands and this land will be acquired from Water and Sanitation Authority (WASA). The High Court has directed the commission to proceed further for the construction of wetlands. Based on the performance of this unit further decisions will be made and necessary actions will be taken.

It might take years to undo what has been done to the Ravi, but the formation of the River Ravi Commission is definitely a step in the right direction. What we need do is to stop polluting this majestic river, to adopt a clean approach and find more holistic solutions to our problems.

Sohail Ali Naqvi is coordinator
River Ravi Commission.



Losing our forests

Raza Kharal shares his views on deforestation in Pakistan

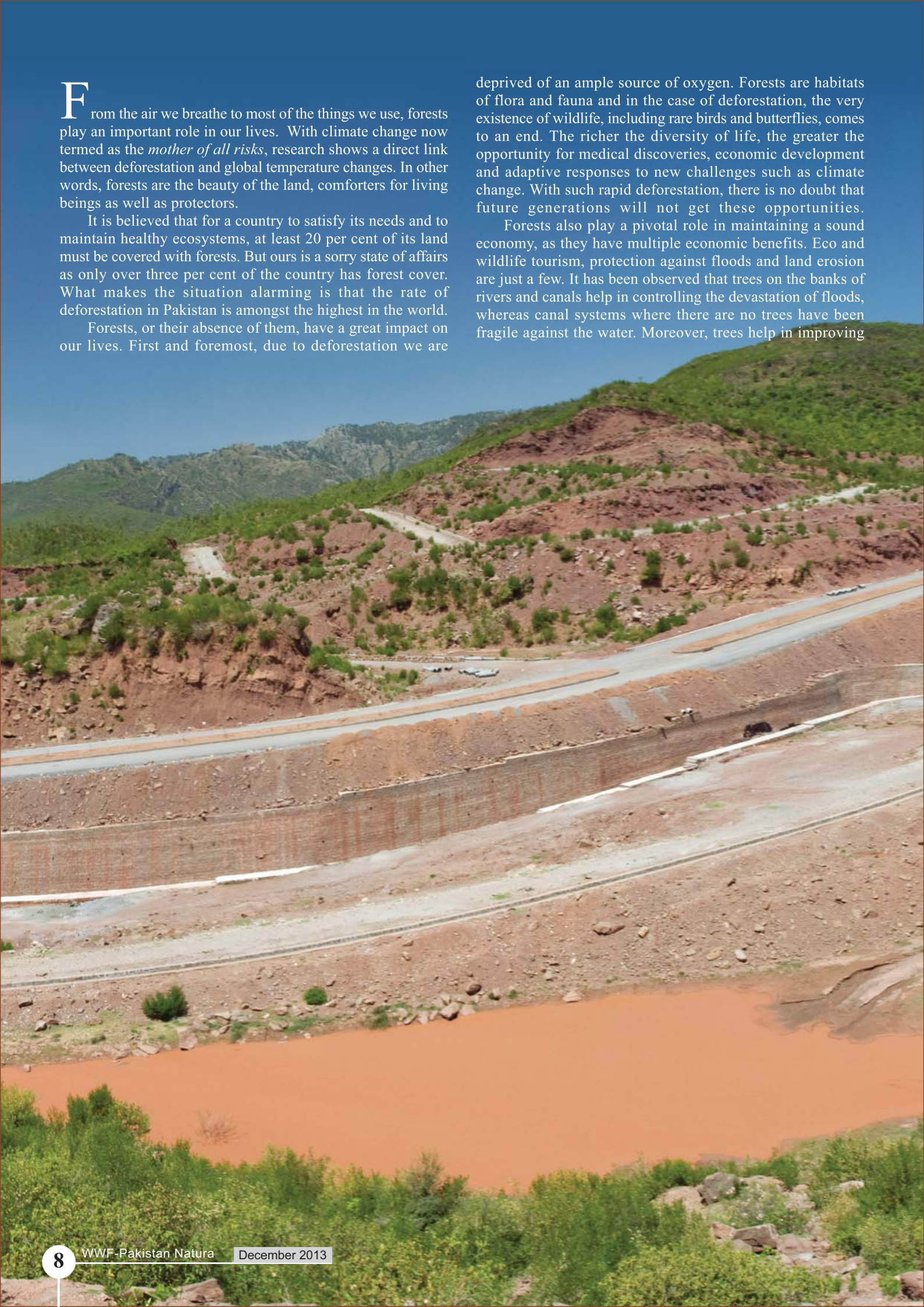
All Photos: Ghulam Rasool / WWF–Pakistan

From the air we breathe to most of the things we use, forests play an important role in our lives. With climate change now termed as the *mother of all risks*, research shows a direct link between deforestation and global temperature changes. In other words, forests are the beauty of the land, comforters for living beings as well as protectors.

It is believed that for a country to satisfy its needs and to maintain healthy ecosystems, at least 20 per cent of its land must be covered with forests. But ours is a sorry state of affairs as only over three per cent of the country has forest cover. What makes the situation alarming is that the rate of deforestation in Pakistan is amongst the highest in the world.

Forests, or their absence of them, have a great impact on our lives. First and foremost, due to deforestation we are deprived of an ample source of oxygen. Forests are habitats of flora and fauna and in the case of deforestation, the very existence of wildlife, including rare birds and butterflies, comes to an end. The richer the diversity of life, the greater the opportunity for medical discoveries, economic development and adaptive responses to new challenges such as climate change. With such rapid deforestation, there is no doubt that future generations will not get these opportunities.

Forests also play a pivotal role in maintaining a sound economy, as they have multiple economic benefits. Eco and wildlife tourism, protection against floods and land erosion are just a few. It has been observed that trees on the banks of rivers and canals help in controlling the devastation of floods, whereas canal systems where there are no trees have been fragile against the water. Moreover, trees help in improving



the productivity of lands as there are numerous kinds of trees which provide support against water logging.

Pakistan has the highest deforestation rate in Asia (*Dawn*, 25 June 2010). According to the news report, which is based on a report by WWF-Pakistan, 2.1 per cent of the forest land in Pakistan becomes deprived of forests every year. If the rate of deforestation continues, there is fear of losing almost all forests by 2030. Interestingly, if the speed of deforestation is not checked, Pakistan will not be able to achieve its international commitments of increasing forests from 2.5 per cent of its land to six per cent. According to the report, 61,107 hectares of land have been converted into non-forest use, with loss of indigenous forests like mangroves.

A province-wise breakdown of forest land converted to other uses shows that Punjab tops the list with conversion of 40,352 hectares, followed by Sindh with 11,280 hectares, Balochistan with 5,541 hectares, Khyber Pakhtunkhwa (KP) with 3,922 hectares, and Azad Jammu and Kashmir with only 233 hectares. This way the WWF tally of forest land conversion totals 61,329 hectares.

In Pakistan, deforestation is caused by various factors, population growth and lack of alternatives are main causes. The need for land for housing, food etc. increasing exponentially with increases in population, leading to deforestation. It has been observed that land holding per capita today is less than what it used to be 20 years ago. This is also major pressure on forest resources which has led to the deprivation of forest lands in Pakistan.

It has also been observed that the forest management in Pakistan is significantly below the mark. Due to corruption in the concerned departments, a timber mafia has flourished and deforestation goes on unabated. District Kohistan of Khyber Pakhtunkhwa and Diamir of Gilgit-Baltistan are the worst hit, thanks to the dishonest orders of the concerned governments which waived the ban on deforestation just for a few days. State owned forests (reserved forests) have been a target of timber mafia, as well.

While humans kill young trees to quench their greed at the cost of future generations, goats prove to be enemies of sapplings. There is a need to check the frequent visitations of cattle before embarking on tree plantation movements. Forests are also destroyed naturally from avalanches and landslides.

There is a need to better manage forests through implemetation of working plans is needed. Private land owners should be encouraged to plant trees, and offered incentives in planting trees on their agricultural lands. Campaigns should also be initiated for the protection of trees on permanent basis.

Effective legislation is necessary to stop people from cutting down trees. We should take examples from countries where the timber mafia has been dealt with an iron hand by sharpening the teeth of existing laws and enacting new laws. Finally, what is most important is that existing laws should be implemented in memorandum and spirit. Only after done, we can hope to achieve the Millennium Development Goals.

Raza Kharal is a journalist and covers environmental issues.

All Photos: Zahoor Salmi / WWF–Pakistan

Return of the Prodigal

Ernest Shams brings us up-to-date on the great Indian bustard's return to the Cholistan desert and shares his observations from a recent survey of the bird's habitat

The great Indian bustard *(Ardeotis nigriceps)* a tall, long legged bird, said to be among the heaviest of the flying birds, is a resident endemic species of the subcontinent. It has been believed that the great Indian bustard, which once ruled the grasslands in the Cholistan desert of Pakistan and some areas in India, does not occur any longer in Cholistan, except in the Desert National Park near Jaisalmir, the largest protected area set aside in India for the bird. This belief has been wiped out clean by the king of the grasslands itself, after appearing repeatedly in the Cholistan and Thar deserts in recent years.

Interestingly, the bird had been making appearances in the desert before making a comeback.

In August 2004, a survey team of Houbara Foundation International Pakistan, a non-government organization dedicated to conserve the houbara bustard's population in Pakistan, stumbled upon a female great Indian bustard starving in isolation in the Chandana area of the Cholistan desert. The bird was unable to fly. It was taken to the Houbara Research and Rehabilitation Centre, to be looked after by scientists, bird-keepers and a veterinarian. After seven months it was released in good health in March 2005. The magnificent bird, unexpected as it was, took off on its spectacular flight.

Later in September 2009, a flock of five great Indian bustards and another group of two to four birds (total 15 birds) made an unexpected appearance at different locations in the southern part of the Cholistan desert. This sort of sighting was rare.

In February 2010, Houbara Foundation invited scientists from the Environment Agency Abu Dhabi (EAD) to survey the Cholistan desert. Their objective was to capture three birds and equip them with satellite transmitters, to track them for further investigations. No single bird could be sighted that year due to drought, but other evidence was recorded and subsequent surveys were considered appropriate. Simultaneously, Dr Pramod Patil, a bird enthusiast in India, fondly crowned it as the king of the grasslands, reported in the Indian Express on 22 February 2010 and described it as the most endangered amongst 23 species of bustards in the world. In September 2010, the species were again seen by the survey team.

In October 2012, another survey was carried out, but, without success. However, the species whose remaining population had been estimated by the IUCN to be around 200 individuals in 2011, did not lose its ground.

In September 2013, the great Indian bustard made its comeback and clearly claimed its habitat in the Cholistan desert. A combined survey team of Houbara Foundation, WWF-Pakistan and Punjab Wildlife and Parks Department carried

out a week-long survey in the desert. The objectives of the extensive survey were to determine the present distribution and status of the great Indian bustard; to identify the threats; to examine the conditions of its habitat; and to create awareness among habitat communities, policymakers, researchers and other masses for conservation of the great Indian bustard. A vast area was surveyed including dawn and dusk feeding hours, as well as resting hours of the species during noon.

On the very first day the team came across footprints of the great Indian bustard approximately 3km south of Matwali. These footprints led to Toba Chakarwala where the bird was found nestled inside the tall grasses. The survey team's movement alerted the bird and it flew out of its hideout, presenting an amazing view. One team-member stated that he had seen a great Indian bustard in nearby Matwali, two days age as well.

Two hours later, the team came across another bird some 16km away from the first sighting, in a plain ground overlooked by a border post of the Cholistan Rangers in Lohetta area. The survey team visited border posts of the Cholistan Rangers, and some hamlets in the habitat. Personnel of the posts and communities in the hamlets were interviewed. The Rangers at one post reported having seen four great Indian bustards a month before our visit, whereas no fruitful report was obtained from the local communities.

During the survey, a secondary feather of the bird in Dhinghanewala and a primary feather near Laitanwala Toba were also found, presenting key evidence of the presence of

the species. At Toba Chakarwala, the team spotted a pair of the great Indian bustard almost where we had spotted a single great Indian bustard earlier. The pair that we saw entertained us for almost two hours, moving in the tall grass; ascending up a sand dune; flying into the sky and performing a typical air-show. All of us watched the spectacular display squatting, kneeling or standing on the burning slopes of another sand dune.

Much after the survey, our contact in the Cholistan desert reported having seen four other great Indian bustards fly out of the grasses a short distance from Matwali.

The current key threats to the great Indian bustard are hunting and habitat loss due to livestock grazing, absence of a protected area where birds are found, and instances of nest-trampling by grazing animals. Under these conditions the survey team was extremely fortunate to have physically sighted the great Indian bustard, besides collecting evidence such as footprints and feathers. Occurrence of the bird is also reported in the Thar desert. Its appearance is an indicator that the lush green grasses in Cholistan and Thar deserts have the potential to sustain this endangered species. Results of the survey raise strong hopes for its conservation through proper monitoring.

Urgent acceleration in targeted conservation actions are now required to prevent the species from becoming functionally extinct within a few decades. A mechanism, like a breeding programme, also needs to be devised to repopulate the extinction-prone species within their habitats. Otherwise, it will become a thing of the past, with no more bustards to grace the landscape.

Ernest Shams is working as conservationist in Houbara Foundation International Pakistan.

All Photos: Sana Ahmed / WWF–Pakistan

The Forgotten Role of the Media in Creating Environmental Awareness

Syed Abubakar highlights the media's role in conserving the environment

In the late '90s, the magic bullet theory was widely believed to be true. The theory hypothesized that any message that the media sends enters a passive audience's mind like a bullet, subconsciously changing attitudes and behaviours. Although research has shown it not to be true for every individual, the power media holds on society cannot be denied.

Media presents the face of any society and shapes and molds public opinion. Like the rest of the world, priorities of media in Pakistan have changed over the past few years, their agendas and policy focus has shifted, but unfortunately, environmental issues are still not getting the deserved attention.

Pakistan experiences four seasons. Monsoon rainfall in summers and mild temperature in winters are favorable for agriculture, which contributes a large percentage to the country's Gross Domestic Product (GDP). Unfortunately over the past few years, Pakistan has experienced numerous natural calamities and increased incidents of floods and cyclones as temperatures rise. Research shows that human activities such as deforestation, pollution of water bodies, and hunting of endangered wildlife have disrupted the Earth's natural systems. It is no surprise that the German Watch Institute has ranked Pakistan among the top ten countries adversely affected by climate change. Every year Pakistan bears a loss of millions of dollars due to natural disasters, but the real cost is overlooked.

In the case of Pakistan, natural disasters that are experienced with increasing frequency are not seen in the context of climate change as the masses are not sensitized regarding these issues. The media has its own priorities, and political and defense issues get more coverage while environmental problems get played down. As a result, illegal hunting of endangered species continues and timber cartels carry on cutting already reduced forest resources.

Today's media groups need to realize the power and role they can play in bringing about positive change. Through various mediums such as print and electronic news reporting, journalists and media groups can effectively create awareness among people on environmental challenges. They can educate the population about the ecological importance of conserving nature as well as highlight ways in which the balance of the environment can be restored. When the public begins to link climate change with the occurrence of natural disaster through a cause and affect approach, only then will we be able to combat our environmental problems as a unified society. The environment should not be ignored and should be given due importance to ensure good and responsible coverage. Reporters should consider the environment beat as an opportunity to educate the public so that climate change and other related issues can be faced with confidence.

A decrease coverage of environmental issues is also due to the knoweldge gap in journalists, which can be filled by taking initiatives to eduacte them. Recognizing this gap, WWF-Pakistan recently organized a capacity building workshop on climate change to sensitize journalists. The workshop which was conducted by WWF-Pakistan experts and other stakeholders' departments like Meteorological Department presented the climate change issue. After the workshop, an exposure visit to areas affected by climate change helped journalists observe the situation. Participants agreed that Pakistan is badly affected due to climate change and appropriate steps should be taken to mitigate it. The workshop and exposure

visit highlighted the role of WWF-Pakistan in mitigating the impacts of climate change and stressed the need for effective law making to ensure the impacts of climate change could be reduced to the minimum. Journalists who attended the workshop got sensitized regarding the role of climate change and ensured that they will highlight the climate change issue at the national level and take measures to create awareness among the public.

The government can also play an active role in mobilizing the media and all CEOs of media groups should be briefed about the importance of the environment in our daily lives. They should be informed about the loss this country faces and ways the media can create awareness among the public, and play their part in boosting up conservation activities in Pakistan. Through its media organizations such as PTV and Radio Pakistan the government should inform the public about the impacts of climate change and the benefits of protecting the environment. Pakistan Electronic Media Regulatory Authority (PEMRA) should effectively regulate the media by issuing directives to portray environmental news in an amicable way. Also, those organizations that show a responsible attitude by adopting a progressive policy should be given more government advertisements so that others may follow suit. Journalists working on the environment beat effectively should be awarded so that others are motivated to accurately report on environmental issues and news relating it.

Change is inevitable and it is better that we start tackling problems seriously. Every citizen of this country should start with a change from within and aim to increase their knowledge and therefore actions related to the environment. Media policies also need to be reviewed with environmental conservation becoming a priority for everyone. Only when the public becomes sensitized regarding these issues, steps can be taken to protect the environment. It is hoped that with more perception, journalists and media groups will finally begin to play their part in protecting our ecosystems.

Syed Abubakar works as Press and Media Relations Officer at WWF-Pakistan.

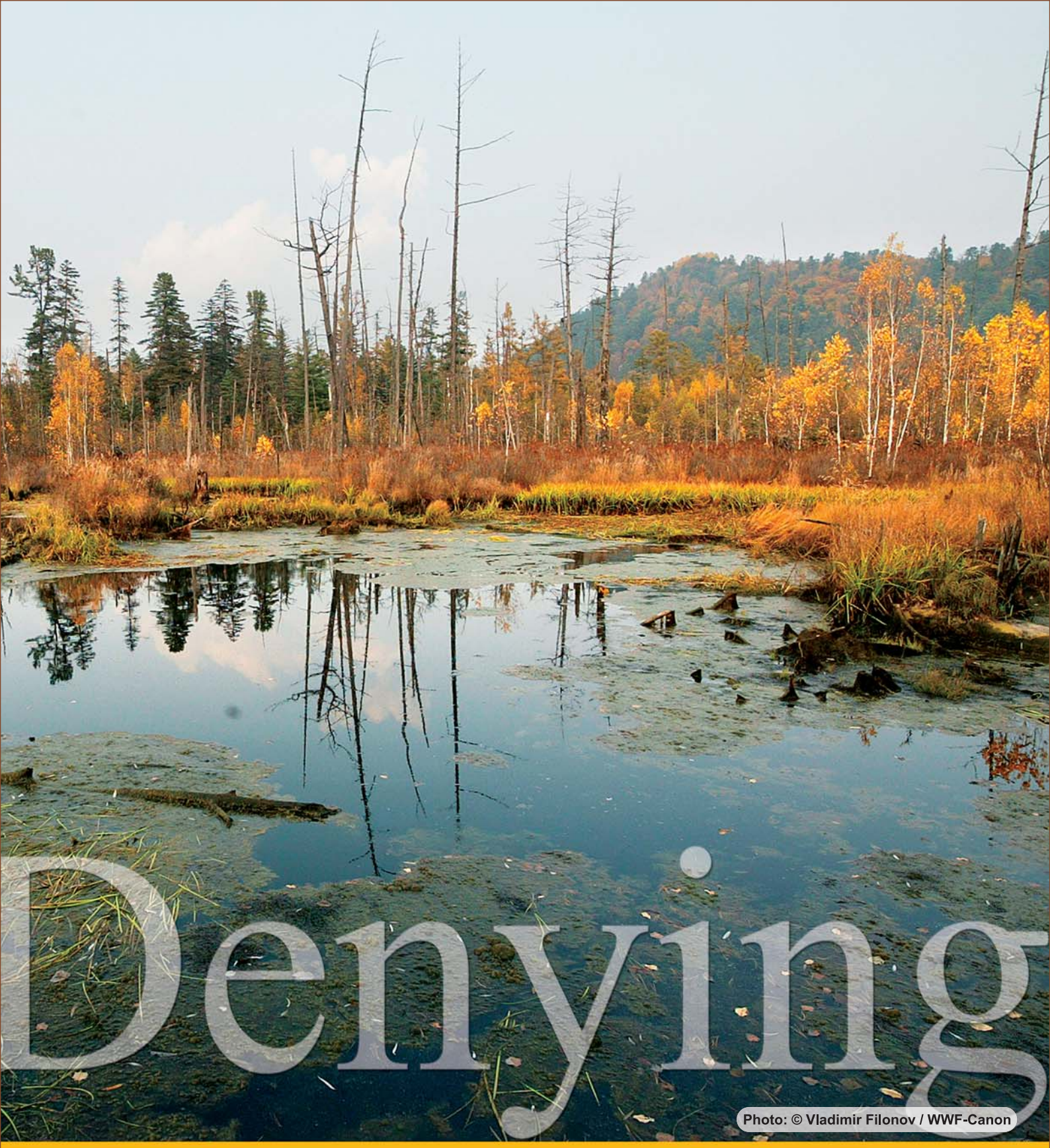


Photo: © Vladimir Filonov / WWF-Canon

Denying the future

Zabreen Hasan analyses the role of language in environmental awareness

It's always ever so easy to hide your head in the sand. Or under a pillow, and pretend that the problem doesn't exist. Or that it does exist, but pretending it doesn't will make it go away.

But in all the centuries of human existence, no problem has ever gone away like this. So why do people do it?

Take climate change as a case in point. People are still pretending it doesn't exist or pretending that it is not because of human action so we don't have to do anything about it. This is perhaps the most dangerous form of denial and will have consequences that not even the most far sighted of us can imagine.

I've often wondered why people deny the fact that climate change is happening. Why the naysaying in the face of so much evidence? One reason might be the language scientists use when talking about climate change: 'the Earth *may* heat up by 1.6 degrees' or this or that '*might* lead to the glaciers drying up'.

The annoying thing is that naysayers don't do this. They use strong language. They're sure of what is *not* happening.

Now, environmentalists are sure too. They know what's happening. But they use lukewarm language and if you're a diehard naysayer (or an ostrich, or you don't care about what will happen to the earth when you're dead) that's simply not going to convince you.

I asked an environmentalist once why they use such - unexcited - language.

He replied that scientifically speaking, they have to use careful language because they can't be 100 % sure of the future, and what will lead to what. They have to be politically correct. They may be 99.9% sure, but unless they're 100% sure, which can't happen in science, they have to be, er, unenthusiastic.

Photo: © Global Warming Images / WWF-Canon

Photo: © Hartmut Jungius / WWF-Canon

As a writer / editor working in the environment sector for seven years, this annoyed me no end. I wanted to write 'will!' and I wasn't allowed to. I wanted to scare people, because I found the future scary.

I was told to pare down my language.

In frustration, I wrote on a bit of paper 'THERE IS NO FUTURE!!!' and tacked it up on my office wall.

First they laughed, then I was told to be more positive. They said I needed to tell people that there was still time to change things, so that they would still try.

I guess they were right about this one, but how on the environmentally devastated Earth do you scare people when you have to tell them there's still time to change things? Once they know, they become complacent. They say, 'Oh, yeah, I'll start tomorrow.' In vain anyone may pompously quote the saying *'Nobody ever made a greater mistake than he who did nothing, because he could do so little* (Edmund Burke):' they say there are plenty of people working for the Earth, and the earth doesn't need any more.

Oh, the folly of it!

I want to tell people, the Earth is dying. Its last gasp is here. The fact that there are still some pristine places on it means nothing. There's very little time left. Get ready to send your children to live in a moon colony if you're rich.

If you're poor, prepare your children for the worst.

Of course, a last ditch effort *may* (hah!) change things a bit, but not in our lifetimes. Not even in our children's lifetimes.

But it's essential if *anyone* is to live on this planet, *anytime* in the future!

You see, naysayers don't have our problem. They're

basically nasty people (I wonder if this will get through the editorial process) who have no goal of their own and, to feel important, lash out at environmentalists and scream out that there's nothing to worry about and these people are all just worrywarts. When environmentalists say 'it *may* happen' the naysayers say 'it WON'T!' and thump their chests, which brings them a lot of publicity and they're happy. And the work of environmentalists is completely negated and the Earth is in a little more danger than it was.

And then, if you manage to attend a debate (or a fight) between an environmentalist and a naysayer, watch their body language. The environmentalist will be holding himself apologetically, even if he won't admit to it later. It's not his fault. He's doing it unconsciously, because this is normal when you're trying to convince someone.

The naysayer has no such problem. His first instinct is to laugh at the environmentalist. So he struts. For him, nothing is at stake. He is enjoying himself. He has no new evidence to present. His job is simply to repudiate everything the environmentalist says.

Show me a bit of proof, naysayer, and I'll think better of you. But you can't show me proof, because there isn't any.

As a naysayer, you are irresponsible. It is because of you that the Earth is dying. It is not because of the people who depleted natural resources without knowing the consequences, it is because of people like you who do know and refuse to do anything about it, and try your best to stop other people from doing anything about it.

If I sound frustrated, it's because I am.

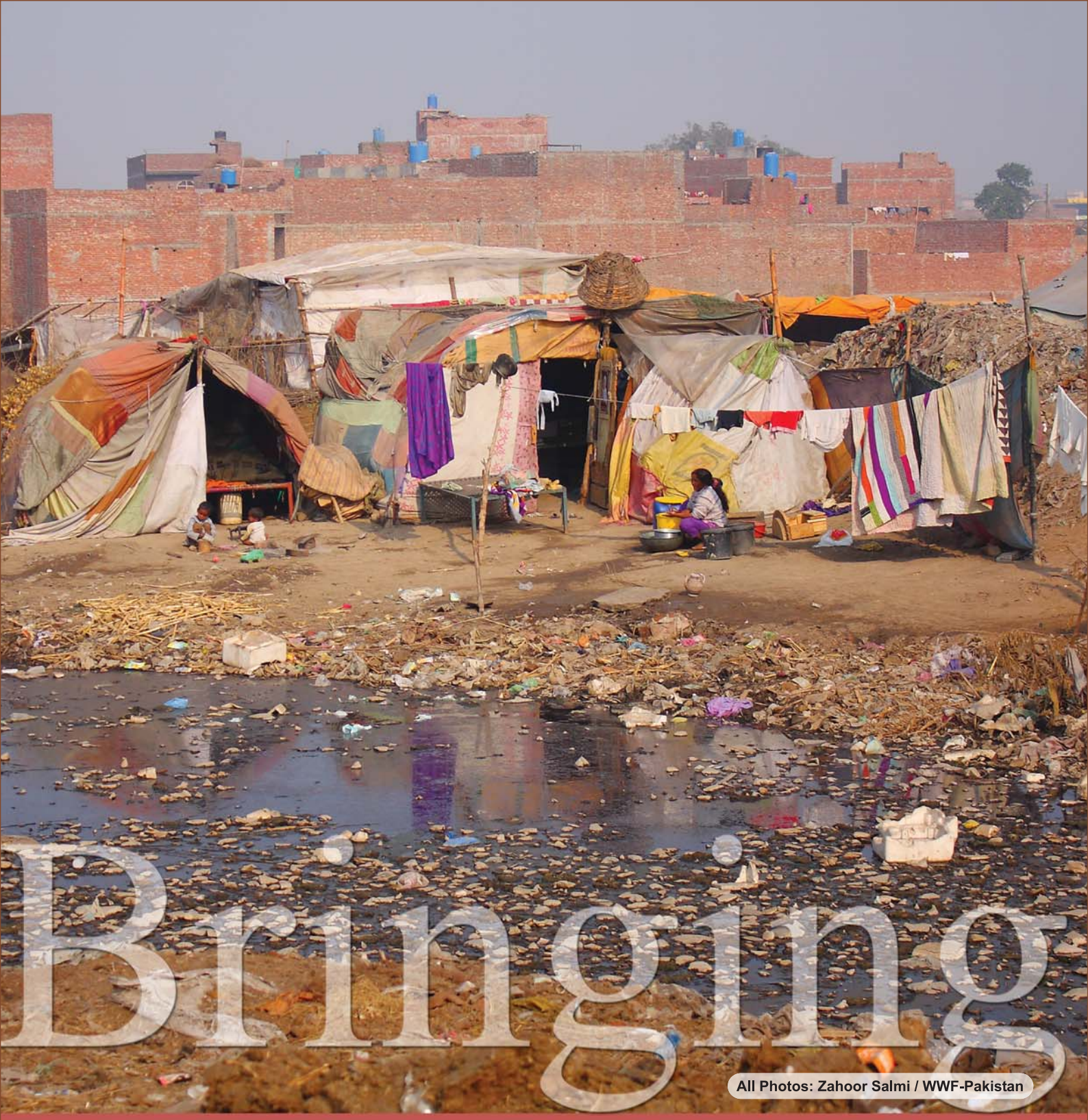
I am so very tired. I'm not tired of working to save the Earth, I'm tired of fighting the naysayers who counteract my work.

But I will still fight for the Earth. I will fight to my dying breath to save the Earth from people who don't care about it.

And from now on, I will use strong language. (Wink, wink.)

Zabreen Hasan is Assistant Manager Communications at the Lahore University of Management Sciences.

Photo: © Brent Stirton / Getty Images



All Photos: Zahoor Salmi / WWF-Pakistan

Bringing change through colours

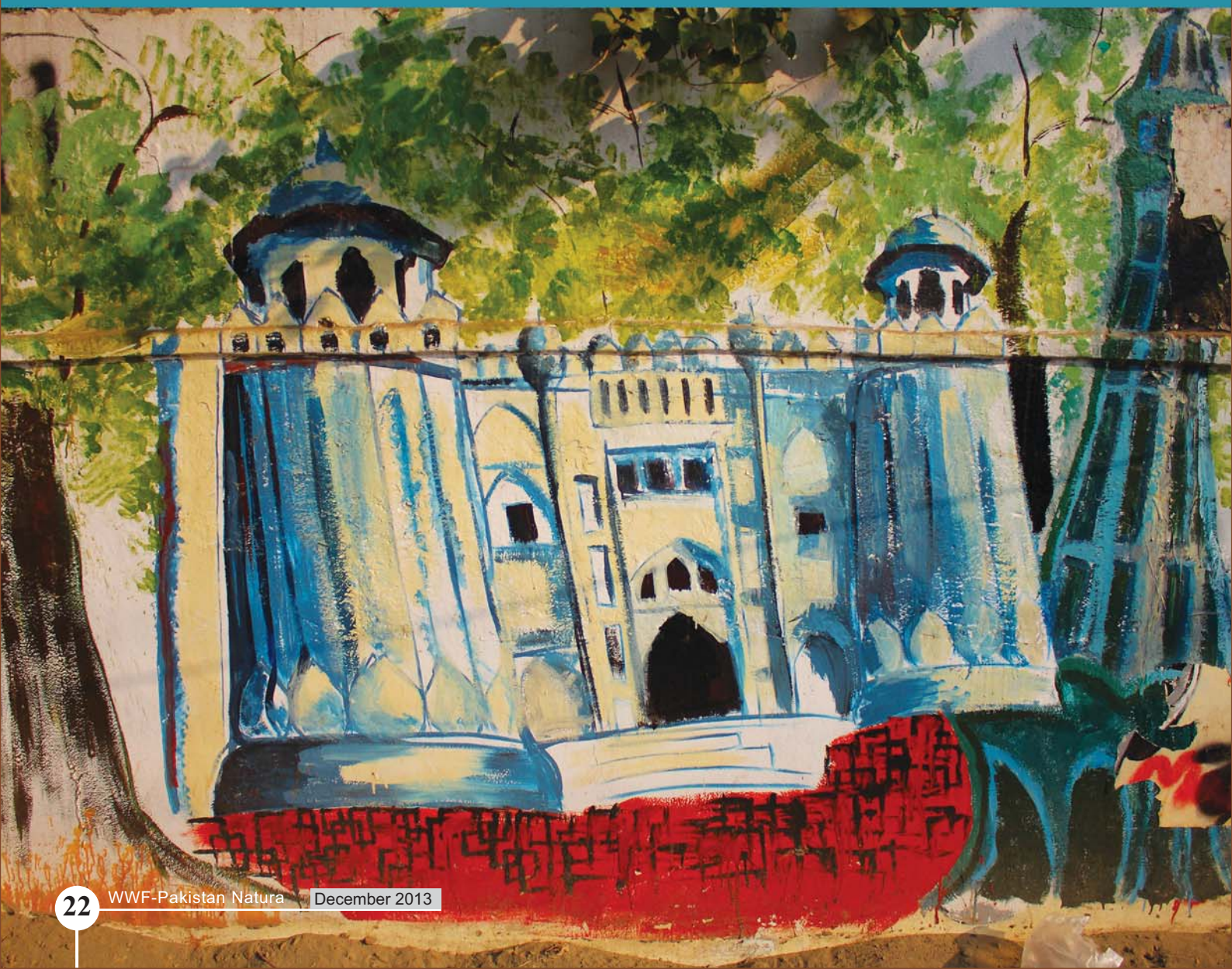
Ayoub Hameedi proposes a unique way of redeeming Lahore's elegance

Lahore – the city of gardens is the cultural hub of Pakistan and is amongst the oldest cities in the subcontinent. The city and its people are famous for their hospitality, excellent taste of food, historical architecture, magnificent gardens, literature and aesthetic sense. However, exponential growth in population and internal migration within Pakistan are collectively putting huge pressures on the city and pushing it to its limits. As the city itself is stressing out so do its inhabitants, giving birth to numerous psychological problems while load shedding catalyses and multiplies these affects over time. All these factors collectively highlight that *Lahoris* should be provided with something that gives them hope and also makes the city look beautiful. So the question arises - what can be done to solve this problem. The answer lies in art.

The story begins with a city called Tirana, capital of Albania, a country, which remained under Soviet control for almost 50 years. In the post-Soviet era, the country was suffering from numerous socio-economic problems of high importance. In 2000, an artist, Edi Rama became the Mayor of Tirana, and had a vision to bring change in people through colour. After taking charge, he decided to increase the aesthetic value of the city by improving the outlook of its architecture. In order to do so, he took two concrete steps. First, he demolished all illegally constructed buildings on public spheres and removed massive concrete waste from river banks. Secondly, he painted city buildings in various bright colours and geometric shapes to make them look unique in appearance. The colours across the city instilled a ray of hope in people as they started loving the city and its infrastructure. A clear indicator of which was the decrease in litter dropped in the streets of Tirana. There was also a significant increase on the amount of taxes paid by businessmen and the general people in the city. Most importantly, there was a visible reduction in incidents of crime taking place in the streets of the capital city. As a result, people started feeling safe, which eventually improved the overall environment of the city.

So now the question arises whether this idea can be replicated in Lahore, Pakistan. There are numerous fine arts schools and academies in operation in the city. The Lahore city administration can organize 'Paint Lahore' projects and send an open invitation to all fine arts students and freelance artists to paint the walls and buildings of Lahore as per their imagination. At the end of the project, the city administration can award cash prizes to the best artworks made during the competition. The walls in certain segments of Lahore have already been painted through a project initiated by Master Paints. However, the need of hour is to expand the horizon of the project to include the remaining areas of the city as well.

Similarly, the walled segment of Lahore is currently being restored via Sustainable Development of Walled City



Lahore Project, which will give a sustainable boost to the local economy in the long run.

The city administration can also conduct a survey of buildings constructed illegally in public spaces and demolish them within a certain period of time. Once the buildings are demolished completely, the city administration can plant native trees at the acquired places, which will increase the socio-economic and aesthetic value of the area, and will also enhance water availability, stabilize decreasing bird populations, and reduce noise and air pollution. Here I would appreciate the efforts already taken by the city administration for demolishing illegal infrastructure in the city. Likewise, the rapid transport initiative in Lahore is a project worth appreciating as it will reduce overall carbon emissions through private vehicles. Most importantly, art can be used as a medium to encourage people to commute by bicycle instead of private vehicles. For this purpose, the city administration can introduce a bicycle lane on every road. In addition, car-free Sundays can also be made a part of life in Lahore. Similarly, children can be asked to develop message-oriented drawings asking citizens to waste less electricity and water, throw garbage in bins only, promote recycling and reuse, and to obey traffic rules. All these drawings can then be displayed via digital advertisement boards powered by solar panels which could be installed at different squares in Lahore. Last but not least, artist and citizens can encourage the local government, through wall paintings, to generate electricity through solar photovoltaic panels in order to reduce its overall carbon footprint and long term financial expenses.

We cannot ignore the fact that the first thing, which anyone notices about a city is its architecture, also amongst the deciding factors of the number of tourists who will visit a city. Thus, if proper attention is given to improve the green cover of the city and make it more colourful we can significantly increase the number of tourists travelling to Lahore, which will eventually create more jobs and bring in more investment. City residents will primarily seek benefits from this initiative and thus the overall socio-economic situation will likely improve as well.

Ayoub Hameedi works with WWF-Sweden. He writes on sustainable development issues.

Photo: Zahoor Salmi / WWF–Pakistan

Our amazing allies

Farah Rashid highlights why macro-organisms are important for the ecosystem

Humans are surrounded by a vast array of animal species that exist in all the three media; i.e. aquatic, terrestrial and air borne, some of which are even undetectable to the human eye. We usually tend to overlook the existence of this last type, their importance, and the crucial role they play in the environment. You will be amazed to known that these small creatures are actually maintaing the equilibrium of the ecosystem. Many of these insects and microbial species are assisting us in many activities, which we are not familiar with and hence dont appreciate.

In every region of the world, insects are thought of as pests. In fact they provide a wide range of benefits to humanity. Common pollinators include bees, honey bees, hoverflies, butterflies, and moths. Most of our crops are dependent on pollination by these small insects, which often goes unnoticed. Even the production of meat and milk is dependent on pollinated plants that are eaten by domestic animals. Honey bees produce honey (almost 1 million tons produced every year) and beeswax. The silkworm moth secretes silk from its salivary glands, the annual value of which is estimated at about $1.4 billion.

In agriculture, certain insects are used for biological control. This is done by predator, and parasitoid insects, and also microorganisms. Predators directly consume prey which includes mites, scale insects and caterpillars. Parasitoids lay eggs in a host insect which is used as food for insect larvae. The host, which is also the pest, is eventually killed by the feeding larvae. Similarly, microorganisms like bacteria and virus kill pest by causing disease in them.

Among the dominant insects on Earth are colorful butterflies which have always been a matter of fascination for mankind. The presence of butterflies underscores availability of larval food plants in great abundance. They not only help in pollination and plant growth for farmers, but their acute sensitivity to pesticides and toxins is also an indicator of the ecosystem's health.

Another species of organisms which silently maintains nature's balance are microbes, single celled organisms which cannot be seen with an unaided eye. Though they are extremely small, they possess all functions of life. There are several functions performed by bacteria but the most critical one is its essential role in natural recycling of living material. It is worth mentioning here that all naturally formed substances are bio-degradable, which means that they can be broken down by living organisms such as bacteria and fungi. Through this natural process of decomposition, certain elements i.e. carbon, nitrogen and phosphorus are released into the earth which makes it fertile.

Several useful species of microbes are beneficial for

Photo: © Fritz Polking / WWF

Photo: © R. Iostti, A. Cambone - Homo Ambiens / WWF-Canon

livestock too. They develop a symbiotic (mutually beneficial) relationship with cows, sheep, camels, etc and help them digest food. Further, certain bacterial species (*E. coli*) present in the human intestine help us in assimilating food particles, which we otherwise would not able to digest.

Most of us do not know that Cyanobacteria and blue green algae are autotrophic single-celled plants that inhabit oceans, lakes and ponds. They make their own food and in turn release oxygen, vital for human survival. Let us just suppose for a minute that if there were no microbes on Earth, there would be no plants, no food available and consequently no life exist on this planet. In fact, without these invisible companions, our planet wouldn't survive at all! Rhizobacteria are microbes responsible for converting nitrogen present in the air into ammonia, which is essential for plant growth and provides access to plant roots to absorb nutrients from the soil.

Science and technology have advanced greatly and microbes play an important role in many technological fields, mainly in mining, medicine, food, culture, plastics synthesis and sewage control, etc. The features of microbes, especially of decomposition are being utilized in processes like bioremediation, composting, biogas plants, etc. Keeping in mind the rapid increase in the human population and the consequent burden on natural resources, scientists are devising time-saving production methods that can actually meet these growing human needs. Simultaneously, this massive consumption is giving way to unprecedented waste generation. Ultimately this waste has to be disposed off after exhausting all possibilities of reuse and recycling.

Composting and biogas plants are waste management techniques that utilize bacterial species for organic fraction of waste to decompose it into simpler compounds for further processing. In these processes, microbes are provided with ideal environmental conditions to live and accelerate their growth for desired end products. Similarly, mismanagement of resources such as oil spills wreck havoc on the natural environment, and huge numbers of animal and plant lives are put on stake. To overcome this crisis, bio-remediation has started exploiting bacteria to clean such spills. Microbes are also used in the extraction of specific metals from their ores, which is amazing. Other progressively researched fields are biotechnology and genetic engineering which have taken over the world by storm.

It's so fascinating to see these small creatures have such a large hidden effect on our lives. It is indeed true that small things can have a profound impact. Therefore, it's not wrong to say that these small creatures have revolutionized our lives and will continue to do so for centuries to come.

Farah Rashid works for WWF-Pakistan.

Photo: © Martin Harvey / WWF-Canon

CITES: Working together to protect endangered species

Katharine York gives us an insight to the sixteenth meeting of CITES

In March 2013, I attended the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) 16th Meeting of the Parties, held in Bangkok, Thailand. Being a professor of Biology in the United States, I went in hopes of finding contacts with whom I could share interests. I had never seen such a huge political governing body in operation, and it turned out to be an eye-opening experience.

The Convention on International Trade in Endangered Species (CITES) was established in 1973 as a resolution between 80 countries in Washington, D.C. It is an international agreement that countries (known as Parties) abide by voluntarily. The purpose is to ensure that trade in endangered species is regulated, so that their survival is not at stake. Today, 179 countries participate, and the regulations extend to protect more than 35,000 species of animals and plants.

Species fall into one of three categories in CITES: Appendix I, II, and III. Appendix I includes species threatened with extinction. Trade in specimens of these species is permitted only in exceptional circumstances. Appendix II includes species not necessarily threatened with extinction, but in which trade must be controlled in order to avoid utilization incompatible with their survival. Appendix III contains species that are protected in at least one country, which has asked other CITES Parties for assistance in controlling the trade. Changes to Appendix III follow a distinct procedure from changes to Appendices I and II, as each Party is entitled to make unilateral amendments to it. Most of the activity at the Meeting of the Parties concerns delegates from countries who lobby to move a species into or out of Appendix I or II.

Many proposals were heard at the meeting in Bangkok, including a polar bear resolution led by the US and Russia, asking for protection of the species under Appendix I (polar bears are currently Appendix II). I attended several side events and discussions sponsored by countries who supported this vote. The US delegation leader told the 178-nation meeting in Bangkok:'Science paints a stark future for the polar bear. An export ban will give the polar bear a better chance to persist in the world until we can deal with climate change.' However, Canada argued that polar bears are hunted sustainably and represent significant income for the native Inuit people. The result was that 38 countries voted in favour of the US proposal, with 42 against, and 46 abstaining. Some countries did not attend the vote. About 600 polar bears are killed each year in Canada, some in traditional hunts by Inuit people and some as trophies by foreign hunters. (*www.theguardian.com*)

Another vote was to include endangered shark species in Appendix II. Sharks and rays had not previously been listed in any Appendix. This was a highly publicized vote, since

Photo: © Cat Holloway / WWF-Canon

shark fin soup is popular in Thailand and other countries in Southeast Asia. Daniel Mittler of Greenpeace wrote, 'millions of sharks are caught as part of global tuna fishery operations every year. Their bodies are thrown overboard, but only after the fins are hacked off to end up in shark-fin soup. As a result, it is almost too late for some shark species, such as the oceanic white tips, that have experienced dramatic stock declines' (*www.greenpeace.org*). In 2010, the CITES Meeting of the Parties had the opportunity, but declined to include sharks and rays in Appendix II. The vote at this meeting was highly anticipated, with many organizations; including Humane Society International, Project AWARE, Shark Advocates International, Shark Trust, and Wildlife Conservation Society; there in support. Following the historic vote the CITES Coalition for Sharks reported, 'the oceanic whitetip shark, porbeagle, three species of hammerheads, and both manta rays – all classified as threatened on the IUCN Red List — will now be added to CITES Appendix II, which prompts permits to ensure exports are sustainable and legal'. (www.cites4sharks.org)

I also witnessed many debates about the ivory trade. Sadly, elephants continue to be hunted in large numbers for their tusks, and the survival of the species is at risk. Regulations of ivory trade need to be implemented immediately, and many countries were discussing this issue at the meeting. One highlight of the meeting occurred when Yingluck Shinawatra, Thailand's Prime Minister, promised to end her nation's trade in ivory, delighting conservationists who have long urged the kingdom to tackle the rampant smuggling of tusks through its territory. This resolution was important, but ultimately was a promise to end only domestic trade in ivory. Thailand is one of the largest hubs for international smuggling of ivory products, so more protection is still needed. At the CITES meeting, China, Kenya, Malaysia, the Philippines, Thailand, Uganda, the United Republic of Tanzania and Viet Nam submitted plans for ivory control with time frames and milestones that had been set by the Standing Committee. These eight countries were asked to take urgent measures to put their plans into practice before July 2014, when the CITES Standing Committee will review their implementation. Each plan specifies activities in the areas of legislation and regulations, national and international enforcement, outreach and public awareness. Other countries that were identified and asked to submit National Ivory Action Plans include Cameroon, the Congo, the Democratic Republic of the Congo, Egypt, Ethiopia, Gabon, Mozambique and Nigeria (*www.cites.org*).

Elephants are one of the most charismatic species on Earth, and most people would agree that protecting them is important to preserve the species. Yet, many people are not aware of the massive toll that illegal trade in ivory is taking on these beautiful animals. Thailand's national symbol is the elephant, and they are considered sacred. There are elephants everywhere in print, on signs, in jewelry, on buildings, on clothing, and in advertisements all over the country. But Thailand is also one of the gateways through which illegal ivory is funneled every year.

After all the votes and discussions I observed at the CITES

Photo: © Martin Harvey / WWF-Canon

Photo: © Gerald S. Cubitt / WWF-Canon

meeting, I was left with some conflicting feelings. On the one hand, CITES regulations have succeeded in protecting thousands of species around the world from extinction. This governing body does important work, and has been for decades a true guardian against species decline. But CITES is only one part of the solution. It seemed to me that the wheels of politics turn slowly, and that despite the advances in some areas, there is still more work to be done. The high level regulations CITES puts in place are crucial, but I would also say that by itself, CITES cannot do enough. What every country needs are people who are locally organized to protect endangered species. During my stay in Bangkok, I was privileged to attend a special meeting of some of these people, outside the city.

Khao Yai National Park in Thailand is a beautiful World Heritage site, and it was host in March 2013 to a regional training event, part of the Asia's Regional Response to Endangered Species Trafficking (ARREST) programme. I met some of the wildlife rangers there who protect the area every day, and watched them go through a training session. These brave men and women risk their lives to make sure that species in their areas are safe from poachers. They were focused, and intent upon learning new methods to combat poachers in their regions. The threat is daily, and the poachers, increasingly part of organized crime networks, are armed and dangerous. Yet, the rangers take on this task willingly, and they are the only ones who see the destruction first-hand. Illegal trade in wildlife has been on the rise in places like Thailand, due in part to the ease of trading on the internet. CITES regulations are good to have, but on the ground, it is the work of the rangers to enforce them. Many organizations, including WWF, recognize the importance of these rangers around the world. Their work is difficult to imagine, and impossible to forget. I was honoured to meet the rangers at Khao Yai, and to spend a day with them. I am grateful that they are out there on the front lines protecting species, in places that so many people never see. Without them, CITES regulations would be insufficient.

Katharine York is Assistant Professor of Biology at Southern New Hampshire University, US.

Majestic markhor

Fatimah Mahmood talks about the markhor and efforts to protect it in Pakistan

Three out of five people in Pakistan are unaware that the markhor is indeed their national animal. This is not only surprising but undeniably a reprehensible situation. It clearly unearths the dearth in preservation activities of our national heritages; whether living or non-living. Markhors are unique to the elevated mountain ranges of South and Central Asia (600-3600 m above sea level); grazing the open forested areas and shrub land. The status and population count of the markhor is a poorly referenced figure, having said that the markhor has been listed in the IUCN endangered list estimating a mere 2,500 mature individuals worldwide (2008); although a positive change has been predicted in their status in the future. Pakistan is home to two sub-species of markhors that include the Astor markhor (flare-horned) and the Suleiman markhor (straight-horned).The largest population of flare-horned markhors in the world is protected in the Chitral Gol National Park of Pakistan.

Markhors are the majestic ancestors to the wild goat; the literal meaning of markhor in the local dialect is (Mar) snake (Khor) eating. This is an astonishing name since they are herbivores; nevertheless they have been known to kill snakes. Generally, they have a head-body length of 140 to 180 cm and their weight varies from 80 to 110 kg in males, whereas the females weigh around 32 to 50 kg. Both have a distinct pungent smell and cork-screw like horns; however males have more elaborate and larger head structures. Additionally, in males there is development of long shaggy hair on the front of the body that continuously grows down the cheeks, forming the beard. Compared to this, the females may only develop a small beard.

Like many other goat species, the markhor is a skillful, agile climber, and is most often found perching on steep rock faces. This keeps them away from the threat of predators, such as snow leopards, wolves and lynxes. It is also a diurnal species and so is typically most active during the morning and late afternoon periods. The markhor moves around on a multitude of elevations, given their summer and winter ranges. Within the greater part of the annual cycle the males prefer to live

All illustrations by Nazneen Fatima

solitarily, while the females and young live in small herds of nine to ten individuals. However, during the rut, which begins around September, the males join the herds, and compete amongst each other for the right to win over and mate with the mature females. These fights can be habitually aggressive, with the combatants locking their lofty horns with overwhelming power.

The major threats markhors face frequently stem out of the human intervention in their natural habitats. Whether it is the extension of cultivated regions or the consistent fuelwood consumption, it subsequently leads to tree felling and grass cutting in the wildlife's core areas. Consequently, the markhor habitat is not only being fragmented but in some cases has completely deteriorated. To further add to the damage as the boundaries of the anthrosphere and the wildlife sphere blur, the competition between the domestic livestock and wild goats including markhors increases. This may include competing for food, shelter and other resources of well-being. To add to the list, the markhor is world renowned and is coveted in the books of avid hunters; hence come factors of illegal poaching and exporting of markhors from Pakistan. Although, this is a major threat to the already endangered species, this can also be taken as a blessing in disguise if tackled the correct way.

In this respect, in 1981 the federal cabinet decided to ban all killing, hunting, capturing and export of wild mammals (and their parts, products and derivatives) for three years. Official licenses had to be obtained for hunting of all wild *Capra*. A similar ban was imposed later on in 1992 by the then prime minister. Therefore, there has been a string of federal laws that protect wild animals such as the markhor, from illegal

hunting. However, this is far from the ground reality. Despite the laws being intact enforcement becomes complicated as the remoteness of many areas that are occupied by the markhors is difficult to control. Especially as the political situation of these remote areas is often uncertain, and policies of the central government are time and again administered by local political structures; that may have selfish and conflicting aims. To add to the predicament there is a little understanding of conservation measures by locals, and the status of the markhor as an endangered species is not fully recognized as a critical issue to the local citizens. They are more concerned with the economic constraints faced rather than protecting a local animal.

To overcome the aforementioned issues, one of the initiatives taken by WWF-Pakistan along with other environmental NGOs was a "community based conservation development programme". It was designed to protect the straight horned markhors in the tribal range of the Suleiman Mountains in Balochistan. It encouraged the local people by helping to develop new and improved sources of income, under the condition that they will not kill a markhor or cut any living tree. This project proposed to protect both the markhors and their habitat.

Another more successful story of the markhor conservation programme began with the Trophy Hunting Programme, which was initiated in 1998. The concept of trophy hunting revolves around assigning special permits for hunting of the animals (markhor in this case). The hunters therefore have to participate in the auctioning of permits each year, in order to be allowed to hunt these prized animals in the assigned areas. The markhor is the most costly trophy animal in the world with permits or trophy prices up to $95,000; which is quite a hefty amount for a single hunting round. Furthermore, the government has made sure that permits are only allocated for areas in which there are community based trophy hunting programmes (as of 2000, 80 per cent of hunters' fees were mandated to go to the community). Therefore, the socio-economic benefits can be fully targeted to the well-being of local communities where markhors are found. According to official records, approximately $830,000 has been distributed to communities within Khyber Pakhtunkhwa since 1998 from hunter remittances.

The success behind this hunting programme is that it encourages local communities to fully participate in the conservation activities of markhors. The animal has become a source of livelihood, and through economic incentive it becomes easier to encourage local participation. This not only allows a record of the number of markhors present in the localities to be maintained, but also automatically protects the species as people consider these animals unique. In light of

these advancements the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) has further increased the quota of total animals for trophy hunting from 6 to 12 individual markhors in 2002.

As with most programmes, this too has its drawbacks. The distribution of revenue collected from the permit sales has many a times led to inter-community, as well as provincial-federal disputes over receipts and permits; the community's holistic welfare suffering at the hands of corruption. Despite the obstacles faced by the programme; according to the International Union for Conservation of Nature (IUCN) the markhor population in Pakistan has increased, with reference to surveys conducted last year which suggest that the population in all of Gilgit-Baltistan may be as high as 1,500 animals, compared to previous records estimating less than 1,000 markhors in the area.

Examining the overall efforts of conserving markhors, there has undoubtedly been a noteworthy achievement. Nonetheless, it is the need of the hour to ensure that illegal destructive activities are restrained to the fullest and personal interests are subdued in favor of national interest. Until the population of markhors is completely restored and it lives up to its reputation as Pakistan's national animal, its conservation remains an uphill task.

Fatimah Mahmood is currently a student of environmental sciences and an aspiring writer.

Letters to the editor

Dear Editor,

I am pleased to see that WWF-Pakistan is working to improve environment in Pakistan. *Natura* is also a part of it.

I work in the Agriculture Department and read your magazine regularly. The articles are always informative and bring new things to my knowledge. I hope that the magazine becomes more accessible at book stores.

Mohib Moazam

Dear Editor,

Natura is presenting an excellent combination of information and entertainment. This is my first letter and I am a new/fresh reader of *Natura*. This magazine has an amazing magic of gripping the reader's attention at a glance and I really appreciate the efforts of your *Natura* team. Current issues, their remedies and magical illustrations are really commendable. My suggestion to the team, is to maybe take out a wildlife issue. Awareness should be raised by highlighting special measures to be taken in order to protect snow leopord from extinction. Pakistan is one of those 11 countries which have snow leopards. Previously, WWF launched Snow Leopard Research Project, projects like these must be initiated at a mass level in order to protect the endangered species. Overall I appreciate Natura's efforts in raising awareness on conserving wildlife and hope that with such initiatives leopards could be saved.

Syeda Mariam Mustajab

Dear Editor,

WWF-Pakistan's quarterly publication *Natura* Is a very informative magazine. Previously I did not have any knowhow of environmental issues but after going through it I came to realize that environment is a critical issue going on these days. The articles on environment, wildlife and endangered species gave me a feeling towards the environment and I realized that I should play a role in nature conservation. I have stopped my littering habit and even stop my friends from doing so. WWF-Pakistan is rendering a great job by working to save the environment and we hope that with all such efforts this world can become a better place to live.

Nayab Qadeer Butt

Dear Editor,

I'm a regular reader of *Natura* and I really appreciate the way facts are attributed in it. Recently I read few articles regarding climate change and floods in Pakistan. I'm alarmed to see that we have started to witness the after effects of deforestation i.e. extreme temperatures, flash floods and these calamities are occurring every year.

Now I'm quite aware of it and have started to write in different newspapers regarding deforestation and the need to stop it. I believe that a constant effort is required to prevent this from happening and in a matter of time this can be curtailed.

Jafar Hussain

You can send your feedback about *Natura* to pk.commiuncation@wwf.org.pk

WWF-Pakistan

News Feed

WWF-Pakistan sensitized journalists on highlighting climate change issues

Karachi, Lahore; 26 Nov – 28 Nov: WWF-Pakistan organized a four-day media awareness event, including an environmental awareness raising workshop and exposure visit to the Wetland Centre, Karachi; Keti Bunder; and Keenjhar Lake, Thatta district. The workshop and visit were organized to create awareness among journalists regarding climate change issues in Pakistan and urged them to play their role in creating awareness about climate change adaptation amongst the masses.

The workshop, which was organized at the Lahore University of Management Sciences (LUMS) was attended by journalists from print and electronic media. Anwar Rashid, Secretary, Environment Protection Department, highlighted the role of the government in mitigating the impacts of climate change. Rina Saeed Khan, Environment Journalist; Rafay Alam, member Punjab Environment Protection Council; and WWF-Pakistan representatives spoke on different aspects of climate change in Pakistan as well.

The one-day workshop was followed by a media visit to Keti Bundar, Keenjhar Lake and Wetlands Centre, Sandspit. The visit was a collaboration between the Communications Department, WWF-Pakistan and Climate Change Adaptation Project (CCAP), funded by European Commission (EC).

At the end of the four-day event, it was agreed that climate change is a reality affecting the livelihood of coastal communities. Increased awareness is greatly needed to help mitigate climate change impacts which can be achieved with government support. WWF-Pakistan encourages the use of natural resources in a sustainable way to prevent depletion.

WWF-Pakistan's PCP certifcation renewed

WWF-Pakistan has successfully renewed its certification of good practices from the Pakistan Centre from Philanthropy (PCP) for another three years i.e. 24 October 2013 to 24 October 2016 for the third successive time.

According to PCP officials, WWF-Pakistan is among the top certified non-profit organizations in the country and has obtained an overall score of more than 96 per cent. PCP further notified that a constant improvement has been recorded in the case of WWF-Pakistan in all three areas, i.e. internal governance, financial management and programme delivery.

The PCP team visited the Nathiagali project site to conduct organizational field evaluations and also had detailed meetings with the relevant communities and stakeholders.

Through PCP certification WWF-Pakistan can enjoy various tax exemptions allowed by the Federal Board of Revenue. It is also a preliminary requirement of a number of major donors.

Hussain Bux Bhagat passes away

Lahore, Nov 5: WWF-Pakistan has expressed solemnity on the death of Hussain Bux Bhaagat, Conservator Wildlife, Sindh Wildlife Department. He supported WWF-Pakistan on various projects since a number of years.

Hussain Bux Bhaagat joined the Sindh Wildlife Department on August 21, 1986 and remained there till his last breath. He was also a member of the Scientific Committee of WWF-Pakistan and worked with the organization on many projects such as Indus Dolphin Conservation Project, Indus for all Programme, Pakistan Wetlands Programme, Water and Environmental Sanitation Improvement in Coastal Communities in Karachi, Building Capacity on Climate Change Adaptation in Coastal Areas of Pakistan and many other initiatives to provide sustainable livelihoods in coastal areas.

He had a vast experience of protection, conservation and management of wildlife and its habitat including administration. He also had experience of preparation and execution of development projects for the improvement and management of wetland sanctuaries and protected areas in Sindh. Hussain Bux Bhaagat published various papers on the Indus River dolphin and wetlands conversation in Sindh. Due to his extensive service in the field of conservation he received the Conservation Award from Houbara Foundation International in 1999 and 2000. He played a major role in the conservation of the Indus River dolphin, taking steps for its long-term survival, including several population surveys.

Update on the first radio collared common leopard

Ayubia National Park, Oct: WWF-Pakistan has been receiving regular updates on the locations of the first radio collared common leopard in Pakistan. The leopard, which was collared in September 2013, has a home range of about 40 km^2 and is using thick forest to move from one location to another.

WWF-Pakistan's team captured the male common leopard (*Panthera pardus*) in the vicinity of Ayubia National Park. Later, after collecting morphometric details, DNA samples and attaching radio collar, it was released.

The common leopard has been declared an endangered species under the Conservation and Assessment Management Plan (CAMP, 2004) conducted by IUCN in Pakistan. WWF-Pakistan launched a project, Common Leopard Conservation Project, in collaboration with the Wildlife Department, Khyber Pakhtunkhwa, in 2011.

The radio collared common leopard will be tracked by the project team for at least the next two years in order to gather scientific information related to its home range and territorial behaviour to take measures for the long-term conservation of this species in its natural habitat in Pakistan.

Annual Green Office network meeting held

Karachi: WWF-Pakistan conducted its second annual network meeting for Green Office (GO). The theme for this year's event was eco-efficient buildings and alternate energy sources. The network meeting was attended by the current GO network offices as well as potential corporate entities.

The purpose of the meeting was to bring together GO certified companies and give them an insight into making buildings energy efficient, to improve the functionality within the buildings for employees, to unveil smart energy devices and to share the practical implementation and feasibility of alternate energy in offices.

Ali Hassan Habib, Director General, WWF-Pakistan, welcomed the participants, while Nazifa Butt, Senior Programme Officer, Environmental Assessment, WWF-Pakistan introduced the Green Office programme and highlighted its achievements. Naghman Khan, Managing Director, Future Energy; Aqrab Ali Rana, CEO, Pakistan Green Building Council (PGBC); and Roland de Souza, Principal Electrical Engineer from Fahim, Nanji and deSouza (Private) Limited spoke on the occasion about alternate energy solutions for a sustainable world, energy efficient buildings and energy efficient devices respectively. Dr Ejaz Ahmad, Senior Director, WWF-Pakistan, closed the event with recommendations on the way forward.

Unilever received the Gold Award for maximum percentage reducing of its carbon footprint amongst the Green Office network corporates, while Engro Fertilizer and Corporation was honoured with a Silver Award for showing consistent improvement in carbon reduction.

Defense behavior of millipedes

Millipedes have many segments on their bodies. Each segment has a pair of legs on both sides. These are not harmful, rather useful animals as they eat dead leaves from soil and convert them in to plant food again. If they are attacked by their enemies these excrete a chemical with bad smell for their escape. On August 16 2013 I found a millipede crawling on the soil in cool shade. When I picked it up gently it just curled like a wheel. But when I used my forceps to examine it closely it sprayed into my eyes those vapors of bad smell. It was irritating to my eyes. I could not find the use of bad smell sprays by millipedes in such details in books.

I consulted the internet, but I could not find such detail of defense behavior. I thought it might interest Natura readers.

Photo: © Jurgen Freund / WWF-Canon

Photo: © David Lawson / WWF-UK

Millipedes are myriapods which mean they have legs on most parts of their bodies. They feed on rotting organic matter and sometimes on tender green leaves. They like to live in high moisture environment, and are thought to be the first water animal that learned to live on land.

Like other animals, millipedes have been mechanism to save themselves against their enemies. One common behaviour is curling up in which they form a coil, protecting their delicate legs on the inside. Some species of millipede release chemicals through small pores on the side of their bodies. These sprays are harmful chemical, including acids, which may because burning of skin and eyes of the enemy. These chemicals are especially harmful to eyes and leave a lingering odor on hands.

It is best to not hold millipedes and if you do carefully wash your hands afterwards.

Interesting Fact: Monkeys and lemurs are known to irritate millipedes so that they are sprayed over by their special chemicals. These chemicals act as mosquito repellent for monkeys and lemurs.

(This letter sent received by Taha Wasiq, a class four student in Beaconhouse School, Lahore)

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Our Mission

WWF aims to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by:

- conserving the world's biological diversity
- ensuring that the use of renewable natural resources is sustainable
- promoting the reduction of pollution and wasteful consumption

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WWF Offices in Pakistan

Head Office
P.O. Box 5180
Ferozepur Road, Lahore.
UAN: 042 111 993 725
Tel: 042 3586 2359-60
Fax: 042 3586 2358
E-mail: info@wwf.org.pk

REGIONAL OFFICES

Karachi Office
Bungalow # 46 / K
P.E.C.H.S., Block 6
Shahrah-e-Faisal
Karachi.
Tel: 021 34328478, 34544791-2 or 34384600-1
Fax: 021 3454 4790
E-mail: karachi@wwf.org.pk
marketing@wwf.org.pk

Islamabad Office
Ground Floor, 3 Constitution Avenue
Pakistan Academy of Science Building
G - 5/2
Islamabad.
Tel: 051 227 0020-3
Fax: 051 227 0029
E-mail: islamabad@wwf.org.pk

Peshawar Office
House # 2-A, Circular Road
University Town, Peshawar.
Tel: 091 584 1593 or 585 2845-6
Fax: 091 584 1594
E-mail: peshawar@wwf.org.pk

Quetta Office
Killi Gishkori, Sabzal Road
Quetta.
Tel: 081 245 2251
Fax: 081 245 2250
E-mail: quetta@wwf.org.pk

Muzaffarabad Office
Opposite Jamia Masjid, Old Chungi Chowk
Near Kashmir Polytechnical Education Centre
Dimail Sydan, Garipan
Ward # 5, Muzaffarabad, AJK.
Tel / Fax / Net: 05822 92 1905
E-mail: wwfajk786@yahoo.com

Gilgit Office (GCIC)
NLI Colony, Near Imamia Eid Gah
Shahra-e-Quaid-e-Azam
Jatial, Gilgit.
Tel: 05811 455 658 or 455 725
Fax: 05811 455 688
E-mail: gcic@glt.comsats.net.pk

PROJECT OFFICES

Chitral Office
Zargarandeh, Near AKRSP Office
Chitral.
Tel: 0943 41 2396
Fax: 0943 41 3905

Nathiagali Office
Near PAF Camp Base
Kalabagh, Nathiagali.
Tel: 0992 35 5060
Fax: 0992 35 5210

Sandspit Office
Wetland Centre
Opposite Hut No.103-N, Hawksbay
Sandspit, Near Kakapir Village, Karachi.
Tel: 021 3235 3741-2

Skardu Office
Hussain Nagar
Alamdar Chowk, Skardu.
Tel: 05815 45 2003 or 45 2705

Salt Range Office
Khabbeki Conservation & Information Centre
Khabbeki, Soan Valley
District Khushab.
Tel: 0454 209 100

Jiwani Office
B&R Bungalow, Khosan Bazaar
Tehsil Jiwani, District Gawadar.
Tel: 086 400 4028

Gawadar Office
Bungalow # M-74, Phase 1
New Town Housing Project
Gawadar.
Tel: 086 421 1500

Kinjhar Lake Conservation Information Centre
P.O. Box 73120, Village Abdullah Gandhro
Taluka & District Thatta.
Tel: 0298 624 571

Chotiari Conservation Information Centre
Village Bakar, District Sangarh
Tel: 0235 48 3454

Gyps Vulture Restoration Project Office
Block # 4, Changa Manga Forest
Chunia.

Sukkur Office / Information Centre
House # 120-B, Street # 4
Friend Housing Society
Akhwan Nagar, Near Airport Road
Sukkur.
Tel: 071 563 3236

Bahawalpur Office
House # 4
Sawar Mohammad Hussain Shaheed Road
Model Town-A, Bahawalpur.
Tel: 062 288 8314 or 288 2181
Email: bahawalpur@wwf.org.pk

Jhang Office
107 Lalazar Colony, Phase I
Near Government College of Commerce
Jhang.
Tel: 0477 650 725
Email: jhang@wwf.org.pk

Toba Tek Singh Office
Opposite Sports Stadium
Mahmoodabad
Toba Tek Singh.
Tel / Fax: 046 251 0133

Rahim Yar Khan
House # 64-A, Osman Block
Abbasia Town
Rahim Yar Khan.
Tel: 068 500 0414

Khanewal Office
House # 20 C
Civil Lines, Khanewal.
Tel: 065 255 4887

Kot Addu Office
Nizami House # 2
Bhukkhi Road near KAPCO Power Plant
Kot Addu, Muzaffargarh.
Tel: 06622 39 553

Rajanpur Office
House # 4, Block A
Satellite Town
Al-Aqilpur Road
Rajanpur.

Taunsa Conservation & Information Centre
Taunsa Barrage
D. G. Khan Canal Side
Taunsa.
Tel: 06622 39 553

Zhob Office
D. I. Khan Road, Near Wadh Shekhan Pump
Zhob.
Tel: 0822 41 3376

Keti Bundar Office
Main Road Gharo
Near Uzmair Medical Store
Glaro City, Thatta.

Swat Office
Near Imperial Hotel
Miandam, Swat.
Tel: 0946 616234

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