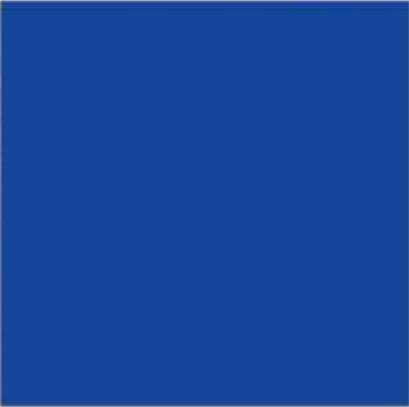




MONGOLIAN NATIONAL  
CHAMBER OF COMMERCE  
AND INDUSTRY



# DIGITAL LEDGER TECHNOLOGY for CERTIFICATES OF ORIGIN

Funded by



Mr. Magnaibaatar.Ts, Deputy CEO of MNCCI,

April 17, 2024

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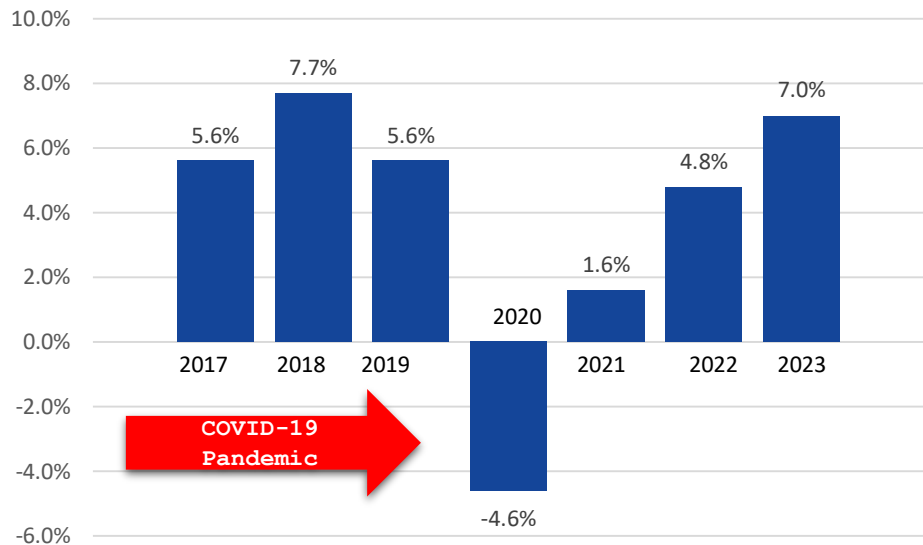
**DIGITAL TRANSFORMATION, LEDGER TECHNOLOGY FOR  
ELECTRONIC CERTIFICATES OF ORIGIN**

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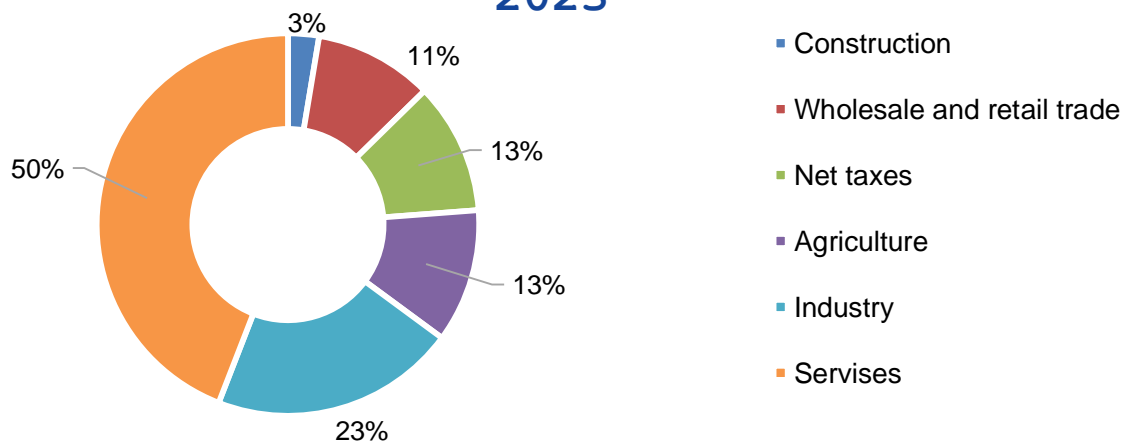


# 1. MONGOLIAN ECONOMIC SITUATION

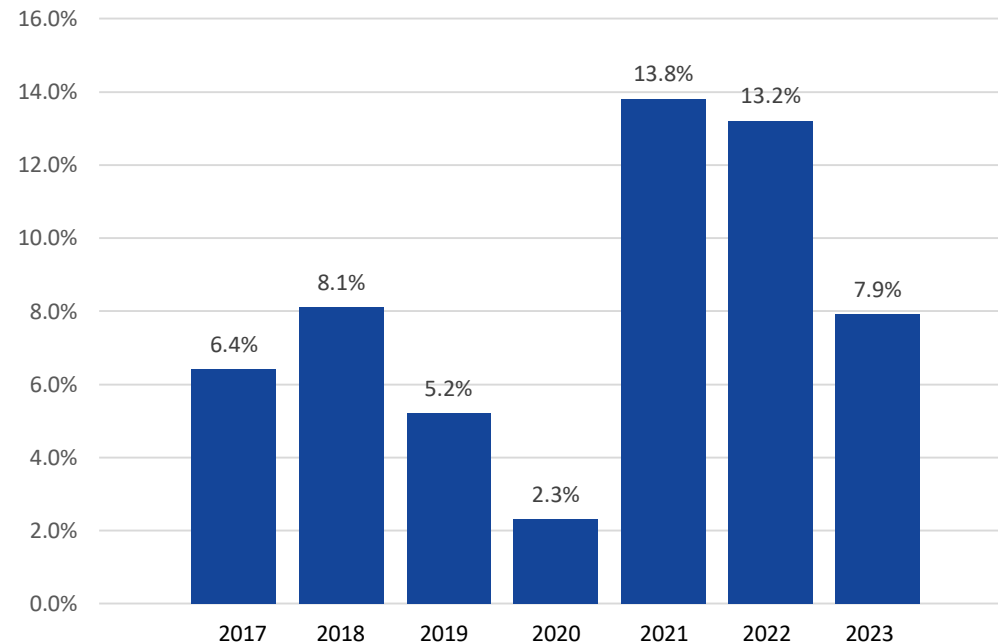
## Real GDP Growth of Mongolia (2017 to 2023), annual growth



## GDP, at 2015 constant prices in 2023



## Inflation rate (2017 to 2023)

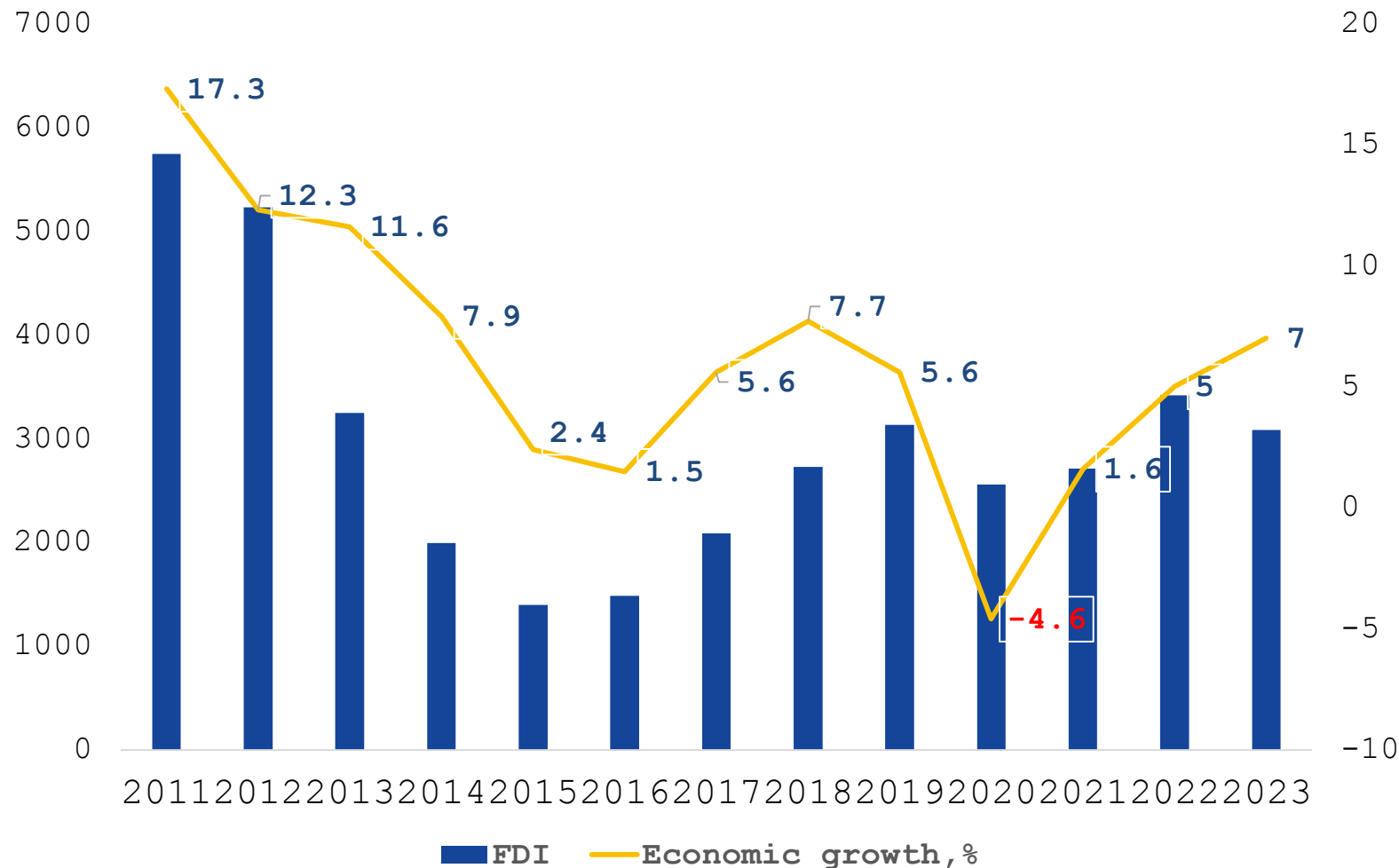


The average inflation rate was **7.9%** in 2023. The inflation peaked at **13.8%** in 2021 because of the pandemic and has since gradually decreased.



# 1. MONGOLIAN ECONOMIC SITUATION

## FOREIGN DIRECT INVESTMENT, ECONOMIC GROWTH



## FOREIGN DIRECT INVESTMENT STOCK (2023)

**30.5** Billion USD

### TOP 3 SECTORS

1. Mining	79.2%
2. Trade	8.7%
3. Finance	3.4%

### TOP 5 COUNTRIES

1. Netherland	46%
2. China	15%
3. Singapore	8%
4. Hong-Kong	5%
5. Luxemburg	8%

## 2. TRADE AND INVESTMENT

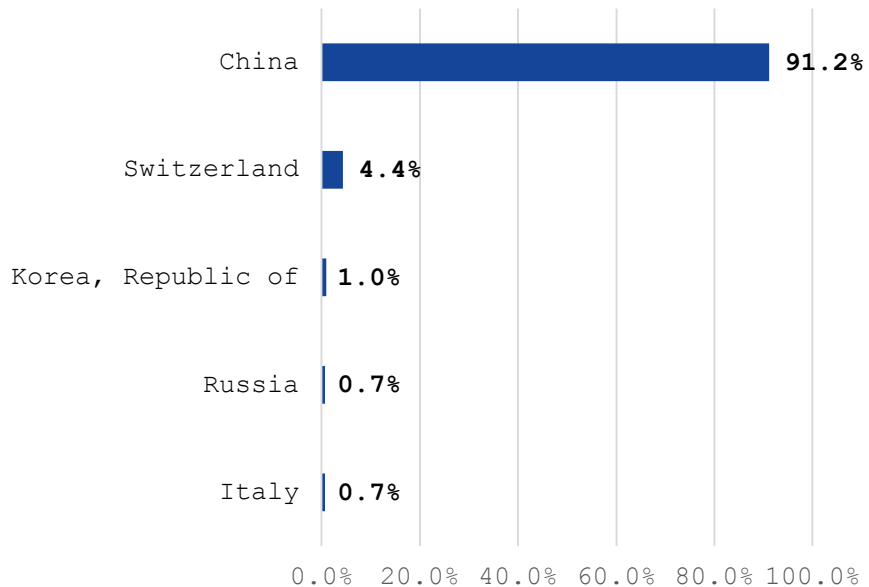
In 2023, MONGOLIA EXPORTED  
A TOTAL OF

MAIN EXPORT  
PARTNERS (2023)

**15.2**

billion USD

MAIN EXPORT  
PRODUCTS (2023)



1	Mineral products	91%
2	Natural or cultured pearls, precious or semi-precious stones	5%
3	Textiles and textile articles	3%
4	Live animals, animal products	1.3%
5	Vegetable products	1.1%
6	Prepared food	1%

THE STRUCTURE OF  
MONGOLIAN EXPORT

Mining  
**91%**

Non  
mining  
**9%**

Livestock sector  
**4%**

Manufacturing **4%**

Agriculture **1%**

The structure of Mongolia's exports in 2023, mining sector accounted for **91%**, non-mining sector for **9%**, including livestock sector for **4%**.

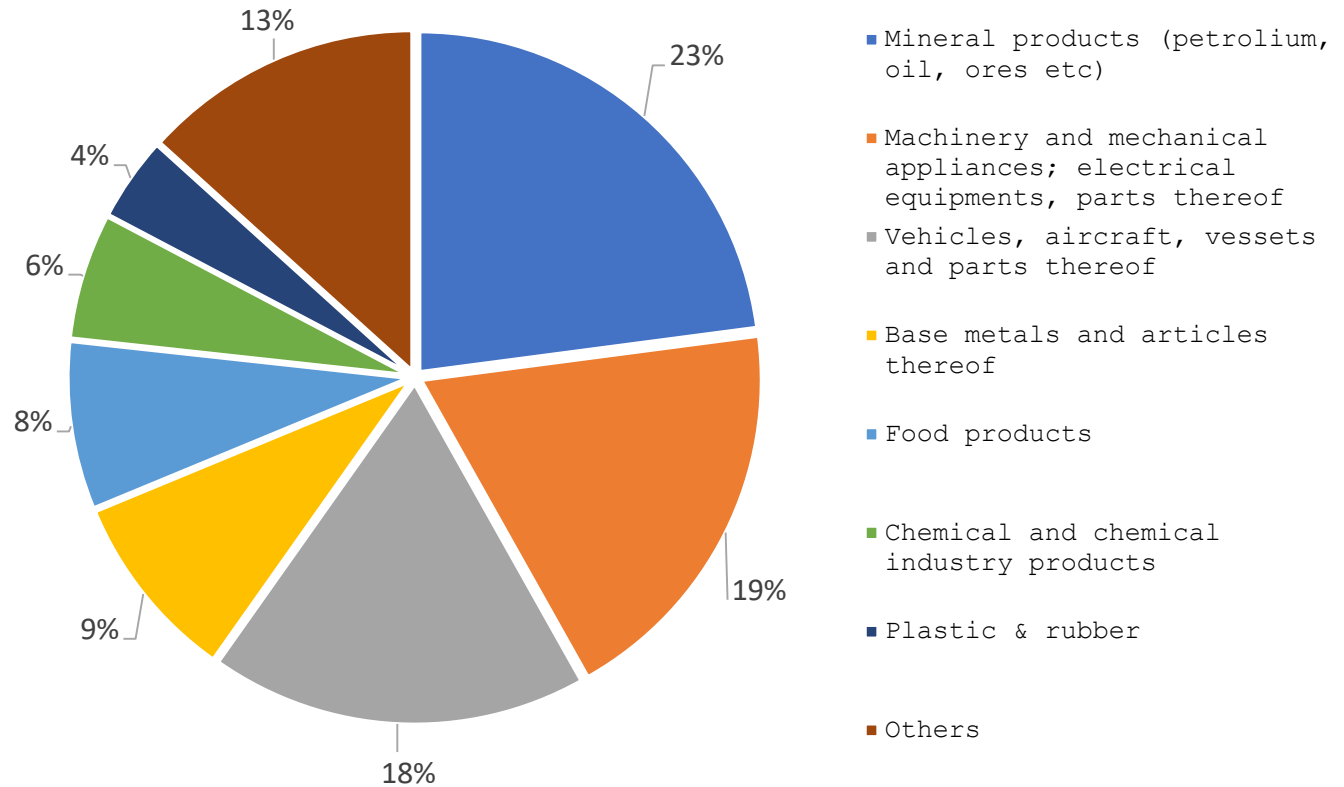
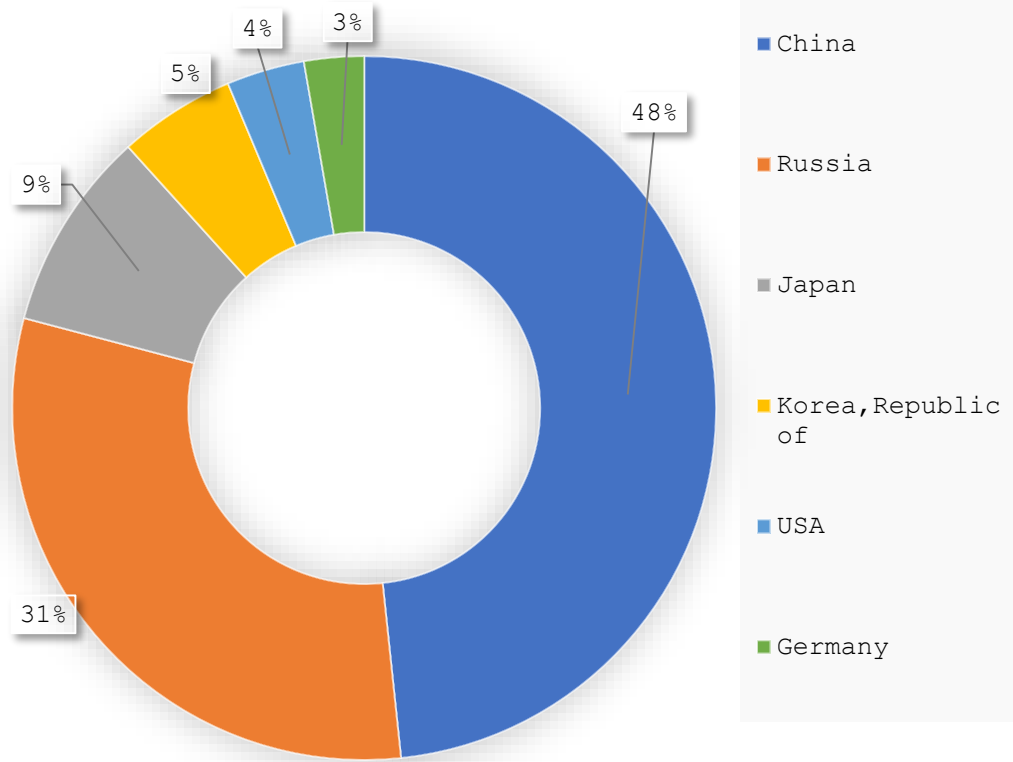
## 2. TRADE AND INVESTMENT

In 2023, MONGOLIA IMPORTED  
A TOTAL OF  
**9.2**  
billion USD

MAIN IMPORT  
PARTNERS (2023)

MAIN IMPORT  
PRODUCTS (2023)

84.5%





### 3. DIGITAL NATION, GOVERNEMENT OF MONGOLIA

In Vision - 2050, the Government has set the aim to become a **“Digital Nation”** where technology and digital innovations are integrated into all sectors of the economy and society, to boost efficiency and production.

#### Government Resolutions



Vision - 2050 aims to integrate digital and technology into all economic and social sectors to boost production levels



Digital Nation Policy Directive set out the implementation plans for digital transformation

#### Legal Framework

Concerning digital development, the Government of Mongolia enacted the following laws in 2021, coming into effect in 2022, to protect individuals from the ever-increasing dangers in the digital world:

**Cybersecurity Law**

**Transparency of Public Information Law**

**Personal Data Protection Law**

**E-Signature Law**

#### Digital Government Services

**E-Mongolia, 2020**  
<https://e-mongolia.mn>

**E-Business - 2023**  
<https://e-business.mn>

**License MN portal**  
<https://license.mn>

**Invest in Mongolia**  
<https://www.e-invest.mn>



### 3. DIGITAL LEDGER TECHNOLOGY FOR COOs

#### INSTITUTIONAL



MONGOLIAN NATIONAL CHAMBER OF COMMERCE AND INDUSTRY

- Mongolian Customs General Administration (CGAM)



МОНГОЛЫН ГААЛЬ

Funded by the



and coordinated with the East Asia Department (EARD)

#### PROJECT HISTORY: Avril – Nov. 2023

1. Preliminary technical assessment and discussions result in **experimenting** the innovative solution based on **Distributed Ledger Technology (DLT) / Blockchain** for
  - **Authenticity, Security, Tamper-proofing, & Immutability**
  - **Transparency**
  - Enhance **operational costs** and **digital transformation**

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2. Scope of work: **Development of a Minimum Viable Product (MVP) for Certificates of Origins**

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3. A **MVP** based on the **existing COO system** and aligned with **legal guidelines** and **procedures**.

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4. Larger scope of work of the MVP: a **multi-purpose "Portable" MVP**: e.g. Food Safety Health Certificates, Customs/CGAM certificates (ref. ADB / **RIBS & Single Window**), etc.



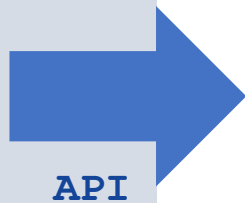


### 3. OVERVIEW MVP

SYSTEM MNCCI FOR COOs  
(EXISTING)



PAPER-BASED  
COOs



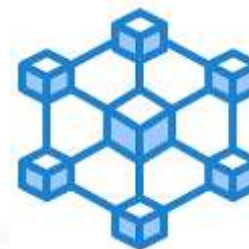
API

**TRUST POWERED BY  
BLOCKCHAIN**



**DIGITAL FOOTPRINT**

**COOs  
(MVP)**




### 3. TECHNICAL OVERVIEW MVP


- MVP experimented on the public blockchain “Polygon”
- Encryption on the blockchain of COOs content (SHA256): confidentiality
- Main features:
  - API: real-time data exchange MNCCI system <> Blockchain solution (MVP)
  - Search and verify COOs
  - Digital Footprint COOs
  - Back-end admin/logs (traceability)
- **Authenticity and Immutability** by comparing encrypted hash (SHA 256) between **MNCCI system <> Blockchain**
- **Development methodology:** Agile
- Main technologies: PostgreSQL / React, Redis, node.js / Solidity / Hardhat, SHA256



### 3. TECHNICAL OVERVIEW MVP / SEARCH & VERIFY



MONGOLIAN NATIONAL CHAMBER OF COMMERCE AND INDUSTRY





MONGOLIAN NATIONAL CHAMBER OF COMMERCE AND INDUSTRY



Reference Number (Ref No)

Q 4 5853

Blank Number

Q B 390413

SEARCH

Reference Number (Ref No)	4 5853
Blank Number	B 390413
Validation (SHA256)	624ad0f2e44286d4dbe7b07be1e0de36 <span style="float: right;">Trust Powered by Blockchain ✓</span>
Country of Origin	Mongolia
Issued by	Mongolian National Chamber of Commerce and Industry

Exporter

Exporter Name	Institute of Geography and Geology
Exporter Address	Ulaanbaatar, Ulaanbaatar-15170, Baruul Selbe-15, 4th Khoroo, Chingeltei District, Ulaanbaatar-15170, MONGOLIA
Exporter Country	Mongolia

Consignee

Consignee Name	Hansol Geo
Consignee Address	Seoul, Korea University, Mediheal EES, 511, 145 Anam-ro, Seongbuk-gu, Seoul, Republic of Korea
Consignee Country	Republic of Korea

Means of Transport



To	Seoul (Republic of Korea)
Via	
By	By Air

### Remarks

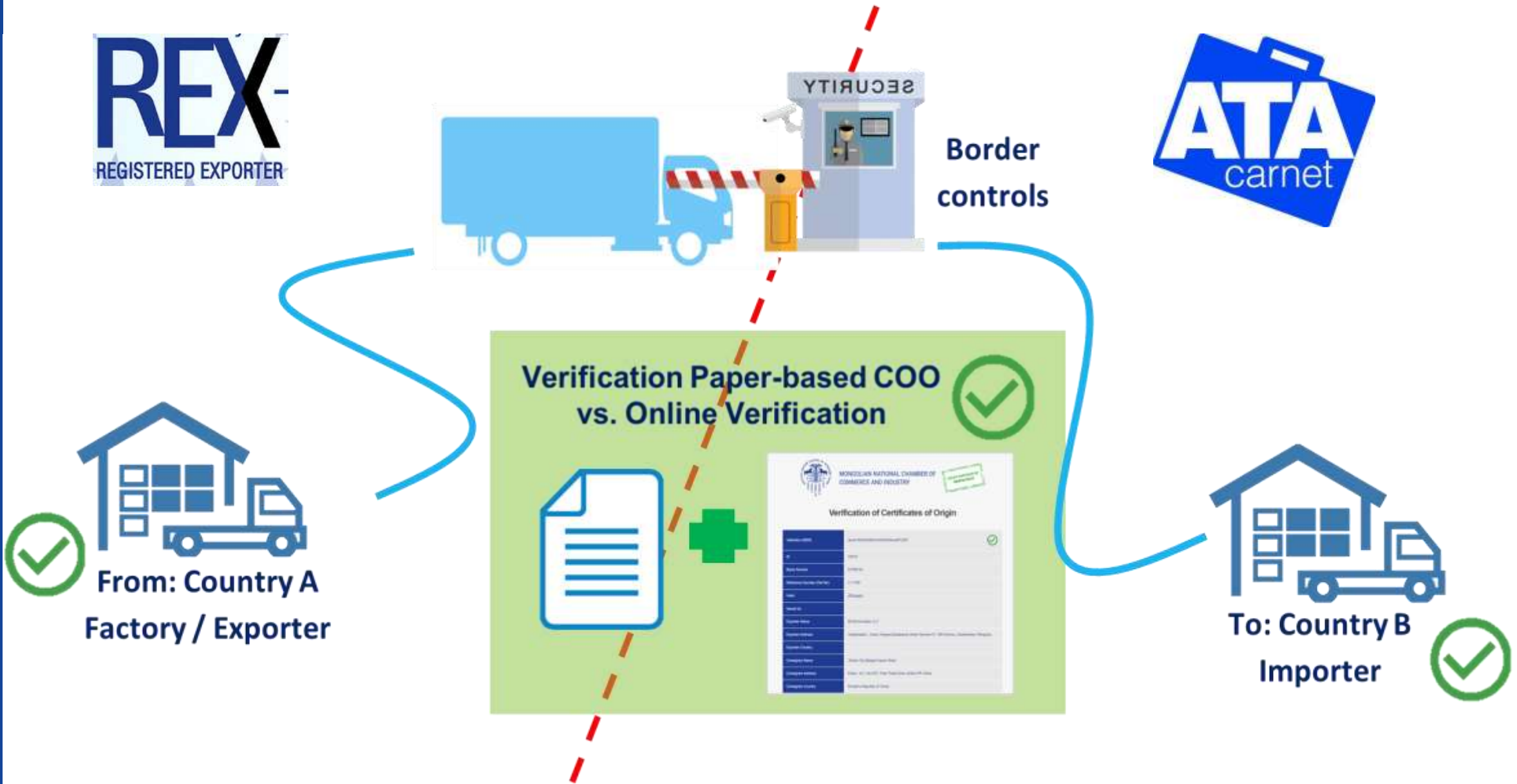
Contract Number	
Contract Date	6/26/2023
Invoice Number	03
Invoice Date	3/27/2024

### Packing List

Description of Goods	HS Code	Net Weight	Gross Weight	Quantity	Method of Packing	Total Packed
Dust and ash solids	N/A	0.6317 Kgs	0.7 Kgs	3 Plastic bags	Plastic bags	N/A
Rock samples	N/A	3.814 Kgs	4 Kgs	2 Plastic bags	Paper bag	N/A
River water samples	N/A	4.5 Kgs	4.6 Kgs	2 Bottles	Plastic bottles	N/A



# USE CASE / VERIFICATION PAPER-BASED VS. BLOCKCHAIN DIGITAL FOOTPRINT



### 3. OVERVIEW RESULTS MVP

- **BENEFITS**

- + Online verification with authenticity, immutability and transparency – “Trust Powered by Blockchain”

- + E-Certificates of Origins – “Digital Footprints”

- + It is not a complicated Blockchain development with adequate IT dev. sourcing and 3-6 months timeline!

- **AREA OR IMPROVEMENT: A blockchain framework with fixed cost per transaction (gas) vs. versatile Polygon framework**

CHAIN	TOTAL TRANSACTION COOs / YEAR	DATE	PRICE / TRANSACTION	COST / YEAR
Polygon	10.000	9 November 2023	\$0.005 USD	30 USD
<b>Polygon</b>	<b>10.000</b>	<b>19 March 2024</b>	<b>\$0.06 USD</b>	<b>600 USD</b>
Ethereum	10.000	19 March 2024	0.70 USD	7000 USD
Arbitrum	10.000	19 March 2024	0.073 USD	730 USD



# A NATIONAL BLOCKCHAIN-BASED SOLUTION FOR CGAM GOV. CERTIFICATES NEXT PHASE AND CAREC COUNTRIES?

Certificates of



Certificates Of Conformity



Food Safety / SPS  
Certificates



Fishery Catch certificates



OID	Block No.	Iss No.	Issued	Expired	Ready
00010	0 000001	0 11198	15/02/2020 4:38:28 PM	2020/02/28 00:00:00	0
00010	0 000001	0 0000	15/02/2020 4:37:52 PM	2020/02/28 00:00:00	0
00010	0 101844	0 11193	15/02/2020 2:18:48 PM	2020/02/28 00:00:00	0
00021	0 000002	0 0000	15/02/2020 2:11:37 PM	2020/02/28 00:00:00	0
00010	0 000001	0 11191	15/02/2020 2:07:44 PM	2020/02/28 00:00:00	0
00010	0 000001	0 11198	15/02/2020 2:01:17 PM	2020/02/28 00:00:00	0
00010	0 000001	0 11199	15/02/2020 1:58:36 PM	2020/02/28 00:00:00	0

**CENTRAL  
BLOCKCHAIN  
SOLUTION**

**SHARE EXPERIENCE TO CAREC COUNTRIES**



# THANK YOU FOR YOUR KIND ATTENTION

## Contacts Us



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A blue horizontal banner featuring a faint, semi-transparent image of a modern building interior with large windows and columns.

[www.mongolchamber.mn](http://www.mongolchamber.mn)