Welcome to this edition of Natura, dedicated to exploring Nature-based Solutions for Climate Resilience. As stewards of this planet, it’s incumbent upon us to acknowledge the pressing challenges posed by climate change and, more importantly, to embrace solutions that harmonize with the Earth’s intricate ecosystems.

Our edition explores the transformative power of reforestation and nature restoration. These stories underscore the resilience embedded in our planet when given the chance to heal. As we explore various landscapes, a dual responsibility becomes evident — the need to protect our environment and, in turn, safeguard ourselves against the impacts of climate change.

Each article in this edition is a testament to the urgency of adopting nature-based solutions. From sustainable agricultural practices to the critical role of insects in maintaining ecological balance, we explore pathways to align our actions with the inherent resilience of nature.

In the face of escalating climate challenges, let this edition serve as a call to action. By embracing nature-based solutions, we can forge a collective path towards a more resilient and sustainable future for our planet and all its inhabitants.

Thank you for joining us on this crucial exploration. Happy exploring!

By Sheheryar Khan, Coordinator Communications and Environmental and Social Safeguards, WWF-Pakistan.

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Temperatures during the summers in Bahawalpur can reach up to 50 degrees celsius.

“You know, there used to be no amenities of any sort here. There was no electricity, no roads, no schools. But there used to be a lot of vegetation in this region although that has changed now. It has decreased” says Jabbar.

And it is true because the intense heat, induced by the changing climate, has greatly affected this region. This has been the challenge for a greater part of Jabbar’s adult life. Crop failures due to rising temperatures and water scarcity had cast long shadows over his livelihood.

A stone’s throw from Cholistan desert, the sun-drenched landscape of Bahawalpur (southern Punjab, Pakistan), is of cultural, historical, and architectural significance. Not too long ago, the Nawabs ruled this once elegant and rich princely state. While the Nawabs left behind their palaces - remnants of this bygone era - today, the true heartbeat of this land thrives beyond its city limits. This is not a story of regal opulence of the Nawabs, but of Abdul Jabbar—a humble farmer whose spirit encapsulates the essence of this parched expanse.

The sun relentlessly beats down upon the land. Abdul Jabbar goes about his days tending to his fields and livestock with his wife and four children on a six hectare plot. Jabbar’s family, like so many others in the region, is a cotton farming family whose lives are intricately tied to the rhythm of the seasons and the land.

Temperatures during the summers in Bahawalpur can reach up to 50 degrees celsius.

Stay too long out in the sun and it starts to pinch and prickle on the skin. And yet, despite the extremity on the thermometer, 56 year old Jabbar and his family spend a better part of almost 15 hours a day outside in the field.
Yet, it’s not just the toil in the fields or the scorching sun that keeps him awake at night. It’s the future of his children that occupies his thoughts and their dreams that fuel his hopes. “I wish for my children to be educated so they can get good jobs where they can prosper and lead a healthy and happy life,” he says, his voice filled with determination. Sounding even more resolute he adds,

“I do not wish to see them face the same difficulties as I have, spending their lives in the fields under the sun.”

The passage of time has not been kind to this land, and Jabbar’s brow furrows as he speaks of the challenges that have beset him in recent years. The once-abundant waters of the Sutlej river, a lifeline for this region’s agriculture, have dwindled to a mere trickle. “The water table in the region is constantly decreasing,” he explains, drawing a direct link to the effects of climate change. You can sense the concern in his voice. The water table in the Bahawalpur region has gone down from 30 feet to 32 feet in recent years.

“The canal here is fed by the Sutlej. Back in my childhood days, there used to be ample water in it, and Sutlej used to be a free-flowing river. Now it has dried up.”

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The dreams of education, once bright and hopeful, were eclipsed by the pressing need for survival. For a man who had such big dreams for his children, it was crushing for Jabbar to see his children join him on the fields instead of their peers in schools.

Amidst these adversities, the burden of financial hardship also bore down heavily on Jabbar’s shoulders. With four children to provide for between the ages of 10 and 18, sending just one to school was the extent of his financial capacity. The others, compelled by the unforgiving economics of their circumstances, stayed behind to lend their hands to the toil of the fields alongside their parents.

Jabbar’s voice carries a heavy burden as he explains, “There weren’t enough alternate opportunities either, which is why we worked longer and harder than ever to get by. It is difficult to survive when inflation is so high. I worry about my children’s future, not mine so much. I live for my children now.”

It was during these trying times that Abdul Jabbar’s life took an unexpected turn. In 2018, an advertisement by WWF-Pakistan about their agroforestry campaign caught his attention. WWF, the leading global environmental conservation organisation, and IKEA, the multinational home furnishing retailer, have been collaborating on an agroforestry and biodiversity conservation initiative that enables smallholder farmers in rural Punjab to earn an alternate source of livelihood from their existing pieces of land.

This partnership is driven by a shared commitment to the sustainable use of natural resources such as cotton, which holds a special place for both organisations. As co-founders of Better Cotton (BC), WWF and IKEA are pioneers in making cotton production more sustainable.

This is where WWF’s and IKEA’s agroforestry initiative becomes relevant as it has proven to be a successful practice in expanding forest cover while maintaining traditional cotton cultivation. Integrating indigenous trees into cotton landscapes makes the agricultural system more effective, providing multiple ecological and environmental services, such as biodiversity conservation, as well as preventing soil erosion and improving soil fertility.

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To date, a total of 156 farmers in rural Punjab have benefitted from this project. There are also numerous significant benefits for the farmer and the wider community. The plantation of tree saplings, such as Acacia, could help reduce the temperature in the area, attract new wildlife, and improve both soil health and livestock grazing, thereby enhancing the overall well-being of the community. Acacia trees are widely recognised as a critical species, upon which the majority of desert wildlife relies, either directly or indirectly, for sustenance and shelter and their plantation in this region intended to offset some of the climate change induced issues faced by the locals. For Jabbar, these trees did not merely provide shade, they enabled him to cultivate crops on it and utilize all of it. Now, I was taking up additional responsibility to plant these trees and care for them.

“There were a lot of uncertainties once I had agreed to this project,” he reflects. “I had six hectares of land, and it was already difficult to cultivate crops on it and utilize all of it. Now, I was taking up additional responsibility to plant these trees and care for them.”

Even as the Acacia saplings showed promise, the arid landscape seemed unforgiving. “Growing these trees still wasn’t an easy job,” Jabbar reflects. “We still didn’t have enough water for our cotton fields.” In a display of family unity and resolve, they devised a method to overcome this obstacle too. Every day they loaded large drums onto their carts. The entire family rallied together, pushing these drum laden carts for kilometres, back and forth, to reach the canal. The water they collected was a lifeline for the fledgling trees.

Jabbar goes on to explain with a broad smile about that moment where he knew that things would work out for the better.

“A few weeks after planting, one day my wife came to me in the morning and said that your trees are growing at a good pace,” he recalls. “When I looked at the plantation field, I realised she was right. The saplings were getting taller. I sensed that this was a good sign and that this risk might just pay off.”

The success that followed was nothing short of transformative and since 2020, Jabbar has been reaping the benefits of this programme. In addition to improved soil fertility and better protection of crops during dry spells, the trees also present an alternate income opportunity for Abdul Jabbar and his family as they are able to sell some of the trees for timber. “I have sold more than 500 trees so far,” he says, his excitement palpable. “Not only this, my livestock has also prospered. Their diet improved, and so their number has multiplied at a good rate as well. Now I am also in the goat farming business! I have sold 30 goats at a good market rate.”

As the Acacia trees flourished, Jabbar’s connection with nature has also deepened. He shared stories of his childhood when this region had much greater vegetation and how the birds used to visit it, but his children couldn’t relate, as water scarcity and disappearing greenery defined their experience.
Now, with the trees growing, the once desolate landscape has regained its beauty, and is welcoming birds and nurturing a new ecosystem.

And it is not just the trees that have started to take root here; the future of his children also looks brighter and more secure. In 2020, Jabbar’s average monthly income was equivalent to USD 104 which has now jumped to an average of USD 277. With the money he made from selling his first batch of trees and goats, Jabbar explains what went through his mind. “I had never seen this much money in my life. I was overwhelmed. For me it was clear though, I wanted to send my children to school and college. Now my children are pursuing an education which is the biggest joy in my life. I am a humble farmer, nothing more, but my children will become professionals.” This transformation has not only provided financial security for his family but also offers a pathway to a more secure and promising future for the next generation.

Looking ahead, Abdul Jabbar is filled with hope and excitement. In the next 10 to 15 years, his Acacia trees can multiply, and he plans to involve his brothers in this eco-friendly business. His voice echoes with optimism. “I have great hope for the future, and I am even excited for it,” he says. “What more can I ask for?”

By Sheheryar Khan, Coordinator Communications and Environmental and Social Safeguards, WWF-Pakistan.
Around one-third of the entire human population is facing water-related issues, and the majority of these people live in developing countries. The rapid growth of cities and population has put a strain on our natural resources, causing severe problems. One major issue in developing countries like Pakistan is the inadequate management of wastewater. There are no biological treatment facilities in any city of Pakistan other than Islamabad and Karachi, which only treat a small fraction of wastewater.

Instead of treating it properly, the wastewater is often dumped directly into sewers, natural drains, lakes, or rivers, or used to irrigate nearby fields. This has led to eutrophication, which harms aquatic life and pollutes the environment. Even the once clean and pristine river Ravi, Lahore’s source of freshwater, has become a dumping ground.
Using wastewater for irrigation can boost agricultural production because of its nutrient-rich content, but it also contaminates the food chain and damages soil quality. The reuse of untreated wastewater for irrigation in Pakistan has caused problems with traces of heavy metals and harmful microbes now found in the food chain.

**The United Nations Environment Programme’s water resources management expert Birguy Lamizana says, “wastewater is an asset if the right policies, technologies and financial incentives are in place but awareness needs to be raised among those dealing with wastewater reuse to prevent illness and maximize benefits.” (UNEP, 2017)**

Preventing water pollution at the source is crucial, but it’s challenging to develop infrastructure that can treat wastewater due to limited resources and lack of skilled workers which only adds to the problem. This is a critical situation, which is why we need to find alternate solutions. One promising approach in this regard is utilising nature-based solutions (NbS), which are gaining popularity.

Wetlands, which are often called the “kidneys” of the earth, can naturally filter and improve water quality. An artificial wetland, known as Floating Treatment Wetland (FTW) is a nature-based solution, which mimics natural wetland functions and can effectively treat surface water runoff, wastewater, and other contaminants. This innovative solution has been successfully used across the world for treating different types of waste water, including municipal, storm water, oil spills and landfill leachates.

These wetlands not only purify the water but also mitigate the effects of climate change by storing excess water during flooding and act as water resource during drought season.
FTWs use floating or emergent plants and plant roots which are inoculated with bacteria to absorb and degrade pollutants, while solar radiation helps to catalyze biological and chemical reactions.

FTWs also support aquatic life and offer habitats for various birds and animals, making them potential tourism and educational sites. WWF-Pakistan’s Freshwater programme is working on water stewardship interventions in partnership with the National Institute for Biotechnology and Genetic Engineering (NIBGE), the patent holder of this technology, to protect natural water resources in Faisalabad, Lahore, Multan, Karachi, Khabeki, and Haripur as shown in the map below, for treating wastewater and reusing the treated water for non-potable purposes like irrigation and aquaculture, thus reducing the strain on freshwater resources.

At these locations, there have been noted improvements in both the visual charm of the landscape, enhancing its aesthetic appeal, as well as an increase in the biodiversity. The biodiversity enhancement varies from site to site depending on the water quality, plant species, their growth, size of wetland and climatic conditions. The plant roots improve the oxygen level in water that support and thrive the population of macro invertebrates (snails, leeches, etc.) and fish that help to build a new source of food and livelihoods for local communities. As the plants grow, dense biomass serves as habitat and provides food for birds, reptiles and mammals. Indian flapshell turtles, cattle ergate, Indian cricket frogs, Indian monitor lizards, snails, leeches, slugs, dragonflies, spotted snakehead fish, duckweed, water lettuce, water hyacinth are commonly found on different wetland sites in Pakistan.
The first of these units have been installed in Chokera, Faisalabad in 2019. WWF-Pakistan, along with NIBGE and WASA, installed a FTW on a 400 acre stabilisation pond in Chokera. This system treats a large amount of municipal and industrial wastewater from Faisalabad city, which has resulted in reduced heavy metal concentrations in effluents by using floating plant Phragmites australis (common reeds). The results show the reduction in concentration of heavy metals in effluents. The removal rate is 79 per cent for Chemical Oxygen Demand (COD), 88 per cent for Biological Oxygen Demand (BOD) and 67 per cent for Total Dissolved Solids (TDS), and around 60 million cubic metres of wastewater is being treated per year at a cost of USD 0.00026 per cubic metre. The treated wastewater is being used for irrigation purposes. Chokera is a remarkable success case of FTW for wastewater treatment in Pakistan. The success proves that this model can be replicated in other settings across the country to treat wastewater.

In 2020, a FTW was installed in Manak Village, Lahore following the successful results from the Chokera Wetland. A survey was conducted to identify the water related issues of the local population and their willingness to install a FTW. Installation and operation were initially successful with removal rate of 98 per cent COD, 89 per cent BOD, 25 per cent TSS and 16 per cent TDS, and the treated water was being used for irrigation of nearby fields. However, in the long term some challenges emerged that caused damage to the system. It was observed that the primary challenge was the lack of awareness among the communities who utilized the site as a dumping ground. Misappropriation of floating mats was also a challenge that disturbed the system. So before the implementation of a FTW or any such intervention, it is necessary to educate the communities so that they can participate in the operation and maintenance of these systems. This shows the importance of community involvement in the long term operation of FTW.

The successful implementation of FTWs is a milestone in the fight against water related issues for communities. This technology has the capability to deliver benefits to the environment and local communities. However, it does come with some challenges such as solid waste management, system stability, proper maintenance, plant pruning, and community awareness. For the sustainability and long-term success of these interventions it is therefore important to build partnerships with stakeholders who can ensure their success.

By Rabia Qayyum, Officer Freshwater Programme, WWF-Pakistan
"Recharge Pakistan" is a seven year, USD 77.8 million initiative to use nature to help adapt to climate change. Recharge Pakistan will be a big step for Pakistan to protect itself from the effects of climate change. It is a flagship project of the Government of Pakistan’s Living Indus Initiative, which aims at reducing flooding and drought impacts. The total grant includes USD 66 million from the Green Climate Fund (GCF); USD 5 million from The Coca Cola Foundation, USD 5 million from USAID, and USD 1.8 million from WWF-Pakistan.

This 7-year initiative represents the largest investment to-date in an ecosystem-based approach to flood and water resources management at the national level.

The interventions will

- Reduce flood extent by 58,800 hectares
- Capture 20 million m3 water
- Replenish 1,600 million liters of soil infiltration water

The project’s core interventions will

- Demonstrate the effectiveness of ecosystem-based adaptation and green infrastructure.
- Create an enabling environment for climate action in Pakistan.
- Enhance community resilience in Pakistan’s Indus Basin.

The project is expected to indirectly benefit seven million people.

Scan to find out more about Recharge Pakistan
According to the first global scientific review, the world’s insects are hovering over a “catastrophic collapse of nature’s ecosystems” by scampering down the direction of extinction, this is terrible news for us. Without insects, this planet would be muffled, mundane, and soulless. According to a study published in *Biological Conservation*, about 40 per cent of all insect species are declining universally, and a third of them are endangered. During the last 50 years, the volume of agricultural production on animal pollination has been augmented up to 300 per cent, and among animal pollinators, insect pollinators are crucial for the preservation of not only the planet’s ecosystem but also for global food security.

That is because about 75 per cent of crop species, 35 per cent of worldwide crop production, and up to 88 per cent of flowering plant species are directly or indirectly reliant on insect pollinators, whereas other insects build the base food of a food chain for larger animals through breaking down the waste in the forest soil. Thus, now when we require more vigorously farmed fallow to feed more mouths and need a healthy ecosystem, we are failing to retain insects.
It begs the question, who is to blame for all of this? A closer look reveals that it is our own unbridled human cupidity that is the main cause of this calamity. Despite our distinct abilities and intelligence, we act like a microscopic worm that will eat everything in its path until it runs out and naturally perishes. Irrational use of agrochemicals and climate change are the main indicators leading up to this disaster. Out of these indexes, to eradicate agricultural pests, the use of inorganic substances has been recorded dating back to 500 B.C., and this has increased by 80 per cent during the last four decades, while only in the past couple of decades, numerous new pesticide classes have been added to already-existing groups. Now, around the world, more than a thousand pesticides are available. This is not where the story ends, as globally the current consumption of pesticides is about four million metric tons annually worth a market value of USD 84.5 billion.

Following the global trends, Pakistan, the fourth largest pesticide consumer in Asia, with a pesticide industry worth USD 33.3 billion (FY-2022), is still reliant on the unsustainable use of agrochemicals for crop protection, and this unjustified use increased by over 6,600 per cent during last three decades with static crop yield per acre. On one side this indiscriminate application of chemical pesticides and fertilizers is a peril to the people and planet. In contrast, insect pests are developing resistance to chemicals, while these same chemicals are eliminating natural pests’ enemies.
The question of how to handle it comes up with the thought of ensuring that humans have food without endangering the environment. Although it’s difficult to respond to this, alternative solutions are certainly required as the existing practices to mitigate agricultural pests are neither sustainable nor environmentally viable on a global scale. Focusing on the ecology and biology of pests, nature-based solutions offer a promising avenue for managing agricultural pests. Nature-based solutions have several advantages as apart from preserving local fauna and flora, modern studies reveal that natural remedies have the potential to contribute 30 per cent to carbon sequestration. Globally many countries are banning the use of agrochemicals and adopting policies having nature-based solutions to conserve biodiversity. As reported by the Pesticide Action Network (PAN), during the last decade, the European Union and the UK banned 289 highly hazardous pesticides followed by Brazil which banned 81 hazardous pesticides.

Nature-based solutions are given priority for addressing climate mitigation and adaptation as well as biodiversity conservation under the European Green Deal. Natural pest management techniques, in contrast to conventional chemical control, promote the growth of many insect species which are important for the sustainable regeneration of the agricultural system.

In Pakistan, nature-based solutions involving natural methods and ecological processes are being practiced albeit at a small scale, resulting in a lack of significant success stories in this regard. However, this does not mean that these methods can not be adopted at a larger scale.

This necessitates a closer look at nature-based solutions in the agricultural sector of Pakistan. A wide range of agricultural insect pests (aphids, moths, butterflies, etc.) can be managed by encouraging a population of natural predatory insects like ladybugs, and lacewings. Likewise, parasitoid wasps lay their eggs on or inside pest insects (caterpillars), eventually killing them, and can be used as biological control agents. Botanical pesticides are prepared by plant extracts like neem (Azadirachta indica), ginger (Zingiber officinale), bitter apple (Citrullus colocynthis), aloe vera (Candelabra aloe), and pyrethrum (extracted from chrysanthemum flowers), and act as a natural insecticide and repellent which disrupts the growth and development a variety of insect pests.

In a nutshell, considering the increasing challenges posed by agrochemicals, nature-based solutions emerge as a beacon of hope. By embracing the principles of biodiversity, biological control, and agroecology, farmers can forge a symbiotic relationship with nature to protect their crops while conserving the environment. The transition to sustainable agricultural practices represents not only a necessity for the future of agriculture but also a testament to humanity’s ability to work together with the natural world for the benefit of all.

By Farheen Sayam, Manager Value Chain Engagement-Pak Regen, WWF-Pakistan.
Haripur in Pakistan’s Khyber Pakhtunkhwa was traditionally never a dry or hot region. In fact, it was once characterised by lush green fields and valleys. But due to the relentless impacts of climate change the land is now dry and parched. Prolonged spells of scorching heat, unprecedented heatwaves, and erratic rainfall have ushered in a new era of challenges for the locals, particularly for agriculture and livestock—the backbone of the region’s economy and the locals’ livelihoods.

In the face of these unprecedented climate-induced challenges, the significance of nature-based solutions becomes increasingly apparent, especially in regions like Haripur. Nature-based solutions, rooted in the intrinsic resilience of the environment, offer a holistic approach to mitigating and adapting to the impacts of climate change. Unlike conventional interventions that may have unintended consequences, these solutions work with, rather than against, nature.

They encompass a range of sustainable strategies, including ecosystem restoration, sustainable agriculture practices, and the conservation of natural resources, all aimed at fostering resilience in the face of environmental challenges.
By embracing nature-based solutions, communities like those in Haripur can unlock a myriad of benefits. One of the primary advantages lies in the restoration of ecosystems. In Haripur, where the landscape has been altered by climate-induced aridity, such interventions can help reestablish the balance of local ecosystems, reviving biodiversity and enhancing the overall health of the environment. These solutions also play a pivotal role in safeguarding water resources.

For a community heavily dependent on agriculture, the conservation and sustainable use of water are paramount. Nature-based solutions, through mechanisms like rainwater harvesting and check dams, not only help in water conservation but also mitigate the risks associated with flooding and soil erosion.

As Haripur faces the dual challenge of climate change and dwindling water resources, the adoption of nature-based solutions becomes a beacon of hope. The tangible benefits include increased water availability for agriculture and domestic use, improved resilience to extreme weather events, and the restoration of the natural beauty that once defined the region. It is within this context that WWF-Pakistan’s Water Resource Accountability in Pakistan (WRAP) programme steps in. In collaboration with the local community and supported by the Foreign, Commonwealth & Development Office (FCDO) of the UK government, this programme is implementing nature-based solutions to address the pressing water challenges in select sites in Khyber Pakhtunkhwa and Gilgit-Baltistan.

This collaborative effort ensures that interventions are not only effective but also sustainable, as they draw upon the knowledge and ownership of the very communities they aim to serve.
Some of the key interventions here include the construction of check dams and gabion walls along the flowing river streams. These structures serve a dual purpose—to reduce the intensity of rapid water flow during monsoon rains and to mitigate the impact of flooding on the local communities.

Raja Sajad Zaman, President of Najafpur’s Village Organisation, is one of the beneficiaries of these interventions, and attests to their efficacy. He states, “During the monsoon season, the village experienced significant flooding, damaging houses and local infrastructure. The check dams help in mitigating the impact by stopping the heavy water flow and breaking the force of the flood. Additionally, they allow debris and sediment to settle, preventing further damage.”

The initiative extends its protective embrace to three schools and numerous households in the region. In the past, floodwaters posed significant damage to these establishments, impacting the day-to-day lives of locals, to the extent that fearful parents hesitated to send their children to schools, worried they might be swept away by the floods. The implementation of check dams has brought relief by creating a safer environment for schools and households of the area alike.

Simultaneously, acknowledging the prevalent arid conditions impacting agriculture, the local communities also requested the establishment of a rainwater harvesting pond. This pond, designed to store rainwater from adjacent hills, supports local agriculture and livestock while playing a crucial role in controlling soil erosion.

Another noteworthy intervention involves the reuse of kitchen wastewater to promote gardening. This solution involves the use of plants that purify kitchen wastewater, benefiting locals like Zareena Bibi. Zareena now utilizes the purified water to cultivate vegetables, ensuring the dietary needs of her family are met.

The core focus of these interventions is a collaborative approach that involves working hand-in-hand with the communities. By addressing environmental damage caused by soil erosion and deforestation, the WRAP programme aims to conserve the natural resources whilst adapting the local population to climate change. Importantly, these interventions are not imposed but are designed in collaboration and consultation with the locals, ensuring sustainability and fostering a sense of ownership within the community.

As these interventions take root, they not only protect lives and livelihoods today but nurture a resilient and sustainable tomorrow for Haripur and beyond.

By Sheheryar Khan, Coordinator Communications and Environmental and Social Safeguards, WWF-Pakistan.
Muneeb Tariq, Manager Freshwater Programme at WWF-Pakistan, recently engaged in a discussion on The Climate Podcast with Manal Mohsin, in collaboration with Arbisoft. Muneeb is a water resources engineer and is currently pursuing his PhD at the University of Lincoln.

Manal: Since COP 28, Recharge Pakistan has been a major topic of discussion, particularly the 77.8 million dollars involved. I’m curious to know how we got from point A to point B, from the initial concept to the present day. Could you walk me through how Recharge Pakistan has evolved to its current state?

Muneeb: Recharge Pakistan has a lengthy and rich history, dating back to the 2010 floods. Much has happened since then. The initiative began when people started discussing investment in infrastructure. Despite our efforts in building grey infrastructure and dams on hill torrents, we still couldn’t achieve our desired goals. We couldn’t adequately assist the communities. This led to the emergence of nature-based solutions. We developed a concept note for the Green Climate Fund (GCF), identifying 11 sites after consulting with provincial irrigation and forest departments. We focused on ecosystem-based adaptation approaches and green infrastructure intervention strategies. We wondered, could we achieve our goals without needing billions of dollars? What could be done with a limited budget?
Manal: Before the project received approval and became a success, what were the major challenges you faced, especially regarding funding? You mentioned the involvement of the Green Climate Fund, which must have entailed a rigorous process. Could you describe some of these challenges and how they were eventually overcome, leading to the project’s launch at COP 28?

Muneeb: One of the most significant challenges in a Green Climate project is securing co-financing. We had ongoing WWF projects dealing with GLOF and others, and we brought these to the table during our discussions about co-financing. Honestly, it was quite a challenge. When pitching the project and seeking funding from the Green Climate Fund, we were almost certain that we had the necessary commitments from the outset. The Ministry of Water Resources and the Ministry of Climate Change had shown their support from day one. However, the real challenge arose in 2022 when funds were reallocated, and we had to find new co-financing sources to submit the project. The key entities involved were GCF, the Government of Pakistan, the Coca Cola Foundation, USAID, and WWF. Their collaboration was pivotal in successfully launching Recharge Pakistan at COP 28. We always believed in the WWF motto, “together possible” and this project really embodied that spirit.

Manal: You also mentioned engaging indigenous people and local communities, which I find particularly interesting. There’s a general belief that these communities have extensive knowledge about their environments. To what extent did Recharge Pakistan involve these communities, particularly in the technical aspects? What specific tools from these communities were utilized to advance the project? And beyond local communities, how important was the engagement of other stakeholders for the project’s progress?

Muneeb: That’s an excellent question. The phrase “together possible” really comes into play here. This project was crucial in bridging the gap between the public and government entities. Whenever we met with communities, we ensured representatives from the Mitigation, Forest, and Wildlife Departments were present. These discussions were vital for understanding and aligning the various viewpoints and interventions discussed. We often engaged in dialogues with provincial departments, gaining new insights and refining our approaches. From our perspective, we were crafting a wish list, a very targeted one, especially considering the devastating impact of the 2022 floods.

Manal: Growing up, I’ve always seen WWF primarily involved in wildlife conservation and biodiversity. With Recharge Pakistan focusing mainly on droughts and floods, I’m curious about the shift in WWF’s focus. Is this indicative of a paradigm shift within WWF towards more adaptation efforts and moving away from strictly wildlife-related initiatives? What’s your perspective on this?

Muneeb: WWF has indeed been heavily involved in wildlife conservation, but it’s not a complete shift in focus. WWF has a long-standing history of working on freshwater initiatives, including various water and wetland projects. The organization has collaborated with private entities on water stewardship programmes. So, while this project may seem like a new direction, it’s more of an extension of WWF’s existing work in freshwater and environmental initiatives.

Manal: Regarding the technological innovations in the project, what new and climate-resilient approaches were incorporated into its development? Going forward, how do these technologies play a role?

Muneeb: From my perspective, the key innovations were in hydrological analysis and climate change modeling. The design of the interventions was critical in creating an impact. For example, we identified depression areas to determine rain volumes and other technical aspects during the project’s visibility phase. We collaborated with international consultants who brought various tools and expertise to the table, such as the R tool for GI or EB interventions. Our focus began with DI Khan, where we applied these models to understand flood risks and dry season patterns. After completing the visibility phase, our next steps involve more detailed engineering designs, technical investigations, and topographic surveys. We’re close to 90 per cent completion, and for the project’s implementation phase, we’re bringing on additional consultants to design the necessary interventions.

To listen to the complete episode, scan the QR code:
We are capable of doing wonders. With our zest, zeal, and monomaniacal focus, we can move the mountains and make even the impossible happen. We really can improve our lives and make this world a better place to live in for our fellow human beings and millions of other species that we share our planet with. This is what the Brazilian photographer Sebastiao Salgado and his wife Lelia Deluiz Wanick Salgado did as they decided to restore their degraded family farmland upon inheritance of the property.

Sebastiao held on to the memory from his childhood of that farm and how it had a lush green forest with a fully functioning ecosystem. However, the farm he inherited from his parents was nothing like its previous glory. It was just a piece of deforested land with few patches of trees here and there. All the native species had also left the farm forest due to deforestation and land degradation. It was a turning point in the lives of Sebastiao and his wife Lelia. Sebastiao was quite heartbroken in the beginning about the deforestation and land degradation on the family farm. However, his wife Lelia, had a completely different idea, one that was about to change their life for good. The idea was to reforest the family farmland and restore it to its former glory.

Thus started a magnificent journey where both Sebastiao and Lelia planted over 2.7 million trees on their family farmland over a period of two decades. The fruits of their hard labour were soon visible as over 200 species of birds, mammals, and reptiles made a return to the reforested area.

Like Sebastiao and Lelia, each and every one of us in Pakistan can also act as a guardian of trees and forests. We must remember the fact that earth can exist without us, however, survival for us is unimaginable without a well functioning planet in place. With the adverse affects of climate change manifesting in the forms of heat waves, forest fires, droughts, and floods, there is an even greater need for us to rely on nature’s inherent resilience.

Trees act as a thermostat of the earth and help in regulating the global average temperature and they do this by absorbing carbon dioxide gas from the atmosphere, bringing down its concentration. Thus, by protecting nature, we basically protect ourselves.
Trees are one of the best and most inexpensive carbon capture devices to reduce carbon dioxide concentration in the atmosphere and to limit temperature increase to 1.5 degrees.

Above all, protecting trees and forests in Pakistan will certainly help us in biodiversity conservation, reducing noise and air pollution, water conservation, reducing the urban heat island effect, preventing soil erosion, rainfall regulation and achieving all our goals outlined in the Paris Climate Agreement.

As per the European Commission, 10 per cent of the forest cover has been deforested globally over the last three decades. This deforested area is in fact larger in size than the whole of the European Union. The story is not any different for Pakistan. According to the International Union for Conservation of Nature and Natural Resources (IUCN), approximately 100,000 fully grown trees comprising over 21,000 cubic meters of timber were deforested from 1994 till 2014 in Sherani, Balochistan. Adding insult to injury, according to Germanwatch’s Global Climate Risk Index (2021), Pakistan was amongst the top 10 countries most affected by the negative impacts of a changing climate. Altogether, 173 climate change related events took place in Pakistan during 2000-2019. All this evidence necessitates that we take concrete steps to fight climate change execute actions to minimize its negative impacts. It is in our own best interest to plant as many trees as we can and to mitigate the impacts of climate change.

In conclusion, we can all be Sebastiao and Lelia. We can protect forests and preserve nature in Pakistan. We have what it takes to reforest Pakistan and create a sustainable future where 25 per cent of the country would be forested and is home to birds, mammals, and reptiles native to Pakistan. During the reforestation drive, we must plant saplings of trees native to Pakistan. This will certainly help us in limiting the consequences of climate change and to achieve our goals outlined in the Paris Climate Agreement. As per the Norwegian Government, timber volume in Norwegian forests has exponentially increased from 300 million cubic meters in 1919 to 900 million cubic meters at present. The forest cover in Norway is now denser than a century ago, trees are even taller now as compared to earlier and finally forests now cover an even greater area than 100 years ago. If Norway can protect its forest cover and preserve nature, so can Pakistan as well.

The choice is ours and will always be.

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