

THE AGA KHAN UNIVERSITY

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THE AGA KHAN UNIVERSITY

President's Challenge for Climate **Solutions**

PROJECT IDEAS FROM THREE ANNUAL CHALLENGES







Message from the President

In 2022, AKU launched the President's Challenge for Climate Solutions. We did so because we believe our students don't want to sit on the sidelines while the world grows ever hotter and the environment is steadily degraded – they want to take action. They want to be leaders, not spectators. The response of our students over the last three years has demonstrated that that is indeed the case. Their enthusiasm has been inspiring, and their solutions have been innovative and encouraging. I am grateful to everyone who has embraced the Challenge.

It is easy to bemoan the impact of human activity on our climate and environment – and then to turn around and continue on as before. It is much more difficult to alter one's behaviour, or to muster the determination needed to develop workable solutions to a problem that is among the most complex humanity faces. With the strong support of our faculty and staff, our students are taking the first steps on the latter path.

It has been a great pleasure to witness the growth of the Challenge since 2022, and the increasing depth of the ideas put forward by our students. I look forward to seeing them continue to collaborate and innovate as they seek ways to limit climate change, help the disadvantaged adapt to a warmer world, and protect our invaluable natural resources from unsustainable overuse. While they do so, AKU will, as an institution, continue to act in accordance with the Aga Khan Development Network's Environment and Climate Commitment – seeking to achieve net-zero emissions, to be a responsible environmental steward, and to encourage sustainability efforts within other institutions.

Dr Sulaiman Shahabuddin, President and Vice Chancellor, The Aga Khan University



Message from the Registrar

In late 2021, I noticed there was a lacuna amidst all the work that was being done by AKU and the AKDN in general on climate change: the students voice and involvement was still missing. A one-off event was not going to be the answer, rather it required a project that would sustain itself and would continue. Thus, the idea of a 'Challenge' for our students was shaped, to allow all our AKU students, in our 6 geographies to come together as one student body rallying for a cause. In addition, with my conviction that the process of change must start with the youth, the challenge for high school students was initiated.

For sustainability and to give the required profile, I am grateful to the AKU President who agreed to host this resource intensive project. The nice side-effect of this annual Challenge is also the global Student Award for Environmental Sustainability given at Convocation.

I am convinced that these initiatives will go a long way in chipping at the problem we have at hand and making a lasting difference, in smaller and larger ways, for the world we live in and the legacies we leave for the future.

Dr Laila Akbarali, University Registrar



Message from the Vice Provost, Students

Climate change is one of the greatest challenges of our time, but it is also a call to action, creativity, and collaboration. The President's Challenge for Climate Solutions was envisioned with the hope and understanding that our students have the ideas, energy, and heart to make a meaningful difference.

In the spirit of inclusion, they came together to tackle the complex climate issue of water conservation through tangible, innovative, and human-centered solutions. Their motivation and engagement extended well above and beyond the classroom, where they have embraced uncertainty, tested their ideas, and expanded their experiential learning capacity. Their actions; however small, can counter the paralysis of climate anxiety and open new pathways forward.

What makes the PCCS special is the way it brings our students together. The spirit of collaboration did not only lead to stronger projects, it built a shared sense of purpose.

At the core of many of these winning ideas is a deep commitment to humanity, which starts with empathy, to align their ideas with the needs of those most affected, with solutions that are both impactful and inclusive. Their proposals are glimpses of a future we can build, together.

As the lead of our global Student Affairs team, I'm so incredibly proud of our students and I hope our community feels the same sense of pride and possibility that we do. These projects are a testament to what's possible when our students lead with courage, curiosity, and care.

Rachel Baldwin, Vice Provost, Students



About this booklet

This booklet showcases the innovations, ideas, and learning from the winning projects of hundreds of students who have participated in the AKU President's Challenge for Climate Solutions over the past three years. These projects reflect the creativity and commitment of young people responding to the climate crisis with practical, hopeful solutions.

We hope this collection inspires you with the diversity of actions that can contribute to a more climate-resilient future. At the same time, we hope it encourages a shift in perspective: from seeing the climate crisis as overwhelming, to viewing it as a challenge we can take on together. The next generation is not waiting, rather, they are already shaping a more sustainable world.



AKU

AKU PRESIDENT'S CHALLENGE FOR CLIMATE SOLUTIONS

Participate Now! www.aku.edu/climatesolutions

2024 Theme

For AKU's third iteration of the Challenge, the theme was **'Every Drop Counts'** due to the relevance and urgency of climate-related water challenges in all AKU geographies and beyond, while also providing countless opportunities for individuals to make positive impacts.

Climate change profoundly affects water availability, leading to two extremes: too much and too little water. This dual threat disrupts agriculture, water supplies, and ecosystems, challenging efforts to sustain human and natural systems. The delicate balance of water is increasingly disturbed, highlighting the need for urgent climate action to manage both the surpluses and scarcities it causes.

Every individual has the power to make a positive impact on water stress and use. From small changes in our habits, when multiplied across communities, to policy and technology shifts, can lead to big improvements in water management.



2()24 Winning Projects



Dropwise Solutions

Pureflow

Water Absorbent Mat & Filtration System

Smart Aqua



Water Guardian Policy

Constructed wetlands

Eco Innovator

S-Safe Drop

Faith Wachira, Faustinah Mwabili, Nantongo Mebra, and Michael Mae

TANZANIA

Dropwise Solutions

Dropwise Solutions introduces a Smart Drip Automated Irrigation System to tackle water inefficiency in agriculture, a sector in which over 40% of irrigation water is lost due to outdated practices. With climate change intensifying droughts and threatening food security, this system offers a solar-powered, sensor-based solution that delivers water only when soil moisture levels require it, thereby reducing waste and enhancing crop productivity, especially for smallholder farmers in water-scarce regions.

The system operates offline and autonomously, requiring no technical expertise or constant supervision. It integrates smart soil moisture sensors, controlled drip lines, and re-purposed plastic storage tanks, promoting both sustainability and affordability. This project addresses water scarcity, inefficient irrigation, climate-vulnerable agriculture, and ultimately, food security.

The initiative supports SDGs on water efficiency, climate resilience, and food security. It is highly scalable, with plans to refine the prototype, gather farmer feedback, and expand through partnerships with governments and agricultural bodies. By leveraging local materials and renewable energy, Dropwise aims to revolutionize irrigation, making every drop count.



Pureflow

PureFlow is an innovative, self-powered water purification and monitoring system designed to tackle water pollution in rivers, lakes, dams, and oceans without the need for expensive infrastructure. Using a hybrid energy model, combining piezoelectric (from water flow vibrations) and solar power, PureFlow operates off-grid, powering its internal filtration pump, microsensors, and communication modules. These sensors detect contaminants and microplastics, triggering real-time filtration and uploading water quality data to a live dashboard with geolocation and bin status alerts.

The system addresses severe pollution challenges like those in the Nairobi River, caused by industrial waste, sewage, and plastics, threatening ecosystems and public health. It supports data-driven interventions and real-time response, enabling governments, NGOs, and industries to monitor and maintain water quality in their areas. The team has successfully tested the microsensors and developed a live data website. Each unit has been estimated to cost KES 250,000.

With a scalable, subscription-based model for maintenance and waste collection, either via recycling partners or trained personnel, PureFlow also creates green jobs. The system aligns with multiple SDGs and is poised for scaling across urban and coastal water bodies globally.



TEAM MEMBERS:

Faith Rono, Wayne Irungu, Minna Isaboke, Anderson Onkangi

KENYA



Anmol Altaf, Arisha Noorddin, Sara Irfan Ali

PAKISTAN

Water Absorbent Mat & Filtration System

The Water Absorbent Mat and Filtration System (WAMFS) is an innovative, eco-friendly solution designed to conserve and recycle greywater from household drains. Placed over bathroom drains, the mat guides water through a stainless-steel grid, coconut coir, and hemp wicking rope, directing it through recycled rubber into community pipes. From there, it flows to a natural filtration system using gravel, sand, charcoal, and UV or chlorine treatment before being redistributed equitably, proving that every drop deserves a comeback.

This system addresses key climate and water challenges, including urban water scarcity and pollution. Rather than letting valuable water turn into toxic runoff, the WAMFS system reclaims it, reducing pressure on freshwater resources and protecting marine life.

Targeting urban communities like Karachi, where water access is limited despite proximity to the sea, the project offers a scalable, low-cost solution. It supports SDG 6 by promoting water reuse and creating green jobs in production, installation, and maintenance. Backed by community surveys and local insight, it could save up to 10,000 liters per household annually, turning drains into sources of hope.



	LAYER	MATERIAL USED	PURPOSE
Water Absorbent Mat	Top Layer	Stainless Steel Grid (2-3mm)	Protective Cover
	First Layer	Coconut Coir Sheet (8-10mm)	Absorbent Layer
	Second Layer	Hemp Wicking Rope Woven in Channels (2-3mm)	Water Transport
	Support Layer	Recycled Rubber Base, Perforated	Drainage and Support
Filtration System	Top Layer	Stainless Steel Mesh	Traps Large Debris Like Hairs & Lint
	First Layer	Coarse Gravel (2-5cm) Stones	Removes Large Particles & Sediments
	Second Layer	Fine Gravel (0.5-2cm) Stones	Further Removes Small Particles
	Third Layer	Fine River Sand	Filters Out Fine Dirt and Impurities
	Fourth Layer	Activated Charcoal	Removes Odors & Chemicals
	Disinfection	Chlorine or UV light	Removes Pathogens

Kalwa Annet Kavata, Juanita Linda, Natasha Simwa

KENYA

Smart Aqua

Smart Aqua is an Al-powered, solar-driven precision irrigation system that revolutionizes water management in agriculture. Designed for smallholder and commercial farmers, it addresses water scarcity, low crop yields, and soil degradation, all of which are pressing issues in regions like Kenya, where over 430 million litres of water are wasted annually due to inefficient irrigation.

The system collects real-time soil and weather data through sensors, and processes it using AI to determine exactly when and how much water crops need. It then activates or pauses irrigation accordingly, minimizing waste and maximizing crop health. Smart Aqua also tracks soil health, learns from past irrigation patterns, and delivers insights via a mobile dashboard, ensuring ease of use and improved decision-making for farmers.

Fully solar-powered, it supports off-grid farming, reduces manual labour, and cuts water usage by up to 50%, contributing to cost savings, increased yields, and climate resilience. Applicable to all sizes of farms and scalable across sectors like landscaping and reforestation, Smart Agua opens doors for public-private partnerships, positioning itself as a game-changer in sustainable agriculture.

SMARTAQUA PROTOTYPE HARDWARE

SMARTAQUA PROTOTYPE SOFTWARE





Water Guardian Policy

The Water Guardian Policy is a student-led policy reform initiative aimed at transforming water use within schools, proposed to start with the Aga Khan School in Nairobi. By introducing smart water meters, leak detection systems, drip irrigation, and social media awareness campaigns, the policy seeks to make schools more water-efficient and climate-resilient.

It tackles key challenges like climate variability by using rainwater harvesting and moisture-sensor-controlled irrigation, as well as urban water scarcity through greywater recycling and low-flow fixtures. These changes not only ensure water is used only when needed but also significantly reduce dependency on external water sources.

The initiative aims to increase the school's water savings by 30%, while lowering water bills and fostering student awareness of sustainable practices. With monitoring systems in place, the policy promotes accountability and long-term conservation.

The project primarily benefits students, staff, and school administrators, and has the potential to scale across AKDN and other educational institutions, inspiring broader community adoption of sustainable water management.



user friendly app dashboard with real time updates on the phone and laptop

TEAM MEMBERS:

Angela Shigoli, June Guchu, Faith Mueni, Kimberly Kimani

KENYA



Basharat Babar, Shahzeb Bangash, Shoaib abbas, Ilyas Ali

PAKISTAN

Constructed wetlands

This project introduces Constructed Wetlands: a low-cost, nature-based water treatment system that mimics natural wetlands to purify wastewater using plants, soil, gravel, and microorganisms. Pollutants are absorbed, filtered, and biologically broken down, making the system effective for removing heavy metals, bacteria, and organic matter without chemicals or expensive infrastructure.

It addresses global challenges of untreated wastewater and water pollution, especially in urban areas like Karachi, where industrial waste, sewage, and runoff degrade ecosystems and water quality. With climate change intensifying water stress, this sustainable, decentralized solution supports safe graywater reuse for gardening, flushing, and cleaning.

The project's innovation lies in its compact, modular design, tailored for urban homes, flats, and small spaces, requiring just 2–5 m2 and built with affordable materials. It is mosquito-safe, portable, and scalable, making it ideal for cities.

Beneficiaries include urban households, low-income communities, university campuses, NGOs, local governments, and eco-conscious businesses. With proven success globally, this initiative offers a practical, eco-friendly way to improve sanitation, reuse water, and reinforce that every drop counts.



Eco Innovator

Eco Innovator's project is a solar-powered water purification initiative designed for Maasai pastoral communities in rural East Africa. Using a two-tank system, the technology purifies contaminated water by boiling it with solar energy and condensing the steam into clean drinking water, eliminating the need for grid electricity or fossil fuels. To promote sustainability, the project also includes community education on water management and eco-friendly waste disposal.

The project addresses critical climate and water challenges, including water scarcity, pollution, and the rise in waterborne diseases, with gastrointestinal illnesses increasing by 30% due to poor water quality. It helps reduce reliance on unsafe sources while promoting clean energy.

Benefits include improved health, reduced medical costs, increased time for education and economic activities, and greater climate resilience. The solution supports SDGs on clean water, health, and climate action, offering a scalable model for other water-insecure regions.

Primary beneficiaries are over one million Maasai people across Tanzania and Kenya. With a team of public health experts and sustainability advocates, the project combines traditional knowledge and modern tech to create long-term, community-driven impact.



TEAM MEMBERS:

Gloria Henry Mwankenja, Michael Job Thomas, Simon Selegio Ndilaliha

TANZANIA

Nek Patrick James, Kusiima Brenda, Kizito Henry, Arach Fiona Moro

UGANDA

S-Safe Drop

The S-Safe Drop is a simple, eco-friendly sand water purification system introduced in Barr village, Northern Uganda, where residents rely on unglazed, polluted wells for water. Built using basic materials, the system filters contaminated water through three layers: gravel to trap solids, compacted sand to filter fine particles, and charcoal to absorb toxins, producing clean, safe water for household use.

This solution addresses the inaccessibility of safe water, high rates of waterborne diseases, and carbon emissions from fuel-based boiling methods. By offering a low-cost, chemical-free alternative, it supports SDG 6 (Clean Water and Sanitation) and SDG 13 (Climate Action). Healthier water reduces disease, aligning with SDG 3 (Good Health and Well-being), and by decreasing medical costs, improves overall economic productivity.

Primary beneficiaries include children and the elderly, who are most vulnerable to unsafe water, as well as local entrepreneurs and environmental advocates. The project also promotes community education for sustainability and is scalable to other rural areas, reinforcing the theme "Every Drop Counts."





The AKDN Environment and Climate Commitment states that "enabling future generations to engage in an informed and meaningful way with the challenges of environmental degradation and climate change is key for the success of AKDN's initiative in this area".





"A problem-oriented university can hardly overlook the problem of climate change. And it can hardly fail to engage its students in addressing it. I am grateful to all those who saw the Presidents' Challenge for the opportunity that it is and accepted its invitation to innovate."

AKU President Dr Sulaiman Shahabuddin













COOLING OUR CITIES

CLIMATE SOLUTIONS FOR A BETTER TOMORROW

AKU PRESIDENT'S CHALLENGE FOR CLIMATE SOLUTIONS 2023

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2023 Theme

The second edition of the Challenge focused on innovative ideas to address one of climate change's most palpable impacts, heat, and its amplification in urban areas.

With ever accelerating urbanisation in all parts of the world, and already strong urban heat island effect, climate change is a threat multiplier. At the same time, cities are also where ideas flow together and communities of action can form to jointly pave the way for change. These diverse, solution-driven ideas from student projects not only focused on 'Cooling our Cities' but also emphasized aspects to making them more equitable, resilient, and liveable.

During the closing ceremony, AKU President Dr Sulaiman Shahabuddin expressed that "The most important obstacle to addressing climate change has never been technical. It has always been a lack of will. And I believe your generation has the will to deal with this problem."



2023Winning Projects

Eco-breeze

River Albedo

Eco Cool Bin

Involving Children



Breathing Homes

Suburban Approach

Sustainable Fashion

Sabeen Mansoor, Saqlain Haider Mirza, Mustafa Saiyoum

PAKISTAN

Eco-breeze

The Eco-breeze project proposed cooling air using sustainable and cost-effective materials, specifically a mud pot, water, jute, a charcoal sheet, and silicon gel. Air would be sent through this device via a solar-operated fan. Additionally, water in the clay pot can be kept cool for long time.

The project addresses a variety of urban challenges, such as health issues like heat stroke, poverty, high temperature, as well as air pollution. Given the local and cheap materials, this device can be easily afforded by the majority of people from different financial backgrounds. It can also be implemented in any place around the globe and does not require specialized skills.

This product was designed by merging different existing ideas from cultures of northern Pakistan and Syria. By joining ideas, this product is innovative and sustainable to address urban heat, human health, affordability, and environmental sustainability together.

River Albedo

This innovative urban regeneration project reimagines the Nairobi River as a climate resilience asset. By restoring the river's reflective surface (albedo), it aims to mitigate urban heat island effects and enhance natural ventilation. The project introduces a suite of integrated, scalable interventions: nylon garbage nets to filter physical pollutants, green spaces that double as ventilation corridors, and French drains connected to rain gardens that manage runoff and improve water absorption. Alongside, a robust waste management strategy sorts and processes waste at the source, with composting supporting riverbank greening and technologies like waste-to-energy tackling inorganic materials.

By tackling pollution, heat, waste, water runoff, and greening simultaneously, the project delivers a holistic solution to urban climate challenges. It creates cleaner environments, healthier communities, and more livable cities, while offering replicable models for other urban rivers globally. Success depends on strong collaboration between government, urban planners, and local communities. A dedicated team will drive implementation, supported by advocacy to build awareness and secure stakeholder support. The approach offers a compelling model for climate-resilient, people-centered urban transformation.



COMPONENT	PRICE (PKR)
Clay Pot	500
Bamboo Charcoal Sheet (20x30cm)	750
Jute Sheet (20x30cm)	75
Silicone Gel (15g)	1500
Bamboo Box (20x35x20cm)	1500
Rechargeable Battery-powered Fan	600
Miscellaneous Costs	1000
Total	5925



TEAM MEMBERS:

Brian Mbũrũ Maina, Teresa Ndũng'ũ, Michelle Mwashaeam

KENYA

Brian Komu, Ciano Wanyoike, Peter Micha, Sarah Wambugu

KENYA

Eco Cool Bin

The Eco Cool Bin is an innovative waste segregation system designed to reduce urban emissions and promote sustainable waste management in universities. It features separate compartments for biodegradable, non-biodegradable, and liquid waste (including greywater, oil, and detergents), with color-coded sections to encourage proper sorting. A rain-proof lid and ventilation system support aerobic decomposition, while a built-in compactor saves space and manages liquid waste efficiently.

By preventing waste burning and improper disposal, the bin reduces methane and nitrous oxide emissions, key drivers of urban heat and climate change that are generated from wastes discarded in unmanaged landfills or burnt. In terms of public health, the initiative targets youth involvement in waste management practices, potentially reducing respiratory illnesses linked to waste burning. In terms of economic empowerment, the solution directly encourages recycling enterprises as well as individuals involved in waste collection and sorting.

Universities, which generate significant waste, are ideal implementation sites, ideally in partnership with NGOs and foundations. Young adults, when informed and engaged, can make better decisions throughout their lifetime, contributing to a more sustainable future. The approach further includes performance tracking, awareness campaigns, and collaboration with recycling industries, aligning with climate goals while empowering students, improving health, and creating green jobs.



Involving Children

This initiative empowers primary school children in Kampala to become climate champions by equipping them with knowledge and practical skills to combat urban heat and environmental degradation. In response to rising city temperatures – already causing school closures and fatalities – the program engages pupils through 1) creative climate awareness campaigns and 2) hands-on projects such as rooftop gardening, shade-making with creeping plants, and recycling techniques. Engagement activities can include competitions, nature visits, and community presentations.

The programme addresses key urban and climate challenges: disconnect from nature, poor air quality, heat-related health issues, limited water access, and the need to foster youth leadership in climate resilience, especially in urban areas where people tend to be estranged from nature and natural processes. It promotes healthier urban environments, strengthens community ties, and instills environmental responsibility from an early age.

With school leaderships on board, the project could be scaled through financial support for implementation and evaluation. Success will be measured by student creativity, garden installations, and club participation, laying the foundation for cooler, greener, and more sustainable cities through youth-driven action.



TEAM MEMBERS:

Twinomugisha Doreen, Magemeso Anthony, Ochuma Johnson

UGANDA

STEP 1	Organise classroom-based trainings and enhance curiosity for embracing climate action
STEP 2	Undertake first actions with interested students such as rooftop gardens
STEP 3	Students learn to implement the solution through real-life experience and expert guidance
STEP 4	Students have a sense of how to protect and care for their solution (e.g. plants), how to monior, and a sense of responsibility
STEP 5	Students organize an exhibition for school cmmunity and parents to encourage replication of successful solutions
STEP 6	Disseminate knowledge, learning, and project success to more schools across the city of kampala

Faith Wachira, Minza Muhandagani, Fetaru Dorothy, Adelphina Pantaleo

TANZANIA

Breathing Homes

The Breathing Homes project addresses the urgent need for improved ventilation and thermal comfort in overcrowded, poorly ventilated slum housing in Dar es Salaam, where over three million people live in informal settlements. In response to rising global temperatures and health risks from indoor heat, the initiative introduces low-cost, sustainable cooling solutions tailored to economically disadvantaged communities.

The main intervention involves community-made wind-catchers crafted from palm fronds, positioned at 45-degree angles to direct airflow into homes. Additional features include re-purposed tetra packs for ceiling insulation and creating green spaces with plant pots made from plastic bottles. These adaptations reduce indoor heat, lower energy costs, and promote sustainable living.

The project tackles poor housing design and empowers residents with practical climate adaptation skills, fostering problem-solving and environmental awareness. Moving forward, the team will focus on scaling the wind-catcher component through hands-on community workshops, using locally available materials. The project will be documented for learning and replication, offering a scalable, equitable solution for climate-resilient urban living.



Suburban Approach

This project proposes the construction of an eco-friendly, human-centred home in Karachi using sustainable materials and passive design techniques to reduce the carbon footprint of residential buildings. Given that the construction industry contributes 37% of global CO₂ emissions and Karachi's growing population continuously demands new housing, the initiative spotlights the environmental impact of our homes: an often overlooked area in climate discussions.

Drawing from interviews and research, the team focused on four key aspects: building materials, natural airflow, green space, and energy conservation. The final house design incorporates clay insulation (cheaper than commercial, processed materials), a central green courtyard for natural ventilation and shading, solar panels, and cross-ventilation, all while maintaining a contemporary aesthetic.

The design meets local building regulations and emphasizes flow and comfort, guided by human-centred design principles. Every room faces the courtyard, enhancing light and air circulation while reducing energy demand. This scalable, cost-effective model addresses climate and urban housing challenges, offering a replicable blueprint for sustainable living in rapidly growing cities like Karachi.



TEAM MEMBERS:

Faiz Ahmed, Haadi Butt, Ayesha Munshi

PAKISTAN



Nasima Karim, Amira Mirhaj, Majiba Bibi

PAKISTAN

Sustainable Fashion

This initiative introduces a circular fashion model to Pakistan's clothing industry, offering a sustainable alternative to the wasteful "take-make-dispose" approach of fast fashion. By partnering with established Pakistani brands, the project aims to reduce textile waste, promote resource efficiency, and drive consumer engagement through practical, scalable interventions.

The core idea is to incentivize customers to return used garments in exchange for discounts. Returned clothing is categorized for resale, refurbishment, or recycling. High-quality items (Category A) are minimally repaired and resold; mid-tier garments (Category B) are evaluated for deeper investment before reuse; and low-tier items (Category C) are recycled into raw materials for new clothing, forming a Sustainable Fashion Collection.

This model addresses climate challenges such as excessive textile waste and overuse of raw materials. It encourages sustainable consumption, strengthens brand loyalty, and creates economic opportunities in recycling and innovation, especially within cities. With brand backing and consumer incentives, the initiative offers significant scope for nationwide scaling and sets a precedent for environmentally responsible fashion in Pakistan.











"It's been said that cities are humanity's greatest invention. By bringing countless people together and enabling the rapid exchange of ideas and goods, cities fuel innovation."

AKU President Dr Sulaiman Shahabuddin



"A heartfelt gratitude to the AKU Leadership and the President for this unique opportunity, the Climate Challenge Team, and the mentors and partners for enriching our journey. Today, our team is not the sole winner; we all emerge victorious. We've gained knowledge, experience, insight, and the ambition to continue striving for more, elevating the quality of all lives."

Team Ecobreeze



"This is not a story of despair. It is a story of persistence, innovation, and dedication. We, the youth, will not surrender our future to a warming planet. I urge you all, with nothing less than the passion, energy, and digital fluency of our generation, to take the time to think of creative and practical solutions."

Team River Albedo







"The connection between waste, climate, and urban challenges is undeniable, but together, we can turn challenges into opportunities and pave the way for a brighter, greener future"

Team Eco Cool Bin



The AKU President's Challenge for Climate Solutions

How will YOU commit to wasting nothing?

2022 Theme

The theme for the inaugural year of the Challenge was **'Wasting Nothing'**, prompting mindful consumption of all types of resources, such as water, electricity, food, or even time.

The theme was selected to help participants engage with the anthropogenic climate crisis in a more manageable and pragmatic way. While the most obvious issue stemming from this theme was that of waste and pollution reduction, there were other ways to conceptualize ideas. Students were encouraged to look into their own campus operations for inspiration, as well as habits at home and in hostels, in their communities, through economic activity in wider society, and much more.

Prince Hussain Aga Khan, in his remarks at the closing ceremony, noted: "In the face of the damage that climate change has already done to nature, the suffering that it is inflicting on human beings, and the warnings of scientists that the worst is yet to come... it would be easy to despair. Easy because despair makes no demands of us. It assures us there is nothing to be done. However, the reality is that there is much that we can do to limit climate change. And there is no time to waste."



2022 Winning Projects



ReLast

Climaticar

Think Green



Aqeel Abidi, Tooba Noor, Ali Hyder, Sara Suleman, Aly Hamza

PAKISTAN

ReLast

To address the overwhelming plastics pollution problem in cities such as Karachi, ReLast is proposing the local development of recycled furniture to high quality standards for potential export, to ensure both environmental and financial sustainability.

The challenge is that most waste in Pakistan is disposed improperly into open spaces, oceans, and unregulated landfill sites. From there, microplastics and chemical toxins leach into the environment. Yet, much of the waste could also be a resource when seen through a circular lens, for example to create recycled products. This ensures financial sustainability, in other words relatively cheap sourcing and manufacturing of materials while keeping more lucrative global markets in mind, where more awareness of recycling already exists amongst corporates and individuals alike.

ReLast's products would come with a story, both of materials and manufacturing communities, which make users feel a sense of responsibility for the highly durable products. Local and cultural elements could be woven into the products, both in terms of design and storytelling.



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 Message
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 2 posts
 93 followers
 1 following

Followed by _anumaziz, azizali.khowaja, javeria_bilal_gamar + 14 more



Climaticar

Climaticar is a ride-sharing, habit tracking and climate change awareness app. The app would track reduction in emissions brought on by adopting changes such as carpooling. Organizations can then reward (financial or otherwise) employees that undertook the most climate conscious decisions. Journalists or individuals could post stories of communities affected by climate change and the most impactful submission would be the recipient of an annual reward.

The main purpose is to inculcate climate conscious habits amongst the population, starting with employees of organisations, who then share the messaging and opportunities with family and friends. Alongside, the app will help organizations reduce their footprint and meet their climate goals. Eventually, the number of cars on the roads will be reduced, and pollution curtailed.

Carpooling enables an accessible and climate friendly form of transport to counteract increasing travel costs and climate change in a city suffering from the impacts of both. The app further supports increased engagement and awareness, via the phone application format that is prevalent in everyone's lives.

Special news features and prompts on the app will create awareness amongst the users regarding climate change, individual choices, and positive contributions, facilitated through collaborations with environmental journalists and storytellers.



TEAM MEMBERS:

Muhammad Osama Khan, Mirza Tayyab Mehmood, Aahan Arif, Muhammad Zeeshan, Shemei Agabo

PAKISTAN

Kiran Abbas, Nasima Karim, Hira Samad

PAKISTAN

Think Green

ThinkGreen proposes the creation of biodegradable sanitary pads that are made from sustainable materials like cotton. These pads follow a circular approach, being 100% biodegradable or recyclable as fertilizer. Metal buttons replace toxic glues for positioning. Solar cells power the manufacturing machinery, and paper-based packaging is utilized.

As hundreds of thousands of tonnes of sanitary pad waste end in landfills and oceans every year, this is very harmful to the environment. The plastics in conventional pads produce greenhouse gas emissions in production, while decomposition can take up to

600 years. By introducing a biodegradable alternative, we can mitigate some global warming and showcase innovation even for other products. The proposed innovation also creates employment opportunities, particularly for women in low-resource urban areas.

The team has already conducted an outreach and awareness campaign in a low-income area of Karachi, and started a collaboration with two NGOs.

The benefits of ThinkGreen include waste reduction, empowerment of women through employment, and improved menstrual hygiene management. In this way, the project idea aims to address not only environmental but also social issues.













"Together as youth, we are like the young, torrential river starting atop a mountain. Once we find the direction, with our energy, we can crush any obstacle, move any stone to make our way."

Team ReLast



"A problem-oriented university must deeply engage the stakeholders who are most affected over the course of their lines and at the same time the most innovative – our students - in addressing the climate challenge."

AKU President Dr Sulaiman Shahabuddin









"The climate crisis is as real as the air we breathe. We, as the young generation, are powerful to mitigate the on-going impacts of climate change. During the challenge, our team participated with zest and brainstormed some ideas to reduce the waste we produce."

Team ThinkGreen

From the Co-Leads' Desk

Co-leading the President's Challenge for Climate Solutions has been a truly rewarding learning journey. What began as an idea to raise awareness and spark a spirit of ideation has grown into a platform where hundreds of students have discovered that action is indeed possible. This journey has been transformative - especially for the young generation who often carry an overwhelming sense of responsibility, yet often lack the tools, spaces, and support to turn their creativity and momentum into real-world solutions.

Each year, as we designed and implemented the Challenge, we introduced new elements-many shaped directly by student feedback. We also welcomed suggestions from a range of stakeholders: internal and external judges, workshop facilitators, and AKU leadership. The Challenge has steadily grown to be of AKU-wide interest: during the 2024 round alone, dozens of AKU staff and faculty engaged with student teams through campus exhibitions showcasing their project ideas.

We hope the remarkable ideas and projects presented in this booklet, brought to life by our incredible students, and the process of actively engaging students in climate ideation, will inspire many other educational institutions. We believe climate literacy only becomes meaningful when it translates into action: from personal choices to community engagement, institutional shifts, and even policy change. We warmly welcome collaboration with anyone interested in learning more or joining hands to build a more climate-resilient future — within AKU and beyond.

Miriam Kugele Director Environment and Sustainability

Danish Imtiaz Senior Manager Office of the Vice Provost (Students) $\boldsymbol{\zeta}\boldsymbol{\zeta}$

Addressing global warming is a complex endeavour. It must involve careful consideration of technical issues, trade-offs, and competing considerations. In other words, we need to take a systemic view. [...] Yet the first step is simple: to feel in your hearts that you must contribute to the effort to limit climate change. Each of you has experienced that feeling. And you have begun to act upon it. I urge you: please don't stop.

Prince Hussain Aga Khan, 2022

