Vol.20 No. 07

September 2025

# subhnau

a greener vision

## Defossilization with ushering of new, sustainable pathways of renewable energy and development

ISSN 2308-5614

Primed for tree-planting
*Gardening*

Green Patriotism in Action
*SN Plantation*

The Power of Peanuts
*Health Page*

Pakistan's first international award winning magazine on environment and health

# GOVERNMENT OF PAKISTAN CONFERS SITARA-E-IMTIAZ ON ARSHAD WALI MUHAMMAD

Karachi, August 14, 2025 — The Government of Pakistan has officially announced the conferment of the Sitara-e-Imtiaz, one of the nation's highest civil awards, upon **Arshad Wali Muhammad,** Group Director of Gerry's Group and Former Minister for Tourism, Environment, Climate Change and Coastal Development in the Caretaker Government of Sindh, Pakistan (2023–24). This prestigious honor has been awarded in recognition of Mr. Wali Muhammad's exceptional achievements, professional excellence, philanthropy, and contributions across his respective fields.

As Minister for Tourism in the caretaker government, Mr. Wali Muhammad worked to highlight Sindh's cultural heritage, historic landmarks, and coastal potential, launching initiatives that promoted eco-tourism, local community engagement, and international visibility for Sindh as a tourist destination. His tenure emphasized the importance of sustainable tourism development and responsible stewardship, positioning Sindh as a province rich in history, natural beauty, and opportunities for global travelers.

His leadership has also been instrumental in strengthening Pakistan's aviation, travel, and tourism sectors. As Group Director of Gerry's Group—Pakistan's largest aviation and travel services company—he has played a pivotal role in advancing the country's global connectivity, promoting aviation technology in Pakistan, and driving economic growth.

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The Sitara-e-Imtiaz will be formally conferred at an official ceremony in Islamabad as part of Pakistan's Independence Day celebrations.

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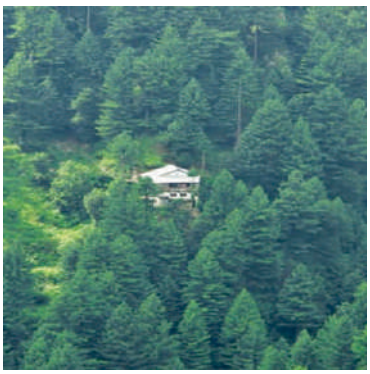

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Peanuts, locally known as moong phali, are a staple of winter street corners across Pakistan. Vendors roast them over coal fires and wrap them in newspaper cones, offering warmth and nourishment on chilly evenings.




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# Letters to the Editor

## Cover Story August 2025

Dear Editor,
Reading the recent cover story on the devastating floods shook me deeply. As a civil engineer who has worked on post-disaster reconstruction in rural Punjab, I can confirm that our infrastructure is simply not built for the climate extremes we now face. Your emphasis on community-based resilience, especially integrating traditional knowledge with new technologies, is spot on. We must stop thinking of floods as isolated natural events and begin to see them as systemic failures we have the power to address. I commend you for highlighting this urgent call for collective responsibility.
*Sana Tariq, Lahore*

Dear Editor,
Thank you for drawing attention to the role of occupational security in flood resilience. The idea of integrating justice, compassion, and ecological integrity into disaster preparedness is exactly what our policy discourse has been missing. Nature-based solutions alone are not enough unless they are rooted in inclusive governance and equitable livelihoods. As someone working in community development in Gilgit-Baltistan, I hope this message reaches policymakers before another year of loss.
*Mohammad Rehman, Skardu*

Dear Editor,
I appreciated the strong focus on early warning systems in your article. However, as someone who received a flood alert after the water had already entered my home this July, I feel we are still far from reliable preparedness. These systems must be democratized, reaching every village and household. Technology cannot work in isolation — it needs human systems of trust and communication. Your piece reminds us that resilience is not just about alerts, but about awareness and agency.
*Farzana Bukhari, Muzaffargarh*

## Reforestation and National Pride

Dear Editor,
The section on National Plantation Day truly warmed my heart. It is rare to see an environmental campaign maintain momentum over the years. As a schoolteacher, I organize a tree-planting drive with my students every August 18. It is encouraging to see how this initiative now forms part of a national vision for flood resilience. Please continue to give space to such grassroots movements that embody hope in the face of climate despair.
*Adeel Qureshi, Hyderabad*

## What is Subh-e-Nau

This journalistic endeavor primarily focuses on the environment and public health sector, and is published every month. The dismal state of affairs in this sector demands public awareness and community involvement for the protection of our natural environment. The magazine cuts across a diverse range of environmental issues, which require thought and conveys action-oriented messages for the general public and decision makers.

## Subscription to Monthly Subh-e-Nau

You can subscribe to Monthly Subh-e-Nau by sending a demand draft to our Islamabad or Karachi Office with your name, occupation, postal address and contact number.

# Chief Editor's Message

Defossilization is no longer a choice, it is an imperative. As Pakistan and the world grapple with intensifying climate shocks, with intensifying heatwaves, floods, and erratic rainfall, the call to move away from fossil fuels has never been louder. Yet, this transition is not merely about technology or economics. It is about reimagining the way we live, work, and coexist with the natural world.

The framework of occupational security provides us with this reimagining. It reminds us that true security cannot be confined to humans alone. It must also embrace the non-human world: rivers, oceans, forests, animals, and ecosystems that sustain us. To secure our livelihoods without securing the health of the planet is a contradiction that cannot hold. This cover story, "Defossilization with ushering of new, sustainable pathways of renewable energy and development," is written as both a call to action for Pakistan to resist the lure of coal and fossil dependence, and as an appeal to developed countries to lead responsibly by committing to defossilization.

The narrative highlights renewable options that can power Pakistan's growth with solar, wind, hydro, and biomass, all the while aligning with justice and dignity for workers. Equally, it challenges global actors to take responsibility: phasing out fossil subsidies, investing in green technologies, and ensuring that no community or species is sacrificed in the process.

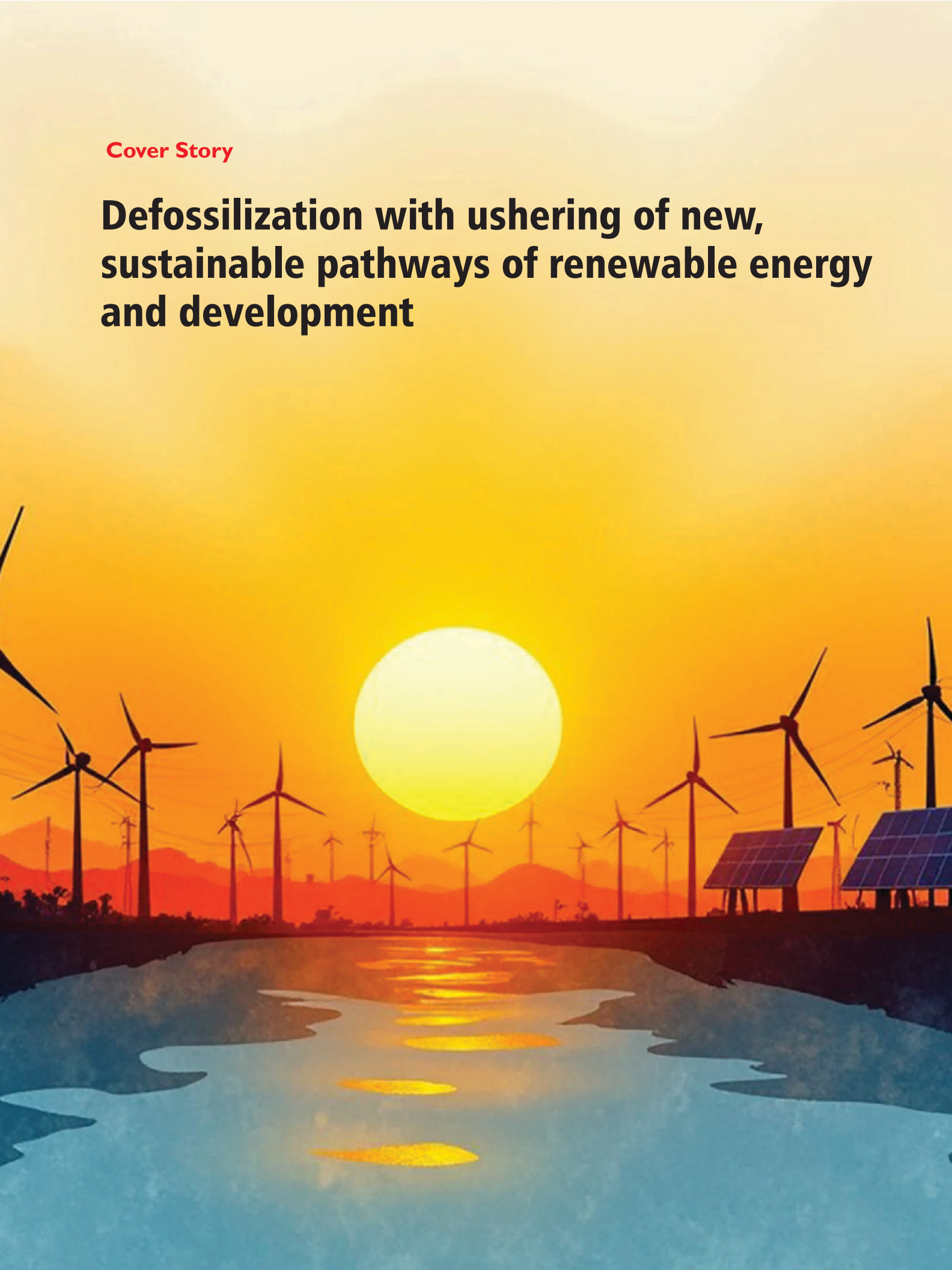
At its core, occupational security ties these threads together. It ensures that every occupation, whether it is farming in Sindh, fishing in Balochistan, or engineering solar grids in Punjab is safeguarded under principles of sustainability, peace, justice, compassion, and authenticity. By centering both human and ecological well-being, Pakistan's path to renewable energy can be one of resilience, fairness, and shared security.

Defossilization is about more than energy. It is about the kind of future we choose to build. And in that choice lies our collective survival.

*Shahida Kauser Farooq*
Chief Editor

Cover Story

# Defossilization with ushering of new, sustainable pathways of renewable energy and development



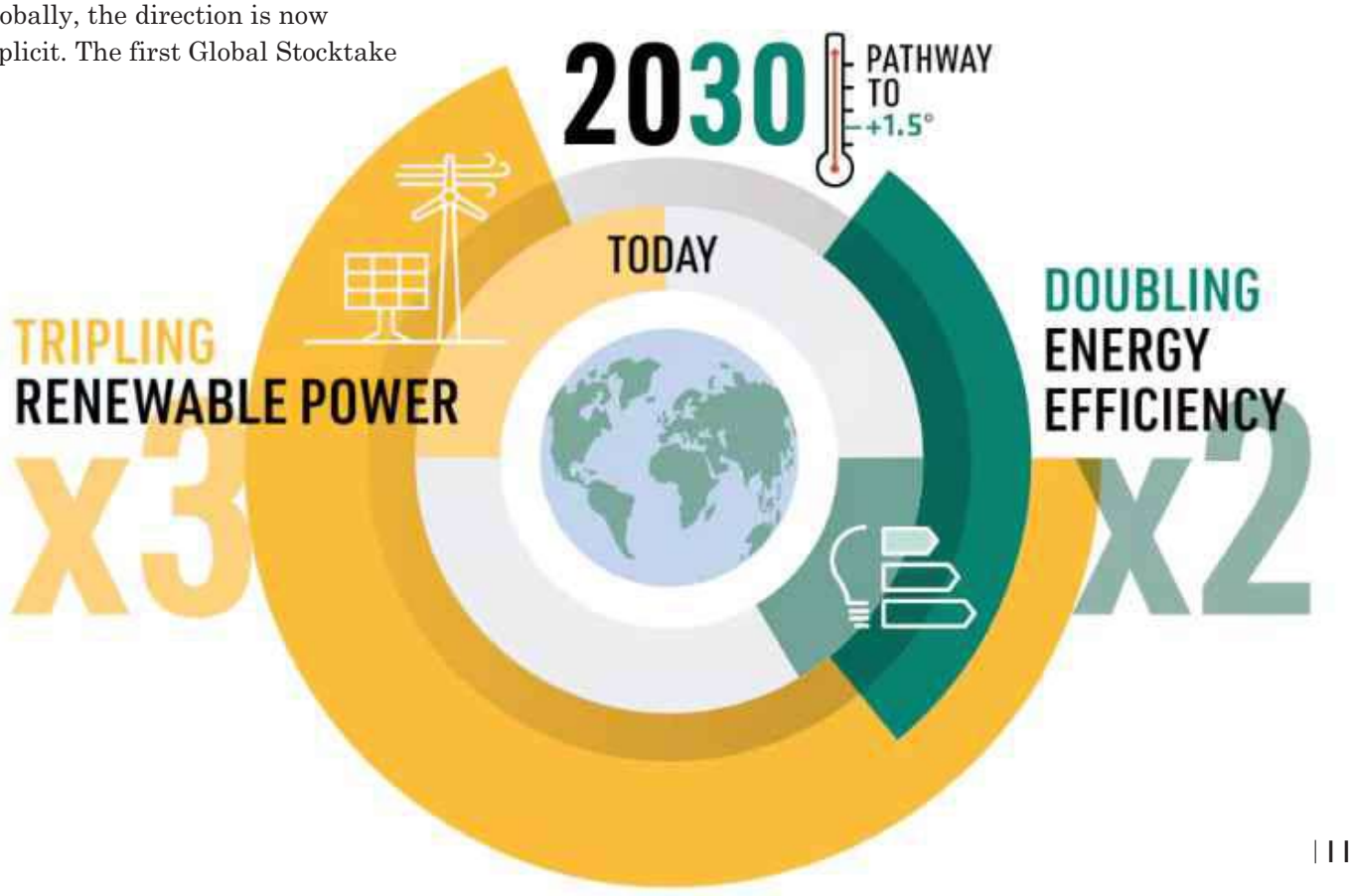
Dr. Farrukh A. Chishtie

Pakistan still generates a little over half of its electricity from fossil fuels, yet it already secures an unusually high share of power from low carbon sources by global standards, led by hydropower and a growing contribution from wind and solar. This mixed picture captures both risk and opportunity. Staying on a fossil path locks the economy to volatile fuel prices and rising climate and health costs.

Pakistan stands at an inflection point. A decisive turn is needed to realize clean power promises with energy security, green jobs, and healthier air. In 2024 about 53 percent of Pakistan's electricity came from fossil fuels while 47 percent was low carbon, with hydropower near 19 percent and wind plus solar about 13 percent.

Globally, the direction is now explicit. The first Global Stocktake at COP28 called for transitioning away from fossil fuels in energy systems, tripling renewable energy capacity, and doubling energy efficiency improvements by 2030, with developed countries taking the lead and accelerating the phase down of unabated coal and the phase out of inefficient fossil subsidies. That signal matters for investment, for policy, and for public confidence that a just energy transition is both possible and underway.

Defossilization is also an occupational security imperative. This novel security framework centers sustainability, health, justice, peace, compassion, and truth in how we design systems of work and life (see "Occupational



> The opportunity space is large. Pakistan has world class solar and wind resources. World Bank analysis shows that meeting today's electricity demand would require only a very small fraction of national land for solar, and technical studies identify major wind potential concentrated in Sindh's Gharo–Jhimpir corridor and parts of Baluchistan

Security: Basics" box). At the heart of this defossilization journey lies the ethics of occupational security, a holistic framework that emphasizes dignity, safety, and justice across all life forms. Unlike traditional energy transitions that focus narrowly on technology or economics, occupational security ensures that both human and non-human well-being is central to the process. It links environmental security with the right to dignified work, community safety, and sustainable futures — making the case that shifting away from fossil fuels is not only an ecological necessity but also a moral responsibility to protect people, livelihoods, and collective security.

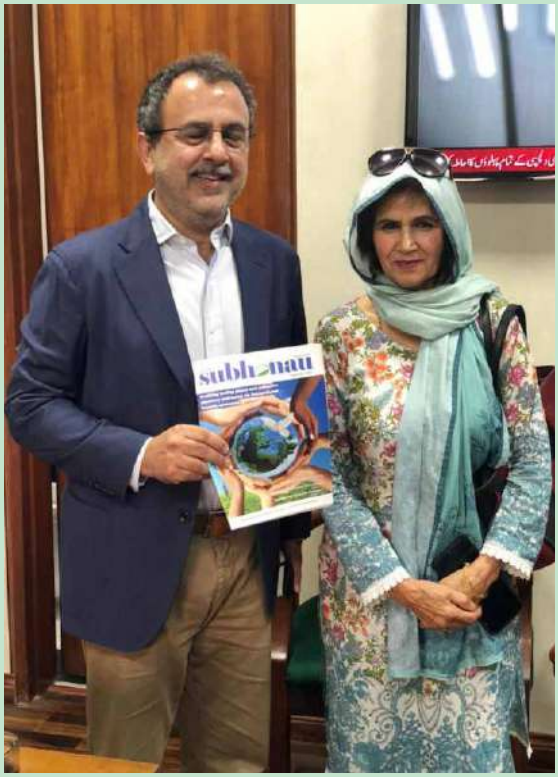
For Pakistan, that means replacing hazardous, price exposed fuels with affordable local renewables that safeguard workers and communities, protect ecosystems, and reduce conflict over scarce resources. It also means transparent data, trustworthy institutions, and community participation in decisions about siting, grid upgrades, and skills programs, so that the transition lifts those historically left behind rather than repeating old inequities.


*The upcoming COP28 climate conference will call for a tripling of renewable energy capacity and doubling of energy efficiency improvements by 2030*

The opportunity space is large. Pakistan has world class solar and wind resources. World Bank analysis shows that meeting today's electricity demand would require only a very small fraction of national land for solar, and technical studies identify major wind potential concentrated in Sindh's Gharo–Jhimpir corridor and parts of Baluchistan. If grid and market barriers are removed, these corridors can anchor many gigawatts of reliable, low cost power for homes and industry.

Defossilization is a shared project. Developed countries must match words with finance and technology cooperation at the scale required. After years of shortfalls, OECD data show the collective climate finance goal of 100 billion dollars was finally exceeded in 2022,

## Subh-e-Nau: A beacon for renewable energy and sustainability in Pakistan




For over three decades, Subh-e-Nau has been at the forefront of environmental awareness and action in Pakistan, championing a green and just transition toward renewable energy. Through its publications, community initiatives, youth engagement, and high-level policy advocacy, Subh-e-Nau has relentlessly pushed the envelope on issues such as deforestation, climate change, clean air, sustainable agriculture, and energy equity. Whether raising awareness about solar and wind potential, or highlighting the dangers of fossil fuel dependency, the magazine has consistently provided a platform for science-based environmental discourse that is both locally grounded and globally aware.

In a landmark moment, Subh-e-Nau's Chairperson and Chief Editor recently met with Mr. Awais Leghari, Federal Minister for Energy. This meeting symbolizes a powerful confluence of civil society leadership and federal policy vision, both united in their goal to move Pakistan toward a cleaner, fairer energy future. Subh-e-Nau remains committed to working with ministries, scientists, and citizens alike to transform the country's energy landscape and help Pakistan emerge as a leader in climate resilience and renewable innovation.

**From publishing to planting trees, from writing to resisting coal — Subh-e-Nau stands for sustainability.**

reaching about 116 billion, but the need is far larger and the balance of grants, adaptation support, and just transition funding remains inadequate. Delivering predictable, accessible finance is essential for countries like Pakistan to build grids, storage, and resilient supply chains while protecting workers through reskilling and social protection.

This cover story sets out a practical route for Pakistan to stay away from new coal and rapidly scale renewables, efficiency, storage, flexible hydropower and pumped storage, sustainable bioenergy where appropriate, green industry, and smarter demand. It frames each step through occupational security so that energy policy becomes people centered policy. The pages that follow map today's energy system, identify the coal and gas lock ins to avoid, quantify Pakistan's solar and wind buildout potential, outline grid and storage upgrades, detail financing and industrial strategy, and set expectations for developed countries to finally lead with action, not promises.

### Breaking away from coal and gas dependency

Pakistan's energy system has long been shaped by dependence on imported fossil fuels. Furnace oil and LNG have not only strained foreign reserves but also exposed the economy to extreme price volatility, as witnessed during the global energy crisis of 2022 when imported gas costs surged beyond affordability. The turn to domestic coal in Sindh's Thar desert, promoted as an alternative, risks locking the country into decades of carbon-intensive infrastructure just as the global tide is shifting away from coal altogether. While marketed as "cheap," coal carries hidden costs: toxic air pollution, water stress, displacement of local communities, and escalating carbon liabilities as international carbon border adjustment mechanisms begin to penalize high-emission exports.

From the occupational security

perspective, reliance on coal and gas represents a direct threat to human and ecological well-being. Coal mining exposes workers to unsafe conditions, respiratory illness, and economic precarity when demand inevitably declines. Gas imports siphon national resources that could instead be invested in renewable projects which generate secure, localized jobs. Moreover, fossil-based power plants exacerbate urban smog, raising health risks for vulnerable populations—children, the elderly, and outdoor workers—while undermining the justice and compassion values at the core of occupational security.

Globally, the developed world carries both historical responsibility and current capacity to lead in defossilization. The United States, EU, Japan, and other advanced economies are still subsidizing fossil fuels at a staggering scale, despite public commitments. A 2024 report from the International Energy Agency (IEA) confirmed that fossil fuel consumption subsidies worldwide exceeded $1 trillion in 2022, with a large share flowing in developed and emerging economies alike. These subsidies distort markets, undermine climate targets, and perpetuate systemic inequities where the Global South, including Pakistan, suffers the brunt of climate impacts without having reaped the benefits of historical fossil development.

To truly unlock a sustainable path, Pakistan must actively resist new coal projects and instead position itself as a leader in renewable expansion. Simultaneously, developed countries must commit to phasing out coal and reducing gas dependence in line with their fair share of climate responsibility. They must also stop exporting coal plants and fossil technology to the Global South, and instead provide financing, technology transfer, and

“From the occupational security perspective, reliance on coal and gas represents a direct threat to human and ecological well-being. Coal mining exposes workers to unsafe conditions, respiratory illness, and economic precarity when demand inevitably declines. Gas imports siphon national resources that could instead be invested in renewable projects which generate secure, localized jobs”

capacity building for renewables. Only in this dual commitment including domestic action by Pakistan and global accountability by developed economies, can defossilization succeed in time to meet climate and development goals.

## Unlocking the solar and wind potential

Pakistan has some of the world's most promising renewable energy resources, particularly solar and wind, which remain vastly underutilized. Solar radiation levels average between 5–7 kWh per square meter per day across much of the country, offering the ability to power homes, schools, and industries with clean and affordable energy. Studies from the World Bank show that meeting today's entire electricity demand would require only a fraction of Pakistan's landmass dedicated to solar installations. The technical and economic feasibility of large-scale solar photovoltaic (PV) projects is no longer in doubt, with falling costs making solar the cheapest new electricity option in much of the world.

Wind energy is similarly promising. The Gharo–Jhimpir wind corridor in Sindh has already attracted investment, hosting multiple projects with capacities ranging from 50 MW to over 150 MW each. Estimates suggest that this single corridor has the technical potential for several gigawatts of wind capacity, providing consistent supply during the summer monsoon season when demand for cooling peaks. Additional potential exists in Balochistan and parts of Khyber Pakhtunkhwa, where wind speeds are suitable for utility-scale generation.

From the occupational security perspective, renewable energy development must be designed to create safe, dignified, and long-term employment opportunities. Solar panel assembly, installation, operations, and maintenance require a skilled workforce that can be trained within Pakistan, avoiding over-reliance on foreign contractors. Wind turbine projects offer jobs in construction, logistics, and technical services while also stimulating local supply chains for steel, concrete, and electronics. If implemented responsibly, renewables can anchor community development, empowering rural populations where many solar and wind projects will be located.

Globally, renewables are also the benchmark against which developed countries' climate responsibility will be measured. The call from COP28 to triple renewable energy capacity by 2030 demands rapid expansion not only in emerging economies but, most

> At present, energy policies in Pakistan remain fragmented, often swinging between short-term fossil fixes and hesitant renewable commitments. A comprehensive defossilization roadmap is urgently needed, built on targets aligned with the Paris Agreement and Pakistan's Nationally Determined Contributions (NDCs). Policymakers must commit to no new coal plants, set ambitious renewable portfolio standards, and prioritize energy efficiency. Regulatory clarity on net-metering, grid access, and feed-in tariffs would give private investors the confidence to expand solar and wind at scale

critically, in industrialized nations whose energy footprints remain disproportionately large. By investing in their own renewable buildouts while supporting countries like Pakistan through technology transfer and concessional finance, developed economies can turn pledges into tangible progress.

For Pakistan, the path is clear: accelerate deployment of solar and wind projects, modernize grid systems to integrate variable renewable energy, and design policies that reward community-centered, people-first energy planning. Doing so will not only reduce fossil dependence but also align energy development with the values of justice, sustainability, and compassion central to occupational security.

## Diversifying Pakistan's clean energy mix

While solar and wind stand at the forefront of Pakistan's renewable energy future, hydropower, bioenergy, and emerging alternatives offer critical pathways to diversify the energy mix and enhance resilience. Together, these sources reduce dependency on fossil fuels, stabilize supply, and create employment opportunities aligned with occupational security values of safety, justice, and sustainability.

## Hydropower: From legacy strength to smart flexibility

Hydropower already contributes nearly 20 percent of Pakistan's electricity. Large dams like Tarbela and Mangla remain central to the grid, but climate variability now demands rethinking how water and power systems interact. Flexible hydropower, including run-of-the-river projects and pumped storage, can provide balancing capacity for variable solar and wind power. Pumped storage in particular offers a proven, low-carbon alternative to fossil gas for grid stability, essentially functioning as a giant "battery" that stores surplus solar energy during the day and releases it at night. Expanding such projects is essential for both energy security and climate adaptation.

## Bioenergy: Rural livelihoods and energy access

Bioenergy, when developed responsibly, can provide energy access to rural communities while improving livelihoods. Biogas from agricultural waste, animal manure, and organic residues can fuel household cooking, reduce indoor air pollution, and replace imported LPG cylinders. On a larger scale, biomass plants using crop residues could supply electricity to rural mini-grids, creating localized jobs in collection, processing, and maintenance. However, occupational security principles caution against large-scale monocultures or deforestation for bioenergy, emphasizing the need for sustainable feedstock and protection of ecosystems.

## Emerging Alternatives: Geothermal and Hydrogen

Pakistan also has untapped geothermal potential, particularly in northern regions and volcanic hot springs, though exploration is limited. In parallel, the global hydrogen economy is advancing rapidly. For Pakistan, "green hydrogen" produced from renewable electricity could eventually support fertilizer production, steelmaking, or export markets. While these technologies remain at an early stage domestically, building pilot projects now positions Pakistan to join future global clean energy value chains.

## Occupational security and community development

Each of these options, namely, hydropower, bioenergy, geothermal, hydrogen carries implications for occupational security. Large dams must account for community displacement and ecological impacts. Biogas programs must ensure affordability and fair access for marginalized households. Hydrogen development must avoid elite capture and guarantee safe, well-regulated working conditions. By integrating values of justice, transparency, and compassion into planning, Pakistan can diversify its clean energy mix while ensuring equitable outcomes.

## Aligning institutions with defossilization goals

For Pakistan to transition away from fossil fuels and build a renewable-centered economy, technical progress must be matched with policy reform, financial innovation, and strong governance. Without these enabling pillars, renewable projects will struggle to scale, foreign investment will hesitate, and local communities may not see the benefits of the transition.

## Policy reform—clear signals for a clean future

At present, energy policies in Pakistan remain fragmented, often swinging between short-term fossil fixes and hesitant renewable commitments. A comprehensive defossilization roadmap is urgently needed, built on targets aligned with the Paris Agreement and Pakistan's Nationally Determined Contributions (NDCs). Policymakers must commit to no new coal plants, set ambitious renewable portfolio standards, and prioritize energy efficiency.

Regulatory clarity on net-metering, grid access, and feed-in tariffs would give private investors the confidence to expand solar and wind at scale.

## Financing the transition: From subsidies to sustainable investment

Fossil fuel subsidies continue to drain Pakistan's fiscal resources, while renewable projects face barriers to concessional finance. Redirecting subsidies from oil and coal toward renewable deployment, energy efficiency, and grid upgrades could shift incentives in the right direction. International climate finance mechanisms such as the Green Climate Fund (GCF) and Just Energy Transition Partnerships (JETPs) offer opportunities for Pakistan to access concessional funding and technology support. Equally important is developing domestic green finance—such as green bonds, blended finance, and microcredit for household solar systems — that mobilize local capital toward clean energy.

## Governance: transparency, inclusion, and occupational security

Good governance is the backbone of a sustainable transition. Transparent procurement systems, anti-corruption safeguards, and community inclusion in planning are critical. Integrating occupational security into governance frameworks ensures that policies prioritize human dignity, safety, and justice. For example, governance should ensure coal-affected workers receive retraining, communities are compensated fairly for land use, and vulnerable groups gain access to clean energy. This people-centered governance approach makes the transition socially acceptable and politically sustainable.

## Global dimension: The role of developed countries

Pakistan's path is linked to global climate politics. Developed countries must not only meet their own commitments but also provide sustained support to countries like Pakistan. This includes delivering on climate finance pledges, ending fossil fuel project financing abroad, and enabling technology transfer in renewables, storage, and green hydrogen. Pakistan's efforts will only be effective if matched by genuine solidarity and accountability from industrialized economies.

## Placing people and the planet at the center of energy change

The journey toward defossilization is not only about technology and finance—it is fundamentally about people and the planet. Communities, workers, and vulnerable groups as well our ecologically vulnerable ecosystems must not be left behind as Pakistan and the world transition away from fossil fuels. Instead, the process must be an opportunity to build resilience, create fair livelihoods, and foster social inclusion.

## Community-led renewable energy

Empowering communities to take ownership of renewable projects is one of the strongest ways to ensure equitable benefits. Village-scale solar microgrids, cooperative wind farms, or community-managed biogas plants not only improve access to clean power but also strengthen local governance. Such initiatives align directly with occupational security, as they provide dignified work, build local skills, and ensure that communities share in the benefits of energy transformation rather than becoming passive recipients.

## Just transitions for workers

Defossilization cannot mean abandoning workers currently employed in fossil fuel industries. Coal miners, oil refinery staff, and power plant technicians must be provided with structured retraining and pathways into new clean industries. Occupational security highlights that dignified work is central to well-being — therefore, transition policies must include safety nets, vocational training, and income support. International best practices, such as retraining programs in Germany's Ruhr Valley, can guide Pakistan in designing context-specific pathways.

## Building social and climate resilience

Shifting to renewables also strengthens resilience against climate shocks. Communities that


generate their own power are less vulnerable to grid outages during monsoonal floods, heatwaves, or droughts. Decentralized systems, supported by local participation, enhance preparedness in the face of disasters. Integrating renewable energy with water conservation, agriculture, and health systems can multiply resilience benefits — ensuring that energy transformation is a foundation for wider well-being.

## A global imperative

For developed countries, just transitions also serve as a litmus test of climate justice. Shutting down coal mines in Europe or North America while ignoring worker welfare undermines credibility. Similarly, financing renewable energy abroad while still expanding domestic oil and gas contradicts the principle of solidarity. True leadership requires ensuring fairness at home and abroad. Occupational security offers a lens through which these principles can be institutionalized. By centering justice, dignity, and collective well-being, Pakistan's defossilization pathway can become both socially inclusive and globally exemplary.

## Global unity for defossilization

While Pakistan must pursue its own pathway toward renewable energy, the success of defossilization cannot be achieved in isolation. Fossil fuel dependency is a global problem, and overcoming it requires cooperation, financial support, and technology transfer between nations. For Pakistan, which faces acute climate vulnerabilities while contributing less than one percent of global emissions, solidarity from developed countries is essential.

## Technology transfer and knowledge sharing

Developed nations have pioneered advanced renewable technologies such as high-efficiency solar panels, offshore wind turbines, next-generation batteries, and green hydrogen systems. To accelerate the global energy transition, these technologies must be made accessible to developing countries through affordable licensing, collaborative R&D programs, and open innovation platforms. Pakistan, with its young and skilled workforce, could become a hub for renewable energy manufacturing and innovation—if given the necessary technological access.

## Climate finance and equitable investment

The commitment made at COP summits to mobilize $100 billion annually for climate finance remains largely unmet. For Pakistan and similar countries, accessing concessional loans and grants is often hampered by complex procedures and conditionalities. Streamlined mechanisms, debt relief tied to climate action, and direct investment into renewable projects

> The urgency of defossilization cannot be overstated. Pakistan stands at a crossroads where continued dependence on coal, oil, and gas would deepen environmental degradation, lock the economy into outdated systems, and endanger millions through worsening climate impacts. Yet, the same crossroads offers an alternative — a bold shift toward renewables, community resilience, and sustainable development anchored in justice and occupational security

can help overcome these barriers. Instruments such as Just Energy Transition Partnerships (JETPs), already piloted in South Africa and Indonesia, could provide Pakistan with a structured pathway to phase out coal while building renewable capacity.

## Ending fossil fuel expansion globally

True solidarity also requires developed countries to end fossil fuel expansion within their own borders. It is contradictory to fund coal plants or new oil fields abroad while professing climate leadership at home. International institutions such as the G7, World Bank, and IMF must adopt policies that categorically prohibit financing for new fossil infrastructure. Instead, these funds should be redirected toward clean energy, resilience, and community-focused adaptation measures.

## Occupational security as a global ethics and principle

At the international level, occupational security offers a unifying framework for defossilization. It emphasizes the right of all people to safe, dignified, and sustainable livelihoods. This framework insists that the transition must not only cut emissions but also deliver justice, protect vulnerable populations, and create opportunities for dignified work across borders. By embedding these values in international agreements, the global transition can move beyond numbers and megawatts to become a truly human-centered process.

## A call for defossilization: Toward a just, secure, and sustainable energy future

The urgency of defossilization cannot be overstated. Pakistan stands at a crossroads where continued dependence on coal, oil, and gas would deepen environmental degradation, lock the economy into outdated systems, and endanger millions through worsening climate impacts. Yet, the same crossroads offers an alternative — a bold shift toward renewables, community resilience, and sustainable development anchored in justice and occupational security.

## Pakistan's responsibility and opportunity

Pakistan must commit decisively to no new coal and to gradually phasing out fossil fuel imports, which drain foreign reserves and increase energy insecurity. By scaling up solar, wind, hydropower, and bioenergy, the nation can not only provide reliable electricity but also generate millions of green jobs. Anchoring this in occupational security ensures that workers, communities, and future generations benefit equitably from the transformation.

## Developed countries' role in global defossilization

Developed nations must honor

## Occupational Security – Protecting People and Planet Together

**What is Occupational Security?**

Occupational security is a holistic, values-based framework that views all life — human and non-human — as interconnected and deserving of dignity, safety, and sustainability. It redefines "security" not as military or state control but as the collective flourishing of people, communities, animals, and ecosystems through just and meaningful occupations.

**Core Values**

- Sustainability: Human livelihoods must regenerate rather than deplete the natural systems on which all species depend.
- Justice: Fairness across people, generations, and species ensures that no group—human or ecological—is marginalized for the benefit of others.
- Peace: Reducing conflicts that arise from resource extraction and ecological degradation while nurturing harmony between humans and nature.
- Compassion: Recognizing the intrinsic worth of non-human life and acting with empathy toward all living beings.
- Authenticity: Aligning occupations and governance with truth, transparency, and respect for ecological and social realities.

**Why it Matters for Energy Transitions**

Defossilization and renewable energy pathways guided by occupational security are not just about switching technologies. They are about reshaping human-environment relationships so that new occupations in clean energy also protect oceans, forests, wildlife, and ecosystems. In this way, occupational security ensures that defossilization is not only a human-centered transition but also a planetary one, safeguarding life in all its forms.

their historical responsibility by delivering on climate finance pledges, accelerating technology transfer, and ending fossil fuel subsidies at home and abroad. They must recognize that climate justice is inseparable from energy justice: a Pakistan striving to defossilize must not be abandoned without support. International solidarity, framed through occupational security, can help build a global movement that centers human dignity and fairness.

## A pathway to collective security

Energy security, economic security, and environmental security are interdependent. Defossilization is not only about decarbonization; it is about securing the occupations, livelihoods, and dignity of people across the globe. In Pakistan, where climate shocks already threaten millions, the energy transition must be designed to uplift communities, enhance resilience, and restore ecosystems.

Defossilization is not a burden but an opportunity. It opens a pathway toward a fairer society, cleaner environment, and stronger economy. By aligning national policies, mobilizing financial support, modernizing infrastructure, and fostering international cooperation, Pakistan and the global community can chart a sustainable course and steer clear from the existential threats posed by global climate change.■

Zahrah Nasir

# Gardening: Primed for tree-planting

Despite an endless succession of monsoon tree-planting campaigns, Pakistan still retains the abysmal claim to being one of the least forest-covered country on the planet. Given that billions of rupees have supposedly been invested in trees for a sustainable future, in the recent years alone, the scenario is indeed a cause for great concern.

*Our forests are vanishing*

The reasons for our ever-depleting forest cover are manifold: the timber industry and associated timber mafia, uncontrolled exploitation of firewood resources, population expansion, linked habitation and cultivation pressures all being extremely high on what could effectively be termed a 'doomsday list'.

Pakistanis are far from being alone in scandalously overexploiting our increasingly precious trees, as many other countries are doing exactly the same.

But with Pakistan listed as one of the top 10 countries most at risk from climate change, it is high time that we took our trees seriously.

Many of us profess a love for trees and find ways and means of growing and planting as many as we possibly can, but sadly, we are vastly outnumbered by those who have absolutely no respect for trees at all.

With this summer promising to be a furnace like never before, nature is literally screaming at us to do something to save our environment whilst there is still a chance. We can at least initiate the necessary proceedings to ensure some kind of livable

> “With the summer monsoon just weeks away, now is the perfect time to grow trees for a greener future”

climate for generations yet to be born.

With the summer monsoon nearly over, now is the prime time to do your bit towards the preservation of life on this earth. Remember, plant indigenous trees!

Generally, planting trees is recommended in two periods of the year because of anticipated rainfall. These are the weeks of both the summer and winter monsoons, but as with most things related to growing and caring for living plants, there is preparation to do beforehand to allow the selected baby trees a fair chance to survive and thrive.

On a garden scale, (forests and orchards having different requirements) before planting even a single tree, there are a number of things to be considered.

1. The position of overhead cables in respect to the potential height and spread, at maturity, of the tree species you wish to grow. No point in planting a tree which doesn't have the necessary space in which to reach its full potential. Select something smaller so that it doesn't have to be pruned back to an unattractive stump each year.
2. The exact location of underground cables, water tanks, and both water and sewerage pipes. The height and width of a mature tree is reflected in the spread of its root system, which so many people tend to overlook. For example, a tree reaching a height of 50ft and a spread of 40-60ft, is liable to develop a root system of a similar size at least.

The roots provide the tree with essential food and water, while firmly balancing it, in the process. Fragile as some of them may appear, tree roots are incredibly strong and tenacious, slowly but forcibly penetrating whatever barriers they find in their path, and seeking out water sources. Tree roots penetrating water tanks and water pipes is a common, extremely difficult and an inordinately expensive problem to resolve.■

*A young Araucaria*

Sultan Kiani

# Green patriotism in action: Subh-e-Nau celebrates independence with Tree Plantation Drive in Islamabad

On this Independence Day, Subh-e-Nau urged commitment at all levels towards truly greening our country and held a celebratory plantation event.

14 August 1947 was a historic day when our nation achieved independence after a long struggle and countless sacrifices. We commemorate this day each year to pay tribute to M. A. Jinnah, the Father of the Nation, who made this dream come true. Independence Day celebrations begin in early August, with green flags waving everywhere and national songs echoing through the air with pride and patriotism.

> These are surely not the true spirit of independence. This must change, as civilized nations always celebrate their festivals with dignity and respect

However, it is sadly observed that our youth is becoming more focused on entertainment than on understanding the values of independence. Unfortunately, aerial shooting, bursting firecrackers, blaring noisy horns, and recklessly riding motorcycles without mufflers have become common practices during Independence Day. Such irresponsible activities not only cause public nuisance by creating noise pollution but also result in serious accidents.

These are surely not the true spirit of independence. This must change, as civilized nations always celebrate their festivals with dignity and respect.

Subh-e-Nau recently took a small but impactful step by organizing a Clean and Green Independence Day celebration drive in Islamabad. The campaign started with cleaning residential parks in collaboration with the local community, followed by the plantation of indigenous saplings.

“I am particularly happy to see the children attending this Independence Day plantation event. This is how we can inspire our next generations to be respectful and responsible in safeguarding the environment,” said Shahida Kausar Farooq, Chairperson of Subh-e-Nau. “Youth are our hope for a better tomorrow. I urge them to focus on conserving water and energy, keeping the country clean, and planting more and more trees to make Pakistan a truly green nation,” she added.

Here are some glimpses from recent Subh-e-Nau tree plantation events in Islamabad.■

Rana Usman Ali
Dr. Farrukh A. Chishtie

# Flash Floods Emergency in Pakistan

The summer of 2025 will be remembered as one of the deadliest flash flood seasons in Pakistan's history. In June, a family picnic in Swat Valley turned tragic when sudden torrents swept away 18 people, leaving only three survivors.

By mid-July, a cloudburst at Babusar Pass submerged roads under water and debris, stranding hundreds of tourists. And in August, catastrophic floods in Khyber Pakhtunkhwa claimed more than 200 lives, with entire communities washed away overnight. These events show that flash floods are no longer rare disasters — they are becoming a recurring reality.

The National Severe Storms Laboratory at NOAA-US reports that floods are the most frequent and widespread type of weather-related natural disaster. Every year, they claim more lives than any other hazard linked to thunderstorms. Among them, flash

floods are the most dangerous, as they combine the force of flooding with extreme speed. These sudden floods occur when intense rainfall overwhelms the ground's ability to absorb water. They may also happen when normally dry streams quickly fill, or when rising water causes rivers and streams to spill over their banks. Water levels can surge within minutes of heavy rain, flash floods leave little time for warnings or protective measures, making them more deadly.

> "The steady rise of greenhouse gas emissions in Earth's atmosphere is pushing global temperatures upward, fueling what we know as global warming. Yet climate change is far more than just hotter days. Its far-reaching effects are transforming our environment in ways that threaten both ecosystems and human life"

The steady rise of greenhouse gas emissions in Earth's atmosphere is pushing global temperatures upward, fueling what we know as global warming. Yet climate change is far more than just hotter days. Its far-reaching effects are transforming our environment in ways that threaten both ecosystems and human life. From melting glaciers and warming oceans to rising sea levels and violent weather extremes, the evidence is all around us, reminding us that the window to act is rapidly closing.

One of the clearest signs of this shift is the change in rainfall patterns. Some regions now experience intense cloudbursts and flash floods, while others endure long stretches of drought. The U.S. Environmental Protection Agency has explained that climate change is closely tied to these extremes, influencing both the intensity and frequency of rainfall. Warmer oceans release more water vapor into the atmosphere, which means the air holds more moisture than before. When this moisture condenses into clouds over land, it can unleash unusually heavy downpours, sometimes resulting in destructive flash floods and sudden cloudbursts. On the other hand, altered weather systems may withhold rainfall altogether, creating prolonged dry spells and drought conditions.

But greenhouse gases are only one part of the problem. Human interference with natural ecosystems is amplifying the damage. Deforestation, unchecked urban expansion, and the conversion of fertile soil into concrete housing societies strip the land of its natural defenses. Forests and vegetation play a critical role in slowing down rainfall, reducing soil erosion, and absorbing excess water. When these buffers disappear, the land becomes more vulnerable. Heavy

Cloudbursts and flash floods

rains erode soil more quickly, floodwaters run off unchecked and natural drainage systems collapse. At the same time, replacing permeable soil with concrete drastically reduces the Earth's ability to absorb water, forcing rain to rush across surfaces at greater speed and volume—turning manageable rains into devastating floods.

In short, climate change is not an

isolated phenomenon but the result of both rising greenhouse gases and human disruption of natural systems. Its impacts, from floods, droughts, rising seas, to ecosystem collapse, are all warning signs that humanity must not ignore. The challenge before us is urgent: restore balance with the environment, reduce emissions, and protect the natural systems that keep our planet resilient.

For a clearer understanding of the current situation in Pakistan, I would like to share insights from Dr. Faisal, Chief Meteorologist at PMD. During an interview on national TV on 18th August 2025, he said that there is climate variability, means some years' experience more rainfall activity while others has less. These are part of natural cycles, but overall trends in recent decades show that monsoon rains in Pakistan are increasing and their patterns are also shifting. For example, last year July saw below-normal rainfall, while this year July recorded 22% above-normal rainfall across Pakistan. However, in August so far, most regions except Gilgit-Baltistan have received below-normal rain. Dr. Faisal explained that climate change is adding new challenges. Rising temperatures in northern mountainous regions over 2°C in the past few decades are causing faster glacier melt. This increases water flow and, combined with more monsoon penetration into the north, accelerates glacier melting further. Glacial lakes sometimes overflow or burst due to overfilling or blockages caused by landslides, leading to sudden flooding events.

Climate change is no longer a distant threat; it is unfolding before our eyes. It is, therefore, the responsibility of every individual to contribute toward slowing its impacts. Pakistan is among the countries most severely affected, making a coordinated global response essential. Above all, protecting communities and saving lives must remain the top priority. The recent flash floods, which destroyed infrastructure and homes, highlight the urgency of preparedness. Public awareness is crucial. People must understand the risks and learn how to stay safe during floods. Strengthening early warning systems, supported by a reliable network of weather stations and river gauges, is urgently needed, along with robust communication channels to reach remote areas. In this vein, the establishment of a dense hydrometeorological monitoring system is critical. Pakistan currently lacks an extensive network of weather stations, stream gauges, and automated sensors that can provide real-time data across diverse terrains. This absence severely limits the accuracy and timeliness of flood forecasting. A denser monitoring network would not only improve early warning capabilities but also enable better understanding of local rainfall variability, glacial melt contributions, and river dynamics. Without such systems, communities remain vulnerable to sudden flooding events with little to no warning, magnifying the risk of loss of life and property.

Equally important is investment in climate-resilient infrastructure such as improved drainage systems in low-lying regions. Enforcing land-use regulations, including banning construction on riverbanks and floodplains, is vital. Finally, large-scale reforestation can play a key role in absorbing rainfall, reducing soil erosion, and controlling runoff. Collectively, these measures can help mitigate the devastating impacts of flash floods and safeguard vulnerable communities. ■

Sultan Kiani

# 7 Silent Hazards Secretly Damaging Your Health

**Recently, A teacher training session turned tragic as a participant suffered a fatal cardiac arrest. It happened on June 30, 2025, in Lahore (Pakistan), when a school teacher suddenly collapsed while delivering a lecture.**

Niaz Ahmed (36) was taken to the nearest hospital but could not be resuscitated. Incidents of fatal cardiac arrests are spiking at an alarming rate, with Pakistan recording one of the highest numbers of young victims. While there could be multiple contributing factors to such life-threatening emergencies, health experts recommend making appropriate lifestyle changes to minimize the risk. There are several poor habits that could be silently damaging your health. We have identified seven of them, along with tips to protect your heart and overall well-being:

## 1. Consuming Junk Food and Sugary Drinks

We all know that drinking alcohol, smoking or chewing tobacco, and using recreational drugs are injurious to health. Nonetheless,

processed snacks, and sugary carbonated beverages are generally underestimated as serious health risks. Regular consumption of such junk foods and sugary drinks takes a serious toll on health. It may increase the risk of high blood cholesterol, hypertension, stomach problems, and diabetes.

Eating nutritious, balanced food is crucial for staying fit. Add vegetables to your meals, stay hydrated with clean water and fresh fruit juices, and refrain from eating fried fast foods, particularly those sold by street vendors.

## 2. Excessive Screen Time

Recent research published in the Journal of the American Heart Association confirmed that spending excessive hours on TV or any other screen—watching videos, reading, or playing games—may increase the risk of cardiometabolic diseases. It also affects vision and may lead to a range of other health issues.

Limit your screen time and avoid watching videos or playing games for prolonged periods. It is recommended to take a complete break from screens for a day or two each week. Those working on computers should follow the 20-20-20 rule: look at an object at least 20 feet away for 20 seconds and repeat this break every 20 minutes while at work.

## 3. Compromising Sleep

Whether it is poor time management, excessive workload, or simply insufficient sleep, the effects on body and mind can be serious. Doctors recommend at least seven hours of restful sleep to maintain good health. Every lost hour of sleep significantly increases vulnerability to disease. Follow a regular sleep routine and avoid screens or stressful activities before going to bed. This is particularly effective in maintaining a healthy sleep cycle.

> “Follow a regular sleep routine and steer clear of screens, stress, and unhealthy activities before going to bed”

*Spending excessive hours on screens could increase the risk of cardiometabolic diseases*

## 4. Self-Medication

While taking over-the-counter medicines for mild symptoms is common, using them for too long or taking specialized medications without a prescription may do more harm than good. Do not rely on online sources or Artificial Intelligence tools for self-diagnosis. Such sources provide information but cannot substitute medical professionals. Self-medication can complicate illness, worsen symptoms, or even mask serious conditions such as cancer, thereby delaying timely treatment.

Do not self-diagnose or take someone else’s medications just because your symptoms appear similar. Avoid reusing an old

*Engaging in sports activities at least once a week can reduce the risk of cardiovascular diseases*

*Damp towels and socks provide an ideal environment for fungal infections*

prescription, even when facing what seems to be the same condition. Always seek medical advice from a qualified physician for proper treatment.

## 5. Lack of Physical Activity

This problem is becoming particularly prevalent in developing countries, where more urban dwellers rely on personal motorized transport. Spending long hours sitting in office cabins, combined with lack of physical activity, greatly increases the risk of cardiovascular diseases, obesity, and other chronic health conditions. An unhealthy diet and excessive screen time further exacerbate the effects of physical inactivity.

> “Taking specialized medications without a prescription may do more harm than good. Don’t rely on online sources or Artificial Intelligence tools for self-diagnosis”

Walk daily, prefer stairs over elevators, use public transport whenever possible, and engage in sports activity at least once a week.

## 6. Poor Hygiene

Although not directly linked to heart-related issues, poor hygiene can still increase risks and contribute to other health problems. Being unhygienic raises the likelihood of stomach and skin infections, respiratory allergies, and oral health problems, including gum disease, which has been linked to cardiovascular issues.

Improving personal hygiene and maintaining a clean living environment are crucial to reducing such health hazards. Take regular showers, brush your teeth twice daily, and wear clean clothes. Always wash your hands after using the toilet and before meals. Keep your house clean: used towels and socks should not be left damp, as they provide an ideal environment for fungal infections.

## 7. Ignoring Mental Health

This is perhaps one of the most underrated issues. Beyond increasing the risk of heart-related problems, it is also a contributing factor to a wide range of medical conditions. Mental stress can weaken immunity, trigger insomnia, and provoke self-destructive behaviors that may be linked to the other unhealthy habits discussed above.

Always prioritize your personal well-being: avoid excessive work, manage stress, and do not allow minor issues to overwhelm you. Discuss your fears and concerns with loved ones, and seek professional help from a psychiatrist when required. ■

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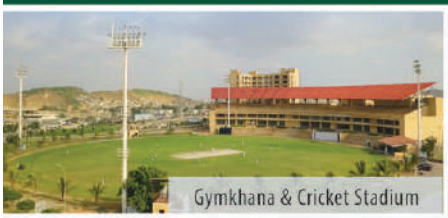

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Muhammad Irfan Saeed
Dr. Farrukh A. Chishtie

# Beauty of the Universe

What makes us human beings is our curiosity which is the essence of human existence, and space exploration has been part of humankind for a long time. Throughout history, humans have looked to the skies to navigate the vast oceans, to decide when to plant their crops and to answer questions like where we come from, how we got here and where can grow.

Astronomy is an old scientific field, invented 3000 years ago; in fact, we are all descendants from astronomers. Our survival depended on knowing how to read stars in order to predict the changing of seasons on Earth. We awakened in this tiny world beneath a blanket of stars, like an abandoned baby left on a doorstep without a note to explain where we came from, who we are, how our universe came to be, and with no idea how to end our cosmic isolation. We have had to figure it out all by ourselves. It is a discipline that opens our eyes, gives context to our place in the universe, and that can reshape how we see the world.

Astronomy has always had a significant impact on our worldview. As our understanding of the world progresses, we find ourselves and our view of the world even more entangled with the cosmos. The oxygen we breathe, carbon in our muscles, calcium in our bones, and iron in our blood — all of it was cooked in the fiery heart of dying stars. We are made up of star stuff. The cosmic perspective is relatively new; a mere four centuries ago, when there were no telescopes, the universe was only what we could see with the naked eye. Back then, everyone assumed that Earth was the center of the universe, a universe made for us. Galileo shattered that illusion with his first look through a telescope, showing that Earth is not even the center of our solar system, but revolves around the Sun with other planets, and that the Milky Way was made of countless stars like our Sun, invisible to the naked eye. In merely four centuries, it has taken us from Galileo's telescope to leaving footprints on the Moon. As Carl Sagan said, "We are a way for the cosmos to know itself."

This perspective also shows how beautifully we are connected. The same processes that forged the stars forged us; the iron flowing in our blood and the calcium in our bones are direct gifts of the universe. When we look at the night sky, it is not just distant light we see — it is a reminder that every atom in our bodies has traveled an extraordinary journey across cosmic time. The universe is not something “out there” and separate; it is within us, binding us together in a vast and elegant web of connection. To recognize this is to understand that our human story is inseparable from the larger cosmic story.

Astronomy also inspires us to search for other worlds. The discovery of exoplanets — planets orbiting stars beyond our Sun—has shown us that planetary systems are not rare but widespread. Some are giant gas planets orbiting too close to their stars, others are icy, and a few resemble “waterworlds.” These discoveries ignite our imagination about what might be possible elsewhere. Yet as exciting as this frontier is, it also reminds us of something essential: while we may one day learn about life beyond Earth, no exoplanet can yet replace the precious balance that sustains life here.

Our first duty is to this planet. Earth already offers liquid water,

> As Carl Sagan said, "Our planet... is the lonely speck in the great, enveloping cosmic dark. In our obscurity, in all this vastness, there is no hint that help will come from elsewhere to save us from ourselves. The Earth is the only world known so far to harbor life. There is nowhere else, at least in the near future, to which our species could migrate. Like it or not, for the moment, the Earth is where we make our stand

rich biodiversity, protective atmosphere, and the delicate rhythms that make life possible. We must learn to manage it in a sustainable way, drawing lessons from nature itself — its cycles of renewal, its capacity for balance, its resilience. Exoplanets must be researched to expand human knowledge and perspective, but our priority must be to make Earth a shining example of harmony with the wider universe. Only then can our quest among the stars be a reflection of wisdom, rather than of escape from mistakes made at home.

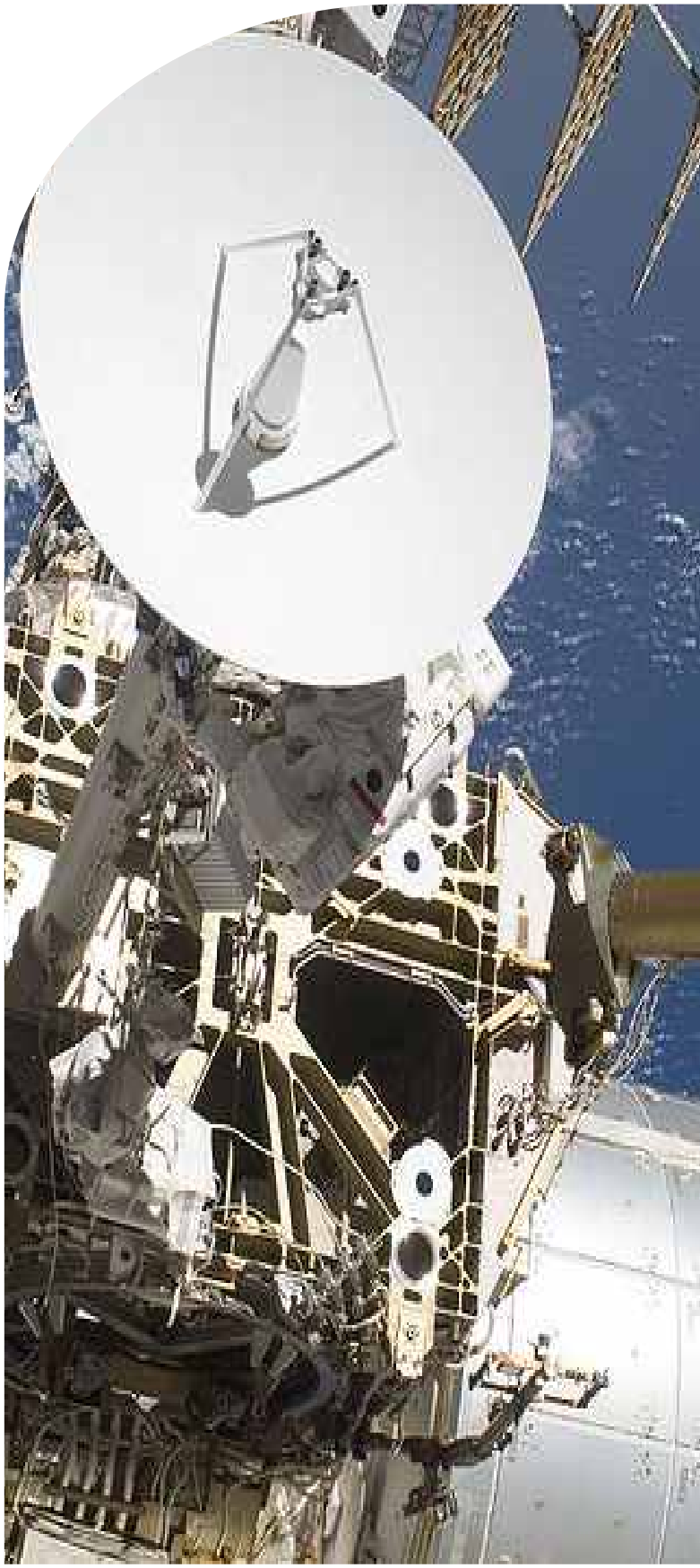
At this stage in Pakistan, we inherit a great heritage as Muslim scientists were pioneers of this field. They had a passionate desire to understand nature. They questioned everything, especially those things that everyone took for granted. The work of the Muslim astronomers who lived between the 9th and 12th centuries was both innovative and accurate. Its influence was felt for generations to come. Many of the most basic

concepts of modern astronomy were either developed directly by them or came about through their influence on later astronomers. It was the golden age of science in the Islamic world. Much of Greek science would have been extinguished without their efforts. The reawakening of science that took place in Europe hundreds of years later was kindled by the flame that had long been tended by Islamic scholars and scientists. Even Arabic numerals are one of our inventions, as is the concept of zero. Arabic astronomy was so influential that we still call many bright stars by their Arabic names, and words like algebra, algorithm, alchemy, and alcohol trace back to the time when Arabic was the language of science. In that period, mathematics took a great leap; agriculture, engineering, medicine, navigation, and star maps flourished. Astrolabes were crafted. Then it all stopped. It ended.

Learning the age of the stars, how they form, and finding Earth-like planets and potential life elsewhere in the universe — what difference does that make? Part of it depends on how big a universe you are willing to live in. Some may like it small, close, and familiar. That is understandable. But I like it big. And I want to take all of this into my heart and mind. I am uplifted by it. And when I have that feeling, I want to know that it is real, not just something happening inside my head, because it matters what is true. And our imagination is nothing compared to nature's awesome reality.

As Carl Sagan said, "Our planet... is the lonely speck in the great, enveloping cosmic dark. In our obscurity, in all this vastness, there is no hint that help will come from elsewhere to save us from ourselves. The Earth is the only world known so far to harbor life. There is nowhere else, at least in the near future, to which our species could migrate. Like it or not, for the moment, the Earth is where we make our stand."

Astronomy is indeed a humbling and character-building experience. To me, it underscores our responsibility not only to cherish the pale blue dot, but also to make it a model of sustainability and harmony within the cosmos. If the universe shows us how beautifully we are connected, then Earth must be our first and greatest expression of that connection — an example of balance and stewardship that echoes the elegance of the stars. ■



Svetlana Onye

# Solar panels in space 'could provide 80% of Europe's renewable energy by 2050'

Researchers also suggest system could resolve problems with irregular and weather-dependent Earth-based supply.

Solar panels in space could cut Europe's terrestrial renewable energy needs by 80% by 2050, a study has found.

Using a detailed computer model of the continent's future power grid, the researchers found that a system of space-based panels designed by Nasa could reduce the cost of the whole European power system by as much as 15%. It could also cut battery use by more than two-thirds.

Photo Credit: Getty Images/iStockphoto

*The study also suggests space-based solar power could cut the cost of Europe's power system by 15% and battery usage by more than two-thirds*

The study, led by researchers at King's College London, is the first to assess the possible impact of space solar energy on Europe. The space-based solar power (SBSP) panels that yielded the positive results uses a heliostat design. The design, which the system imitates, uses mirror-like reflectors to collect sunlight in orbit. The sunlight is then transmitted to stations on Earth and converted to electricity before it is delivered to an energy grid.

The computer model of the continent's power grid spans 33 countries, and simulates electricity demand, generation and storage to identify the lowest-cost option to meet Europe's electricity needs.

When the researchers integrated the SBSP concept into the model based on NASA's predictions of its potential energy capacity, results showed that it could replace as much as 80% of Europe's land-based renewable energy.

Land-based renewable energy is irregular and weather-dependent, complicating reliable supply, and comes at varying costs, the researchers point out. SBSPs could be an alternative centralised energy resource that operates above the atmosphere with continuous gigawatt-scale power.

The authors note that the modelling does not account for potential impacts from space-specific challenges such as orbital congestion, transmission interruptions or beaming variability, which could influence SBSP reliability and operational performance.

"When the researchers integrated the SBSP concept into the model based on Nasa's predictions of its potential energy capacity, results showed that it could replace as much as 80% of Europe's land-based renewable energy"

Nor could the potential cost-effectiveness of SBSP be realised until 2050 because building, launching and maintaining it would be too expensive unless technological growth reduces its costs.

Dr Wei He, a senior lecturer at KCL's engineering department and lead author of the study, which is published in Joule, said: "There are some risks to consider, such as how the satellite in space could have too many solar panels. Could it cause collisions or be damaged by debris in space?"

Despite those risks, Wei believes the research shows that SBSP has the potential to help countries in achieving net zero. "Renewable energy to replace fossil fuels is the most important action we are taking as humans. Space-based solar power is a potential technology and can provide continuous solar power as a renewable energy source," he said.

Europe could follow suit, the paper suggests, mentioning the continent's longstanding tradition of multinational cooperation of cross-border electricity exchange and satellite ventures under the European Space Agency.

The authors believe Europe could leverage its multinational cooperation to develop and operate a centralised SBSP infrastructure. In doing so, it could create a continent-scale solution to provide stable, baseload-scale renewable supply, reducing the continent's reliance on gas-fired power.

"Now is the time," Wei said.■

*(Courtesy: The Guardian UK)*

SN Report

# Sustainable earth-friendly self-care ideas to try this autumn

As the seasons change, treat autumn as an opportunity to rest and wind down. Here are 5 sustainable self-care ideas to help you transition into the colder months. Take care of yourself, while protecting the planet.

As the leaves begin to fall and the days grow shorter, many of us can feel the seasonal shift in nature and within ourselves.

The darker days can be a time when tough feelings like exhaustion and loneliness can intensify. And for people who care deeply about environmental issues, we're more prone to feelings and experiences like eco-anxiety When we feel like this, it's really important to remember to take care of ourselves. But self-care doesn't have to just benefit us, it can help our planet too.

## 1. Seasonal snacking and sipping

Autumn is a season of rich, comforting foods. Embrace the harvest by purchasing seasonal produce that supports local farmers, while reducing your carbon footprint. Shopping at local farmers' markets and eating in season helps reduce the demand, for long-distance transportation of food.

- **Seasonal eating:** incorporate root vegetables like sweet potatoes, carrots and pumpkins into your autumn diet. These hearty foods are filled with nutrients to support your immune system through the colder months – and they taste amazing.
- **Reusable cups:** it's always nice to treat yourself to a hot drink in the colder months. If you're a fan of pumpkin spice lattes or other seasonal drinks, don't forget to use your reusable cup.

## 2. Tend to the greenery in your home

Springtime isn't the only time you can be green fingered. Autumn is a great opportunity to get out into your garden and create a sanctuary for local wildlife. The act of tending to your garden, or nurturing your indoor plants, will help you form a connection to the earth, reminding you of the cycles of rest and renewal that nature – and we – require.

- **Create log piles:** by stacking up fallen branches and logs in a corner of your garden, you'll be providing a safe haven for wildlife to hibernate in. These simple actions provide life-saving shelter for creatures in the colder months.
- **Leaf mulch:** fallen leaves can really pile up in the colder months, but did you know you could gather them up and create leaf mulch? As they break down, they'll be providing essential nutrients to your earth, keeping your soil nice and healthy.
- **Look after your indoor plants:** when the seasons change, our indoor plants need that extra bit of love. See what's needed to keep your indoor plants happy as the days grow darker. Consider adjusting placement to maximise light and changing how much water you give them.

## 3. Get cosy and crafty

Autumn is a perfect time to embrace slow, mindful activities that engage your creativity while being eco-friendly. Crafting can bring a sense of comfort, especially when what you create benefits both you and your local environment.

- **Bird feeders:** in the colder months, food becomes scarce for birds. You can DIY your own bird feeders from natural or upcycled materials. This is a great way to support them during autumn and winter. Consider using pinecones coated with peanut butter and rolled in birdseed, or DIY feeders made from hollowed-out oranges.
- **Textile projects:** cozy up with

a new knitting project like a scarf or blanket. Use sustainable yarns to support eco-conscious production methods and reduce microplastic pollution.

### 4. Treat your self to homemade face masks

Autumn's cooler, drier air can leave your skin feeling dry. Facemask can help. Instead of buying facemasks from stores, you can make your own at home using ingredients from your cupboards.

- **Oat and apple mask:** oats are known for soothing irritated skin, while apples are a natural exfoliant. Combine them with honey for a hydrating, brightening mask.
- **Pumpkin face mask:** pumpkins are plentiful in autumn and packed with vitamins. Mix pureed pumpkin with honey and yogurt for a nourishing and hydrating mask.

> "Autumn is a great opportunity to get out into your garden and create a sanctuary for local wildlife. The act of tending to your garden, or nurturing your indoor plants, will help you form a connection to the earth, reminding you of the cycles of rest and renewal that nature – and we – require"

### 5. Preparing for brighter days

If you're the type of person that likes to look forward, consider preparing for the brighter months. You can sow seeds now, which'll bloom into life in spring.

- **Plant spring bulbs:** plants like daffodils, tulips and crocuses all need to be planted in autumn to bloom in spring. Make sure you pick organic or heirloom bulbs – this way your garden will be supporting biodiversity and local ecosystems.
- **Sow wildflower seeds:** if you have space, sprinkle some wildflower seeds. This'll encourage pollinators like bees and butterflies' next spring.

Autumn is a season that invites us to slow down, reflect and reconnect with ourselves and the natural world.

By integrating planet-friendly self-care practices, you can look after yourself and the Earth. From preparing your garden for winter to enjoying seasonal foods, each action is a reminder that sustainable living is about finding balance within yourself. ■

*(Courtesy: Friends of the Earth)*

# NEWS MAKER

## Karachi Drenched by Record Monsoon Rains

Karachi experienced its highest single-day monsoon rainfall since 1979, recording 163.5 mm in a few hours and paralyzing the city's infrastructure. Major roads and underpasses were submerged, flights were delayed or canceled, and thousands were left without electricity. Urban drainage systems, many of which are outdated and clogged, failed to manage the overwhelming downpour. Officials blamed poor maintenance and unchecked urban sprawl for exacerbating the crisis. *(Source: Reuters)*

## Flash Floods Devastate Khyber Pakhtunkhwa Villages

Sudden cloudbursts in Swabi and Buner districts triggered flash floods that claimed over 360 lives and left scores injured or missing. Eyewitnesses reported walls of water crashing through villages with barely any warning, demolishing homes, crops, and livestock in minutes. Rescue workers struggled to access remote regions due to landslides and washed-out roads. This event highlights Pakistan's urgent need for real-time forecasting, early warning systems, and resilient housing. *(Source: Reuters)*

## Solar Panel Imports Surge to New Highs in 2025

Pakistan imported 12.7 GW of solar panels in the first three quarters of FY 2025, a major leap in its transition toward clean energy. This growth follows the previous year's record imports, making Pakistan one of the top solar markets in the Global South. The increased demand is largely driven by households and industries seeking relief from skyrocketing grid electricity prices. However, it has also introduced new challenges for national energy planning. *(Source: Taiyang News)*

## Solar Revolution Challenges National Grid Stability

The rapid expansion of solar energy has begun to disrupt the national grid, which was not built to handle decentralized energy flows. Consumers using net-metering are selling surplus electricity back to the grid, forcing utilities to rethink pricing models. Grid operators warn that unless storage and demand-management systems are improved, solar growth may cause instability. Policymakers are now exploring regulatory changes to ensure equitable access and pricing for all users. *(Source: Financial Times)*

## UNICEF: Floods Interrupt Education for Thousands of Children

Ongoing monsoonal flooding in Sindh and KP has forced hundreds of schools to close, interrupting education for thousands of children. Temporary learning centers have been set up, but these lack basic facilities and often double as shelters for displaced families. UNICEF warns that prolonged school closures may push vulnerable children into child labor or early marriage. The agency is calling for greater investment in climate-resilient schools and digital learning infrastructure.
*(Source: UNICEF Pakistan)*

## Punjab Launches "Plastic-Free Punjab" Campaign

The Punjab government has initiated a new campaign to eliminate single-use plastics, especially thin plastic bags, from the province. Citizens are being encouraged to switch to cloth, jute, or paper alternatives, with retailers facing fines for non-compliance. Environmental groups have welcomed the move but stress the need for consistent enforcement and public education. The campaign is part of broader efforts to reduce landfill waste and curb river and marine pollution.
*(Source: The Nation)*

## Pakistan Unveils Tree-Mass Plantation Drive Across Provinces

Ahead of National Plantation Day, Pakistan has launched a countrywide effort to plant more than 41 million trees across various ecological zones. The initiative aims to combat deforestation, restore biodiversity, and strengthen climate resilience. Civil society groups, schoolchildren, and local governments are participating in the effort. The campaign also promotes native species that support soil health and local livelihoods. *(Source: Arab News)*

## Pakistan Seeks Regional Support for Global Plastic Treaty

Pakistan is engaging neighboring Gulf and Asian nations to build a common stance for the upcoming global plastic treaty under UNEP. The country is lobbying for binding targets on plastic production and waste reduction, especially in developing economies. These diplomatic efforts reflect Pakistan's growing leadership in environmental multilateralism. Officials argue that regional cooperation is essential for meaningful change in ocean health and microplastic pollution.
*(Source: Arab News)*

## UN Declares 2025 as International Year of Glaciers' Preservation

In a landmark move, the United Nations has designated 2025 as the International Year of Glaciers' Preservation to draw global attention to glacier loss. The initiative includes public awareness campaigns, international forums, and funding mechanisms for glacier conservation. Pakistan, home to the highest number of glaciers outside the polar regions, stands to benefit from increased scientific and diplomatic focus. The declaration underscores the interconnectedness of water security, climate resilience, and global cooperation.
*(Source: UN Glaciers)*

## New Energy Vehicle Policy Pushes Electric Mobility Forward

Pakistan's recently unveiled New Energy Vehicle Policy aims to ensure that 30 percent of all new vehicle sales are electric by 2030, with a goal of full electrification of new vehicles by 2050. The policy includes incentives like lower duties on EV imports, tax breaks for manufacturers, and support for public charging infrastructure. Experts warn that without substantial investment in charging networks and grid upgrades, adoption may stall. Advocates emphasize that cleaner transport contributes to public health and urban air quality improvement.
*(Source: Eco Business)*

## Major Solar Grid Expansion Set to Lower Electricity Prices in Karachi

A comprehensive 400 MW solar integration project, covering grid connections, rooftop systems for public institutions, and solar equipment labs, is expected to be operational by July 2025. The initiative will feed into K-Electric's grid, benefiting 3.4 million users with reduced power tariffs and increased green energy share. Secondary goals include creating solar education hubs at local universities and supporting small-scale renewable startups. Analysts see it as a model for scaling public-private solar partnerships nationwide.
*(Source: Arab News)*

## WMO Issues Climate Alert: Global Warming May Exceed 1.5°C in 2025–2029

The World Meteorological Organization has projected a 70% likelihood that the global average temperature will exceed 1.5°C above pre-industrial levels in at least one year between 2025 and 2029. This would mark a historic breach of the Paris Agreement's most ambitious target. Pakistan, already on the front lines of climate risk, is expected to face even more extreme heatwaves, floods, and glacial melt. The report calls for urgent emission reductions and investment in adaptation measures worldwide.
*(Source: WMO)*

## Wind Corridor Potential Remains Untapped Amid Infrastructure Barriers

Pakistan's Gharo–Jhimpir corridor currently produces only 3 percent of national electricity, despite its abundant wind resources and existing capacity nearing 1.8 GW. Developers point to aged transmission lines and grid constraints as the main obstacles to scaling up production. Without swift infrastructure upgrades and market reforms, valuable clean energy potential remains underutilized. Energy experts suggest better-integrated planning and investment could unlock the corridor's full capacity.
*(Source: Cipher News)*

## Competitive Power Market to Launch by Month-End, Says Power Division

The Power Division has reaffirmed that Pakistan's competitive power market—allowing high-demand users to procure electricity via direct contracts—will go live by end of September. The framework includes establishing an Independent System and Market Operator, finalized open access rules, and pricing protocols designed to attract private sector participation. The initiative could break the current monopoly of public distribution companies and improve supply side efficiency. Stakeholders note that transparent bidding and careful regulation will be crucial to its success.■
*(Source: Pakistan Today)*

Creature of the Month

## Northern Palm Squirrel

The Northern Palm Squirrel (Funambulus pennantii) is a tiny, energetic rodent that lives across Pakistan. You might spot it in your garden, on your rooftop, or jumping from tree to tree in city parks. With its five dark stripes running along its back and its twitching bushy tail, it is hard to miss!

These squirrels love fruits, nuts, grains, and sometimes sneak into houses looking for food. They are known for planting seeds by accident, which helps new trees grow. So even the smallest animal plays a big role in our ecosystem!

*(Source: Wikipedia)*

Flower of the Month

## Peanut Flower (Moong Phali Ka Phool)

Did you know that peanuts do not grow on trees? The peanut plant produces small yellow flowers above ground. After the flowers are pollinated, a small stalk (called a peg) pushes into the soil, and there — underground — the peanut pod grows!

Peanuts are grown in many areas of Pakistan, especially in Punjab. They are a favorite snack and used to make oil, sweets, and spreads. They are also very healthy — rich in protein, vitamins, and healthy fats.

*(Source: National Peanut Board)*

## Poem

### The Busy Squirrel

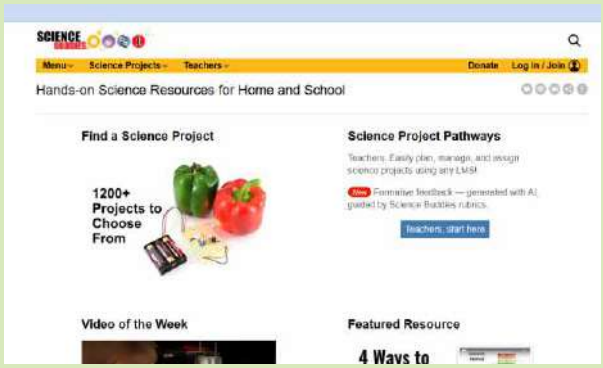
Scampering up the mango tree,
A bushy tail and stripes I see.
Nibbling fruit with tiny paws,
And stopping still with sudden pause.

It chatters high and dives down low,
Where do all its secrets go?
In garden shade and rooftop sun,
Its working day is never done.

*Samreen Altaf*

## Interesting website

**Science Buddies**
**www.sciencebuddies.org**




Want to build a volcano? Make your own weather station? Or try out optical illusions? Science Buddies offers free science fair ideas and fun activities that you can do with your family or teachers.

## Quote

"Every creature, big or small, has a story that can teach us about the world."

*~ Dr. Noor Alam, Wildlife Ecologist, University of the Punjab*

## International days


### International Day of Clean Air for Blue Skies

This day reminds us to take action for clean air. Walking to school, planting trees, and avoiding smoke from burning trash helps protect our lungs and sky.


### International Day for the Preservation of the Ozone Layer

The ozone layer protects us from harmful UV rays. It is healing because people around the world stopped using dangerous gases in sprays and fridges.


### World Rivers Day

Pakistan's rivers — like the Indus, Jhelum, and Ravi — are lifelines for people and animals. Keeping them clean means protecting nature and health.■

Mahvish Chishtie

# The Power of Peanuts:
## A Local Superfood for Every Household

Peanuts, locally known as *moong phali*, are a staple of winter street corners across Pakistan. Vendors roast them over coal fires and wrap them in newspaper cones, offering warmth and nourishment on chilly evenings.

Beyond their cultural and seasonal popularity, peanuts are one of the most underrated health foods readily available to the Pakistani population.

Despite being classified botanically as legumes, peanuts resemble nuts in their nutritional profile and culinary use. They are dense in protein, making them a valuable source of plant-based nutrition—particularly important in communities where meat is expensive or inaccessible. Peanuts also offer high levels of healthy fats, primarily monounsaturated and polyunsaturated fats, which support cardiovascular health when consumed in moderation.

The nutritional benefits extend even further. Peanuts are packed with vitamins and minerals such as vitamin E, niacin (vitamin B3), magnesium, zinc, and folate. These nutrients contribute to improved

brain function, enhanced immunity, and better metabolic health. Additionally, peanuts contain antioxidants like resveratrol, which is known for its anti-inflammatory and anti-aging properties.

From a public health perspective, peanuts are particularly valuable. Their combination of protein and healthy fat helps manage hunger and sustain energy, making them a smart choice for school lunches, afternoon snacks, or post-workout recovery. For individuals with diabetes or those managing blood sugar levels, peanuts have a low glycemic index and contribute to steady glucose control when eaten unsweetened and unsalted.

However, like all good things, moderation and care are necessary. A small portion of the population may have serious peanut allergies, which can result in severe reactions. While peanut allergy remains relatively rare in Pakistan, awareness is crucial, especially in schools and among parents of young children. Another concern in humid and poorly ventilated storage areas is the growth of molds that produce aflatoxins, toxic compounds that can cause liver damage. Purchasing fresh, properly roasted, and hygienically packaged peanuts can reduce this risk significantly.

In the kitchen, peanuts offer culinary versatility. Roasted peanuts mixed with salt and lemon juice make a healthy snack. Crushed peanuts can add texture to *sabzi, daal*, and chutneys. Peanut butter — if unsweetened — provides a nutritious spread for bread and roti. Traditional sweets like *moong phali ki chikki* (peanut brittle with jaggery) combine taste with a burst of energy, especially during colder months.

What many may not know is that Pakistan itself is a significant peanut producer, particularly in regions such as Chakwal, Attock, and Mianwali. Supporting local peanut farmers contributes not only to nutritional security but also to rural livelihoods and food sovereignty.

In a country where malnutrition and food insecurity remain pressing issues, peanuts offer a low-cost, high-impact nutritional solution. With proper handling and mindful consumption, this humble nut can play a vital role in promoting health, preventing disease, and even boosting local economies. Moong phali, it turns out, is more than just a winter delight — it is a year-round ally in the journey toward better health for all.■

Mahvish Chishtie

Peanuts are not only delicious, but also a great source of healthy nutrition. Here are two recipes for you. Enjoy!

## Moong Phali ki Chikki
### (Peanut Brittle with Jaggery)

### Ingredients

1 cup roasted peanuts (skin removed)
¾ cup jaggery (gur)
1 tablespoon water
¼ teaspoon cardamom powder (optional)
A few drops of ghee or oil (for greasing)

### Instructions

Grease a flat surface (like a steel tray or the back of a plate) with ghee and keep it ready.
In a heavy-bottomed pan, melt the jaggery with 1 tablespoon of water on medium heat. Stir constantly. Once the jaggery melts and begins to bubble, add the cardamom powder (optional). Drop a bit of the melted jaggery in cold water; if it hardens immediately with a crunch, it's ready. Add the roasted peanuts to the melted jaggery and mix quickly to coat them. Immediately pour the mixture onto the greased surface and flatten it with a rolling pin. While warm, cut into squares or diamonds. Let it cool and harden. Store in an airtight container.

## Spicy Peanut Chutney (South Pakistani Style)

### Ingredients

½ cup raw peanuts
2 tablespoons roasted desiccated coconut (optional)
1 small onion (chopped)
1-2 green chilies
1 small piece of tamarind (or ½ teaspoon tamarind paste)
Salt to taste
Water (as needed)
1 tablespoon oil
½ teaspoon mustard seeds
6–8 curry leaves
1 dried red chili

### Instructions

Dry roast the peanuts until golden and aromatic. Let them cool and remove the skins. In a blender, grind the roasted peanuts, onion, green chilies, tamarind, and coconut (if using) with some water to form a smooth chutney. Heat oil in a small pan and add mustard seeds. When they splutter, add curry leaves and red chili. Pour this tempering over the chutney. Mix well and serve. Serving suggestion: Goes well with steamed rice, lentils, or as a dip for samosas and pakoras.■

# KREATE
## YOUR MARK















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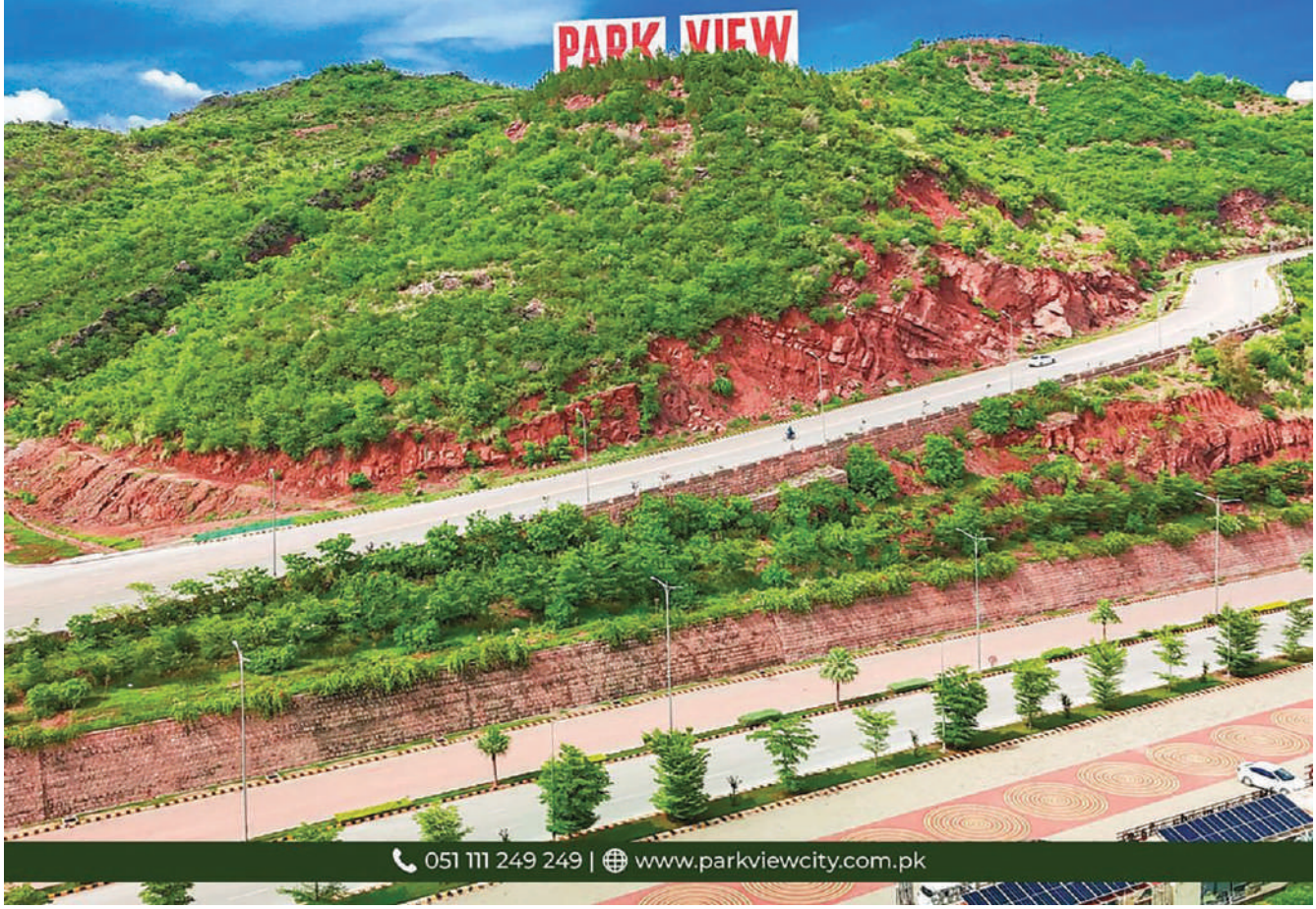


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