ESG in Action across Central Asia: Outstanding Practice Cases

Contents

Clean Energy and Low-Carbon Transition

Green Finance and ESG Governance

Eco-Agriculture and Green Infrastructure

Social Responsibility and People-to-People Bonds

Preface

Central Asia, a vital hub along the ancient Silk Road, is also where the Belt and Road Initiative was first proposed. On this land—rich in resources yet ecologically fragile—the development of energy and mining industries and the construction of infrastructure must transcend short-term economic returns and make a long-term commitment to protecting the natural environment and supporting local communities. We are heartened to see that a growing number of enterprises deeply rooted in Central Asia are advancing project development in tandem with ecological protection, and are actively engaged in local education, healthcare, and the improvement of people's livelihoods. China's clean technologies and digital management expertise are providing tremendous impetus to Central Asia's green transition—and all of this stands as the bountiful fruit of the deep integration between the Belt and Road Initiative's pursuit of "high standards, sustainability, and better lives" in cooperation and the United Nations' ESG development philosophy. Enterprises are not merely builders of projects, but implementers of green standards, bearers of social responsibility, and exemplars of rigorous governance.

At this new historical juncture, China Economic Information Service and the BRI International Green Development Coalition have jointly compiled this Outstanding ESG Practices of Enterprises in Central Asia: A Case Collection. Our purpose is not only to document the efforts and innovations through which enterprises advance green and low-carbon development across Central Asia, but also to outline a sustainable ecological blueprint for China–Central Asia enterprise cooperation in the new era.

This case collection brings together 13 representative outstanding ESG practices, spanning such dimensions as desertification control, renewable energy, smart manufacturing, ecologically conscious connectivity, clean production, education empowerment, labor protection, and institutional innovation in public participation.

The collection endeavors to present three main threads. The first is technology-driven transformation—how key technologies such as photovoltaics, wind power, energy storage, and smart construction can convert traditional energy strongholds into clean-energy highlands. The second is institutional innovation—how community co-building, public participation, and expanded approaches to labor protection can embed the vision of shared development into the full project lifecycle. The third is the integration of responsibility—how social-responsibility elements such as ecological protection, carbon-emission management, biodiversity, talent cultivation, and livelihood improvement can be systematically incorporated into corporate decision-making and project operations, so as to truly achieve a balance among economic, social, and environmental benefits.

This case collection aims, in an objective, rigorous, and comparable manner, to offer international peers practical samples of enterprise ESG practices from Central Asia; to provide a reference for governments, industry associations, research institutions, enterprises, and investors seeking to understand the real progress of Central Asia's green transition; and to contribute wisdom and solutions toward deepening green and low-carbon cooperation between China and Central Asia and the wider region.

We hope this case collection will serve as a bridge connecting policymakers, industry practitioners, and academic researchers, so that together we may build a prosperous, green, and inclusive new ecology along the Silk Road, allowing the ancient spirit of cooperation shine more brightly in the new era.

China Economic Information Service
BRI International Green Development Coalition
July 2026

White Giants Stand Between Heaven and Earth, Zhanatas Bathed in Light

On the Gobi Desert of Zhanatas in southern Kazakhstan, giant white wind turbines rotate slowly in the sweeping steppe winds. The soft whir of blades cutting through the clear sky mingles with the laughter of children at a nearby swimming pool, composing a heartwarming summer symphony. Power supply was once severely strained here, with summer nights often plunged into darkness. Today, a steady stream of green electricity flows from the Gobi beneath the wind turbines to all directions, lighting up 200,000 households and breathing new vitality into this land.

Since the 100MW Zhanatas wind power project was connected to the grid at full capacity in 2021, followed by the successive completion of Phase I, II and III of the 221MW wind farm cluster in Akmola Region — each breaking the record for the largest wind power cluster in Central Asia — rows of wind turbines have risen across the steppes and Gobi deserts of Kazakhstan.

These are the fruitful outcomes of China-Kazakhstan green energy cooperation. By the end of 2025, the total installed capacity of these China-Kazakhstan green projects invested by the State Power Investment Corporation (SPIC) in operation had reached 611MW, accounting for approximately 16.77% of Kazakhstan's total installed renewable energy capacity. Generating nearly 2.1 billion kWh of electricity annually and reducing carbon dioxide emissions by nearly 2 million tons per year, these projects have not only effectively alleviated the pressure of cross-regional power transmission in the southern region, but also become a core pillar of the local low-carbon energy transition. The projects have not only advanced the development of three core standards for Kazakhstan's energy storage industry, but also directly facilitated the launch of the country's first energy storage project and the introduction of colored photovoltaic technology.

The swimming pool donated by SPIC for the town of Zhanatas

Green wind power delivers tangible benefits to local livelihoods. While advancing wind power construction, the project team has invested a total of nearly 180 million tenge (3 million RMB) over six consecutive years to build swimming pools, cultural squares and tree-lined avenues for surrounding communities, and renovate housing for women with disabilities and families with multiple children. When floods struck, the team was the first to extend a helping hand to nearby residents. During the construction period, the projects created more than 2,000 jobs in total.

After commissioning, nearly 90% of the over 100 permanent positions are held by local employees. Residents of remote towns like Zhanatas have secured stable employment close to home, bringing a new outlook to the local industrial economy. The project operator has also established a joint talent training mechanism with Kazakh universities. Through a mentorship pairing model, it has cultivated professionals awarded the title of "Outstanding Power Engineer" by the Ministry of Energy of Kazakhstan.

China-Kazakhstan cultural exchange event co-organized by SPIC Kazakhstan Energy Investment Company

From the joint environmental impact assessment at the initial construction stage to avoid ecologically sensitive areas, to the classified disposal of solid waste during operation achieving zero pollutant discharge, and to the ongoing annual bird observation and environmental monitoring, the projects always prioritize ecological protection, with all monitoring data meeting compliance requirements.

These green practices rooted in Central Asia serve as a vivid footnote to the win-win cooperation between China and Central Asian countries under the Belt and Road Initiative. Winds stretch across thousands of miles, and green vitality extends far and wide. The spinning wind turbines not only deliver clean electricity, but also carry the generations-long friendship between China and Kazakhstan, adding a touching hue of green to the ancient Silk Road.

(Submitted by SPIC Kazakhstan Energy Investment Company)

New Energy + Energy Storage: Spinning the Wheel of Green Development for Central Asia

Stretching endlessly across the Karatau Mountains, roughly 70 kilometres southeast of Nukus in northwestern Uzbekistan, lies an expanse of desert and Gobi. Torrid summers and frigid winters define the region, compounded by underdeveloped power infrastructure that has long plagued local residents with unstable electricity supply. Today, 26 white wind turbines standing 140 metres tall tower over the mountain ridges like giants, their rotors spinning in the wind to convert the Gobi's wind power into a steady stream of green electricity.

This is the Nukus 200 MW Wind Power and 100 MWh Energy Storage Project, one of Central Asia's landmark new energy developments. The project is equipped with 26 wind turbines each boasting an 8.0 MW single-unit capacity and a hub height of 140 metres, alongside supporting booster substations, energy storage stations and power transmission lines. As a zero-emission clean energy source, wind power will largely displace fossil fuels once the project reaches full operation. It will cut coal-fired power generation substantially each year, slashing emissions of carbon dioxide, sulphur dioxide and nitrogen oxides. Meanwhile, the supporting energy storage system markedly boosts the integration capacity of renewable energy and further elevates wind energy utilization efficiency.

Ecological protection has been a top priority throughout the project's construction. Ecological surveys were conducted in the early phase to identify key protected species and their migration routes, with targeted conservation measures formulated accordingly. Protected fauna were guided to migrate prior to construction; buffer zones were established in core ecological zones, and construction schedules were adjusted to avoid disrupting animal breeding cycles. For the desert tortoise, a locally protected species, the developer retained dedicated ecologists to conduct regular monitoring. Upon sighting any tortoises, an incidental discovery response protocol is activated immediately for professional observation and assessment, minimizing disruption to their habitats to the greatest extent possible. Moreover, systematic vegetation restoration and land reclamation work commences promptly once construction wraps up in individual zones.

Project ecologists carry out protective handling and continuous tracking monitoring of wild desert tortoises

Stringent resource conservation standards were upheld during construction. Turbines were laid out along mountain ridges and wind corridors to limit damage to the original landform; access roads were designed following a minimal-disturbance principle to harmonize construction with the natural environment. Dust suppression was implemented via water sprinkling and surface covering during construction, transport vehicles were fully enclosed, and construction machinery underwent regular exhaust emission inspections. Waste was sorted categorically, while recyclable materials including steel and concrete were reused. Thanks to rigorous environmental and resource management systems, land disturbance and dust pollution have been kept well under control, and the surrounding ecosystem has been properly safeguarded.

The construction and operation of the Nukus Wind and Energy Storage Project have not only brought new industries and local jobs but also spurred growth in neighbouring transport and service sectors. The project team proactively visited local communities for face-to-face talks with community administrations, engaging in in-depth discussions on regional coordination and local employment promotion to foster sound interactions and harmonious ties between the enterprise and local residents. The project's proposer also places great emphasis on nurturing local talent. Through on-the-job training and vocational courses, local employees have upgraded their technical expertise, enabling effective technology transfer and cultivating a pool of skilled professionals for Uzbekistan's new energy industry.

The project team pays proactive visits to local communities for in-depth exchanges on coordinated regional development

Concurrent with construction, surrounding infrastructure including roads and power facilities has been upgraded. New access roads and internal plant roads were built, and existing ones renovated, boosting regional transport connectivity and power supply reliability. The project's environmental and social team partnered with local universities and government authorities to host seminars and lectures covering vocational education and career planning, delivering tangible support for local students' professional advancement.

For its outstanding performance in engineering quality, work safety and social responsibility, the Nukus Wind and Energy Storage Project was awarded the Excellent Project Prize by Uzbekistan's Ministry of Construction.

Transformed from barren desert into a green energy hub, the Nukus Wind and Energy Storage Project adopts the innovative New Energy + Energy Storage model to deliver balanced progress across clean energy exploitation, ecological conservation and improved community livelihoods. Joint efforts by Chinese and Uzbek enterprises turn not only steel rotor blades, but also the wheel of hope for green development across Central Asia.

(Submitted by PowerChina Huadong Engineering Corporation Limited)

Technology Knows No Borders, Green Bonds Connect Us All

On the vast Gobi Desert of Navoi Region, Uzbekistan, rows of deep-blue photovoltaic panels glisten under the bright blue sky. Robotic arms of fully automatic intelligent installation robots move with pinpoint accuracy, mounting each module to a tolerance of mere millimeters. Once a desolate wilderness rarely visited by people, the area previously relied on long-distance power transmission for electricity supply. Today, technological advances in intelligent construction are writing a new chapter of green energy on this land, with clean electricity flowing nonstop from here to countless households.

This landmark project embodies the in-depth integration of green energy and intelligent construction between China and Uzbekistan. Developed and invested by CEECOIC, a subsidiary of CEEC, the Navoi Photovoltaic Project comprises a 300 MW photovoltaic power station and a 150 MW/300 MWh energy storage system. As the first new energy project in Central Asia to deploy fully automatic intelligent robots for photovoltaic module installation, it delivers remarkable environmental benefits upon completion. The project can generate approximately 750 million kilowatt-hours of clean electricity annually and reduce carbon dioxide emissions by around 1.61 million tons per year, injecting stable and sustainable green momentum into Uzbekistan's energy transition and power security.

AI-powered construction stands out as another highlight of the project. Intelligent construction technologies have been adopted for core construction procedures. Leveraging high-precision robotic arms, visual recognition systems and multi-sensor fusion technology, the fully automatic photovoltaic module installation robots deliver round-the-clock, high-efficiency and highly consistent standardized operations. Compared with conventional manual installation, a single robot can mount 700 to 800 photovoltaic modules per day — over twice the output of a six-person work crew. It achieves millimeter-level installation precision with a one-time success rate exceeding 99%. The adoption of intelligent construction technologies has cut the critical path construction period by more than 30%, marking a qualitative leap in overall installation efficiency and project quality.

The project developer upholds the philosophy of "teaching people how to fish rather than giving them fish". It combines technology transfer with local training. Through a mentorship pairing program and systematic technical training, a cohort of local engineers proficient in intelligent operation, maintenance and technical management has been cultivated. Mahmudov Murodjon, a young Uzbek engineer, can skillfully operate and monitor robot performance after receiving comprehensive training from Chinese engineers. Local technical talents like him are growing rapidly amid project construction. Advanced intelligent construction technologies have not only boosted efficiency but also taken firm root locally, building up a talent pool to fuel the growth of Uzbekistan's new energy industry.

On-site Robot Operators of the Navoi Photovoltaic Project

The project developer upholds the philosophy of "teaching people how to fish rather than giving them fish". It combines technology transfer with local training. Through a mentorship pairing program and systematic technical training, a cohort of local engineers proficient in intelligent operation, maintenance and technical management has been cultivated. Mahmudov Murodjon, a young Uzbek engineer, can skillfully operate and monitor robot performance after receiving comprehensive training from Chinese engineers. Local technical talents like him are growing rapidly amid project construction. Advanced intelligent construction technologies have not only boosted efficiency but also taken firm root locally, building up a talent pool to fuel the growth of Uzbekistan's new energy industry.

Check-in Area at the Navoi Photovoltaic Project Public Open Day

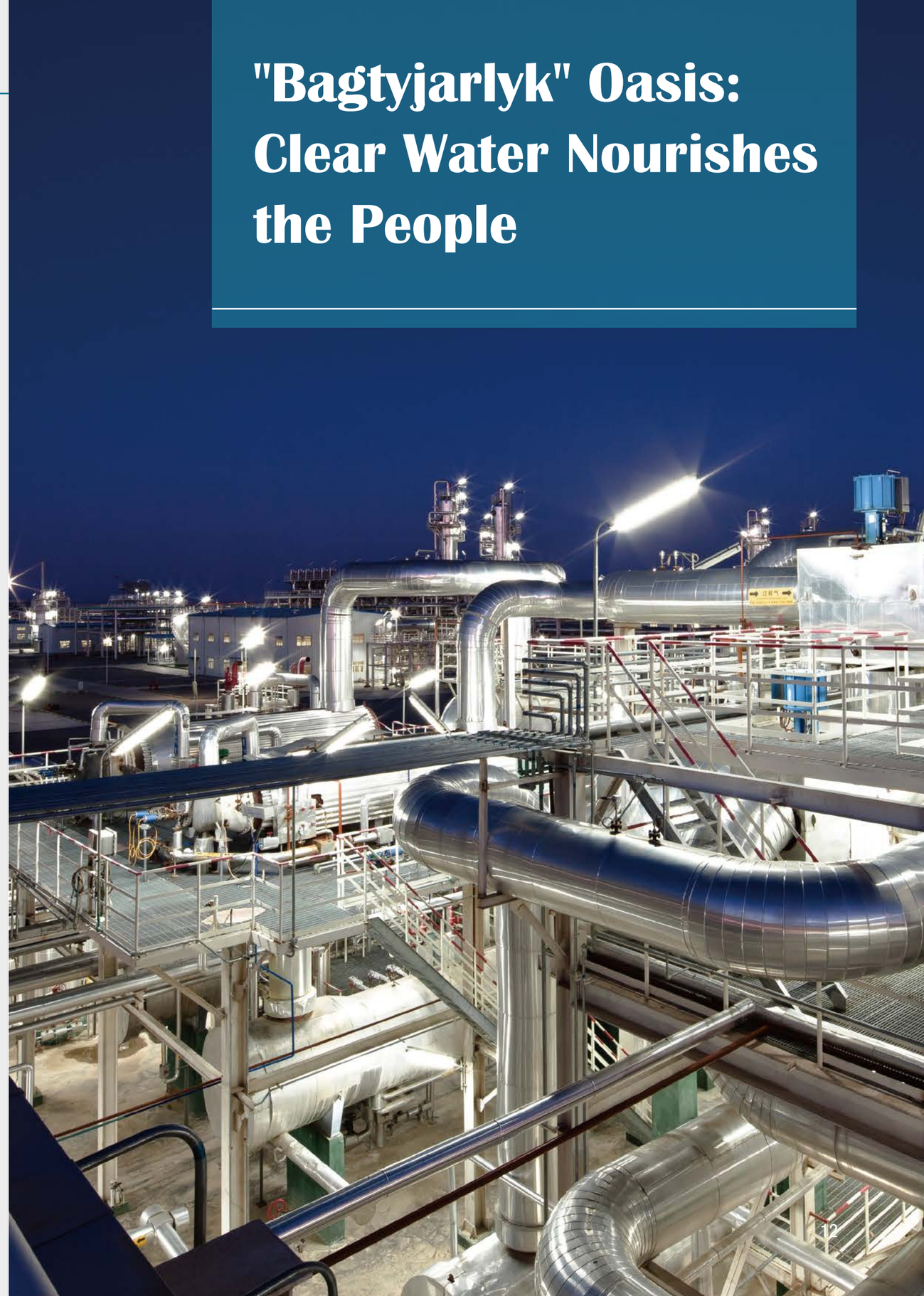
Openness and sharing forge consensus. The Navoi Photovoltaic Project hosted a Public Open Day themed "Visible Green Energy, Tangible Intelligent Construction". Nearly 100 representatives from Uzbek government agencies, industrial associations, universities, media outlets and local communities visited the project site to gain first-hand experience and deepen mutual understanding and consensus. Following the official unveiling of the Intelligent Construction Demonstration Base for photovoltaic projects, the platform opens its doors to government bodies, industry players and universities, showcasing achievements in intelligent PV installation, digital construction management and smart equipment application. It offers a replicable and scalable practical model for exploring intelligent construction pathways for new energy projects across Central Asia.

From precision construction on the Gobi wasteland, to demonstration and popularization of intelligent construction technologies, and systematic training of local talent, the Navoi Photovoltaic Project seamlessly integrates technological innovation with green development. This green practice of embedding intelligent construction in Central Asia serves as a vivid microcosm of China and Uzbekistan joining hands under the Belt and Road Initiative to advance green and low-carbon development and foster new productive forces.

Technology knows no borders, green bonds connect us all. The radiance of intelligent construction technology and the driving force of green energy development reinforce each other, lighting up a future of sustainable development along the ancient Silk Road. It supplies an endless stream of innovative momentum for jointly building the Green Silk Road and deepening the comprehensive strategic partnership between China and Uzbekistan.

(Submitted by China Energy Engineering Overseas Investment Co., Ltd)

"Bagtyjarlyk" Oasis: Clear Water Nourishes the People



In the heart of the Karakum Desert of Turkmenistan, where once swirling sandstorms raged and not a single blade of grass could grow. there now stands a tree-shaded camp, where gurgling clear streams nourish the green barriers woven from straw checkerboard barriers. In this place known as the "Bagtyjarlyk" Contract Territory ("Bagtyjarlyk" means "Land of Happiness" in Turkmen), the villagers who once suffered from water shortages can now turn on their taps for clean running water, making it a true "Land of Happiness" in the hearts of the people.

In 2007, the Amu Darya Right Bank Natural Gas Project was launched under the witness of the heads of state of China and Turkmenistan. Covering 14,300 km² and achieving stable, high-volume production exceeding 10 million tonnes of oil equivalent for 11 consecutive years, this project has always prioritized ecological protection. In response to the increasing volume of produced water of mid-to-late stage gas field development, the company established a closed-loop wastewater treatment system, including nine zonal treatment stations with a daily processing capacity of 3,600 cubic meters. Through multi-stage treatment including oil-water separation, chemical flotation, and precision filtration, the oil content, suspended solids, and hydrogen sulfide levels in the effluent are all controlled below 10 mg/L. Camp domestic sewage has been upgraded from "discharge to standard" to "resource recovery and reuse," with over a thousand tons of fresh water saved each year. This practice has been recognized as an exemplary environmental case in Turkmenistan and promoted accordingly.

In the fragile desert ecosystem, the project strictly enforces a "single road" access policy and follows the principle of "greening every operational site." By planting drought-resistant vegetation suited to local conditions and building large-scale straw checkerboard barriers for sand stabilization, the desert has gradually been transformed into an ecologically livable area, with the camp being affectionately called "Green Chinese Town" by local residents. In terms of greenhouse gas control, by implementing measures including methane leak detection, precise adjustment of flare gas volumes, rigorous equipment integrity inspections, and installation of waste heat steam recovery units, the project has consistently met regulatory standards during multiple on-site inspections by the United Nations Environment Programme.

The focus on talent development has provided important support for the sustainable development of the project. Each year, the project selects and fully funds approximately 15 outstanding Turkmen students to pursue advanced studies at China University of Petroleum. To date, it has trained over a hundred graduates, who have now grown into industry backbone in their home country. The project has also delivered a cumulative total of nearly 7,000 local training sessions, with over a hundred local employees growing into key management roles. In addition, the project has jointly established a Luban Workshop with Yagshigeldi Kakayev International University of Oil and Gas, organizing annual faculty and student exchanges.

Wastewater treatment equipment

The project sponsor not only invested USD 3.59 million to build a water plant in Mekan Village, Lebap Province, providing safe drinking water for more than 5,000 villagers — an achievement hailed by Turkmenistan's national media as a model of livelihood cooperation under the Belt and Road Initiative — but also allocates approximately USD 1.2 million each year to local public welfare and compulsory training, gradually establishing a workforce structure with orderly succession of local personnel.

Representatives from various sectors in Turkmenistan attending the commencement ceremony of the Mekan Village Water Plant (drinking treated tap water on site)

The practice of this project, rooted in the vast desert, demonstrates that energy development, ecological protection, and community development can be advanced in synergy. Boundless as the desert may be, the gas artery connects all. What flows out of the Karakum Desert is not only natural gas, but also a practical exploration of green development, local win-win cooperation, and joint talent cultivation for overseas energy projects.

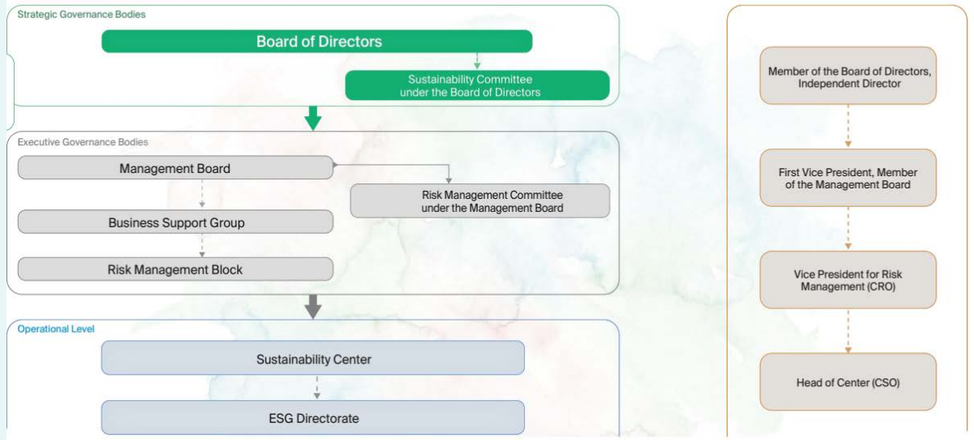
(Submitted by: Petrochina International Co.,Ltd.)

Green Finance Links the Silk Road, Responsible Development Nurtures Central Asia

centercredit

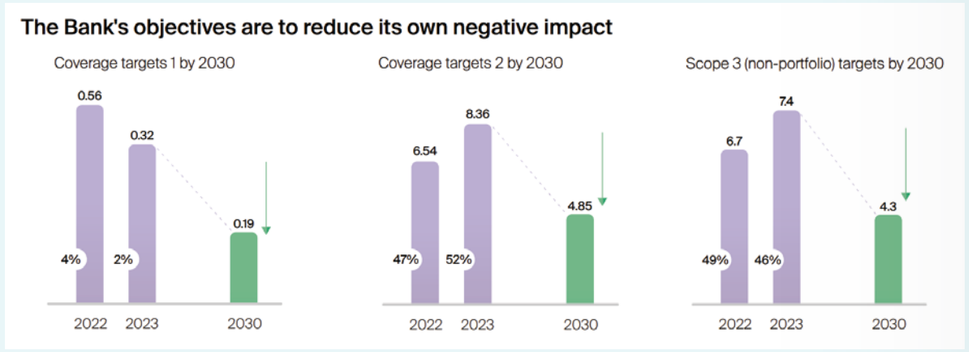
Across the vast Central Asian expanse of Kazakhstan, a profound, far-reaching transformation is quietly unfolding within its financial sector. Instead of erecting skyscrapers or laying oil pipelines, this revolution redefines banks' relationship with the economy and society through a brand-new "green framework". This is the systematic ESG transformation launched in 2023 by JSC Bank CenterCredit. Over just two years, the bank has achieved a landmark green transformation in Central Asia's banking sector, evolving from scattered charitable initiatives to a formalized sustainable development governance system, and shifting from conventional credit underwriting to full-spectrum green finance that accounts for climate and environmental risks throughout every process.

Structure of Sustainability Management in the Bank



Sustainable management structure of JSC Bank CenterCredit

The first step of the transformation was establishing institutional frameworks. In 2023, JSC Bank CenterCredit conducted a bank-wide ESG maturity assessment, followed by setting up a Sustainable Development Committee under its Board of Directors, chaired by an expert holding the internationally recognized Sustainability and Climate Risk (SCR) Certificate. ESG key performance indicators were incorporated into the assessment system for middle and senior management personnel. Meanwhile, a suite of policies covering sustainable development, anti-corruption and human rights was rolled out sequentially. ESG, thus, evolved from a supplementary, rhetorical initiative into a mandatory component embedded within the bank's corporate governance architecture. At the strategic level, JSC Bank CenterCredit took the lead among Central Asian banks in approving a 2050 climate strategy in 2024, pledging to cut greenhouse gas emissions across Scope 1, 2 and 3 under the internationally recognized Greenhouse Gas Protocol by 42% against the 2023 baseline by 2030.



Dynamics of uniform growth of the BCC green portfolio to achieve the goals by 2030. (Unit: billion tenge)

	2025	2026	2027	2028	2029	**2030**
The volume of the green loan portfolio	120	163	212	268	331	**400**

Emission Reduction Targets of JSC Bank CenterCredit

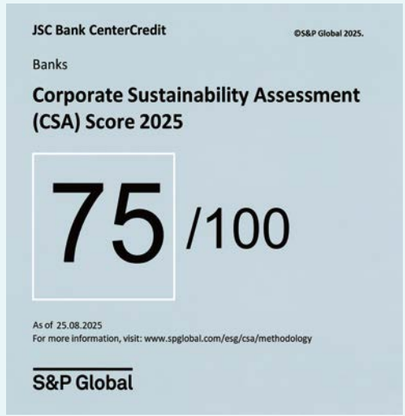
Green finance stands as the most tangible achievement of this transformation. By the end of 2025, the bank's green loan portfolio reached 151.9 billion Kazakhstani tenge (about 2.2 billion yuan). In September of the same year, it successfully registered its inaugural 100-billion-tenge green bond, which was listed on the Kazakhstan Stock Exchange. Under the green economy financing facility framework in partnership with the European Bank for Reconstruction and Development, the bank has supported projects delivering an annual carbon dioxide emission reduction of over 1.7 million tonnes. JSC Bank CenterCredit is also Kazakhstan's first second-tier bank to purchase International Renewable Energy Certificates (I-RECs), purchasing 1,000 MWh in 2024, and further raising the amount to 2,200 MWh in 2025 to offset the carbon footprint of its own operational power consumption. Furthermore, with support from consultancy CBI, the bank formulated its green finance policy in 2025. It passed an independent evaluation by the Green Finance Center of the Astana International Financial Centre, attaining the highest compliance rating under the International Capital Market Association's Green Bond Principles.

JSC Bank CenterCredit also delivers solid, tangible social responsibility outcomes. The bank has over 8,000 employees, 65.2% of whom are women, with women accounting for 54% of its management team. It has implemented a target-based performance management system and embraced the work-life balance philosophy. It has partnered with Sezim, Kazakhstan's online psychological platform, to provide professional counselling services for employees, and opened free fitness centres across its premises to promote a wellness-focused corporate culture. For the wider community, JSC Bank CenterCredit has consecutively

supported TURAQTY JOL, a national ecological education campaign since 2023, reaching more than 20,000 participants. The campaign has recycled 4 tonnes of waste and planted roughly 100 saplings. During catastrophic floods that hit western Kazakhstan in 2024, the bank allocated 5.5 billion tenge to fund housing reconstruction for affected families. It also participates in Karyzsyz kogam, a national financial literacy programme, offering legal aid and debt restructuring services to over-indebted populations. Its cumulative social investment over three years has exceeded 10.1 billion tenge.

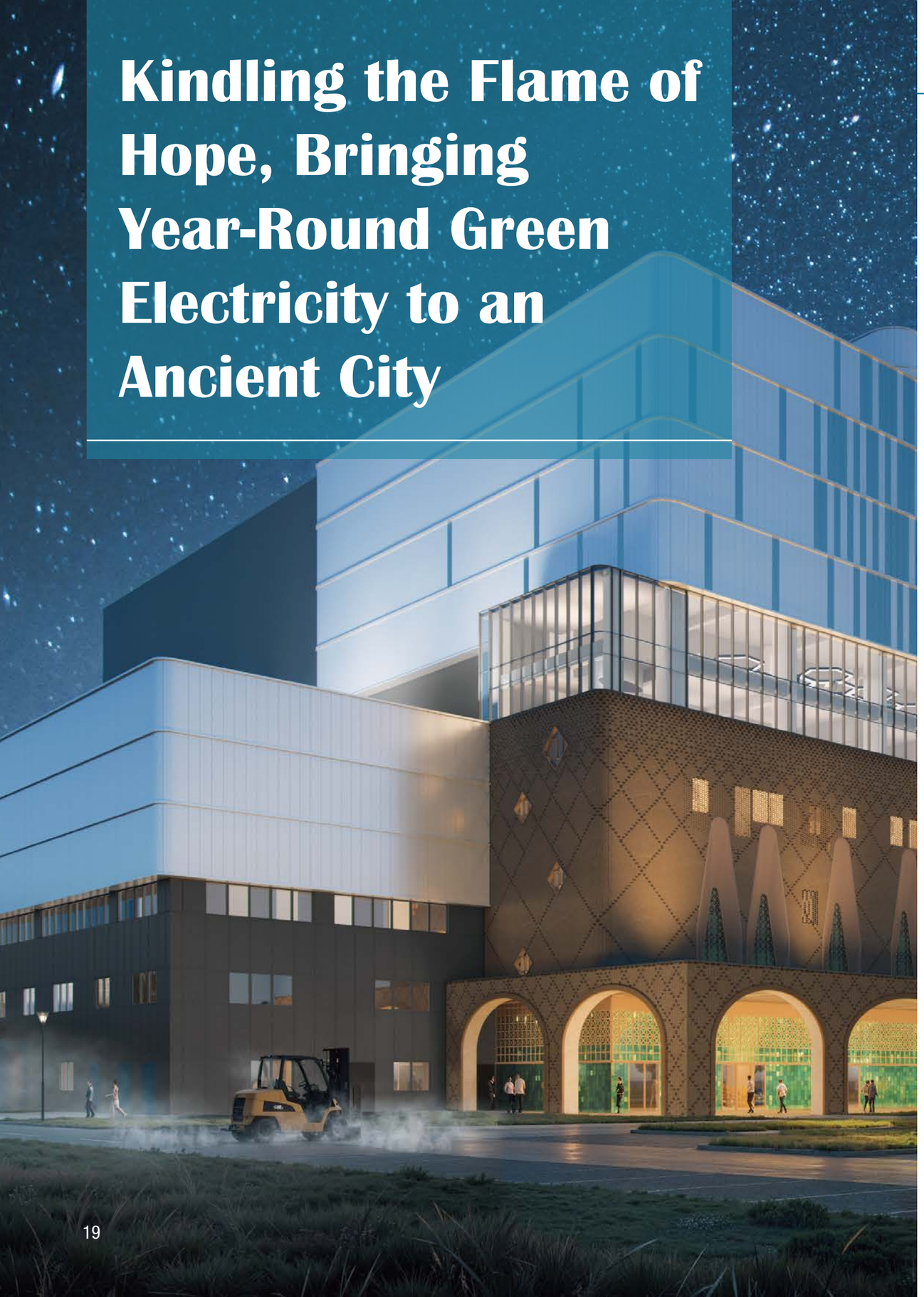
Transparent information disclosure underpins the credibility of ESG performance. JSC Bank CenterCredit has published sustainable development reports for two consecutive years, complying rigorously with GRI, SASB and TCFD standards as well as the guidance from Kazakhstan's financial regulator, with all core metrics independently assured by KPMG. Its second report went further by incorporating disclosure requirements under IFRS S1 and S2 and expanding the disclosure scope across the entire group. The bank has been awarded the Best Sustainable Development Report in the Financial Sector granted by the Kazakhstan Stock Exchange and the Best ESG Disclosure Award for Financial Institutions by PwC, ranking among the top ten in PwC's Kazakhstan ESG Ratings. On the international stage, its S&P Global Corporate Sustainability Assessment (CSA) score jumped from 61 in 2023 to 75 in 2025. In 2023, JSC Bank CenterCredit formally joined the United Nations Global Compact, marking full alignment of its ESG governance with global international standards.

From a Board of Directors' resolution to a green loan portfolio of over 150 billion tenge, from employee mental health support hotlines to the solemn commitments of the UN Global Compact, JSC Bank CenterCredit's ESG transformation practice proves that the financial sector can act as a core engine driving sustainable development across emerging economies. When green finance criteria are embedded into credit underwriting systems and climate risk considerations are woven into every lending decision, a more resilient Central Asian green finance ecosystem is taking shape at an accelerated pace. This green finance Silk Road serves not only as a thoroughfare for capital flows, but also as a vital bond linking responsibility and the future.



S&P Global CSA Score of JSC Bank CenterCredit (2025)

(Submitted by JSC Bank CenterCredit of Kazakhstan)



Kindling the Flame of Hope, Bringing Year-Round Green Electricity to an Ancient City

On the outskirts of Samarkand, Uzbekistan, construction of the waste-to-energy project is in full swing. Few would imagine that a "garden-style factory" will rise here in the future, treating domestic waste generated by the 4 million residents across the region and converting it into clean energy, helping to transform the environmental governance landscape of this millennium-old city.

Officially launched in April 2025, the project offers a key to solving the city's long-standing waste dilemma. Once completed and put into operation, it will have a domestic waste treatment capacity of 1,500 tons per day, disposing of more than 500,000 tons of waste annually and generating 383 million kilowatt-hours of clean electricity. Samarkand's waste management will make a leap from "simple landfilling" to energy recovery and resource recycling.

The project brings not just a factory, but a complete set of green governance solutions tailored for Central Asia. Its core incineration equipment is adapted to Central Asia's climatic characteristics and waste composition; a precise automatic control system stabilizes furnace operating conditions, inhibiting the generation of harmful gases while ensuring efficient combustion, with flue gas emissions meeting international standards. All production wastewater is treated and recycled in a closed loop, and the plant's overall power generation efficiency exceeds 30%. Every indicator upholds the ecological bottom line. Pungent odors from simple landfills will gradually fade, and contaminated soil and water will slowly regain their vitality.

What is more impressive than the technology is the project developer's sincerity in integrating into the local community. As early as the project planning phase, the construction team made community engagement a top priority: in partnership with local authorities, it organized residents and media representatives to travel thousands of miles to visit benchmark projects in China, turning the concept of "garden-style factories with near-zero emissions" from hearsay into first-hand witnessed reality. Doubts dissolved through openness, and resistance turned into support. Potential NIMBY concerns ultimately evolved into the public's shared aspiration for a better life. Longer-term green seeds have been sown on campuses: the project developer has partnered with local higher education institutions including Karshi State University to carry out targeted training, technical exchanges and internship programs, enabling young students to learn solid waste treatment technologies right at their doorstep and nurturing talents for Uzbekistan's environmental protection industry.

From design and site selection to construction, the entire project process is deeply aligned with regional needs, allowing China's low-cost, high-efficiency green governance technologies and experience to take root and bear fruit in Central Asia. The Chinese project leader has been appointed as an advisor to Uzbekistan's Minister of Environmental Protection, helping the country establish industry standards suited to its national conditions.

Campus Open Day held at the Samarkand Project Site

A letter of thanks from the President of Uzbekistan stands as a profound recognition of the project. This waste-to-energy plant is both a practical outcome of China-Uzbekistan environmental cooperation and a vivid example of the joint development of the Green Silk Road.

O'ZBEKISTON RESPUBLIKASI
PREZIDENTI

"SUS Environment" компанияси раиси
Цишэн Луи Жаноблариga

Ҳурматли Луи Жаноблари!

Ўзбекистон Республикасининг миллий байрами – Мустақиллик куни муносабати билан йўллаган самимий табрик ва билдирган эзгу тилакларингиз учун Сизга ўзимнинг чуқур миннатдорлигимни изҳор этаман.

Сиз бошқараётган компания бундан кейин ҳам юртимиз иқтисодиётини ривожига муносиб ҳисса қўшишига ва "яшил" энергетика соҳасида янги лойиҳаларни самарали амалга оширишга ишончим комил.

Фурсатдан фойдаланиб, Сизга мустаҳкам соғлик, оилавий бахт-саодат, фаровонлик, шарафли ишларингизда улкан муваффакиятлар тилаб коламан.

Ҳурмат билан,

Шавкат Мирзиёев

Тошкент шаҳри,
2025 йил 1 сентябрь

Handwritten Thank-You Letter from the President of Uzbekistan

(Submitted by SUS ENVIRONMENT)

"We Are Not Passers-by, but Members of the Kazakh Family"

Rows of modern industrial facilities stand on the outskirts of Pavlodar, Kazakhstan. Contrary to the traditional perception of mining as a high-emission, high-pollution industry, these operations are clean, orderly and environmentally responsible. Environmental technologies—including waste heat recovery for power generation, water recycling and ecological restoration—are integrated throughout the entire production cycle.

China Nonferrous Metal Industry's Foreign Engineering & Construction Co., Ltd. (NFC) and NFC Kazakhstan Ltd. (collectively referred to as "NFC") have been deeply rooted in Kazakhstan for nearly two decades. While helping transform the country's non-ferrous metals industry, NFC has remained committed to advancing the green transformation of Central Asia's traditional mining sector.

Bozshakol Copper Concentrator in Kazakhstan

Constructed by NFC in 2005, the Pavlodar Electrolytic Aluminum Plant filled a critical gap in Kazakhstan's aluminum industry following the country's independence. It ended Kazakhstan's complete reliance on imported aluminum ingots and introduced world-leading aluminum smelting technology to the country. NFC subsequently delivered two world-class copper concentrators—Bozshakol and Aktogay. Built in strict accordance with European and international engineering standards, the projects incorporate state-of-the-art large-scale equipment and advanced automation systems, significantly enhancing Kazakhstan's position among the world's leading copper concentrate producers. Widely recognized as landmark industrial projects in Kazakhstan, they have received numerous prestigious awards, including China's National Quality Engineering Silver Award, the Kazakhstan National Engineering Award, the European Business Assembly (EBA) European Quality Award, and the Golden Eagle Quality Award.

While contributing to the modernization of Kazakhstan's non-ferrous metals industry, NFC has also helped project owners embed sustainability into traditional mining operations, promoting greener and more efficient mining development. The Bozshakol and Aktogay copper concentrators incorporate numerous sustainable design and operational features. Alongside extensive automation and advanced processing technologies, these projects have achieved both high productivity and improved energy efficiency.

First, the plant design fully reflects Kazakhstan's relatively scarce water resources. A tailings water reclaim system and a closed-loop process water circulation system have been established, enabling water recovered from the tailings storage facility to be reused in production. This significantly reduces freshwater consumption while minimizing the environmental impact of tailings discharge.

Second, the projects publicly disclose environmental performance data in accordance with international standards, integrate environmental protection into daily operations and management, and implement comprehensive environmental management throughout the entire production process, ensuring that industrial development and ecological conservation progress hand in hand.

Furthermore, long-term plans have been developed for mine closure, land reclamation, vegetation restoration and ecological rehabilitation, with dedicated financial resources allocated to support post-mining environmental recovery. In recent years, the specific energy consumption for sulfide ore processing has remained at approximately 0.19 TJ per thousand tonnes of ore—an internationally advanced level that reflects the principles of green, efficient and sustainable mining.

A strong commitment to localization has earned NFC long-term trust in Kazakhstan. Over the years, the company has created more than 10,000 local jobs, donated funds and supplies to children in welfare institutions, families with disabilities and disadvantaged elderly people, and supported the renovation of community infrastructure. The Aktogay Project was selected as an outstanding case in the Social Responsibility Projects for Chinese Construction Enterprises initiated by the United Nations Industrial Development Organization (UNIDO).

As the company's management often says, "We are not just visitors—we are members of the Kazakh family. We believe it is our responsibility to support vulnerable groups, invest in education and care for future generations."

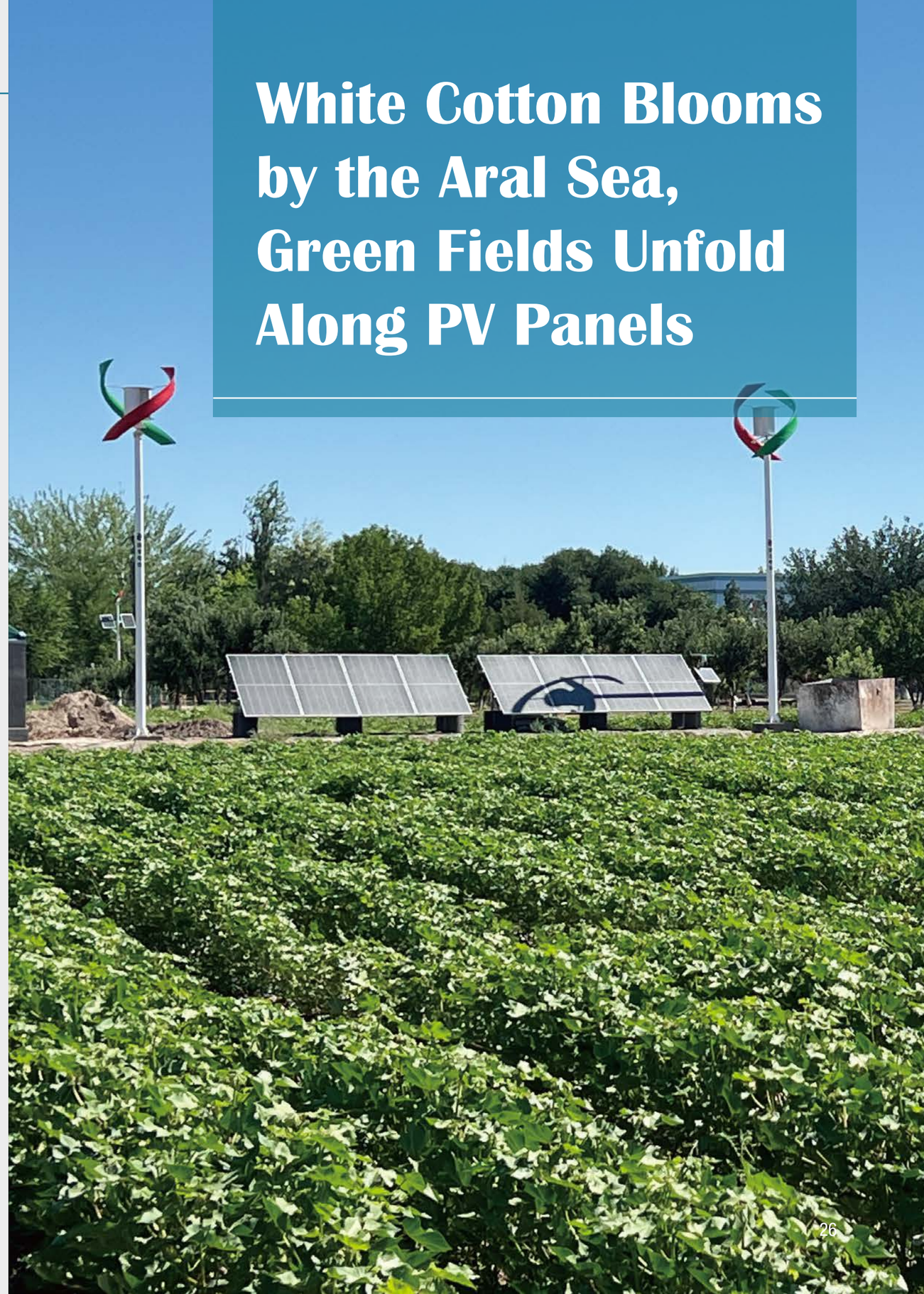
From delivering Kazakhstan's first aluminum smelter to building world-class copper concentrators, from pioneering waste heat recovery to helping renovate community drainage systems, NFC's engineers have demonstrated responsibility, professionalism and friendship through innovation, dedication and sincere commitment.

Letters of thanks received by NFC

As a Kazakh proverb says, "Drops of water come together to form a mighty river." Every contribution, no matter how small, strengthens the partnership between China and Kazakhstan and adds lasting momentum to their shared journey toward green and sustainable development.

(Submitted by NFC Kazakhstan Ltd.)

White Cotton Blooms by the Aral Sea, Green Fields Unfold Along PV Panels



Once known as the "Tear of Central Asia", the Aral Sea was haunted by salt dust swirling across its dried lake bed, stretching endless barren saline-alkali land. The degraded ecosystem left a deep scar on this land.

Comparison of remote sensing images showing the surface changes of the Aral Sea

Today, a brand-new scene unfolds here: on demonstration fields near Nukus in Uzbekistan, snow-white cotton bolls hang heavy on branches, while neatly arranged photovoltaic panels glint brightly under sunlight. Intelligent drip irrigation belts deliver water and fertilizers precisely to the root of every crop. In the halophyte botanical garden of Muynak, saxaul and salicornia take root in saline soil, breathing vibrant life into land once barren of all vegetation. The "photovoltaic + integrated cotton water and fertilizer management" technology introduced by Chinese research teams is writing a win-win story of ecological restoration and people's livelihood improvement along the shores of the Aral Sea.

In 2023, the Xinjiang Institute of Ecology and Geography of the Chinese Academy of Sciences and Aksu branch of Co., Ltd. of Xinjiang Energy and Chemical Industry Group built the first water-saving cotton irrigation demonstration base at the Aral Sea International Innovation Center in Nukus of Uzbekistan, introducing Xinjiang's plastic film mulch drip irrigation and integrated water-fertilizer management technology. The demonstration fields yielded 5 tons of seed cotton per hectare, 2.5 times the local average output, while irrigation water consumption was only two-thirds of conventional usage. This dual breakthrough of high yield and water conservation drew constant visits from local farmers and agricultural specialists.

The project underwent major technical upgrades in 2024. Building on film mulch drip irrigation, researchers installed photovoltaic systems and intelligent integrated water and fertilizer machines to realize automatic, precise control of irrigation and fertilization. PV-powered underground water pumps channel water through drip pipes to crop roots, pushing seed cotton output on saline-alkali land to 2-3 times the local average. Calculated at the local seed cotton purchasing price, the output value of each hectare of demonstration land exceeds 33.54 million Uzbekistani Som (about 19,000 yuan), representing an over 200% increase in income compared with traditional farming practices. This strongly proves the economic viability of agricultural development on saline-alkali land.

Meanwhile, Chinese experts constructed a "photovoltaic + ecology" halophyte botanical garden in Muynak. PV water pumps extract groundwater to cultivate more than ten salt-tolerant species including salicornia, saxaul and kalidium, alongside salt-resistant forage grasses. China also donated 1.5 tons of halophyte seeds to support local saline-alkali land remediation. The salt-tolerant vegetation in the garden now thrives, with soil salinity markedly reduced, offering a replicable and scalable model for saline-alkali land improvement across the Aral Sea basin.

Remarkable ecological benefits have earned the project extensive social recognition. Amanbay Orinbayev, Chairman of the Supreme Council of the Republic of Karakalpakstan of Uzbekistan, sent a special letter of thanks to the Chinese research team for leveraging cutting-edge technologies to help the region tackle environmental challenges. Local technician Ismail Asanov noted that the project delivered unprecedented cotton yields locally, and expressed his wish to continue learning these advanced technologies for environmental improvement. Sharofiddin Tulaganov, a political observer, commented that the project balances ecological governance, livelihood enhancement and mutual trust building.

A local farmer carrys out field management at the halophyte botanical garden in Muynak, which also grows salt-tolerant crops

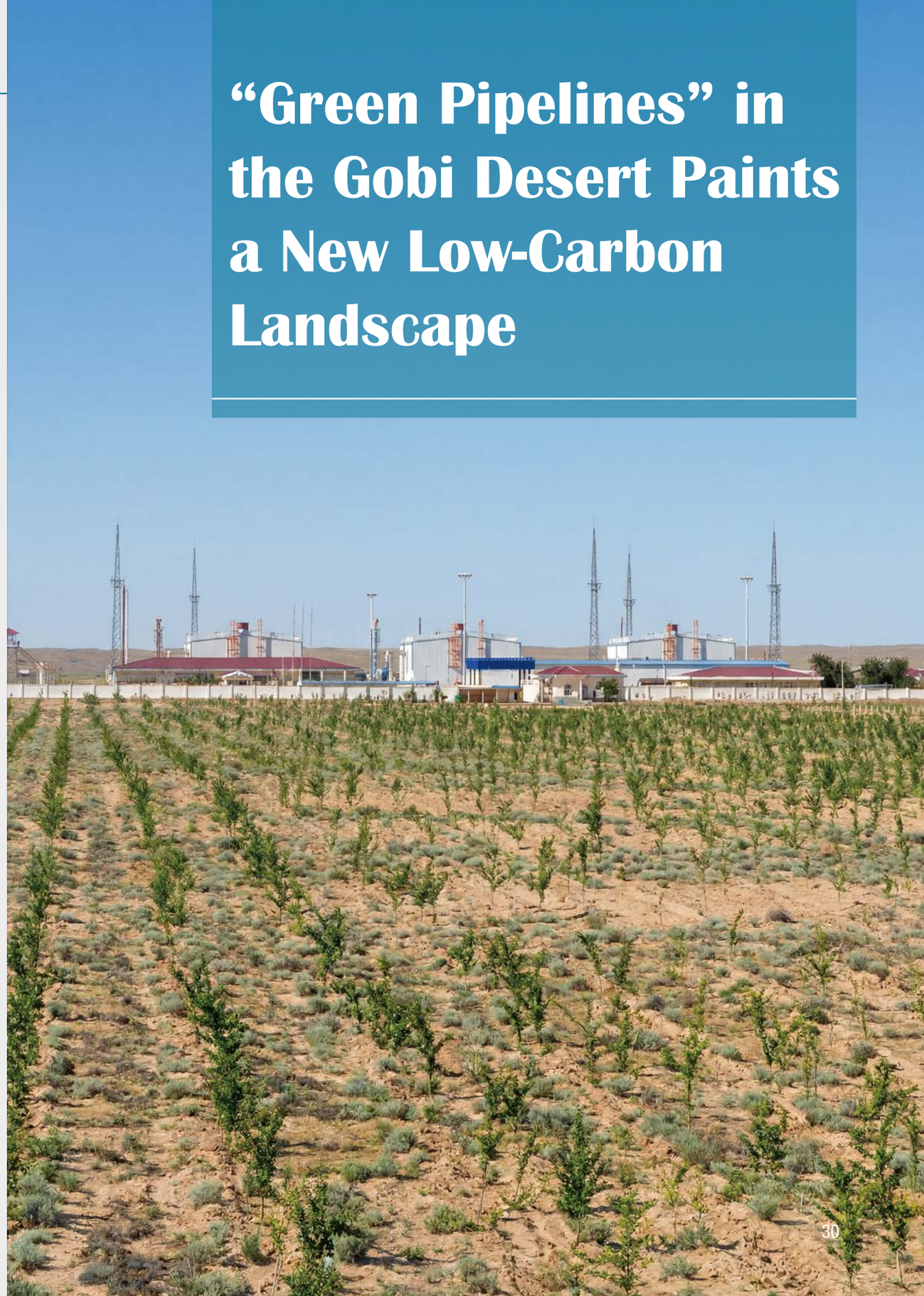
To advance the industrialization and localization of these technologies, China and Uzbekistan have jointly delivered training programs covering photovoltaic station operation and maintenance, water-saving irrigation and other techniques to boost local practitioners' expertise. At Uzbekistan's request, the project introduced sesame cultivation in 2025 to further validate the "photovoltaic + oil crop" model. Uzbek authorities stated their willingness to fund an expansion of the demonstration area to 100 hectares, scaling the technology from trial plots to large-scale commercial application.

In April 2024, the project was included in the Global Development Project Database of the China International Development Cooperation Agency. In May 2025, as a core achievement of the International Programme for Sustainable Development of the Aral Sea Basin, it was selected into the first batch of projects under the UN International Decade of Sciences for Sustainable Development and exhibited at UN Headquarters in New York, elevating its international influence to a global scale.

From the "Tear of Central Asia" to a beacon of green hope, cotton fields along the Aral Sea bear witness to the humanistic warmth of Chinese science and technology. Beneath photovoltaic panels, drip irrigation pipes quietly carry water and nutrients; within the halophyte garden, salt-tolerant forage sways gently in the wind. This once desolate saline-alkali expanse has become a bright emblem of the China-Central Asia community with a shared future.

(Submitted by: Xinjiang Institute of Ecology and Geography of the Chinese Academy of Sciences)

“Green Pipelines” in the Gobi Desert Paints a New Low-Carbon Landscape



Layered green belts stretch alongside the China-Uzbekistan Natural Gas Pipeline as it traverses the country. Oleasters, elms, and saxauls have taken root in the barren soil, while straw checkerboard sand barriers firmly hold mobile sand dunes in place. Inside the compressor stations, waste heat circulates and units operate via smart coordination, delivering a continuous supply of clean natural gas to thousands of urban and rural households. In the arid, ecologically fragile heart of Central Asia, a green corridor integrating energy supply security, desertification control, and low-carbon emission reduction is gradually unfolding across the vast Gobi of Uzbekistan.

As the Uzbekistan section of the China-Central Asia Natural Gas Pipeline, the construction and operation of this project align closely with the country's national initiative "Yashil Makon" (*Green Space*). Following a three-step framework of "oasis – green belt – green ecosystem", it delivers a model of ecological symbiosis in the desert. To address the challenges of sand erosion along the pipeline and low vegetation survival rates, the project has drawn on China's successful desertification control experience: it has laid 220,000 square meters of straw checkerboard barriers for sand fixation, strictly delimited construction zones, and sown grass seeds to restore the land surface upon project completion.

Centered around the UCS3 station, a 12.5-hectare greening zone is equipped with a scientific water-saving irrigation system. Featuring carefully selected drought-tolerant native saplings, over 10,000 trees have been planted to date. Supported by meticulous management – including quarterly fertilization, pest and disease control, and regular replanting – this once-vacant desert land has been transformed into a vibrant ecological barrier. Over the past decade, nearly 30,000 trees have been planted along the pipeline route, sequestering about 370 tons of carbon annually and boosting dust reduction efficiency by over 30 percent. Birds have returned to nest in the woods, and the desert ecosystem is gradually regaining its vitality.

Station Integrated Operation Diagram

Green development goes beyond sand control and afforestation; it is embedded in every technological innovation. Focused on energy conservation, consumption reduction, carbon cutting, and efficiency enhancement, the project has rolled out multiple low-cost technical upgrades. It has optimized the control logic of the compressor units to automatically switch to pressure-holding mode during shutdown, eliminating natural gas venting losses. It has interconnected the power supply and air compressor systems of adjacent stations to share equipment loads, significantly reducing gas self-consumption and power use. Furthermore, it has constructed three crossover pipelines to dynamically adjust gas transmission volumes and optimize unit operation loads, saving over 15 million cubic meters of self-consumed gas annually.

All 21 gas-driven compressor units along the pipeline are equipped with waste heat boilers, which recover heat from flue gas exceeding 400 ° C for winter heating, while R&D into waste heat power generation technology is actively underway to fully unlock the potential of circular resource utilization. Since commissioning, the pipeline has delivered a cumulative total of nearly 500 billion cubic meters of gas, replacing massive volumes of coal and sharply cutting carbon dioxide and sulfur dioxide emissions, achieving a win-win for both energy transmission and low-carbon development.

These locally rooted green practices have earned widespread recognition. The sprawling green belts have improved living conditions at the station sites, and greenhouses cultivating vegetables, fruits, and plants have created livable Gobi homes for frontline staff. The project's environmental achievements have been featured multiple times in prominent Uzbek publications, including the newspaper "Pravda Vostoka" (Eastern Truth) and "Tabiat" (Nature). The Navoi Regional Ecology Department specially delivered a letter of commendation, highly affirming the enterprise's outstanding contributions to local desertification control and the green economy. In 2021, the project obtained the first ISO 26000 social responsibility certification in the Central Asian region, setting a benchmark for sustainable development practices.

Looking ahead, this Silk Road energy artery will continue to deepen its green transition. It will expand greening coverage along the route to enhance the desert green belt ecosystem; it will advance technical upgrades for natural gas venting recovery to achieve zero direct resource discharge; and it will deploy integrated wind, solar, gas, energy storage, and hydrogen projects, launching a series of lightweight green demonstration initiatives.

O'ZBEKISTON RESPUBLIKASI EKOLOGIYA VA ATROF-MUHITNI MUHOFAZA QILISH DAVLAT QO'MITASI

BUXORO VILOYATI EKOLOGIYA VA ATROF-MUHITNI MUHOFAZA QILISH BOSHQARMASI

Letter of Commendation on Green Belt Construction from the Governments of Bukhara and Navoi Regions of Uzbekistan

O'ZBEKISTON RESPUBLIKASI BUXORO VILOYATI

HOKIMLIGI APPARATI

Уважаемый г-н Лю Чжигуан,

Первый заместитель хокима Бухарской области

CERT International

ПОДТВЕРЖДЕНИЕ

СП ООО «Asia Trans Gas»

Республика Узбекистан, город Ташкент, проспект Мирзо Улугбека, 32 А

в области:

Транспортировка газа

соответствует требованиям стандарта:

ISO 26000:2010

ISO 26000 (Guidance on Social Responsibility) Certificate

The yellow sands stand silent, while the green trees bear witness. The gas pipeline running through the Gobi builds a bridge of China-Uzbekistan friendship through ecological restoration and technological innovation, continuously injecting enduring, sustainable green momentum into the joint construction of the Belt and Road Initiative.

(Submitted by China-Uzbekistan Natural Gas Pipeline Company)

Building a Plateau Thoroughfare, Safeguarding the Green Homeland

On the plateau over 1,800 meters above sea level in the Tyup District of Issyk-Kul Region, Kyrgyzstan, a 50-kilometer cross-border highway winds through mountains, grasslands and river valleys, linking eastern Kyrgyzstan with the border of Almaty, Kazakhstan. The area features long, harsh winters and an ecologically sensitive and fragile environment, with historical and cultural relics such as the Santashtamuran site scattered along the route.

Before China Road and Bridge Corporation (CRBC) completed the Phase III Road Rehabilitation Project of the Central Asia Regional Link, travel between Issyk-Kul Region and Almaty, Kazakhstan required a 460-kilometer detour along winding mountain roads, with a one-way travel time of 8 hours. The new route cuts the direct mileage to 280 kilometers and reduces one-way travel time by more than 60%, completely eliminating the travel woes caused by snow accumulation, avalanches and ice-induced traffic restrictions on the old road in winter.

Throughout project implementation, the Environmental, Social and Governance (ESG) philosophy has been consistently upheld. In terms of ecological protection, the project strictly follows the principle of "minimizing damage while prioritizing protection, reducing disturbance while strengthening prevention". Before construction, a comprehensive survey was conducted on the distribution of vegetation, water sources and ancient tombs to optimize the layout of access roads and temporary facilities, reducing the occupation of grasslands and farmland. Spoil dumps are fitted with annular intercepting ditches and retaining structures to strictly prevent soil erosion; native drought-tolerant plants are adopted for the restoration of roadbed slopes. During construction, regular water spraying is carried out for dust suppression, mixing stations are equipped with dust removal equipment, and oil and chemical products are stored in dedicated impermeable zones, strictly safeguarding the water quality of the glacial meltwater sourced from the Tyup River and Karkyra River. The project also invited Kyrgyz archaeological experts to implement protective measures for ancient tombs along the route, and adjusted the construction plan to avoid cultural relic areas, realizing the coordination of engineering construction and cultural heritage preservation.

Ecological view of the plateau wetland next to the project

In terms of livelihood support, eyond the scope of the project contract, the constructor repaired internal roads for three villages along the route — Sary-Talagoy, Santash and Karkyra — resolving the difficulties and safety risks faced by villagers in daily travel. In 2023, when Karkyra Village was struck by a flood, the project team immediately dispatched personnel and machinery to participate in emergency rescue and post-disaster reconstruction. During winter snow closures, the project department carries out regular snow clearance operations to keep passages in pastoral areas unobstructed. In January 2025, an elderly resident of Santash Village passed away. Days of heavy blizzards completely blocked the road from the village to the cemetery, leaving local funeral transport stranded. The village committee urgently appealed to the project department for help. The project manager immediately deployed large equipment including loaders and graders to the site for emergency snow removal, opening a safe passage from the village to the cemetery. This warm-hearted rescue in the snow not only addressed the villagers' pressing need, but also brought the company closer to the community emotionally.

Statistics show that during construction, the project created more than 1,500 local jobs in total, while prioritizing skills training programs to elevate the technical competence of local employees.

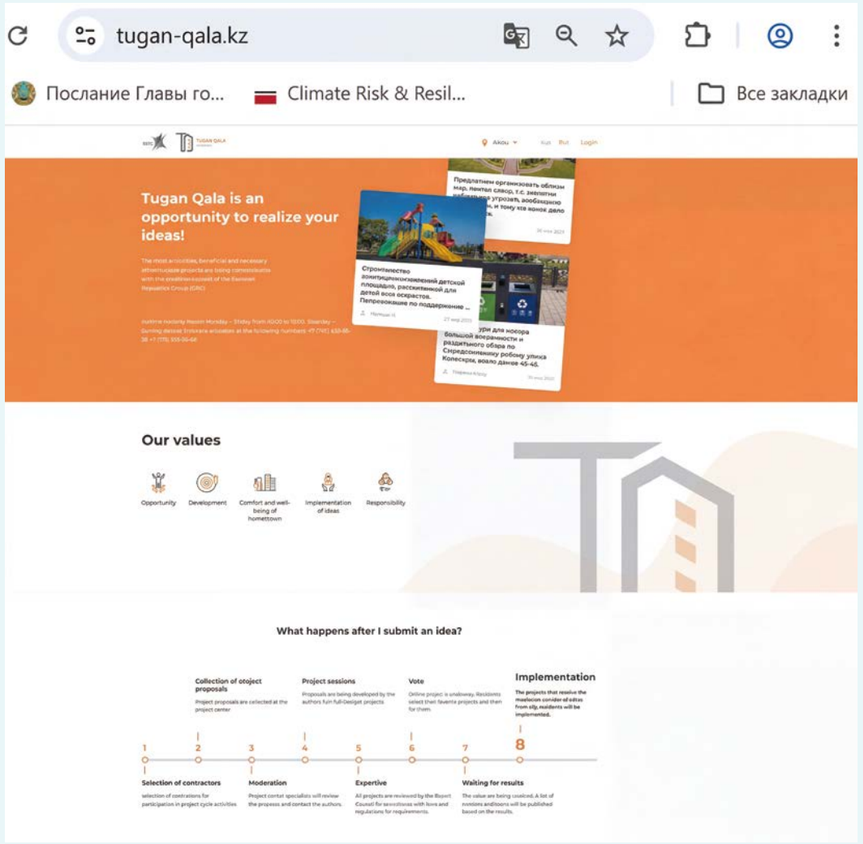
A CRBC employee at the construction site

From meticulous protection of the plateau ecosystem, to heartfelt assistance for villages along the route, and to the connectivity dividends delivered by the project construction, experience has shown that the key to high-quality, sustainable development for enterprises in Central Asia lies in deeply integrating corporate growth with local ecological, social and governance needs. This approach delivers mutual benefits across economic, social and ecological dimensions, and provides lasting impetus for the joint construction of the Belt and Road Initiative.

(Submitted by China Road and Bridge Corporation)

Residents Vote to Decide Projects, Enterprises Fund and Co-Participate

ECO-DOCUMENT



Tugan Qala Participatory Social Impact Ecosystem Portal and Workflow

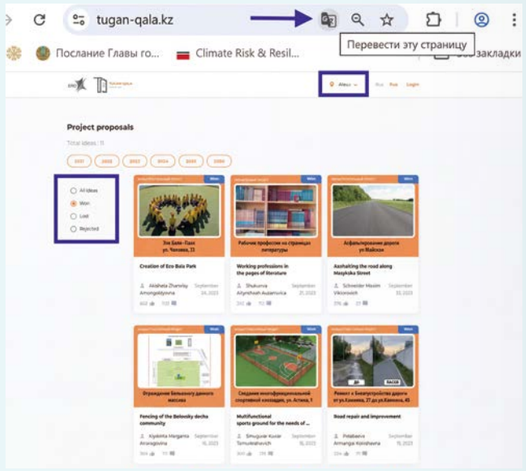
A unique community initiative is reshaping the landscape of monostructural industrial towns across Kazakhstan. Residents submit renovation proposals for public spaces online via mobile phones, all citizens vote openly to select priority projects, and local enterprises provide funding for implementation. Initiatives ranging from barrier-free riverside walkways and large murals on residential building facades to artistic installations in community plazas and children's playgrounds are all proposed, selected and supervised by local residents themselves. This participatory social impact ecosystem, known as Tugan Qala, was launched by Eurasian Resources Group (ERG).

Monostructural industrial towns in Kazakhstan have long been plagued by structural challenges: economies are overwhelmingly reliant on a single major employer, urban infrastructure investment lacks flexibility, formal mechanisms for citizens to engage in public affairs remain underdeveloped, and residents lack a strong sense of ownership over public spaces. Traditional corporate social responsibility (CSR) models centre on top-down capital injection and facility construction. While these can address short-term infrastructure shortages, they fall short of unlocking intrinsic community vitality and fostering residents' lasting sense of recognition and stewardship over development outcomes.

ERG has redefined corporate social responsibility as a participatory development framework built on three core principles: citizens make final decisions rather than enterprises conducting token consultations; projects respond to genuine grassroots needs instead of institutional assumptions; and communities share collective ownership of deliverables to guarantee long-term sustainability. Its flagship Tugan Qala platform delivers a full online engagement framework: residents independently submit project proposals, winning schemes selected through open community balloting receive corporate funding for delivery, and the entire process is subject to public oversight via the official website.

Between 2020 and 2025, Tugan Qala delivered a total of 197 community projects with cumulative investment of 1.73 billion tenge, with maximum individual project funding capped at 15 million tenge. Between 4% and 10% of each town's population cast direct votes on projects — a globally leading benchmark for participatory governance models. Steady growth has been recorded in the volume of submitted proposals and the number of active community leaders, alongside rising resident engagement year on year, demonstrating that the model has successfully shifted from externally incentivised participation to self-sustained grassroots momentum.

Tugan Qala has yielded a suite of innovations that transcend conventional municipal planning. In Aksu, residents transformed riverfront areas into fully accessible waterfront zones navigable by wheelchairs, a first for the city. In Khromtau, residents collectively voted to adopt the miner's helmet as the city's iconic symbol, integrating it into public space design to forge a distinct shared community identity. Across numerous towns, blank exterior walls of apartment blocks have been transformed into large-scale murals designed by residents, redefining local urban aesthetics. These upgrades have directly transformed residents' daily lives and social interactions.



Tugan Qala Participatory Social Impact Ecosystem Project Proposal Showcase

More than a standalone project platform, Tugan Qala has built a holistic ecosystem for civic participation spanning multiple domains:

Youth civic education: The Active Citizens School has trained 63 young students, who led 9 publicly voted, successfully implemented community projects.

University entrepreneurship incubation: Launched in 2017, the programme spans multiple higher education institutions, embedding entrepreneurship training into formal curricula.

Assistive technology hackathons for persons with disabilities: 16 editions have been held, generating multiple functional practical prototypes.

ALQA women's community leadership platform: Established in Khromtau, it operates peer support networks and delivers family empowerment programmes.

These interconnected schemes create a continuous pathway of participation, from individual capacity building to holistic community transformation.

The systemic impact of this model extends far beyond corporate boundaries. Participatory methodologies and governance tools pioneered under Tugan Qala are gradually being adopted by public authorities across Kazakhstan. Practical experience proves that when citizens are granted genuine decision-making power and corporate resources are deeply integrated with community ownership, even industrial towns long dependent on a single industry can unlock vibrant social dynamism.

(Submitted by Eurasian Resources Group)

Ministry of Science and Higher Education
Republic of Kazakhstan

Spreading Wisdom Along the Silk Road: Jointly Ushering in an AI-Driven Future through Education

In computer labs at dozens of universities across Kazakhstan, young students are able to explore the realm of artificial intelligence step by step via an online learning platform — ranging from introductory basic concepts and deductions of core search algorithms to scenario-based practical applications across all industries. A complete talent development pipeline for artificial intelligence is taking steady shape in this Central Asian nation. This is the national AI talent development programme "AI-SANA", spearheaded by the Ministry of Science and Higher Education of Kazakhstan and rolled out for universities nationwide.

Initiated under the strategic arrangement announced by the President of Kazakhstan at the Digital Bridge Forum, the AI-SANA Programme centers on accelerating the improvement of nationwide AI literacy and fostering a solid talent pool to underpin the country's digital transformation. The project adopts a three-party collaborative model featuring government coordination, university implementation and industrial synergy: the Ministry of Science and Higher Education issues unified guidelines to formally integrate AI curricula into university academic frameworks; 45 partner universities nationwide undertake teaching delivery and student administration; as the strategic partner of the programme, Huawei Technologies Kazakhstan LLP leverages its mature ICT educational resources and technological strengths to deliver curriculum systems, online learning platforms and end-to-end technical support for the initiative.

Huawei AI Courses in Two Languages: English and Kazakh

To ensure inclusive and accessible educational resources, Huawei Technologies Kazakhstan LLP has translated three core AI courses — Introduction to Artificial Intelligence, Search and Artificial Intelligence, and Artificial Intelligence and Applications V2.0 — into Kazakh, enabling local students with limited foreign language proficiency to access cutting-edge AI content without barriers. Through the unified online learning platform, more than 250 ICT courses covering core fields including cloud computing, network communications and artificial intelligence are open to university students across Kazakhstan, forming a comprehensive digital skills learning framework spanning foundational to advanced levels.

To accommodate large-scale online learning with hundreds of thousands of users, Huawei Technologies Kazakhstan LLP has established a round-the-clock real-time technical support response mechanism to swiftly resolve various technical issues arising from concurrent access and guarantee the platform's long-term stable operation. Meanwhile, the learning reporting system generates real-time data on students' learning progress, course completion rates and participation activity, allowing educators to monitor teaching dynamics at any time and adjust teaching strategies promptly as needed. Huawei Technologies Kazakhstan LLP also organizes regular online training for teaching faculty to help university instructors master platform operations and teaching management tools, empowering academic administrations to continuously optimize curricula and delivery approaches.

Since its launch, the programme has delivered far greater outcomes than anticipated. To date, over 220,000 students have engaged with this learning ecosystem, more than 200,000 of whom have successfully completed foundational AI courses. This scale not only attests to the programme's robust execution and extensive coverage, but also vividly reflects Kazakh youth's strong aspiration and motivation to master digital skills.

Students of Huawei ICT Academy at Huawei ICT Competition

The AI-SANA Project demonstrates the immense potential of cross-border collaborative innovation among governments, academia and industry. Rather than merely migrating courses online, it has built a full-spectrum talent development system covering policy guidance, curriculum development, localized content adaptation, faculty training and learning progress tracking, injecting sustainable talent momentum into Kazakhstan's digital transformation and intelligent future.

(Submitted by Huawei Technologies Kazakhstan LLP)

Connecting the Silk Road with Iron Rails, Warming Hearts with Sincere Care

A 16,000 km railway network connects the vast territories of Kazakhstan — the world's largest landlocked country. From remote stations in the eastern mountains to locomotive depots in the western desert, once rudimentary rest rooms and outdated sanitary facilities are being replaced by modern spaces; the past dilemma where employee grievances could not reach management is now being resolved through multi-channel, transparent feedback mechanisms…

As Kazakhstan's largest employer, managing 116,000 employees, JSC National Company "Qazaqstan Temir Zholy" (KTZ) launched the "Favorable Working Conditions" (BLAGO) programme in 2022. Through systematic transformation, it is reshaping the workplace ecology of the national railway industry and injecting sustainable humanistic strength into the Central Asian transport corridor under the Belt and Road Initiative.

The railway industry has traditionally been associated with heavy physical labor, work in remote and harsh conditions, and high occupational risks. KTZ's linear enterprises — depots, stations, and track maintenance units — are spread across the entire country. How to ensure uniform standards of working conditions and corporate culture was once the greatest systemic challenge facing the industry.

The Favorable Working Conditions programme emerged in response to this challenge. Corresponding to five core corporate values — Safety (Bezopasnost'), Leadership (Liderstvo), Ambition (Ambitsii), Pride (Gordost'), and Responsibility (Otvetstvennost') — the programme became a central pillar of KTZ's Sustainable Development Strategy through 2029, aiming to ensure that every railway employee feels respected, protected, and empowered to grow.

The programme encompasses five interconnected pillars: regular independent engagement surveys through the Samruk Research Services (SRS) platform, generating indices for employee engagement, social well-being, and social cohesion; Industrial Relations Monitoring (IRM) — a proprietary bi-annual survey covering at least 25% of staff, evaluating 11 indices ranging from occupational safety to a "happiness at work" index; annual budget commitments in the tens of billions of tenge for systematic upgrading of sanitary and welfare infrastructure at linear enterprises; a multi-channel system for collecting, routing, and recording appeals; and fostering a culture of dialogue between staff and management with anonymous, protected communication channels.

Institutional innovation is the most prominent feature of this programme. For instance, KTZ established the position of Corporate Ombudsman — a first in the Central Asian railway industry — an independent advocate for employees' rights. The Ombudsman handles complaints related to violations of corporate standards, discrimination, and unfair treatment by management. The office operates on a confidential basis and gives employees access to protection outside the chain of command. The programme also adopted a Policy on Prevention of Harassment and Discrimination in accordance with ILO Conventions. In 2024, KTZ adopted a

corporate Human Rights Policy grounded in the UN Guiding Principles on Business and Human Rights (UNGP), covering labor rights and gender equality requirements for all company personnel and contractors.

Digitization transforms social climate management from "perceptual judgment" to "precision governance." All programme data is integrated into a unified analytic platform built on Microsoft Power BI. Real-time dynamic dashboards track employee appeals by region, branch, and issue type; complaint trends by year and month; IRM survey results broken down by each business unit; and "hot spot" regions on an interactive map of Kazakhstan. This enables management to forecast the social climate and proactively plan corrective measures. KTZ became the first company within the Samruk-Kazyna to complete full integration with the Nysana information system — the holding's unified complaints and appeals database — establishing a standardized nine-step process: registration, routing, verification, analysis, response, and entry into the dashboard, achieving closed-loop management from registration to feedback.

"Measurement only makes sense when converted into action" — this is the core principle of the Favorable Working Conditions programme. Systemic problems with sanitary and welfare conditions at linear enterprises identified in early survey iterations were quickly translated into nationwide upgrading projects. The establishment of the Ombudsman institution has led to a significant decline in collective appeals and substantially improved employee trust in management…

The Favorable Working Conditions programme makes the railway artery traversing Central Asia beat more powerfully. It carries not only the flow of goods and people but also the happiness and hope of more than 110,000 railway workers, providing a replicable benchmark for enterprises in Central Asia to practice sustainable development.

(Submitted by: JSC NationalCompany "Kazakhstan TemirZholy" (KTZ).)