NAANOVO

Naanovo Green Energy Mongolia LLC

For Greener Future in Mongolia

2026

Presented By:

ERDEMBILEG TSEDEV

NA ANOVO

SOS MEDICA MONGOLIA

Innovation Capital | Finance Group

Erdembileg Tsedev

Professional Background:

- Chief Exectuive Officer - SOS Medica Mongolia LLC (UB, Mongolia)
- Founder and Chief Executive Officer - Naanovo Green Energy Mongolia LLC (UB, Mongolia)
- Chairman - Innovation Capital NBFI (UB, Mongolia)
- Senior Consultant - PricewaterhouseCoopers LLC (UB, Mongolia)
- Tax Consultant - Barash Friedman Friedberg & Adasko CPA (NY, USA)
- CEO - SOS Medica Mongolia LLC (Currently) (UB, Mongolia)
- Board Member - Mongolian National Recycling Association (Currently) (UB, Mongolia)

Academic Background:

- MBA - Hitotsubashi University (Tokyo, Japan)
- MA in Public Policy - University of Chicago (Chicago, USA)
- MS in Health Economics and Policy - London School of Economics (London, UK)

Presenter

Hitotsubashi University

LSE THE LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE

The University of Chicago 1890

Presenter info (companies)

NAANOVO

A renewable energy development company committed to advancing sustainable and environmentally responsible energy solutions in Mongolia. The company focuses on developing innovative projects in waste-to-energy, solar, wind, and integrated clean energy systems that support national energy security, reduce environmental impact, and promote a low-carbon economy. Through strategic partnerships, advanced technologies, and alignment with Mongolia's long-term development goals, Naanovo Green Energy Mongolia LLC aims to contribute to sustainable infrastructure development, improve resource efficiency, and support the country's transition toward a cleaner and more resilient energy future.

Innovation Capital Finance Group

A boutique financial services company specialzed in providing microlending solutions to both individual and corporate clients pursuing sustainable developement initiatives and goals including renewable energy integration, eco construction material procurement and green transportation facility. With over 7 years in the financial secctor and over USD 3-4 million in loans issued, Innovation Capital brings valuable insights to the table in terms of helping our clients achieve their sustainability goals.

SOS MEDICA MONGOLIA

A leading healthcare services provider dedicated to delivering high-quality, internationally accredited medical care across Mongolia. As the country's only ISO-accredited healthcare provider, SOS Medica Mongolia offers comprehensive medical services including primary care, occupational health, preventive health programs, diagnostics, emergency response, and telemedicine solutions. Serving corporate clients, international organizations, and local communities, the company is committed to improving healthcare accessibility, enhancing patient outcomes, and supporting Mongolia's evolving healthcare needs through innovation, professional excellence, and global standards of care.

MNRA

MNRA is a professional, non-profit organization dedicated to advancing sustainable waste management and promoting a circular economy in Mongolia. The Association brings together stakeholders from government, industry, and civil society to support the development of efficient recycling systems, encourage responsible resource use, and reduce environmental pollution. Through policy advocacy, industry collaboration, public awareness initiatives, and capacity building, the Mongolian National Recycling Association works to strengthen Mongolia's recycling sector, protect natural resources, and contribute to the country's long-term environmental and economic sustainability.

NA ANOVO

Ulaanbaatar: One of the Most Polluted Cities in the World in terms of Air Pollution Sources, Impacts, and Consequences

Why Ulaanbaatar Matters:

- Among the most polluted capitals globally, especially in winter
- Severe PM2.5 concentration episodes
- Major threat to public health, economy, and environment
- Structural urbanization and heating challenges
- Over **90% of the waste is landfilled**

The Problem...

Ulaanbaatar: Waste Management

Waste management indicators:

- High waste generation with heavy urban concentration: Mongolia produces about 2.9 million tons of solid waste annually, with Ulaanbaatar alone generating roughly 1.5 million tons, reflecting rapid urbanization and population concentration.
- Low recycling rates and landfill dependence: Only a small share of waste is recycled (around 7% reused/exported), and about 90% of recyclable materials still end up in landfills, indicating weak recycling systems and market incentives.
- Infrastructure gaps and service inequality: Rural areas and ger districts often lack formal waste services, leading to open dumping and environmental contamination, while collection systems may capture only part of total waste.
- Infrastructure gaps and service inequality: Rural areas and ger districts often lack formal waste services, leading to open dumping and environmental contamination, while collection systems may capture only part of total waste.

“Ulaanbaatar generates nearly half of Mongolia’s total waste, yet most of it still ends up in landfills rather than being recycled or recovered.”

The Problem... (cont.)

Narangiin Enger

Moringiin Davaa

Tsagaan Davaa

NA ANOVO

Ulaanbaatar: The health, environmental, social and economic IMPACT...

The Problem.. (cont.)

Major Health Effects

- Increased respiratory diseases due to burning waste and landfill emissions (dioxins, particulates, methane).
- Higher incidence of waterborne illnesses from groundwater contamination near dumpsites.
- Toxic exposure from informal waste picking without protective equipment.
- Spread of infectious diseases due to unmanaged waste attracting rodents and stray animals.
- Long-term cancer risks linked to open burning of plastics and hazardous waste.

Social and Development Consequences

- Disproportionate burden on ger district residents living near dumpsites.
- Growth of informal waste picking with unsafe working conditions and child labor risks.
- Decline in urban livability and public morale due to visible pollution.
- Community conflicts over landfill siting and waste transport routes.
- Increased inequality in access to clean environments and waste services.

Environmental Challenges

- Soil contamination from leachate affecting agriculture and ecosystems.
- Air pollution from open burning and landfill gas emissions.
- Groundwater contamination threatening drinking water sources.
- Methane emissions contributing significantly to climate change.
- Wildlife harm from plastic ingestion and habitat degradation.

Economic impact:

Direct Costs

- Higher healthcare spending
- Lost productivity due to illness

Indirect Costs

- Reduced labor efficiency
- Lower investment attractiveness
- Urban livability challenges
- Burden on public health system

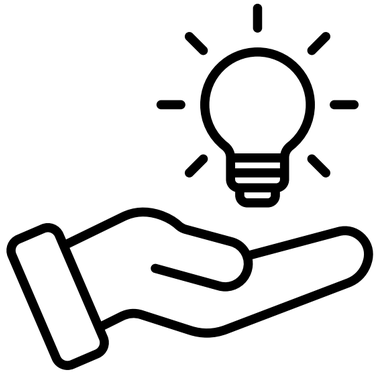
NA ANOVO

Existing Approaches

- Increase recycling
- Small scale awareness programs
- Small grants and assistances

Why It Is Hard to Solve?

- **Lack of research on waste profile**
- **High cost of clean energy transition**
- **Lack of transitional funding**
- **Lack of technology experts**
- Behavioral and policy challenges



WHY?

OPPORTUNITY?

Opportunity!

- **Renewable energy**
- **Circulate Economy**
- **Carbon financing and climate funding**
- **Public-private partnerships**

NA ANOVO

CONDUCT A WASTE COMPOSITION SURVEY:

- Find solution based on what kind of waste is generated
- Inform individual, academic and regulatory stakeholders
- Form international cooperation to solve local waste challenges

BUILD & INCREASE LOCAL CAPACITY:

- Partner with local academic institutions: Mongolian Science and Technology University
- Provide technology necessary to conduct survey in the future: Donated the necessary equipment
- Sign a long term cooperation agreement to continually build capacity to become self-sufficient in waste analysis and research

NA ANOVO

EX Research Institute Ltd.
Environmental and Regional Planning, Research and Consulting

Our Mission

JCM?

INTRODUCE AND IMPLEMENT A MAJOR WASTE MANAGEMENT PROJECT

WASTE TO ENERGY PLANT!

NA ANOVO

Technical Specifications	
Waste capacity	Summer: 600-700 tons per day Winter: 900-1000 tons per day
Power production	Approved; 14 megawatt Possible: 32 megawatt
Operational hours	8,421 hours per year
Location	Ulaanbaatar, Mongolia

Our Project

Ministry of Energy	Feasibility Study, Technical Requirements
Ministry of Environment	Environmental Impact report
Energy Regulatory Commission	Special permit, Tariff (10.95 cents per kilowatt)
National Dispatch Center	Power Purchase Agreement

NA ANOVO

JCM THE JOINT CREDITING MECHANISM

JCM Model Precedence

Bac Ninh Waste-to-Energy Project (JCM Model Project)

- Location: Bac Ninh Province, Vietnam
- Developers: JFE Engineering (Japan) & Thuan Thanh Environment (Vietnam)
- Project company: T&J Green Energy Co., Ltd.
- Commercial operation: 2024

Technical specifications:

- Waste capacity: ≈ 500 tons/day (MSW + industrial waste)
  - ~350 t/day municipal waste
  - ~150 t/day industrial waste
- Power output: ≈ 11.6 MW
- Annual generation: ≈ 91,872 MWh
- Later expansion reports show up to 600 t/day & 13.5 MW.

Revenue Model:

- Electricity sold to Vietnam Electricity (EVN) under 20-year FiT PPA
- Feed-in tariff range: ~9–10 US¢/kWh (Vietnam WtE FiT benchmark)

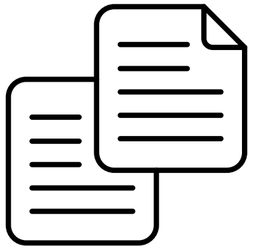
Environmental Impact:

- GHG reduction: ≈ 41,800 tCO_2/year
- 600,000 tCO_2 avoided over 15 years
- Methane reduction from landfill diversion
- Displaces fossil-fuel electricity

WHY IT WAS A GREAT JCM MODEL PROJECT?

- Introduces advanced Japanese WtE technology
- Reduces landfill methane emissions
- Replaces fossil-fuel-based grid electricity
- Provides measurable MRV-ready emission reductions

NA ANOVO



WHY JCM MODEL FOR MONGOLIA WTE?

Why This Is Highly Relevant to Your Mongolia Project

Similarities between Mongolia and Vietnam Projects:

- Comparable waste volume range
- Similar CAPEX scale
- Same JFE technology provider
- JCM financing + multilateral debt structure
- Power + JCM subsidy revenue model

👉 **This project is essentially a template for Mongolia's WtE JCM eligibility.**

Project Significance

- First large-scale commercial WtE JCM project
- Demonstrates blended finance model (IFC + JCM)
- Replicable model for emerging economies

Applicable JCM Methodology

The project uses a JCM methodology for:

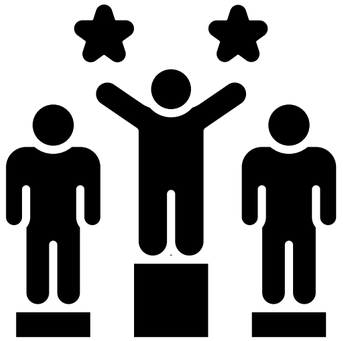
"Avoided methane emissions from landfill and fossil fuel displacement through waste-to-energy generation."

While JCM methodologies are country-adapted, Bac Ninh aligns with methodologies similar to:

- JCM_AM015 / JCM_AM019 (waste-to-energy & landfill diversion)
- JCM electricity displacement methodologies

👉 **These combine two emission reduction components.**

NA ANOVO



Competitive Advantage

Our Edge

- Our Ulaanbaatar Waste-to-Energy project offers a uniquely strong value proposition within the JCM framework, combining proven technology, policy alignment, and superior climate impact. Key competitive advantages include:
- High emissions reduction potential due to Mongolia’s coal-dominant grid and high organic waste fraction, enabling 50,000–80,000 tCO_2e reductions annually.
- Policy and public health alignment with Mongolia’s urgent air pollution reduction goals and NDC commitments, strengthening government support.
- Proven Japanese technology partnership ensuring reliability, MRV integrity, and eligibility under JCM model project criteria.
- Strong financial viability with an estimated 18–22% IRR supported by JCM subsidy, carbon revenue, and stable baseload power generation.
- Replicable model for cold-climate cities, positioning Mongolia as a regional leader in climate-resilient waste management.

NA'ANOVO

Your support:

Delivering this project requires coordinated support from JCM stakeholders to unlock its full climate and public health benefits. We seek partnership across policy, finance, and technical collaboration to ensure timely implementation and long-term success:

- JCM model project designation and subsidy support to catalyze investment and improve project bankability.
- Facilitation of Japanese technology partnerships to ensure compliance with JCM requirements and best-in-class plant performance.
- Support in structuring concessional or blended finance through MDBs and climate funds to complement private capital.
- Endorsement of a bankable MRV methodology aligned with Mongolia's waste profile and grid emission factors.
- Policy coordination and regulatory clarity to secure long-term tariff stability and waste supply commitments.
- Knowledge sharing and capacity building to position Mongolia as a regional model for JCM waste-to-energy deployment.

What We Need!

How You Can Support additionally:

- **Project development capital**
- **Technical support for JCM engagement**
- **Help build carbon credit structuring**
- **Strategic partnerships with Japanese tech suppliers**

NA ANOVO

Questions/Comments?

Thank you!

Contact:

- **Address:** 4a Building, Big Ring Road 15th Micro District 7th Khoroo, Bayanzurkh District, Ulaanbaatar, Mongolia
- **Phone:** +976-99113016
- **Email:** erdembileg.ts@naanovo.mn