



In Mongolia, a Quest to Democratize Carbon Credits

For several years, The Asia Foundation's Mongolia office in Ulaanbaatar has been working to reduce our carbon footprint. We started with simple efforts to reduce our emissions—limiting energy use, walking to meetings, composting our food waste, etc.—but we soon bumped up against some fundamental constraints, such as how our office building is heated during the long cold winters and the inevitability of car and airplane travel. These factors meant there was no direct pathway to zero emissions for our office.

Through this process we discovered that the only path to our goal of net zero emissions was to purchase carbon credits.

Carbon credits are based on a simple concept. Some entities are required by regulation, or choose voluntarily, to reduce their emissions. Those who cannot reduce their own emissions to zero, like our Mongolia office, can instead pay for emissions reductions by others by purchasing carbon credits. So, if our office produces 10 tons of CO₂ emissions every year, and we can directly cut only two tons, we can offset the remaining eight tons by purchasing eight carbon credits—always measured in tons—from others who are reducing emissions. We cut two tons; we pay someone else to cut eight; and the combined 10-ton reduction makes us a net-zero-emissions office. When working as envisioned, carbon credits introduce a powerful tool to incentivize and fund emissions reductions across the economy.

Here, carbon credits become more complicated. For the system to work, specialized markets are needed to set their value and facilitate their trade. The variety of markets, pricing, and ways these exchanges operate is affected by a range of factors. There are markets for statutorily compliant credits and looser, voluntary markets; prices per ton can range from a few cents to hundreds of dollars; brokers and middlemen, instead of “retiring” their credits to offset their own emissions, often buy and trade them for profit; and the system for “accrediting” claimed emissions reductions can be opaque and confusing. This complexity turns away some buyers of carbon credits, especially when those buyers have specific ideas about the kinds of projects they want their carbon-credit purchases to support, such as, in our case, projects that benefit Mongolia.

We were well aware of such opportunities in Mongolia. In Ulaanbaatar, for example, moving to renewable energy is of particular importance to the approximately 200,000 households living in the unplanned “ger” districts, where energy insecurity is a continuing challenge. In winter, coal burning is essential for survival, and often costs ger district families as much US\$400 per year, a huge financial burden considering that 40 percent of residents earn less than US\$90 per month. Indoor and outdoor coal burning causes serious health issues and is a significant contributor to Mongolia’s carbon emissions. A project to install solar electricity in these homes would produce substantial emissions reductions with cascading social benefits that could be paid for by selling carbon credits.

But there were no simple tools or market platforms to price confirmed local emissions reductions and match them to our own desired investment in carbon offsets. The reality is that carbon markets are difficult to navigate, especially for small-scale buyers and sellers of carbon credits. For sellers, the system for auditing claimed carbon reductions and certifying carbon credits is costly, bureaucratic, and nearly impossible for small projects due to the need for in-person audits and in-depth reviews by an accredited agency. For buyers of carbon credits, the beneficiary of one’s purchase and how they will use the funds is often obscure.

As we explored the idiosyncrasies of carbon offset markets, we had several conversations with Mongolian organizations that were thinking about the same thing. One group that stood out was a start-up called [URECA LLC](#). This young climate-tech company was founded by a team of Mongolians who combine expertise in renewable energy systems, computer engineering, sustainability, and other fields with a passion for climate change solutions. The URECA team has developed a mix of technologies that will enable small-scale and even household-level actors to produce verified carbon credits without the complex and costly accreditation that can stymie small projects.

Their solution combines AI-based technology that verifies renewable energy generation, both solar and wind, through data collected from smart meters, with a blockchain system to link carbon credits to specific producers and keep track of the exchange or retirement of those credits. This clever, cost-effective system will generate high-quality carbon credits, even for energy micro-producers, that will be linked to a URECA marketplace where they can be bought and sold. You can find more details about the system on the [URECA website](#).



(Photo: URECA)

Questions still remain about how the system will perform: How will the market price these credits? How will the income from their sale be taxed? But the potential to help households transition to renewable energy is immense, and it will also allow organizations like The Asia Foundation's Mongolia office to offset our carbon emissions with a clear sense of whom our offsets are benefitting.

Given this tremendous potential, The Asia Foundation decided to partner with URECA to pilot their system at the household level and begin to answer some of the questions about household-level carbon credits. Working with GerHub, a partner with significant experience in the ger districts, the project has recruited five low-income households to shift from coal-burning stoves to solar electricity and to use that transition to produce and sell carbon credits through the URECA marketplace. The pilot will pay for improved insulation and new solar systems at each household, provide ongoing technical support, monitor household satisfaction, and evaluate the overall impact of the initiative.

Initial baseline assessments suggest that each family will cut their yearly carbon emissions by 10–20 tons and reduce their energy costs by up to 70 percent. A significant question that this pilot seeks to answer is how highly the market will value URECA's household carbon credits. If these households achieve the low-end target of \$80 per ton, they can earn between \$800 and \$1,600 per year producing and selling carbon credits, in addition to saving hundreds of dollars on energy costs. This will significantly improve their quality of life, while demonstrating a pathway to reducing the harmful levels of air pollution that afflict Ulaanbaatar every winter.



A yurt that has replaced coal burning with solar power, with help from URECA and The Asia Foundation (Photo: URECA)

The Asia Foundation began this investigation with a simple desire to offset our own emissions, but the initiative has evolved into a pilot that uses carbon credits to accelerate the transition to renewable household energy sources and better energy efficiency while simultaneously reducing poverty. That ambitious quest is beginning now, as the first five families produce their first carbon credits at the end of November. As the URECA platform goes live, these carbon credits will be auctioned to generate additional resources to support more household transitions and build momentum for a more inclusive carbon market.

And our Mongolia office will finally be able to easily purchase carbon credits produced in Mongolia.