Mongolian Economy

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Main interview

Water sector reform in the capital will continue through 2030

Wastewater Recycling

Turning wastewater into a “precious jewel”: a collective solution

ULAANBAATAR ACHIEVES LONG-TERM WATER SECURITY

The Water Compact funded by U.S. and Mongolian taxpayers

FROM THE AMERICAN PEOPLE TO MONGOLIA: BUILDING A NEW WATER FUTURE

Expressing Gratitude to U.S. and Mongolian Taxpayers

N.Enkhbayar
Deputy Editor-In Chief

THE WATER COMPACT: THE SOURCE OF "BLUE GOLD"

Water is the most precious resource bestowed upon humanity—yet one we often take for granted in our daily lives. For those of us living in the Tuul River basin, we are uniquely fortunate to have access to a level of clean, high-quality water that many cities around the world can scarcely imagine. This is largely because Ulaanbaatar's domestic and drinking water supply depends almost entirely on pristine groundwater reserves. Today, many countries are forced to desalinate seawater, transport water over hundreds of kilometers, or construct massive dams and reservoirs to meet their needs. In contrast, Mongolia benefits from relatively well-protected groundwater sources that are less exposed to surface pollution. This is, without doubt, a remarkable advantage—yet one that comes with an equally profound responsibility. Without safeguarding the Tuul River basin and our groundwater resources, it is impossible to speak of a secure future for Ulaanbaatar.

At this critical juncture, Mongolia is now better positioned to plan for the future with greater confidence, thanks to the USD 350 million grant-funded Water Compact program supported by the United States Millennium Challenge Corporation (MCC). Under the Compact, the development of a new western water source near Shuwuun and Biokombinat has created the capacity to sustainably extract up to 50 million cubic meters of "blue gold" annually. Furthermore, the commissioning of the Wastewater Recycling Plant enables the reuse of 18 million cubic meters of water per year—equivalent to four times the volume of Lake Buir—thereby conserving an equivalent amount of groundwater. This facility will significantly reduce the discharge of partially treated wastewater from the Central Wastewater Treatment Plant into the Tuul River. In addition, major thermal power plants such as CHP-3 and CHP-4 are transitioning from the use of fresh groundwater to recycled water for their needs.

The most important task ahead is to value and protect this secured future. To cherish water is, ultimately, to safeguard our future. ■

Healthy journalism

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I AM PROUD THAT **MONGOLIA AND THE UNITED STATES** HAVE SUCCESSFULLY IMPLEMENTED WATER COMPACT

KHURELSUKH UKHNAA
PRESIDENT OF MONGOLIA

On the occasion of the successful implementation of the Water Compact, an initiative of exceptional significance in Mongolia's sustainable development history, and the commissioning of major plants, I extend my sincere greetings to the readers of Mongolian Economy magazine.

It is my great pleasure to inform you that, through the implementation of the Water Compact, funded by a USD 350 million grant from the Millennium Challenge Corporation (MCC) and a USD 111.7 million investment by the Government of Mongolia, water supply challenges of Ulaanbaatar have been effectively addressed.

Our shared vision of protecting water resources—the very source of life—and ensuring that future generations inherit clean and safe water has now materialized in the form of major infrastructure, including the Wastewater Recycling Plant and the Advanced Water Purification Plant.

Eight years ago, in 2018, I signed a Joint Declaration with MCC to advance the second Compact Agreement. Construction works commenced in 2021, and today, I am deeply pleased to witness these efforts culminate in fully operational facilities.

This represents a historic milestone that lays a strong foundation for Mongolia's sustainable development, ensures a higher quality of life for our citizens, and supports the continued expansion of our capital city, Ulaanbaatar.

The Downstream Wells Activity, developed on the eastern foothills of Songino Khairkhan Mountain, will increase Ulaanbaatar's water supply capacity by up to 50 million cubic meters annually. It is already making a tangible contribution toward enabling the city's westward expansion, as envisioned in the master plan, including the development of satellite cities and new residential zones.

The Water Compact is distinguished by its comprehensive approach, addressing not only critical infrastructure needs but also advancing sector governance, institutional capacity, and management systems to a new level.

I am pleased to have closely followed and supported the progress of these two major facilities, from construction to the commencement of operations, alongside government representatives and project implementers.

Ulaanbaatar continues to experience rapid population and industrial growth. Anticipating and planning for the long-term needs of essential infrastructure, water, energy, and transport, is a fundamental responsibility of the State.

I am proud that Mongolia and the United States have successfully implemented this large-scale program, which will deliver lasting benefits, safeguard our country's future development, and uphold citizens' right to live in a safe and healthy environment.

On behalf of the people of Mongolia, I extend my profound gratitude to all project leaders, Mongolian and international engineers and technical specialists, all contributors, the Government of the United States, the U.S. Embassy, MCC, and the American people.

Protecting every drop of water and using it wisely is a valuable contribution each of us can make to our planet and to future generations.

May Mongolia prosper under the Eternal Blue Sky. ■

ULAANBAATAR SECURES ITS WATER INDEPENDENCE

The benefits of the Water Compact program—transforming water sector and Ulaanbaatar's water supply system—will be felt for decades to come.

We have increasingly neglected this natural gift and foundation of the capital`s existence

To love Ulaanbaatar is to value its water

Ulaanbaatar faces no shortage of challenges. Yet most of the city's pressing concerns—traffic congestion, weak waste recycling management, insufficient green spaces, unplanned urban expansion, and air pollution—are largely driven by human factors. These challenges can be addressed through better management, sound planning, behavioral change, and adequate investment.

However, there are risks beyond human control—those rooted in natural constraints. For Ulaanbaatar, one such risk has long been its water supply: a silent, "ticking bomb." ▶

Activities under the Mongolia Water Compact Program:

- The Downstream Well Activity
- The Wastewater Recycling Activity
- The Water Sector Sustainability Activity

History shows that most civilizations and major urban centers have developed around reliable water sources such as rivers and lakes. Ulaanbaatar itself was founded along the Tuul River. Yet in recent decades, we have increasingly neglected this natural gift and foundation of the capital`s existence. Rivers and water bodies such as the Selbe and Dund Gol rivers, as well as the Green Lakes, are now on the brink of disappearance. Even the health of the Tuul River only drew serious public attention when controversies surrounding the Tuul highway project emerged.

In reality, Ulaanbaatar's water supply depends almost entirely on groundwater resources within the Tuul River basin, providing for over 95% of the city's population. Recent studies indicate that this system is fragile and under growing stress. As groundwater extraction continues to rise—driven by population growth, urban expansion, and industrial development—projections once suggested that demand could exceed supply as early as 2030.

Compounding the challenge, the flow of the Tuul River has significantly declined over the past 20–30 years. During dry periods, water levels around the city have dropped sharply, with some tributaries and floodplain sections drying up altogether. At the same time, increasing pollution along the river has further intensified the risks.

A reason to be grateful to the American people

Against this backdrop, the implementation of the Water Compact—recognizing the vulnerabilities in Ulaanbaatar's water resources and infrastructure—can be seen as a transformative milestone for the city.

Following the successful completion of the first Millennium Challenge Compact between Mongolia and the United States (2008–2013), both sides made a political decision to pursue a second compact. Preparatory work began with the establishment of a national working group in May 2015, tasked with developing and negotiating the agreement. At the time, there was no predefined plan to focus on the water sector. Together with MCC experts, Mongolia conducted a comprehensive "Constraints to Economic Growth of Mongolia" analysis.

As emphasized by Enkhgerel E., Chief Executive Officer of Millennium Challenge Account–Mongolia "The MCC model is distinguished by its reliance on data, evidence, and rigorous analysis in all investment decisions. Based on a joint study identifying the key constraints to Mongolia's economic growth, both sides agreed to prioritize investments aimed at increasing Ulaanbaatar's water supply and preventing future shortages."

As a result, the Government of Mongolia and the Millennium Challenge Corporation signed the Second Compact—known as the Water Compact—on July 27, 2018. The agreement was ratified by the Parliament of Mongolia on January 31, 2019.

The Millennium Challenge Corporation is a U.S. foreign assistance agency that partners with developing countries committed to democratic governance, economic freedom, and investment in their people. Through this partnership, and thanks to the American people, Ulaanbaatar is now better positioned to secure its water supply through 2050.

Despite numerous implementation challenges, all three projects under the Compact were successfully completed on schedule and within budget, thanks to the hard work and collaboration between domestic and international companies and experts.

Notably, MCC has implemented two compacts in only a limited number of countries. Should a third compact be realized in Mongolia, potential areas of cooperation include energy transition, rare earth elements, education, and cultural development. Mongolia would then become the first contry to host three MCC compacts. ■

All three projects under the Compact were successfully completed on schedule and within budget

Total investment:

461.7 $ million

MCC Grant: **350** $ million

Government of Mongolia: **111.7** $ million

Richard Buangan

U.S. Ambassador to Mongolia

WE ARE PROUD OF WHAT OUR COUNTRIES HAVE ACCOMPLISHED TOGETHER

For the past five years, the Millennium Challenge Corporation Water Compact has been one of the clearest and most visible expressions of our relationship.

Through this compact, the United States and Mongolia successfully worked together to help secure the future of a rapidly growing city facing increased pressure on one of its most essential resources—water.

What we achieved together is not only significant because of the infrastructure itself, but because of what it brings.

It brings American expertise.

It brings Mongolian hard work.

It brings our collective long-term thinking.

It brings our confidence and hope in Mongolia's future.

And it brings trust between our two countries.

Water security is foundational to the future of Ulaanbaatar. It supports economic growth, public health, investment, and resilience. It gives future generations the ability to build, innovate and thrive with greater assurance and stability.

But perhaps—most importantly—this compact demonstrates what is possible through transparent partnership and shared commitment.

As the United States approaches our 250th birthday this July, we are reminded that strong democracies endure because their systems are rooted in good governance, holding elected officials accountable, civic participation, an empowered private sector that leads a country's economic growth.

Throughout my time in Mongolia, I have seen firsthand the tremendous professionalism, talent, and dedication of the people involved in the MCC Water Compact—from government officials, to engineers, to technical experts, operators, and the outstanding team at MCA-Mongolia.

The work completed through this compact reflects not only technical excellence, but also persistence and vision.

And while tonight marks the conclusion of the compact itself, it does not mark the conclusion of the partnership between our countries.

The United States remains deeply committed to Mongolia as an important democratic partner and valued Strategic Third Neighbor. We are proud of what our countries have accomplished together, and we remain optimistic about what lies ahead.

I believe the success of this compact sends an important message—that investments rooted in transparency, accountability, and shared purpose can create lasting benefits for people and industry. ■

Dan Petrie

MCC's Acting Chief of Staff

WATER COMPACT WILL STAND AS A SYMBOL OF OUR PARTNERSHIP

As Mongolia advances its efforts to diversify its economy through private sector–led growth, reliable infrastructure, particularly a sustainable water supply, is critically important. Through the Water Compact program, we are securing long-term water availability, which in turn creates opportunities for new industries to emerge and reduces key constraints on economic growth. This also provides a tangible foundation for enhancing Ulaanbaatar's competitiveness and supporting its future development.

With the successful implementation of the Water Compact, we are moving from development cooperation to delivering concrete results, and from construction to full operation. More importantly, we see this as a transition from being co-builders to becoming partners in economic growth. I am confident that this compact will stand as a lasting symbol of our partnership and our shared commitment to economic opportunity and growth.

This project is generating significant impact not only for the residents of Ulaanbaatar, but also for the business and industrial sectors. New groundwater sources, advanced water purification technologies, and water system upgrades will ensure a clean and reliable water supply for a rapidly growing capital city, directly benefiting around 460,000 households.

At the same time, the compact has introduced major reforms in governance and regulation that are essential for the sustainable management of water resources in the future. These improvements position Ulaanbaatar to continue growing sustainably, attract investment, and provide a safe and healthy environment for future generations.

From the corporation's perspective, priority is placed on transparency, evidence-based decision-making, and measurable results. Planning is also carried out with careful consideration to ensure that the benefits continue even after the compact program concludes. Most importantly, the compact program succeeds in fostering genuine partnership.

Of the total investment of USD 462 million, USD 112 million was financed by Mongolia. This represents the highest proportion of co-financing contributed by a partner country in the history of the Millennium Challenge Corporation. This demonstrated Mongolia's significant commitment to the success of the project.

In terms of implementation, one distinctive feature is that the Millennium Challenge Corporation makes direct payments to contractors and consultants. The management and disbursement of funds are verified through a multi-layered systems to ensure compliance with stringent standards.

Now, the key priority is to sustain these results over the long term. By reinforcing Mongolia's technical and institutional systems, as well as its legal and regulatory frameworks, the compact has created the conditions for these systems to be managed independently going forward.

All major investments under MCC are subject to independent evaluation. These assessments examine whether the program reached its target beneficiaries, increased incomes, delivered value for money, and what lessons can inform future programs. MCC is also distinguished by its commitment to transparency, making data, results, and evaluations publicly available. This allows our partners to clearly see what has worked, and what has not.

While MCC's formal engagement under this compact is coming to a close, the broader partnership between the United States and Mongolia will continue to grow across many sectors. ■

Kh.Nyambaatar
The Governor of the Capital City and the Mayor of Ulaanbaatar City

WATER SECTOR REFORM IN THE CAPITAL WILL CONTINUE THROUGH 2030

Water Compact has been an important contribution to the development of Ulaanbaatar's water sector

We spoke with Kh.Nyambaatar, the Governor of the Capital City and the Mayor of Ulaanbaatar City, about Mongolia's water sector—particularly the capital's growing water demand—and the major projects being implemented with grant support from the Millennium Challenge Corporation (MCC). This interview was conducted in April 2026.

Thanks to the MCC grant, Ulaanbaatar residents won't need to worry about water supply in the coming years. Could you elaborate on the economic benefits of the three major projects implemented under the Water Compact?

The three projects implemented under the Water Compact are strategically significant investments for Mongolia's water sector. But more importantly, their value goes beyond purely economic returns. They improve living conditions ▶

by ensuring a safe and healthy environment for citizens, while also strengthening the foundation for the city's long-term development.

First, the program has created a new water source, which allows us to meet Ulaanbaatar's growing water demand in a sustainable way over the long term. This doesn't just secure water supply—it also supports urban development, industrial activity, and overall economic growth.

Second, through the advanced water purification plant, we've introduced modern, high-level water treatment technology to Mongolia. This marks a major step forward in terms of water quality, safety, and system reliability. In other words, we're not only increasing our water resources—we're now able to process them to meet international standards.

Third, we are putting in place a wastewater recycling plant, rather than using water once and discharging it. This is essentially the beginning of a circular water system. The benefits are wide-ranging: we conserve clean water, protect water resources, and support sustainable development.

Taken together, these three projects bring new sources, new technologies, and a new system into Mongolia's water sector—laying the groundwork for long-term sustainability.

After the Water Compact program concludes, how will the operational costs of these facilities be sustainably financed?

Naturally, if water tariffs do not reflect the real cost of services, it becomes difficult to sustain such large-scale infrastructure over the long term. In other words, if service providers cannot recover their costs, the system's sustainability is put at risk.

At present, the average cost of supplying one liter of water in Mongolia is about 2.65 MNT, while the average tariff is only 1.18 MNT. This gap needs to be addressed. To ensure stable operations, tariffs will need to increase to around 3 MNT on average.

How has water consumption in Ulaanbaatar changed over the past decade, and what are the future projections? Can the current groundwater-based system remain sustainable in the long run?

Water consumption in Ulaanbaatar has been rising rapidly over the past 10 years, in line with population growth—and this trend will continue. A decade ago, the city was using about 58% of its approved groundwater reserves. By 2025, that figure has reached approximately 70%, which is a 12% increase. Given this pace of growth, relying solely on groundwater is not a sustainable long-term solution.

The Water Compact helps stabilize groundwater use while supplementing supply through new sources. Once the projects are fully completed, we expect to see several tangible changes by 2030.

First, water access will improve. New housing projects and infrastructure will be connected to centralized networks, directly enhancing residents' quality of life. Second, wastewater recycling will reduce groundwater use by large consumers such as thermal power plants, allowing the saved water to be redirected to households and businesses. Third, with advanced treatment technologies, we will be able to supply users with high-quality water from new sources that meet international standards. Fourth, public attitudes toward water use will evolve. People will better understand that water is a limited resource and shift toward more efficient and responsible consumption.

In summary, by 2030, we are laying the foundation for Ulaanbaatar to become a city with a reliable, sustainable water supply and more efficient water use.

If this huge investment, which can be said to be a gift from the American people had not been made, what limits would Ulaanbaatar's water consumption have reached?

Without the Water Compact, the challenges in Ulaanbaatar's water sector would have become much more acute. First and foremost, we would have come dangerously close to the limits of our available water resources. With population growth, industrialization, and urban expansion continuing rapidly, relying solely on existing groundwater reserves—without developing new sources—would have placed increasing pressure on the system and created serious long-term risks to water security.

At the same time, economic growth and urban development would have been constrained. New housing projects, industrial zones, and infrastructure expansions would likely have slowed down—or even stalled—due to limited access to water.

Another issue is efficiency. Without wastewater reuse, we would have continued using high-quality drinking water for industrial purposes. That would put additional strain on potable

Average cost of supplying one liter of water is about 2.65 MNT, while the average tariff is only 1.18 MNT

water resources and further worsen inefficient consumption patterns.

In short, without these projects, water scarcity, limited access, and urban development constraints would have intensified—becoming a major barrier to Ulaanbaatar's sustainable development.

I would like to extend heartfelt thanks to the American people for providing substantial grants to help address Ulaanbaatar's water supply challenges

Public trust in the idea of recycled "grey water" is still quite low. What standards, certification, and monitoring systems are in place to address this?

At present, Ulaanbaatar has very limited experience in treating and reusing grey water within residential complexes. In fact, more than 80 industrial facilities in the city are in urgent need of proper water treatment systems.

Now, the facility built under the second compact of the MCC is not a grey water system—it is a wastewater recycling plant. In more concrete terms, it takes treated effluent from the city's central wastewater treatment plant—water that would otherwise be discharged into the environment—and further processes it for reuse in industrial applications.

In 2025, Mongolia approved the standard MNS 6734:2025 for "Treated Water for Reuse." This created a clear legal framework for using recycled water in technical applications such as thermal power plants, concrete production, leather and wool processing, and dust suppression on roads and public areas.

In addition, the quality of recycled water is now tested daily through laboratory analysis. The treated water produced by the recycling plant fully meets the requirements of the MNS 6734:2025 standard. That, in itself, is a significant step forward.

Another major challenge for the city has been the Central Wastewater Treatment Plant. Could you update us on its current status and the new facility project?

The new Central Wastewater Treatment Plant in Ulaanbaatar has already been commissioned, and testing and calibration began in July 2025. This phase will continue for a total of 18 months.

As of today, the plant is treating around 100,000 to 110,000 cubic meters of wastewater per day. Starting in May 2026, we will gradually increase capacity, and by July 2026, the facility is expected to operate at full capacity. At that point, the old treatment plant will be fully decommissioned.

AUTOMATIC SMART KIOSKS

- 24/7 service
- Multiple payment options (Hipay, SocialPay, QPay)
- Mobile app: Ussuvag Smart Kiosk
- Enables real-time water usage monitoring

It seems fair to say that Ulaanbaatar residents owe a great deal of gratitude to the American people for this grant of support. What are your thoughts?

Ulaanbaatar pursues a policy of balanced, inclusive, and multi-faceted international cooperation, and we actively implement projects within that framework. In this context, the grant support from the Millennium Challenge Corporation has been an important contribution—not only to Mongolia as a whole, but specifically to the development of Ulaanbaatar's water sector.

I would like to express my sincere appreciation to all the teams and partners who worked on these projects. I am confident that our cooperation will continue to grow and reach an even higher level in the future.

I would also like to extend heartfelt thanks to the American people and taxpayers for providing substantial grants to help address Ulaanbaatar's water supply challenges. At the same time, I would like to thank the people and taxpayers of Mongolia, who have contributed over 100 million US dollars to this effort.

Finally, through this special issue of Mongolian Economy magazine, I hope we are able to clearly communicate to the public—especially the residents of Ulaanbaatar—what this mega project has achieved. I also believe this special issue will serve as an important record for Mongolia's future generations. ■

WATER COMPACT
ULAANBAATAR BULK WATER SUPPLY PROJECT

ADVANCED WATER PURIFICATION PLANT

Annual water supply of up to **50 million** cubic meters

18,000 tons drinking water storage reservoir

Filters particles **700,000× smaller** than a human hair

GROUNDWATER WELLS: **30**

- Shuwuun area-**16**
- Near Biokombinat-**14**

Pumps **72–74 L/sec** from groundwater wells

600 mm borehole - Mongolia's largest

TREE PLANTATION

600+ trees planted at plant site

10,000 trees planted in Shuwuun area

WATER SECTOR SUSTAINABILITY ACTIVITY

180+ engineers trained

180 wells automated, enabling **24/7** operation

WASTEWATER RECYCLING PLANT

Treats **50,000 tons/day** of wastewater from Central Wastewater Treatment Plant

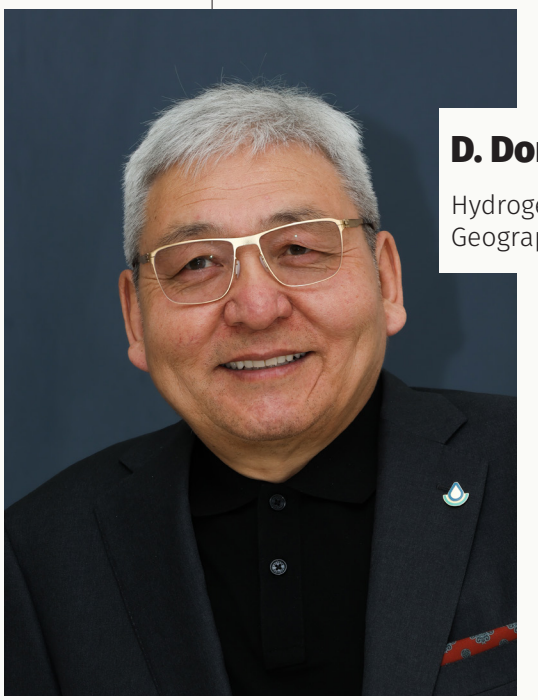
Saves **14–18** million m^3/year groundwater

Saves water equal to **4× Lake Buir** annually

Built **12 km** underground pipelines

GRATITUDE TO DEAR FRIENDS WHO HELPED SAVE OUR CITY

The residents of Ulaanbaatar, now have the opportunity to live without the fear of water scarcity until 2050. If we act responsibly, we can have a rich water resource for generations to come.



D. Dorjsuren

Hydrogeologist, Doctor of Geography

Everyone living in the Tuul River basin must remember their enduring responsibility at all times

You may recall news reports warning that Ulaanbaatar could run out of water. Since the early 2000s, such alarming news has appeared every five years; like a recurring alarm bell. Yet these warnings were far from baseless. They were grounded in real calculations shaped by dwindling groundwater reserves, rapid urbanization, recurring droughts, and rising water consumption.

In this issue, however, Mongolian Economy brings more encouraging news. Having lived under “red alert” of water scarcity projected for 2030, the capital has now managed to avert that crisis. The Water Compact has created conditions for Ulaanbaatar residents to live with greater confidence through 2050. According to hydrogeologist Dr. D. Dorjsuren, “If water polluting enterprises treat and reuse the water they ▶

Photo by G.Gan-Ulzii

consume, it would even be possible to live without concern until 2100." He further notes a significant milestone: Ulaanbaatar's water supply has increased by 80 percent compared to 2016 levels.

Dr. Dorjsuren is a researcher who has spent his lifetime working in environmental science, particularly in the water sector. This rich experience allows him to assess water issues not only in the present context but also through a historical lens. Ulaanbaatar experienced severe water shortages during the major drought that began in 1978, and in the 1980s some districts received water only on scheduled hours. Another difficult period followed the consecutive droughts starting in 1996, which severely strained the Tuul River. In 2006–2007, sections of the river near Ulaanbaatar dried up for stretches of 7–10 kilometers. At that time, Mongolia lost more than 30 percent of its surface water resources, while nearly 1,500 rivers and streams and around 3,000 springs dried up.

His academic works, and studies have consistently focused on identifying water resources, shaping policy, planning for the future, and seeking solutions. It can be said these efforts ultimately laid part of the foundation for the Water Compact.

Research is the foundation of everything

Before turning its focus to Mongolia's water supply, the Millennium Challenge Corporation explored various options to support economic growth and reduce poverty. Ultimately, it was scientific research that highlighted water as the most critical issue.

> Constructing buildings and fuel stations in water source protection zones is a crime against nature and humanity

Dr. Dorjsuren led a comprehensive study on water resources and supply between 2014 and 2015, producing a three-volume baseline report. It warned that more than 30 percent of Ulaanbaatar's water reserves, identified as early as 1982, had become irrecoverable.

Another major study he contributed to was conducted under the World Bank's 2030 Water Resources Group. This assessment compared Ulaanbaatar's water demand against its available sources and delivered a dangerous conclusion: by 2030, the city would not be able to meet its water demand with existing resources and would face a deficit. The study emphasized that, in addition to developing new sources of clean water, it would be essential to change wasteful practices, particularly the use of potable water for technical and industrial purposes.

A Gift from the American people

Mr D. Dorjsuren expressed his sincere gratitude to the American people through our magazine. He emphasized that the $350 million grant provided by the American people, through which the Water Compact was implemented, has delivered three major "gifts" that will sustain Ulaanbaatar's development.

The first gift is the discovery of a new water source near Shuwuun and Biokombinat; one more valuable than a gold deposit. With the source now operational, 140,000 tons of water per day will be supplied for the capital's use. The second is the Wastewater Recycling Plant, which helps relieve the burden on the Tuul River, and the third is the strengthening of institutional capacity in the water sector through improved governance, tariffs, monitoring, laboratories, and automation.

Among these, the value of the Wastewater Recycling Plant stands out. For years, Ulaanbaatar discharged partially treated wastewater into the Tuul River. The Central Wastewater Treatment Plant releases between 130,000 and 160,000 tons of water per day into the river, about 50 million tons annually, making it the primary source of pollution. With the recycling plant now in operation, 50,000 tons of this water are treated and reused daily instead of being discharged into the Tuul.

Most importantly, the recycled water is now supplied to major power plants such as CHP-3 and CHP-4, where it is used for ash removal and cooling systems. These plants consume around 30,000 tons of water per day for technical purposes. Previously, this demand was met using potable water; an enormous waste of a valuable resource.

The responsibility of enterprises that pollute water has also entered a new phase under the Water Compact. Of the roughly 6,000 businesses operating in Ulaanbaatar, about 100 are major polluters generating high levels of wastewater, particularly in industries such as leather processing and food production. Previously, these entities discharged untreated wastewater directly into the central system, creating a major burden on the water sector. Under the project, however, a strong requirement has been introduced for pre-treatment. As a result, 28 of these major polluters have already built their own treatment facilities, while the rest have committed to resolving the issue in the coming years in line with project recommendations.

A Bitter Lesson

Ulaanbaatar has fewer than ten key sources where Tuul River water accumulates and rainfall is stored. If we compare these to a bowl of water, permanently sealing them would be an act of grave folly. One such example is the source near the National Garden Park area. This source alone provides around 40 percent of the city's domestic water supply and contains 96 deep wells. Yet, these natural reservoirs are increasingly being encroached upon by urban development. There have even been cases where wells were forcibly decommissioned to make way for buildings. ■

To conclude, I will quote hydrogeologist D. Dorjsuren:

"Constructing buildings and fuel stations in water source protection zones is a crime against nature and humanity. On the other hand, access to clean water is a fundamental human right. But behind this right lies an enduring responsibility. Everyone living in the Tuul River basin must remember this at all times. We are especially fortunate to have such pure and abundant water, something many cities around the world do not enjoy. Therefore, we must cherish this precious resource like the apple of our eye. Let us safeguard the future we have managed to secure."

The United States initially signed first compacts with 31 countries, but only 14 of them went on to secure a second compact

Ts. Munkh-Orgil

Former Member of Parliament and Cabinet Minister, and currently Ambassador Extraordinary and Plenipotentiary of Mongolia to France

THE WATER COMPACT IS A SHARED ACHIEVEMENT ACROSS MULTIPLE GOVERNMENTS

We spoke with Ts.Munkh-Orgil, one of the key figures who helped kickstart the Water Compact in Mongolia, about how the Compact was started, how this major program began, and the path it has taken.

As one of the key figures in negotiating and finalizing the Mongolia Water Compact, could you please tell us about how your involvement began, and what was the broader context at the time?

In July 2016, I was appointed Minister of Foreign Affairs in the government of Prime Minister J. Erdenebat. I also became Chair of the National Secretariat responsible for leading the development and negotiations of Mongolia's second compact with the Millennium Challenge Corporation. That is when my direct involvement began.

To put things into perspective, the United States initially signed first compacts with 31 countries, but only 14 of them went on to secure a second compact. Between 2015 and 2018, both sides engaged in extensive discussions, studies, and preparations regarding the scope, objectives, and structure of the second compact. I participated in this process during my tenure as Foreign Minister from 2016 to 2017. The agreement was ultimately signed in July 2018 in Washington, D.C. by Foreign Minister D. Tsogtbaatar.

This clearly shows that the Water Compact is not the achievement of a single administration, ▶

but rather the result of sustained efforts by multiple governments of Mongolia. Without the successful implementation of the first compact, the second would not have been possible. Presidents, prime ministers, foreign ministers across different administrations, the Ministry of Foreign Affairs, the Embassy in Washington, D.C., ambassadors, and many institutions and individuals who contributed to the success of the first compact, all played a role in making this possible.

It is also important to highlight the efforts made in 2013–2014 to secure Mongolia's eligibility for a second compact. At that time, Ambassador B. Altangerel in Washington played a crucial role. Mongolia was officially included in the list of eligible countries in December 2014, followed by the establishment of the National Secretariat in May 2015 to begin preparatory work on the agreement. It was within this context that I became involved in the project after the 2016 parliamentary elections.

Collaboration between water sector experts from the United States and Mongolia was a key factor in the project's success

What challenges did you face during the negotiations with the U.S. side?

There were no unsurmountable challenges as such. During the previous administration, significant groundwork had already been done, ensuring that Mongolia met key indicators such as the corruption index, governance, and democratic standards, as well as demonstrating the successful implementation of the first compact.

For us, the priority was to maintain these standards and to move quickly toward reaching agreement on the second compact. My main role was to make up for lost time, ensure that the project was well understood at all levels, and facilitate swift decision-making. About a year and a half had passed since Mongolia became eligible for a second compact. During that period, work had stalled due to parliamentary elections, and the U.S. side was beginning to lose patience. Most other countries eligible for a second compact had already finalized their project agreements. We were repeatedly warned that if we did not make decisions, the funds allocated to Mongolia might be redirected elsewhere.

The first key issue was selecting the sector and determining how the investment should be used. Although many proposals were put forward, ranging from agriculture and roads to banking, the consensus ultimately shifted toward focusing on water supply.

How the water supply became the priority is quite interesting. Initially, Mongolia had proposed several sectors, but the U.S. government suggested that the compact should focus on supporting the development of Mongolia's private sector, which our government accepted. The key question then became: how to most effectively utilize the USD 300–400 million grant from the American people in a way that would reach the widest population and generate long-term benefits for Mongolia`s private sector development.

To address this, the U.S. side conducted its own study on the constraints facing Mongolia's private sector. The study identified three major constraints:

1. An unstable and often unclear legal and regulatory environment;
2. High financing costs, particularly interest rates;
3. Water pricing and supply constraints.

These were identified as the main barriers to private sector growth. The U.S. side noted that the first two issues were domestic matters beyond their scope of intervention. However, they indicated strong interest in supporting improvements in water supply, particularly in Ulaanbaatar.

This assessment was highly accurate and remains relevant today. At the time, we had not fully realized how important water supply was for businesses, and arguably, this is still not fully understood.

The study also warned that unless Mongolia urgently improves its institutional arrangements, increases investment, and changes both legislation and public attitudes, Ulaanbaatar could face a severe water shortage within the next 20 years. I remember immediately sharing this report with members of parliament and government officials after reading it.

Once the core objective of the second compact was agreed upon, the next crucial step was determining the specific projects to be implemented. This required detailed analysis and extensive studies, involving both domestic and international experts and institutions over a period of about one and a half years.

As Chair of the National Secretariat, my role was to provide overall direction, coordinate among ministries and agencies, and ensure progress. The bulk of the technical work was carried out by the team led by E. Sodontogos.

Her team worked with great professionalism and dedication, successfully completing extensive research, developing three major activities under the compact, and preparing all necessary documentation within a relatively short period.

After the agreement was ratified, E. Sodontogos was appointed as the Chief Executive Officer of the Millennium Challenge Account Mongolia. One notable aspect of this project is that leading water sector experts from both the United States and Mongolia worked closely together. This collaboration was a key reason for the project's success.

From the U.S. side, for example, Kumar Ranganathan, Senior Director at the Millennium Challenge Corporation and a leading expert on water, worked on our project. He had previously led water projects in Jordan, Timor-Leste, and Sierra Leone. We were able to secure the support of U.S. Assistant Secretary of State for East Asian and Pacific Affairs, Susan Thornton, to have him provide technical leadership for our project.

It is also important to mention Jonathan Brooks, Deputy Vice President at the Millennium Challenge Corporation, who had a strong affinity for Mongolia and provided valuable support on many issues.

From the Mongolian side, key water experts such as M. Myagmar and Dr. N. Buyankhishig were involved. There are many American and Mongolian professionals who played important roles in this project, far too many to name here, but I would like to take this opportunity to express my sincere gratitude to all of them.

What are the key lessons of the compact for you and for Mongolia?

We often say, "Water is a precious treasure," but in reality, we have not given this critical issue the attention it deserves. We still need to reform our water management and governance systems, revise water tariffs, introduce modern water-saving technologies, create tax and financial incentives, and strengthen public awareness and education.

Thanks to this project, we now have new water sources, advanced water treatment facilities, and wastewater recycling plants. However, we must not forget that this only addresses the problem temporarily. Considering climate change, increasing aridity, the rapid population growth of Ulaanbaatar, and the rising demands of businesses, ensuring a reliable water supply will require a comprehensive approach.

We must simultaneously develop new water sources, use water more efficiently, change public behavior towards water usage, and adopt new technologies. Only through such combined efforts can we secure a sustainable water future for the people of Ulaanbaatar. That is the key lesson.

Only through combined efforts can we secure a sustainable water future for the people of Ulaanbaatar

At the time, where did the Mongolian side show flexibility, and where did it hold firm?

There really weren't issues of concession versus standing firm. This was not a loan agreement where interest rates are negotiated, nor an investment deal involving equity shares. It was a grant. There can be differences of opinion regarding indicators such as corruption indices, governance, and democratic standards, but these are mostly technical in nature.

Let me ask in connection with your current position. Is it possible to establish agreements or programs with France that are comparable in significance to this cooperation with the United States?

Only the United States provides grants of this scale. However, we will focus on expanding cooperation with the French government and companies through concessional loans and business-based partnerships. In particular, the French Development Agency implements many projects in sectors such as health and water across different countries. We have already begun consulting with our relevant ministries and institutions on this matter. ■

To put things into perspective, the United States initially signed first compacts with 31 countries, but only 14 of them went on to secure a second compact.

It is also important to highlight the efforts made in 2013–2014 to secure Mongolia's eligibility for a second compact.

B. Javkhlan

Member of Parliament, Former Minister of Finance

The Government delivered its financing commitment fully and on time

Implemented under the Second Compact Agreement between the Government of Mongolia and the U.S. Millennium Challenge Corporation, the project stands out for being completed successfully within its original timeline and budget, despite coinciding with the challenging period of the global pandemic.

I want to emphasize that the Wastewater Recycling Plant is a major project of strategic importance for protecting Mongolia's water resources. As a result of this project, Ulaanbaatar's water supply capacity has the potential to increase by 50 million cubic meters per year, laying a critical foundation for the city's future expansion and sustainable development. So I think this project can be summarized as: "Our Water – Our Future."

In recent years, the capital city's drinking water consumption has reached a high-risk level. Without the implementation of the wastewater recycling plant, Ulaanbaatar would now be facing one of its most serious challenges, a shortage of potable water. Previously, two major thermal power plants consumed approximately 14–18 million cubic meters of groundwater annually for their use. With the new facility in operation, this demand can now be met through recycled grey water, significantly reducing pressure on precious drinking water resources.

The total project financing amounts to USD 461.7 million, of which USD 350 million is a grant from the United States Government. The Government of Mongolia fulfilled its obligation by providing 25% of the total financing in full and on time, contributing significantly to the project's successful implementation.

This project has strengthened the water security of Ulaanbaatar and established a solid foundation for sustainable development, making it a project of high strategic importance for Mongolia's future. ■

Ts. Tsogtbaatar

Member of Parliament

We prevented a development bottleneck before it materialized

As one of the team members who led the effort to bring the Millennium Challenge Corporation (MCC) Water Compact to Mongolia, it is rewarding to see those efforts materialize into real development today. Looking back, I take particular pride in making it ultimately possible to finalize the legal framework agreement for the second compact.

Thanks to the Wastewater Recycling Plant, businesses now have the opportunity to use recycled water, helping to preserve precious groundwater resources. This represents a strategic investment that is ushering Mongolia into a new era of water treatment technology.

At its core, the Millennium Challenge Corporation is designed to support nations not merely with words but with tangible, large-scale development projects. A significant portion of Mongolia's economy is concentrated in Ulaanbaatar. Without addressing water scarcity, the city's growth and investment potential would inevitably stall. In that sense, we were able to anticipate and prevent a risk that could have become a major development bottleneck by working together with MCC.

Looking ahead, one of the most critical priorities is ensuring the retention of skilled professionals capable of operating and sustaining these activities. Another major achievement of the Compact is the transfer of technology, expertise, and know-how to the Mongolian side. Strengthening, preserving, and further developing this capacity will be essential.

At the same time, greater attention must be given to improving the legal and regulatory environment of the water sector. While the technology and infrastructure are now in place, without corresponding progress in institutional capacity, human resources, and policy stability, the full benefits of this investment cannot be realized. ■

B. Khulan

Vice Minister of Finance, Chair of the Board of Directors, Millennium Challenge Account–Mongolia

Successful completion of the mega project set a strong precedent

People often associate natural resources with mineral wealth. In reality, however, the most critical resource is water. There is no life, no economy, and no industry without it. Water supply is therefore fundamental to the quality of life, socio-economic development, and sustainability. Beyond that, it is a cornerstone of national security. Experts and international organizations had long warned that Ulaanbaatar's water resources could begin to face shortages by the mid-2020s. With the implementation of the Water Compact, we have fully addressed this pressing challenge. In this sense, the compact stands as the most significant program in Mongolia's water sector in the past 30 years, and one of the most impactful development initiatives undertaken in the country.

I was appointed Vice Minister of Finance in December 2025 and assumed the role of Chair of the Board of Millennium Challenge Account–Mongolia. From that point, it was both a responsibility and an honor to address several time-sensitive challenges and ensure that pending issues were resolved without delay.

The Government of Mongolia and the U.S. Millennium Challenge Corporation fulfilled their respective commitments and worked in close cooperation, enabling all planned activities to be completed successfully, on schedule, and within the approved budget. A key institutional decision was the transfer of the program to the Ministry of Finance in September 2022. This proved to be an effective solution for ensuring coordination and coherence across ministries and government agencies.

The Government of Mongolia demonstrated strong ownership at all levels, fulfilling its obligations with discipline and consistency. Beyond delivering major infrastructure, the compact also contributed significantly to strengthening policy frameworks, improving the financial environment in the water sector, and building institutional and human capacity. These efforts have laid the groundwork for long-term sustainability.

As a result of the Water Compact, the strategic partnership between Mongolia and the United States has been enriched with tangible economic substance and elevated to a new level. Most importantly, the successful implementation of the project has established a valuable benchmark for future initiatives. ■

E. Enkhgerel

Chief Executive Officer, MCA–Mongolia

The compact paved the way for next-generation infrastructure

Access to safe and reliable water is a fundamental human right. We have been able to proactively address a major risk that could have constrained Mongolia's development. In many cases, solving complex challenges comes down to two key factors: skilled human resources and financing. Over the past three years, we have focused on preparing the workforce needed to operate and sustain the infrastructure developed under the compact.

As a result, we are now in a position to move forward, aligning with development policies and trends, to build the next generation of infrastructure. Through strong government commitment and a historic investment under the compact, critical water infrastructure has been successfully delivered. The MCA-Mongolia team worked with a shared sense of purpose to ensure that grant financing was translated into tangible, lasting assets for the country.

Another important outcome of the compact is that it has brought long-standing water sector challenges into public attention. ■

Z. Batbayar

Head of the Water Authority

Water supply capacity to increase by 50-60 percent

Groundwater accounts for just two percent of Mongolia's total water reserves. To use our resources sustainably, regulation is unavoidable; in other words, a certain level of investment in water infrastructure was necessary. Under the Water Compact, three major projects are currently being implemented in Ulaanbaatar. As a sector specialist, it is gratifying to see that these projects are aimed at improving water resource utilization, increasing water reuse, and ensuring supply stability.

The Central Source, which is the primary water supply for Ulaanbaatar, delivers 34 million cubic meters of water per year. Once the Western Source comes into operation, the capital's water supply capacity will increase by 50 to 60 percent. Ulaanbaatar's residents rely entirely on groundwater for their daily needs. In addition, thermal power plants use 23.8 percent of the capital's total annual water consumption, of which 18.0 million cubic meters is used for cooling, washing, cleaning, and ash removal. Once the Wastewater Recycling Activity is implemented, approximately 21 million cubic meters of water will become available for reuse. This will reduce the burden placed on groundwater reserves.

As a result of these Activities, Ulaanbaatar's water supply stability is expected to improve in the medium term, while access to clean water will expand. After completion of the projects, the city is projected to avoid water supply shortages through 2035. ■

D. Mendsaikhan

Director, Wastewater Recycling Activity

Approximately 18 million cubic meters of water can be reused

The Wastewater Recycling Plant has an installed capacity of 18 million cubic meters per year, of which 12 million cubic meters will be supplied to power plants.

The plant has been designed with future expansion in mind, allowing for increased capacity as demand grows. Previously, businesses using groundwater were subject to four types of water-related fees. By switching to recycled water, they can be exempted from two of these charges. For them, it is essential to foster a habit of using recycled water. There is a need to define reclaimed water within the legal framework and establish appropriate tariffs. ■

B. Batsukh

Project Director, Downstream Wells Activity

AWPP to serve as a model for future facilities

Currently, groundwater drawn from Ulaanbaatar's seven existing sources is disinfected with chlorine and supplied directly for consumption without advanced treatment. In contrast, the new source introduces high-level purification technology, enabling treated groundwater to meet higher standards before entering the supply system.

Once Ulaanbaatar's annual water demand reaches 100 million cubic meters, the Advanced Water Treatment Plant will operate at full capacity. At present, the plant is connected to only one distribution pipeline. Expanding the transmission infrastructure will be essential to fully utilize its capacity. I believe this facility will serve as a model for future water treatment plants in Mongolia. So we need to train skilled professionals capable of operating advanced technology systems. ■

L. Unurjargal

Project Director, Water Sector Sustainability Activity

We implemented a three-year partnership program with the Netherlands experts

One of our key objectives has been to strengthen the human resource capacity of the USUG to ensure the sustainable operation of the facilities developed under the compact. In this context, we implemented a three-year partnership program with experts from the Netherlands, through which more than 180 engineers and technical staff received training.

Another major achievement is the development of a financial sustainability plan aimed at enabling the water services sector to recover its costs. Water supply services are inherently capital-intensive, yet tariffs have been set below actual cost. 60–80% of Ulaanbaatar residents acknowledge that water tariffs are low and are willing to pay higher rates if service quality improves. ■

M. Nyam-Ochir

Acting Head of the Public utilities policy and coordination department

Foundation set for Ulaanbaatar's future expansion

The Downstream Wells Activity has the capacity to deliver 50 million cubic meters of water per year into the city's centralized water supply network. As a result, the reliability of water supply to city residents will improve, and the foundational conditions will be created for future industrial, commercial, and residential construction, enabling Ulaanbaatar to expand and develop.
Ulaanbaatar's development master plan through 2040 has been submitted to Parliament for approval. Once adopted, it will define zoning, settlement areas, and satellite city planning. Based on the plan, phased investments will be made in heating, electricity, water supply, and wastewater infrastructure.
There are around 850 kilometers of water supply pipelines under the management of Ulaanbaatar's municipally owned entities. Around 350 kilometers of these pipelines are over 40 years old. Going forward, measures will be taken to further expand the water supply network, fully digitize and automate monitoring and management systems, and introduce advanced technologies. ■

B. Tserennadmid

Senior Specialist, Capital City Urban Development and City Standards Office

Water is not just a consumable resource; it is a strategically important asset

The policy document "Ulaanbaatar City Development Trends Through 2030" sets out a strategy to meet the city's growing water demand not solely through groundwater, but through a diversified supply mix: 50 percent from groundwater, 25 percent from surface water, and the remaining 25 percent from recycled water. This represents not only a broadening of water sources but the beginning of a new era of the approach to water use and comprehensive management that protects water resources. The interrelated projects implemented under the Water Compact have laid the groundwork for turning this policy into reality.
One of the project's most important outcomes is the adoption of treated wastewater for industrial use. This solution will supply water for new distributed heating plants, as well as for industrial processes, road and public space cleaning, and car washing through a dedicated system.
The Water Compact is therefore not just a water supply project. In the future, water will no longer be viewed as a consumable resource but as a strategic asset. ■

Ts. Turkhuu

Director, Water Supply and Sewerage Authority of Ulaanbaatar (USUG)

THE COMPACT INTRODUCED NEW MANAGEMENT APPROACHES AND **STANDARDS TO THE WATER SECTOR**

What advances have the three projects implemented under the Water Compact brought to the water sector?

These projects are bringing the following strategically significant advances to Mongolia's water sector.

First, by establishing new water sources, the conditions have been created to sustainably meet Ulaanbaatar's growing water demand over the long term. This is not merely about addressing today's needs; it is laying the essential foundation to support future urban development, industrial growth, and economic expansion.

Second, an advanced water purification plant has introduced modern, high-level water treatment technology to our country, bringing water quality, safety, and operational reliability to a new standard. In other words, we have not only increased our water reserves; we now have the capacity to treat those reserves in full compliance with international standards.

Third, the wastewater recycling plant marks the beginning of a transition away from a single-use model toward a system where water is treated and reused. This is a major step forward in conserving clean water, protecting water resources, and aligning with sustainable development policy.

Taken together, these three projects are introducing new sources, new technologies, and a new management system to Mongolia's water sector, building a solid foundation for its future development.

Once the projects are fully implemented, what changes do you foresee in Ulaanbaatar residents' water supply and consumption by 2030?

Once fully implemented, the projects will bring several tangible changes to the water supply and consumption of Ulaanbaatar's residents by 2030. As a result of new infrastructure and increased capacity, more ger districts and new residential zones will be connected to the centralized pipeline network, directly improving residents' quality of life. With the introduction of the wastewater recycling system, major consumers such as thermal power plants will reduce their reliance on groundwater, making conserved water available to households and businesses. Water treated using advanced purification technology will be distributed to consumers, meaning residents will be supplied from new, high-quality sources.

In summary, by 2030, the main conditions will be in place for Ulaanbaatar to become a city with a stable, reliable water supply and efficient water consumption.

If these projects had not been implemented, what ▶

challenges would the city be facing?

Without these projects, water resource constraints would have approached critical limits. Given the growth in population, industrial activity, and urbanization in Ulaanbaatar, relying solely on groundwater resources would increase pressure on water sources. Moreover, economic growth and urban development would likely be constrained by water availability. In short, water scarcity, limited access, and increasing stress on resources would have become major barriers to the city's sustainable development.

What do you see as the main risks and challenges during project implementation?

If water service tariffs are not adjusted to a level that recovers costs, it will be difficult to ensure long-term sustainability. Currently, the average cost of water service is MNT 2.65 per liter, while the average tariff stands at MNT 1.18.

Going forward, it will be necessary to increase water tariffs and undertake legal and regulatory reforms in line with infrastructure expansion and sector development.

Your organization will assume the important responsibility of taking over and operating the projects. How prepared do you consider your institution to be?

Our organization has been systematically preparing to take over and operate the Water Compact projects. First and foremost, we have intensified efforts to strengthen human resource capacity. While technology can be procured, the key to success lies in having skilled personnel.

Through training programs and on-the-job exchange initiatives with international partners, our engineers and technical staff have gained exposure to new technologies and management practices, significantly enhancing their practical skills. This forms the essential foundation for operating the new facilities and systems.

In the coming years, it is clear that the water sector workforce will evolve into a more specialized, multidisciplinary, and technologically advanced team structure.

The project included provisions for partnerships with water utilities from countries facing similar challenges. Which countries have you engaged with under this framework?

Under the Water Operators' Partnership Program implemented through the Water Compact, we have actively collaborated with water sector organizations from the Netherlands. Our main partner has been Vitens Evides International, through which USUG has gained access to international best practices and opportunities for localization. Within this cooperation, our engineers and specialists have participated in professional training and exchange programs in the Netherlands. They gained new knowledge and methodologies in areas such as water management, network operation, asset management, customer service, laboratory control, and corporate governance.

Since 2023, more than **180** staff members have participated in specialized training, and 11 thematic working groups have been established to implement practical improvements.

Since 2023, more than 180 staff members have participated in specialized training, and 11 thematic working groups have been established to implement practical improvements. In addition, by joining international networks such as the Global Water Operators' Partnerships Alliance (GWOPA), we have expanded our learning beyond a single country, gaining access to the experiences of water utilities worldwide.

What changes are the Compact projects bringing to water sector management and institutional structures?

The most significant impact of the Compact projects lies not only in the development of new infrastructure but in elevating water sector management and institutional systems to a new level. A data-driven management approach is established. Previously, information on water sources, distribution, consumption, and losses was fragmented. Today, enhanced measurement, monitoring, and data analytics enable more informed and optimized decision-making. This improves management across the entire value chain—from water resource planning to daily operations.

At the same time, concepts of long-term asset management and sustainable financing are being introduced. ■

While technology can be procured, the key to success lies in having skilled personnel

SECURING A BETTER QUALITY OF LIFE FOR ULAANBAATAR RESIDENTS

A key condition for improving the quality of life of Ulaanbaatar's 1.7 million residents is the development of a new western water source for the city's drinking water supply.

The city is unlikely to face water scarcity for at least the next 30 years

Mongolians have long revered water as a sacred and precious resource. And rightly so—human life and quality of living depend directly on it. Yet, a study of the seven existing drinking water sources along the Tuul River revealed a concerning trend. As early as three years ago, experts concluded that the natural recharge rate of these sources was slowing down, while consumption continued to rise.

Today, however, a significant step has been taken to improve the quality of life for the capital's 1.7 million residents—particularly those living in the western districts. Under the Water Compact agreement, funded through a grant from the United States and co-financed by the Government of Mongolia, the project to develop a new western water supply source has been successfully completed. This forms part of a broader program aimed at increasing Ulaanbaatar's total water supply.

The core infrastructure of the new source was completed in 2025, with testing and calibration finalized. According to the project team, the plant is capable of producing an annual volume of water comparable to that previously extracted from all seven existing sources combined. As a result, Ulaanbaatar's total clean water supply capacity is expected to double to around 100 million cubic meters—effectively eliminating concerns about shortages for the foreseeable future. In practical terms, this means the city is unlikely to face water scarcity for at least the next 30 years.

The project includes five major facilities. Around Shuwuun and Biokombinat, 30 deep groundwater wells have been drilled. The extracted water is then treated at a newly constructed advanced purification plant located at the foothills of Songino Khairkhan Mountain. This facility, the largest of its kind in Mongolia, ▶

includes a reservoir with a capacity of 18,000 cubic meters. Importantly, it is also designed to treat surface water. This creates a foundation for future integration with planned projects such as the Tuul Water Complex and floodwater storage dams, enabling stored surface water to be deeply purified and used for consumption.

This approach aligns with a broader sectoral policy: to increase the use of surface water while conserving groundwater reserves. Experts emphasize that Mongolia must reduce its heavy reliance on groundwater by limiting over-extraction, regulating illegal wells, and introducing continuous monitoring of both water quality and quantity. They said that although groundwater is technically renewable, it replenishes extremely slowly, and excessive use poses serious risks, including accelerated desertification.

Currently, more than 90% of Mongolia's water resources consist of surface water, while only around 8% comes from groundwater. However, as noted by researcher Dr. Ts. Basandorj, the country has historically overused its limited groundwater reserves while underutilizing its abundant surface water resources.

In fact, approximately 99% of water used for drinking and industrial purposes comes from groundwater in Mongolia. Meanwhile, the proportion of land with permafrost, an important natural water reserve, has declined dramatically, from 60% in 1970 to just over 20% today.

> The plant is capable of producing an annual volume of water comparable to that previously extracted from all seven existing sources combined

The newly built Advanced Water Purification Plant (AWPP) plays a crucial role in addressing this imbalance. Water extracted from deep wells is purified to the same standard as water from central and upper sources before being supplied for drinking and domestic use in Ulaanbaatar. The treatment process combines both conventional and advanced technologies. These include aeration, coagulation, flocculation, filtration, and reverse osmosis, capable of filtering particles 500,000 times smaller than a human hair, alongside ultraviolet disinfection. At present, one pipeline is connected to the system, but plans are in place to supply water from the western source to six major development zones, including:

1. Bio, Ulziit, Aerocity, New Zuunmod, and Maidar City
2. Jargalant, Rashaant, Khui Doloon Khudag, Argalant, Emeelt, and NOSK
3. Agropark, Takhilt, and the New City Center
4. Orbit, Bayangol, and Tolgoit
5. Industrial zones
6. Connection points to the central network

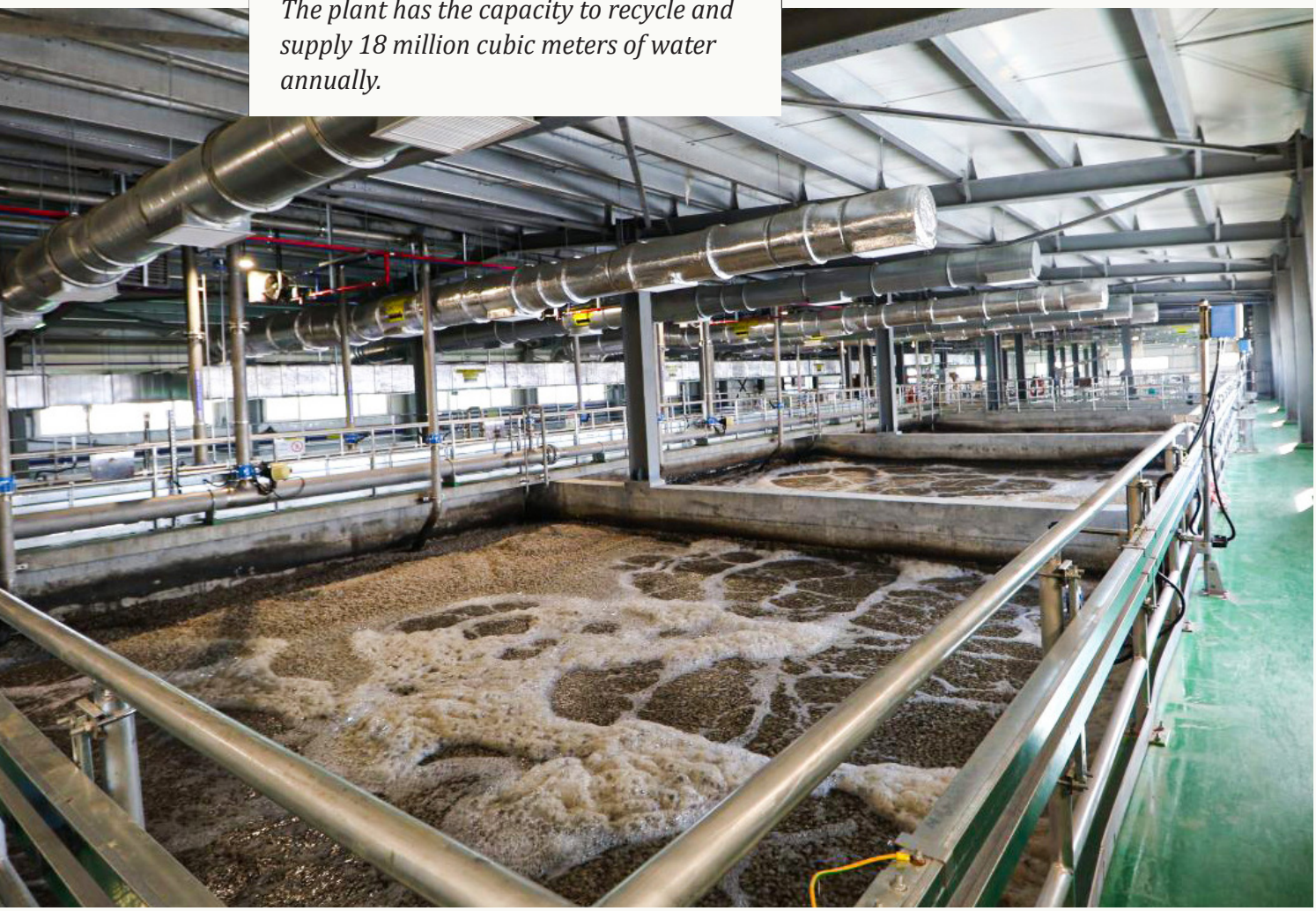
With the addition of this new water source and modern treatment facilities, there is growing optimism. For a country ranked among the world's most water-scarce nations, these developments signal a tangible improvement in the quality of life for Ulaanbaatar's residents. ■

TURNING WASTEWATER INTO A "PRECIOUS JEWEL": A COLLECTIVE SOLUTION

Just half a century ago, Singapore had to ration water due to shortages. Its rivers, polluted and lifeless, flowed through the city, and clean water was scarce. Today, however, the country has become a global benchmark in water governance, transforming water scarcity into opportunity.

By capturing every drop of wastewater and recycling most of it to drinking-water standards, Singapore has redefined what is possible. Its founding Prime Minister, Lee Kuan Yew, once famously said: "Water dominated every other policy. Every other policy had to bend at the knees for water survival."

This philosophy resonates strongly today. According to the World Resources Institute, water scarcity now affects a quarter of the global population, with demand already exceeding supply in many regions. In response, the World Bank and some international financial institutions recently launched the "Water Forward" initiative—aimed at reframing water not as a low-cost public ▶



The plant has the capacity to recycle and supply 18 million cubic meters of water annually.

utility, but as a strategic economic resource, while promoting blended financing models involving governments, private sector actors, and philanthropic organizations.

Amid this global shift, Mongolia has taken a decisive step forward in water policy by successfully implementing a major infrastructure project: the Ulaanbaatar Bulk Water Supply Project. This initiative forms part of the second Compact signed in 2018 between the Government of Mongolia and the Millennium Challenge Corporation.

One of the program's defining features is its financing structure. Mongolia received a $350 million grant, funded by U.S. taxpayers, without any debt or interest obligations, and combined it with $111.7 million in domestic investment. Together, this enabled the creation of more than $460 million worth of critical water infrastructure. At the heart of this effort is a milestone achievement: Mongolia's first large-scale wastewater recycling plant.

Previously, Ulaanbaatar's energy sector, particularly Thermal Power Plants III and IV, consumed 20-22 million cubic meters of precious groundwater annually. High-pressure, high-temperature steam, generated using purified water, drives turbines to produce electricity. Water is also essential for cooling turbines and condensers, dissipating excess heat, and transporting ash residues from coal combustion.

Supplying such intensive industrial demand with freshwater placed immense pressure on Ulaanbaatar's limited groundwater reserves. Today, that paradigm is changing. With the commissioning of the new wastewater recycling plant, most of the water used by these power plants is now being replaced with treated wastewater. Every day, the facility receives 50,000 tons of effluent from the city's Central Wastewater Treatment Plant, purifies it, and supplies it directly to the power stations. The plant has the capacity to recycle and supply 18 million cubic meters of water annually.

To put this into perspective, 18 million tons of water is equivalent to the volume flowing over Niagara Falls continuously for an entire week. It also represents 53% of the annual water consumption of Ulaanbaatar's population. This scale of reuse reflects the application of world-class water management practices, similar to those pioneered by Singapore, now taking root in Mongolia's capital.

In a country among the most water-scarce in the world, turning wastewater into a "precious jewel" is more than a technical achievement—it is a powerful example of how collective vision, international partnership, and smart policy can reshape the future.

Unlocking Growth, Securing the Future

The impact of the project extends far beyond immediate water savings. First, it marks the first time Mongolia's energy sector has adopted recycled water at scale. Second, it significantly reduces the water scarcity risks that have long constrained Ulaanbaatar's growth, opening new pathways for economic development. Third, it contributes to environmental sustainability by easing pressure on groundwater reserves and helping stabilize declining water tables.

Moreover, the project lays the groundwork to increase the city's total water supply capacity by up to 50 million cubic meters annually, ensuring reliable and safe water access for approximately 2.4 million residents over the next 30 years. ■

At the heart of this effort is a milestone achievement: Mongolia's first large-scale wastewater recycling plant

Wastewater Recycling Plant

15-20

Treats 15–20% of wastewater from the Central Wastewater Treatment Plant

Processing capacity:

50,000 tons per day

18 million tons per year

Annual supply to power plants:

Thermal Power Plant IV: 9 million tons

Thermal Power Plant III: 3 million tons

The Water Sector Sustainability Activity represents a policy reform that has modernized the economic, legal, and institutional foundations of Mongolia's water sector.

THE "BRAIN" OF THE WATER COMPACT

Utilities can now track water losses in real time using SCADA systems and smart meters

The Activity is one of the three core projects of the Water Compact. While major infrastructure projects focus on building new sources and facilities, this initiative plays a different, but equally critical role: ensuring that Ulaanbaatar's water supply system remains efficient, resilient, and sustainable over the long term.

It focuses on improving institutional structures, refining the legal and regulatory environment, and enhancing policy coordination across the sector. At the same time, it delivers targeted technical assistance and builds the capacity of water sector organizations, ensuring they are equipped not only to operate new infrastructure, but to manage it effectively for decades to come. Because building infrastructure alone is not enough.

Without proper management systems, even the most advanced facilities risk becoming underutilized or falling into disrepair, turning valuable investments into wasted potential. Recognizing this, the Water Sector Sustainability Activity stands out as one of the most strategically important elements of the Water Compact. The project comprises five sub-activities.

Cost Recovery

Through this sub-activity, technical assistance has been provided to the Water Services Regulatory Commission to conduct a detailed review of tariff structures for both drinking water and wastewater services. The goal is to develop tariff ▶

models, aligned with legal requirements, that can fully cover operational, maintenance, and depreciation costs.

This is a crucial step toward ensuring that water services are not only affordable, but also financially sustainable over time.

Reducing Service Costs in Ger Areas

Another important intervention targets Ulaanbaatar's ger districts, where water services are primarily delivered through kiosks. Historically, the cost of providing these services has been high. To address this, the project has introduced "smart" or automated water kiosks connected to the pipeline network.

Strengthening Utility Performance

Using the AquaRating methodology developed by the International Water Association, the operational capacity of USUG has been systematically assessed. This benchmarking approach helps identify performance gaps and prioritize targeted improvements across key areas of service delivery.

Controlling Industrial Pre-Treatment and Pollution

Ahead of the commissioning of the new Central Wastewater Treatment Plant, it was essential to reduce the level of industrial pollution entering Ulaanbaatar's sewerage system. To achieve this, a series of measures have been implemented: identifying sources of industrial wastewater, developing the necessary modeling tools to track and manage them, improving wastewater discharge standards, and strengthening accountability for violations.

Changing Public Awareness and Behavior

Through this sub-activity, efforts have been made to raise awareness about Ulaanbaatar's growing water scarcity and to improve understanding of the true cost of water, particularly when it is extracted and used in ways that are environmentally responsible and socially equitable. By strengthening stakeholder engagement, communication, and public participation, the project helps foster a culture where water is valued not just as a basic necessity, but as a shared and limited resource.

As part of these reforms, the capacity of the Water Agency laboratory has also been significantly improved. For example, it was equipped with 99 pieces of advanced analytical instruments across 51 categories, with a total investment of $378,060. Moreover, data from six water laboratories are now being integrated into a unified management system.

Mongolians often say, "Water is a precious jewel." Yet in practice, its value has not always been fully recognized. In Ulaanbaatar today, water tariffs remain below their true cost, placing financial strain on utilities. Addressing this imbalance has been a key focus of the project, which has introduced a phased approach to tariff reform—gradually aligning prices with actual costs. In addition, systems for monitoring water losses and measuring consumption have been fully digitized. Where it was once difficult to detect where losses occurred, utilities can now track them in real time using SCADA systems and smart meters, greatly improving operational efficiency and accountability.

If infrastructure forms the body of Ulaanbaatar's water system, then the Water Sector Sustainability Activity is its brain. Physical structures may age over time. But strong institutions, skilled professionals, and smart management systems provide lasting resilience. Together, they form the most powerful safeguard against water scarcity, ensuring that Ulaanbaatar's water supply system evolves into one that is financially viable, operationally efficient, and legally robust for generations to come. ■

The Activity has introduced a phased approach to tariff reform, gradually aligning prices with actual costs