Mongolia
Ministry of Mining and Heavy Industry(MMHI)

THE PROJECT FOR CAPACITY BUILDING ON THE NATURAL RESOURCE AND MINING SECTOR IN MONGOLIA

FINAL REPORT

January 2022

Japan International Cooperation Agency (JICA)

Mitsubishi Materials Techno Corporation
Japan Economic Research Institute Inc.
Sumiko Resources Exploration & Development Co., Ltd

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Chapter 1 Introduction

1.1 Background

Revenue of mining industry excluding precious metals in Mongolia accounted for approximately 20% of GDP and 69.4% of the total export value in 2020, and is a very important industry which gives a significant impact on public finances. Mining and production of copper concentrate developed by the Erdenet Mine since the 1970s performed an important role in economic growth in Mongolia. In recent years, the development of large-scale coal mines and copper mines following open pit development at Oyu Tolgoi Mine has been in progress; therefore, the mining industry is continuously expected to play an important role in the Mongolian economy and also, strengthen the international competitiveness of the mining industry is directly related to strengthening the international competitiveness of Mongolian economy itself. On the other hand, Mongolia is a landlocked country whose way and destination of export of mineral resources are limited; therefore, it is more susceptible to fluctuations in mineral commodity prices, and it is a factor itself to destabilize the national economy.

Although appropriate economic and fiscal policies, including sufficient national financial management and the promotion of related industries etc., should be applied for the stable management of the Mongolian economy, such a policy-making capacity is insufficient in the Mongolian government. Capacity of appropriate policy-making in consideration of the trend in the international mining industry, mineral commodity prices and the future concept of mining operation is required.

1.2 Objectives

Objectives of the project are to cultivate human resources, which are independent of excessive influence on the movement of administration and world affairs of mineral resources and are capable of policy-making with correct and appropriate information relevant to achieving the stability and development of the national economy, to aim for the improvement of the international competitiveness of the investment conditions in the mining sector and the realization of subsequent strategic and sustainable investments with proper management of resources revenue.

In order to avoid overlap from past cooperation projects by IMF and World Bank etc. and capabilities of existing public and private think-tanks, it aims to strengthen some functions of tracking the trends of the world’s mining development and international mineral commodity market from the viewpoint of investors, gathering and analyzing Foreign Direct Investment (FDI) conditions in the world and international trends of taxation, etc., and other functions of disseminating pragmatic policy recommendations based on the results of cited analyses to politicians.

1.3 Implementation Schedule of the Project

The implementation of this project was originally planned from June 2016 to May 2020 but was later extended to January 2022.

The Project is stepwise carried out as follows.

Phase 1 (June 2016 - September 2016)

Invitation of Mongolian researchers to Japan for discussion of study plan

Phase 2 (October 2016 - January 2022)

Implementation of activities based on study plan formulated in Phase 1

The overall schedule is shown in Table 1-1.

Table 1-1 Implementation Schedule of the Project

Activites \ Period	2016				2017				2018				2019				2020				2021				'22
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I
1. Phase I																									
【1】 Invitating Mongolian researchers to Japan																									
【2】 Preliminary discussion on work plan																									
【3】 Preparation of Phase 2 program																									
【4】 Discussion of Phase 2 program with Mongolian researchers																									
2. Phase II																									
【5】 Enforcement of study in Mongolia																									
【6】 Annual report preparation																									
【7】 Inviting Mongolian researchers to Japan																									
【8】 Seminor in Mongolia																									
【9】 Preparation of progress report																									
【10】 International Forum in Japan																									
【11】 Preparation of final report of the project																									

1.4 Research Program

To achieve the above objectives, the following studies were carried out. These study themes were decided after consultation of experts from both the Japanese and Mongolian sides, JICA, Ministry of Mining and Heavy Industry and Japanese project implementation teams in Phase 1. The details of these discussions are described in Chapter 2. Furthermore, coal, iron, copper and gold which are important mineral resources in

Mongolia, are selected as the focus commodities.

1.4.1 Analysis and prediction of the world's trend of mineral commodity market

(i) Development and analysis in commodity markets: Demand analysis

The aim of the study was to assess and analyze current and future developments in each of the commodity markets that have a potential impact on the demand for these commodities.

Particular attention was devoted to identifying major developments in the world and regional economies that have crucial effects on the demand for these commodities. It should be noted that economic, political and other developments in China have greater effect on demand for coal and iron, whereas for copper and gold world economic performance have a significant effect.

(ii) Development and analysis in commodity markets: Supply analysis

Supply of commodities in the world market is largely determined by new mining projects, developments in the mining sector, technological advances and economic performance of the major advanced countries. Therefore, this study focused on developments in mining projects on the abovementioned commodities in the world market as well as at the regional level. Moreover, it reviewed the supply of commodities from Mongolia to the world and regional markets.

Another aspect that was included in the supply analysis was the overview of Foreign Direct Investment flow in the world mining sector. This overview will not only covered the world's major mining economies, but it also be reviewed FDI flow for Mongolia and its potential in the future.

(iii) Short term price outlook and update on medium to long term price predictions for selected commodities

Prices of commodities are determined by the demand and supply factors. Therefore, the aim of this study was to assess commodity markets and review price projections of these commodities done by various sources. This study relied on previous demand and supply analyses.

(iv) Mining development strategy

Countries with a wealth of natural resources have different strategies in terms of developing their natural resources sector and transforming this wealth into sustainable prosperity. In particular, the strategy begins with how to develop the mining sector itself, starting from licensing and finishing with managing the proceeds and benefits from the mining sector. Successfully developing the mining sector is riddled with challenges that are interlinked. Therefore, the strategy needs to be devised to make the sector more efficient, transparent and coordinated.

This study reviewed experiences in other countries that are successfully developed mining policies along the lines mentioned and analyzed Mongolia's strategy documents.

1.4.2 Taxation, contracting, FDI flow, marketing and trading

(i) Taxation and financial reporting

The Ministry of Mining and Heavy Industry requested taxation policies to be assessed and is looking for suggestions on how reporting should be done for mining companies. There are substantial differences in financial reporting across mining companies. Moreover, there are differences in reporting standards the mining companies adopted. This study proposed ways to streamline reporting standards.

In addition, this study reviewed developments in the mineral resources taxation system in the world. Taxation and royalty systems vary by commodity. The study team reviewed current developments in the taxation system and assessed applicability of new developments for the case of Mongolia.

(ii) Contracting

The Ministry of Mining and Heavy Industry is interested in exploring how contracting in the mining sector is done in other countries. In particular, they are interested in developing a "benchmark" mining contract that can be expanded and changed to reflect the specificity of the mining projects and its impact on the local and national economy.

Contracting is an important area that needs to be studied carefully. In particular, the government will be able to fully exploit all the benefits from the mining project through well designed contracts. On the other hand, it also needs to be attractive for investors to make sure both party benefit from the project. Therefore, an important issue in contracting is how to design these contracts so that they can withstand the test of time in changing legal and political environmental circumstances.

In this study, we reviewed what "benchmark" contracting experiences are around the world and assessed what aspects are critical in the contracting. We also reviewed best practices around the world in mining contracting. We emphasized the fact that countries differ in terms of their legal environment and its traditions as well as limited by constitutional constraints.

(iii) Mongolia FDI flow

Mongolia is a mining sector-dependent country. More than three-quarters of the FDI goes to the mining sector. However, due to various circumstances and policies, FDI to the mining sector is highly volatile.

In this study, we assessed the FDI flow into the mining sector and determined what factors were affecting

the FDI flow. In the past, an unstable legal environment and policies contributed greatly to the FDI flow instability. However, it was emphasized that other inherent factors are at play in determining the FDI inflow for Mongolia in the medium and long term.

(iv) Marketing and trading

In Mongolia, trading in the mining sector has not been sufficiently studied. Customs office provides limited data on trading, but commodity sellers and buyers can't be identified that easily. Moreover, Mongolia has a limited intelligence gathering in terms of how to sell commodities in the world market and what are best practices in terms of getting a better deal.

It should be noted that there are substantial discrepancies in the market price data and customs data on prices of commodities. Ideally, these kinds of discrepancies should not persist.

This study investigated what discrepancies exist between selling prices registered at the customs and market price data. Also, we assessed whether these discrepancies persist. The persistent divergence between market and customs data shows that intermediaries in trading commodities play a crucial role. This raises the issue of whether Mongolia can increase its benefits from the commodity sector with improved marketing. Therefore, we reviewed Mongolia's marketing practices and compared them against best practices in the world.

1.4.3 Management and reinvestment of resource revenue towards sustainable mining development

(i) Sustainable mining development

Mining projects may last for many years. However, the extraction sector itself will last for generations. Therefore, the extraction sector has to be considered, and policies in this sector have to be designed to benefit all current and future generations. Moreover, the policies in this sector have to be robust to the temporary changes in the government and politics.

As such, the Mongolian mining sector has to be developed in a sustainable way. In this study, we reviewed the literature on sustainable mining development in various countries and assessed whether mining sector policies in Mongolia are contributing to sustainable development.

(ii) Revenue management

Proceeds from the mining sector have to benefit all generations. Mongolia put in place a revenue management system in 2012 and made improvements to the system since then. In particular, Mongolia adopted a "Fiscal stability law" to distribute benefits from the sector across generations. It was designed after Chile's experience. However, real-life implementation of this law faces significant challenges.

In this study, we reviewed literature on revenue management in various countries. But, most importantly, we assessed what kind of challenges the current revenue management system faces and determined what factors are affecting the system.

1.5 Dissemination Activities

Dissemination activities for politicians, policy-makers of the government, technocratic policy staff, and management in the private sector were organized as follows;

- Conference: Once per year, approximately 100 participants, including management in the private sector.
- Training and seminars: Two or three times per year, approximately 20 participants of policymakers of the government and technocratic policy staff
- Focused workshop: Four times per year, approximately 5 participants of politicians

1.6 Related Organizations in Mongolia

There are three main project organizations in Mongolian side as follows;

(1) Ministry of Mining and Heavy Industry (MMHI)
(2) Ministry of Finance (MOF)
(3) Economic Research Institute (ERI)

1.7 Project Organization of Mongolian Side

Project Executive

Mr. Davaadorj Davaajav (2016~2018)
Director of Coordination of Policy Implementation Department, MMHI

Mr. Batbold Erdenebileg (2019~2020)
Director General of Strategic Policy and Planning Department, MMHI

Research Director

Dr. Tuvshintugs Batdelger
Director of Economic Research Institute / Associate Professor in Economics, National University of Mongolia

Adviser

Dr. Khashchuluun Chuluundorj
Professor in Economics, National University of Mongolia

Mr. Gankhuu Ganbat
Head of Monitoring, Evaluation and Internal Audit Department, MMHI

Mr. Batkhurel Galsandorj
Director General, Economic Policy Department, MOF

Mr. Enkhbayar Nemekhbayar

Director, Macroeconomic Policy Division, Economic Policy Department, MOF

1.8 Japanese Experts

Name	Position	Organization
Dr. Shinji Asanuma	Visiting Professor	Asian Public Policy Program School of International and Public Policy Hitotsubashi University
Dr. Hideaki Tanaka	Professor	Graduate School of Governance Studies Meiji University
Mr. Tsutomu Shibata	Chief Consultant	International Division Japan Economic Research Institute Inc.
Dr. Yoshitaka Hosoi	Senior Advisor for Natural Resources	Japan International Cooperation Agency

1.9 Japanese Guest Lecturers

Name	Position	Organization
Dr. Akifumi Kuchiki	Professor	College of Bioresource Science Nihon University
Dr. Shinsuke Murakami	Associate Professor	Department of Systems Innovation Graduate School of Engineering The University of Tokyo
Mr. Takuya Oura	Deputy Director	Mineral and Natural Resources Division Agency for Natural Resources and Energy Ministry of Economy, Trade and Industry
Mr. Shuichi Miyatake	Director General	Metals Exploration Department Japan Oil, Gas and Metals National Corporation
Dr. Tadahiro Inazumi	Independent Engineer	Inazumi Professional Engineer Office

1.10 Project Implementation Team

Japanese Team

Assignment	Name	Organization
Project Team Leader (2016-June 2020)	Mr. Yoshiaki Shibata	Mitsubishi Materials Techno Corp.
Project Team Leader (June 2020-2022)	Dr. Yoshimitsu Negishi	Mitsubishi Materials Techno Corp.
Assistant Team Leader	Mr. Shusaku Miyaike	Mitsubishi Materials Techno Corp.
Member	Mr. Tsutomu Shibata	Japan Economic Research Institute Inc.
Member	Mr. Ken Nakayama	Mitsubishi Materials Techno Corp.
Member	Mr. Hirohisa Kobayashi	Sumiko Resources Exploration & Development Co., Ltd.
Member	Mr. Tadashi Yamakawa	Mitsubishi Materials Techno Corp.

Member	Mr. Masayoshi Tatewaki	Japan Economic Research Institute Inc.

Mongolian Researchers

Assignment	Name and Organization	Tasks
Team leader and senior researcher	B. Tuvshintugs, ERI (PhD in Economics)	➢ Coordinate the whole team and manage the study ➢ Plan the project ➢ Oversee technical aspects of the project ➢ Communicate with JICA and Mitsubishi Materials Techno Corp. ➢ Prepare and submit final reports
Senior researcher	Ch. Khashchuluun, NUM (PhD in Economics)	➢ Lead the group on analysis on selected minerals ➢ Assist team leader in implementing the work plan and preparing the research report ➢ Plan data collection and analysis of specific mineral products ➢ Analyze collected data ➢ Supervise and instruct the researchers ➢ Report on progress of their analysis to the team leader
Senior researcher	B. Bat, NUM (PhD in Economics)	
Senior researcher	G. Ragchaasuren, Gerege Partners LLC (PhD in Economics)	
Senior researcher	Z. Manlaibaatar, ERI (MA in Economic Policy)	
Senior researcher	L. Esmedekh, Independent consultant (PhD in Economics)	
Senior researcher	E. Nemekhbayar Independent consultant (MA in Economics)	
Senior researcher	B. Tsendsuren, ERI (MA in Economics)	
Researcher	B. Munkh-Ireedui, ERI (MA in Economics)	➢ Collect data ➢ Data processing and analysis ➢ Reporting
Researcher	T. Dulguun, ERI (BA in Finance)	
Researcher	T. Oyunzul, ERI (BA in Economics)	
Researcher	B. Khorol-Erdene, ERI (BA in Economics)	
Researcher	D. Unurjargal, ERI (BA in Economics)	
Researcher	U. Enkhsaikhan, ERI (BA in Economics)	
Researcher	B. Nyambaatar, ERI (BA in Economics)	
Researcher	D. Oyuntugs, ERI (MA in Finance)	
Researcher	L. Munkh-Orgil, ERI (BA in Finance)	
Researcher	B. Delgermaa, ERI (BA in Economics)	
Researcher	G. Vanchig, ERI (BA in Computer Science)	

Assignment	Name and Organization	Tasks
Researcher	L. Otgonbaatar, Biznetwork LLC (BA in Computer Science)	
Researcher	M. Dulamsuren, Independent consultant (BA in Computer Science)	
Researcher	B. Tsolmon, ERI (BA in Economics)	
Researcher	D. Ankhbayar, ERI (BA in Economics)	

Chapter 2 Activities of Phase I (Jun. 2016 to Sep. 2016)

2.1 Invitation of Mongolian Researchers to Japan

For the purpose of discussing and exchanging opinions on specific study themes and work plans to be implemented in this project, Mongolian researchers were invited to Japan in August 2016. Details of the implementation are as follows.

2.1.1 Schedule and Member of Invited Researchers

Schedule and invited Mongolian researchers are shown in Table 2-1 and 2-2 respectively.

Table 2-1 Schedule of inviting program of Mongolian researchers in 2016

Date	Time	Place to visit	Activities	Place to stay
8/03 (Wed)	8:55	Lv. Ulaanbaatar	Moving from Ulaanbaatar to Narita by Air (OM501)	Tokyo
	13:40	Ar. Narita		
8/04 (Thu)	9:00 - 9:10	JICA Main Office	♦Courtesy call to JICA	Tokyo
	9:30 - 10:30	Kousaikaikan	♦Orientation	
	10:30 - 12:30	Kousaikaikan	♦Meeting with JICA study team to discuss details of the project	
	14:00 - 17:00	Kousaikaikan	♦Exchange of views with Japanese Experts : Prof. Asanuma, Prof. Tanaka	
8/05 (Fri)	9:00 - 11:00		Moving from Tokyo to Kagohara by train	Kumagaya
	13:00 - 15:00	Fujikura Dia Cable Ltd., Kumagaya Works	♦Site visit to have a idea of industrial wire & cable manufacturing and marketing	
8/06 (Sat)	9:30 - 11:30		Moving to Yokoze by train	Tokorozawa
	13:30 - 15:30	Mitsubishi Materials Corp., Yokoze Factory	♦Site visit to have a idea of cement business and plant operation	
8/07 (Sun)	10:00 - 12:00		Moving to Tokyo by train	Tokyo
	14:00 - 16:00		♦Preparation for upcoming schedule	
8/08 (Mon)	10:00 - 12:00	JICA Ichigaya Building	♦Exchange of views with Japanese Experts : Prof. Murakami	Tokyo
	13:30 - 14:30	JICA Ichigaya Building	♦Exchange of views with consultant : Mr. Andrew Cowell, E&Y	
	16:00 - 17:30	Japan Mining Industry Association	♦Exchange of views about mineral resouces in Mongolia, copper market, etc.	
8/09 (Tue)	9:30 - 10:30	JICA Ichigaya Building	♦Exchange of views with consultant : Mr. Kato, Wood Mackenzie Japan Co., Ltd.	Tokyo
	10:30 - 11:30	JICA Ichigaya Building	♦Exchange of views with consultant : Mr. Asano, Deloitte Tohmatsu Consulting LLC.	
	13:30 - 17:00	JICA Ichigaya Building	♦Meeting with JICA study team for discussion of 2nd phase program	
8/10 (Wed)	9:25	Lv. Narita (via Incheon)	Moving from Narita to Ulaanbaatar via Incheon by Air (OZ105-OM308)	
	17:50	Ar. Ulaanbaatar		

Table 2-2 List of invited Mongolian researchers in 2016

Name	Position and Organization
Economic Research Institute (ERI), National University of Mongolia (NUM)	
Dr. Tuvshintugs Batdelger	Director of ERI Associate Professor of Economics of NUM
Dr. Khashchuluun Chuluundorj	Visiting Researcher at ERI Professor of Economics of NUM
Dr. Bat Buyantsogt	Visiting Researcher at ERI Professor of Economics of NUM
Dr. Ragchaasuren Galindev	Visiting Researcher at ERI CEO of Gerege Partners LLC
Mr. Manlaibaatar Zagdbazar	Senior Researcher at ERI
Ms. Tsendsuren Batsuuri	Researcher at ERI
Ministry of Mining and Heavy Industry	
Mr. Enkhbayar Nemekhbayar	Head of Economy, Finance and Investment Division

2.1.2 Discussions with Japanese experts

Discussions were held between Mongolian researchers and Japanese experts on specific study themes and the overall picture of the work plans to be implemented in this project. Through these discussions, the parties involved agreed on study themes and TOR (draft) for FY2016 study, work plans, and invitation plan to Japan.

Photo 2-1 Discussions between Mongolian researchers and Japanese experts

2.1.3 Site visit of factories

The site visits of factories were carried out for the purpose of introducing the developments of mining industry and downstream industry in Japan. The visiting factories are Fujikura Dia Cable Corporation's Kumagaya Plant and Mitsubishi Materials Corporation's Yokoze Plant.

At the Kumagaya Plant of Fujikura Dia Cable Co., Ltd., Mongolian researchers inspected the production status of copper processed products such as copper cable which has not yet developed sufficiently in Mongolia. At the Mitsubishi Materials Corporation's Yokoze Plant, they also inspected the process of producing cement products from ores supplied from adjacent limestone mines.

2.2 Preparation of Work Plan

Based on the aforementioned meetings with Japanese experts, the entire plan for this project was summarized as a work plan, and agreed among the three parties of JICA, Mongolian Economic Research Institute and the Japanese project team in September 2016. The study themes of this project presented in this work plan are as follows;

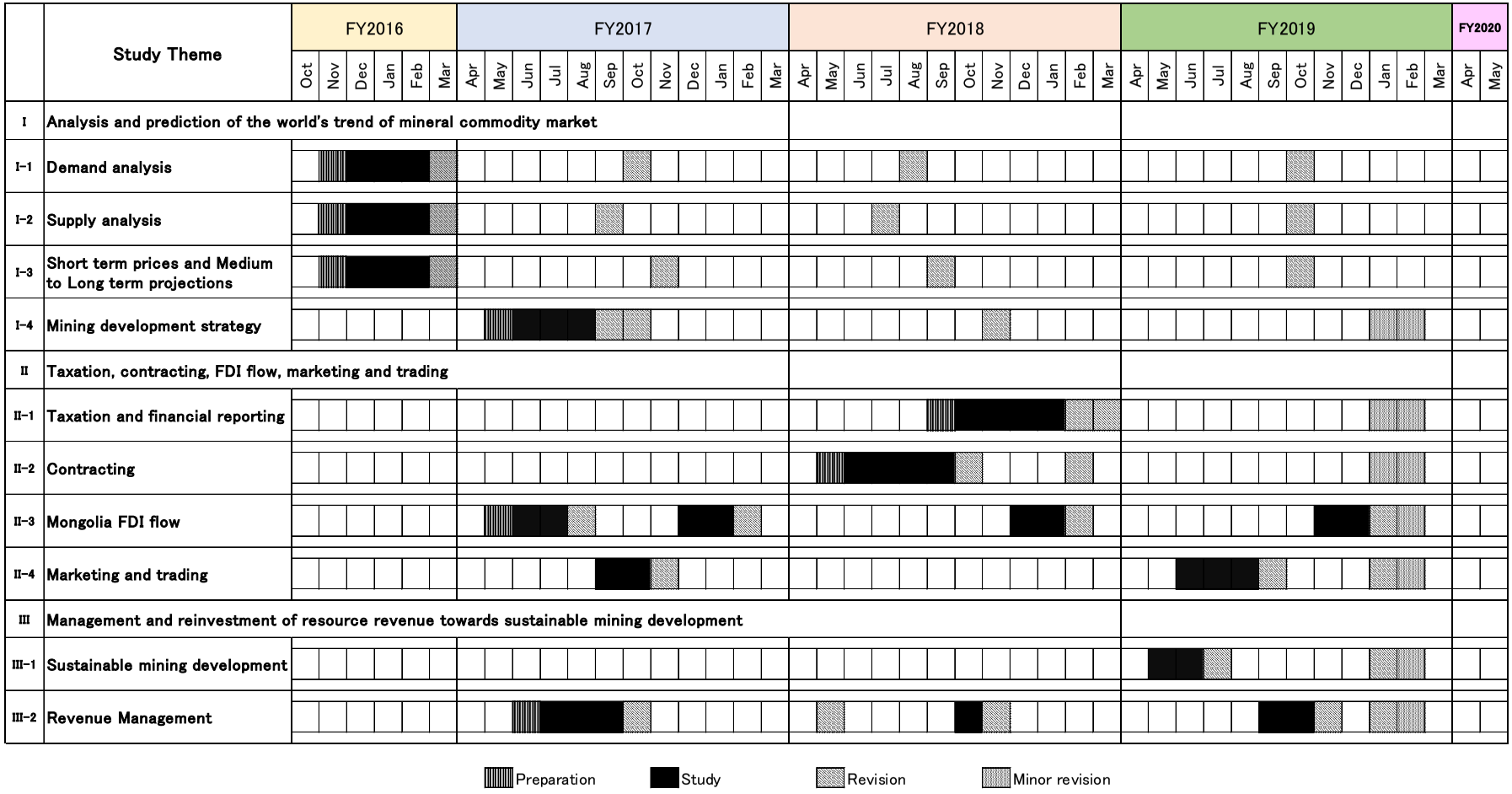
I. Analysis and prediction of the world's trend of mineral commodity market
   (i) Development and analysis in commodity markets: Demand analysis
   (ii) Development and analysis in commodity markets: Supply analysis
   (iii) Short term price outlook and update on Medium to Long term price predictions: Selected commodities
   (iv) Mining development strategy
II. Taxation, contracting, FDI flow, marketing and trading
   (i) Taxation and financial reporting
   (ii) Contracting
   (iii) Mongolia FDI flow
   (iv) Marketing and trading
III. Management and reinvestment of resource revenue towards sustainable mining development
   (i) Sustainable mining development
   (ii) Revenue management

A brief overview of each study theme was already provided in Chapter 1, Section 1.4.

2.2.1 Schedule of the study

The study schedule based on the work plan is shown in Table 2-3.

Table 2-3 Implementation schedule



2.3 Preparation of TOR (draft) for FY2016 Study

Based on the aforementioned work plan, TOR (draft) for FY2016 study was prepared. In FY2016, the following three themes were selected from among the research themes defined in the Work Plan, and these TORs (draft) were prepared.

[FY2016 study themes]

(i) Development and analysis in commodity markets: Demand analysis

(ii) Development and analysis in commodity markets: Supply analysis

(iii) Short term price outlook and update on Medium to Long term price predictions: Selected commodities

In preparing the TOR (Draft), it was decided that the TOR was in accordance with the following (a) to (d) agreed between Mongolian side and JICA.

(a) Collection of information on the trends of overseas mining-related companies and provide of such information to the government and companies of Mongolia

(b) Grasping trends in the international markets for mineral resources, analyzing and forecasting demand for commodities that Mongolia has the potential to produce, and proposing a mining development strategy based on (a)

(c) Analyzing international trends in resource taxation (that is, how the government imposes taxes on operators, and how different types of contracts are conducted), international trends in FDI conditions and the latest status of international standards on safety and the environment, and advising the government on investment environment improvement and regulations on mining operations based on these trends

(d) Policy advice on appropriate control of resource revenues and appropriate reinvestment that contributes to strategic and distinctive mining development

2.4 First Visit to Mongolia (Sep. 4, 2016 to Sep. 10, 2016)

In order to ensure smooth implementation of the study in Phase 2, the first visit to Mongolia was conducted to determine the study themes and these TORs, and to confirm and discuss methods for conducting studies and the Mongolia's implementation structure. Details of the work schedule are shown in Table 2-4.

Table 2-4 Schedule of first visit to Mongolia

Date	Activities	Participated Member
9/04 (Sun)	Move to Mongolia (Lv. Narita 15:30, Ar. Ulaanbaatar 20:30)	Y. Shibata, T. Shibata, H. Kobayashi, T. Yamakawa (with Dr. Hosoi, JICA)
9/05 (Mon)	09:00 Courtesy call to JICA Mongolia office 10:00 Participation in Invest Mongolia Conference 14:30 Discussion with ERI (budget, schedule, etc.)	Y. Shibata, T. Shibata, H. Kobayashi, T. Yamakawa (with Dr. Hosoi, JICA)
9/06 (Tue)	09:00 Discussion with ERI (reviewing previous JICA projects related to mining industry) 13:00 Visit to Mongolian University of Science and Technology 13:30 Participation in Invest Mongolia Conference	Y. Shibata, T. Shibata, H. Kobayashi, T. Yamakawa (with Dr. Hosoi, JICA)
9/07 (Wed)	09:00 Visit to Mongolian National Mining Association for information gathering 10:00 Visit to Baganuur Coal mine	Y. Shibata, T. Shibata, H. Kobayashi, T. Yamakawa (with Dr. Hosoi, JICA)
9/08 (Thu)	09:00 Discussion with ERI (detailed content and scheduling of studies, etc.) 14:00 Discussion with ERI (detailed procedure and management of project, etc.)	Y. Shibata, T. Shibata, H. Kobayashi, T. Yamakawa (with Dr. Hosoi, JICA)
9/09 (Fri)	09:30 Reporting to JICA Mongolia office 10:30 Discussion with ERI	Y. Shibata, T. Shibata, H. Kobayashi, T. Yamakawa (with Dr. Hosoi, JICA)
9/10 (Sat)	Return to Japan (Lv. Ulaanbaatar 08:55, Ar. Narita 13:40)	Y. Shibata, T. Shibata, H. Kobayashi, T. Yamakawa (with Dr. Hosoi, JICA)

The following matters were discussed and agreed with Mongolia Economic Research Institute, regarding the implementation of the study in Phase 2.

- Agreed TOR (implementation schedule, contract amount, and system) for this project
- Confirmation of technical proposals for study themes to be implemented in FY2016
- Confirmation of detailed implementation schedule for FY2016 study
- Methods of exchanging opinions on study results with Japanese experts, timing, etc.
- Agreement on JICA of copyrights from studies

Photo 2-2 Courtesy call to JICA Mongolia office

Photo 2-3 Invest Mongolia Conference

Chapter 3 Activities in Phase II (FY2016 : Oct. 2016 to Mar. 2017)

3.1 Content of FY2016 Study

In FY2016, the studies on demand, supply, and medium-to long-term price forecasts for four major mineral commodities (gold, copper, coal, and iron) produced in Mongolia were carried out. The reports on FY2016, however, summarize the demand, supply, and medium to long-term price forecasts for each commodity.

3.1.1 Demand analysis of selected commodities: Gold, Copper, Coal and Iron Ore

It should be noted that some of these commodities require focus on developments that are happening globally and some of these commodities require focus that are happening regionally. Therefore, the aim of the study is to assess and analyze current and future developments in each of the commodity markets that have potential impact on the demand for these commodities. A particular attention will be paid in identifying major developments in the world and regional economies that have crucial effects on the demand for these commodities. It should be noted that economic, political and other developments in China will have greater effect on demand for coal, iron ore and copper, whereas for copper and gold world economic performance will have significant effect.

3.1.2 Supply analysis of selected commodities: Gold, Copper, Coal and Iron Ore

It should be noted that some of these commodities require focus on developments that are happening globally and some of these commodities require focus that are happening regionally. Supply for commodities in the world market will largely be determined by new mining projects, developments in the mining sector, technological advances and economic performance of the major advanced countries. Therefore, we will be focusing on developments in mining projects on abovementioned commodities in the world market as well as at the regional level. Moreover, we will be overviewing supply of commodities from Mongolia to the world and regional markets. In this report we aim to review ongoing and new potential developments that are happening in the abovementioned commodity markets. Another aspect that we are proposing to include in the supply analysis is the overview of FDI flow in the world mining sector. This overview will not only cover world's major mining economies, but we will also be reviewing FDI flow for Mongolia and its potential in the future.

3.1.3 Short term price outlook and medium to long term price predictions

It should be noted that some of these commodities require focus on developments that are happening globally and some of these commodities require focus that are happening regionally. Prices of commodities

will be determined by the demand and supply factors. Therefore, the aim of this study is to assess commodity markets and review price projections of these commodities done by various sources. This study will rely on aforementioned demand and supply analyses.

3.2 Second Visit to Mongolia (Mar. 2017)

In the second visit to Mongolia, ideas were exchanged on the results of the FY2016 study, a seminar was conductd to present the results, and verious discussions were held on the FY2017 study.

3.2.1 Schedule

The schedule of the second visit to Mongolia is shown in Table 3-1.

Table 3-1 Schedule of second visit to Mongolia

Date	Activities	Participated Member
3/06 (Mon)	Move to Mongolia (Lv. Narita 15:30, Ar. Ulaanbaatar 20:25)	Y. Shibata, T. Shibata, K. Nakayama, S. Miyaike
3/07 (Tue)	09:00 Disccussion on FY2016 Study with ERI (overall study, gold, copper, iron market studies) 14:00 Disccussion on FY2016 Study with ERI (coal market study) 15:30 Disccussion on FY2017 Study with ERI 17:00 Courtesy call to JICA Mongolia office	Y. Shibata, T. Shibata, K. Nakayama, S. Miyaike
3/08 (Wed)	10:00 Disccussion about the seminar held in Mar.9 with ERI	Y. Shibata, T. Shibata, K. Nakayama, S. Miyaike (with Dr. Hosoi, JICA)
3/09 (Thu)	09:00 Participation in the seminar 14:00 Visit to Ministry of Mining and Heavy Industry 16:30 Visit to Ministry of Finance	Y. Shibata, T. Shibata, K. Nakayama, S. Miyaike (with Dr. Hosoi, JICA)
3/10 (Fri)	10:00 Disccussion with ERI 17:00 Reporting to JICA Mongolia office	Y. Shibata, T. Shibata, (with Dr. Hosoi, JICA)
	Return to Japan (Lv. Ulaanbaatar 08:45, Ar. Narita 14:30)	K. Nakayama, S. Miyaike
3/11 (Sat)	Return to Japan (Lv. Ulaanbaatar 07:45, Ar. Narita 17:20)	Y. Shibata, T. Shibata, (with Dr. Hosoi, JICA)

3.2.2 Detailes of activities

(1) Confimation of the study results in FY2016

Experts from Japan reviewed the reports on each of the study themes prepared by ERI in advance, and the content of the reviews was communicated to Mongolia, and opinions were exchanged on these topics. As a result, comments from Japanese experts were reflected in the final report on each study theme.

(2) Participation in seminar

In order to widely disseminate the results of the FY2016 study to Mongolia's ministries and agencies,

related organizations, private companies, etc., ERI held the following seminars, and reported on the demand, supply, and medium-and long-term price forecasts for each of the four commodity of gold, copper, coal, and iron. Approximately 170 participants participated in the seminar, indicating that the project is of high interest in Mongolia.

Date and time: March 9, 2017 9:30-12:30

Venue: Best Western Premier Tuushin Hotel (Soyombo Hall)

Table 3-2 shows the seminar program for FY2016 study.

Table 3-2 The seminar program for FY2016 study

Time	Topic	Presenter
9:00 - 9:30	*Registration*	
9:30 -10:00	Opening remarks	JICA
10:00 -10:30	Introduction	Yoshitaka Hosoi Senior Advisor for Natural Resources, JICA
10:30 -11:00	Gold market study	B. Tuvshintugs, ERI
11:00 -11:30	Copper market study	Ch. Hhashchuluun, ERI/NUM
11:30 -11:50	*Coffee Break*	
11:50 -12:20	Iron ore market study	Z. Manlaibaatar, ERI
12:20 -12:50	Coal market study	B. Munkh-Ireedui, ERI

(3) Disccussion of FY2017 study

We discussed the themes of the study in FY2017 and confirmed that four research themes (i) Mining development strategy, (ii) Mongolia FDI flow, (iii) Marketing and trading and (iv) Revenue management will be implemented. The implementation schedule was also checked with regard to the invitation to Japan in April 2017, the detailed schedule for FY2017 study started in May, and the visits to Mongolia by the Japanese study team in December 2017 and March 2018.

Photo 3-1 Discussion of FY2017 Study with ERI


Photo 3-2 Seminar conducted in March 9, 2017

3.3 Summary of FY2016 study results

The results of the study are compiled for each commodities. The summary is as follows.

3.3.1 Gold market study

Leader: B. Tuvshintugs (ERI)

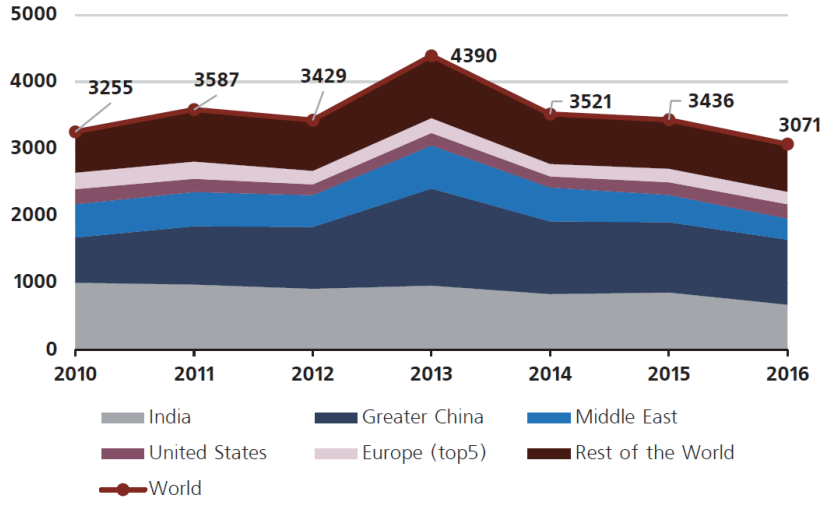
Member: B. Delgermaa (ERI), B. Munkh-Ireedui (ERI)

In Mongolia, gold is one of the major export commodities and an important source for Central bank's accumulation of international reserves as well as for government budget revenue. This study aims to investigate the current and past factors influencing world demand and supply of gold as well as developments in the prices of this commodity.

Main Findings:

Demand side:

• On demand for gold, the research team argued that jewelry demand for gold, which is the major component in the total demand, significantly weakened in the last three years and remains weak for the year 2017. In particular, shift in preferences towards gold in China and temporary economic difficulties in key regions in India weakened demand for gold. The research team noted that two usages of gold, Central bank purchases and purchasing of gold as an investment tool, are increasingly becoming volatile making predictions about future gold demand difficult. The research team also highlighted that gold use for industrial purposes are increasingly becoming insignificant with development of alternatives to gold for the sector use.



Source: World Gold Council

Figure 3-1 Total demand by countries (tons)

Supply side:

• On supply for gold, the research team identified key developments in the production of gold. In particular, the research team highlighted that although production of gold has seen increasing trend despite some volatility, companies are increasingly curbing their operational costs. Moreover, gold companies are also spending less on explorations. In fact, in the last two years, only 2 major gold deposits of over 6 million ounces were developed. Therefore, the research team conclude that despite the total production of gold is increasing as of now, supply in the longer run is becoming increasingly unpredictable with fewer projects in the pipeline. However, it should be noted that recycling of gold could be another source of supply which has been stagnated at current levels for the last few years and this trend is expected to continue in the foreseeable future.

Price prediction:

• Gold price decreased by almost 30 % since 2012. In contrast to this decreasing trend, in 2016 gold prices rebounded. The research team argued that this is due to increasing uncertainties in economic and political spheres in major gold producing and consuming countries, which makes gold an attractive investment to each section in the report contains discussion about Mongolian gold production and its exports. Since Mongolia is a price taker in this market, the research team extensively discussed what factors determine the production of gold in the country and how the Bank of Mongolia, which is virtually the sole buyer of gold.

Since Mongolia is a price taker in this market, the research team extensively discussed what factors determine the production of gold in the country and how the Bank of Mongolia, which is virtually the sole buyer of gold in the country, makes its purchases. In particular, the research team noted that although, in the past, changes in windfall tax and regulatory policies negatively affected the production of gold in the country, now the sector itself is moving towards developing quartz vein gold deposits rather than placer

gold deposits. This means companies will need more capital to operate in the future. Also, the research team noted Oyu Tolgoi will be a major producer of gold, but it will not play a major role in accumulating international reserves.

3.3.2 Copper market study

Leader: G. Ragchaasuren (Gerege Partners LLC)

Member: B. Tsendsuren (ERI), B. Tsolmon (ERI)

This research aims to review the current situation and future prospects of the copper market. Copper is a very flexible, durable and recyclable metal which resists and conducts electricity and heat very well. It is also mixed with other metals to create different kind of alloys - i.e. brass and bronze. The largest usage of copper was end-use sector accounting for over 50% of total consumption, followed by building construction (29%) and infrastructure (15%). The world demand for refined copper has more than tripled in the last 50 years. This expansion is mainly due to Chinese industrialization and economic growth. According to World Bureau of Metal Statistics, world total consumption of refined copper reached to 23 Mt and almost half of it is used by China and the combined share of consumption by other 8 countries, United States, Germany, Japan, Korea Republic, Italy, India, Turkey and Taiwan, is around 30 %.

Mongolia has rich resource of copper and started producing and exporting copper concentrate since 1980s. Copper refining industry, on the other hand, has developed only for past 10 years and refined copper capacity has reached 13,000 tons per annum since 2014.

As shown in Figure 3.2, Mongolian exports increased sharply to 4.8 billion USD in 2011 of which 47 % and 20 % were coal and copper concentrate respectively due to the increase in the world market prices. Since 2014, the export of copper concentrate has accounted for over 40 % of the total exports because of the Oyu Tolgoi operation. However, in 2016, the export volume of copper concentrate increased compared with previous years, export decreased to 1.6 billion MNT due to the decrease in the world market prices.

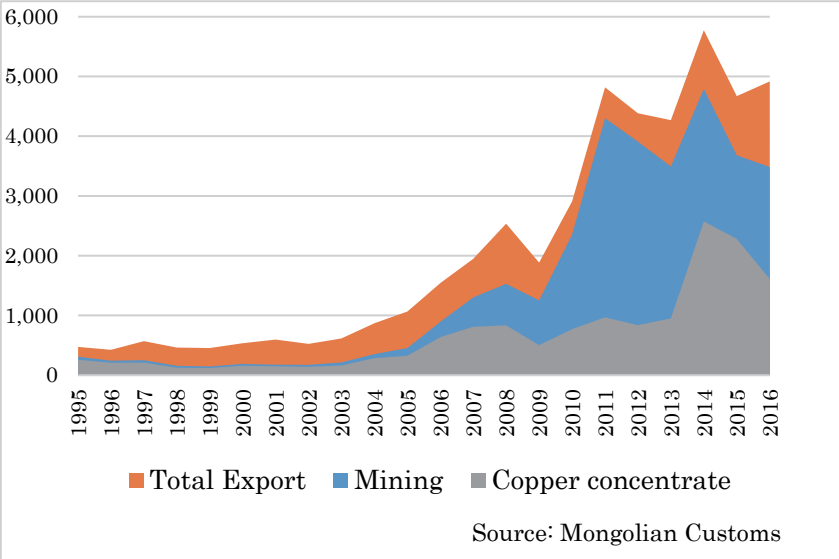


Figure 3-2 Mongolian total mining and copper concentrate exports (Million USD)

Main findings:

Demand side:

• All copper industry analysts expect that global copper demand may continue to be supported further by a moderate expansion in China, continued solid growth in other emerging markets, such as India and ASEAN, and modest growth in more industrialized regions such as the USA and Europe. For instance, the total demand in non-OECD and OECD countries is expected to grow at around 3.6% and to fall around 0.6% per annum to 2030, respectively. In 2017 and 2018, the total demand of copper will be same level with 2016 and further annual average growth will reach around 1-3%.

• China is one of the main players in the copper market and consumes about 50% of total copper production. It is anticipated that it will remain the main player in the future. Although Chinese economy has slowed down in the recent years and it supports the shift towards service and consumption from manufacturing in the 13th 5-year plan, the fundamental factors for the demand for copper are still in effect, according to analysists. In particular, it is expected that the demand for copper will be strong because increasing population and urbanization will be led to more demand for electronics, equipment, infrastructure, electricity, maintenance, construction and automobiles.

Supply side:

• The top three producer countries of mine production are Chile, China and Peru. Chile, world's largest copper producer, produced around 30% of world mine production. Mongolia was one of the top 20 producer countries of copper in 2015 and the third largest supplier of copper concentrate to China after Chile and Peru. If the underground mine of Oyu Tolgoi starts its production in 2022 as in the plan, Mongolia will be exporting 2.4-2.6 million tons of copper concentrate containing 600-800 thousand tons of copper metal per year, on average.

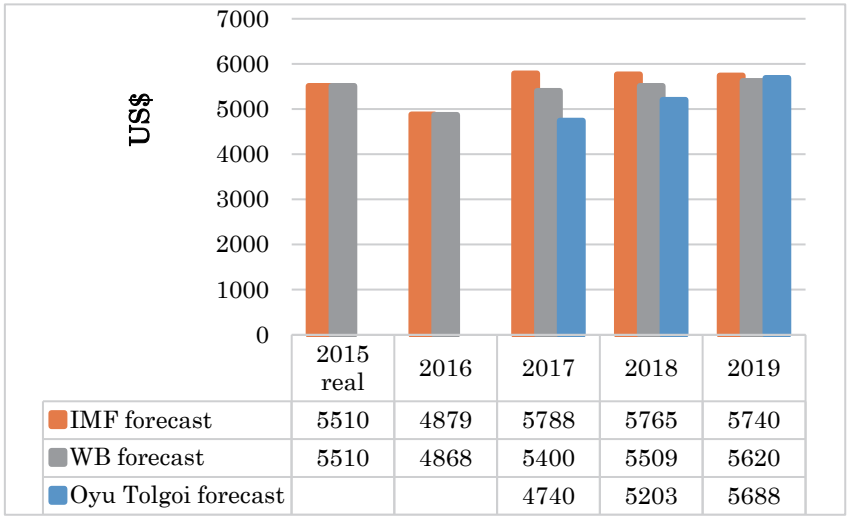
• The copper price has declined since 2012 and the average price in 2016 is 4,879 USD per ton. Because of the price decline, some mines reduced their production, some stopped their production temporarily and

some delayed their planned extensions which has had a negative effect on the supply. Analysts expect that there will be a shortage in the market from 2019 because of the worldwide decline in copper content and changes in some government policies. In the near future, specifically in 2017 and 2018, the stock of copper will run down and hence the demand and supply of copper will be in balance.

Price prediction:

• Based on global outlook of copper supply/demand and other factors, IMF, WB and Oyu Tolgoi has made their copper price forecasts (Figure 3.3). IMF, WB and OT have assumed copper price will start to increase from 2017.

- In next 2-3 years, the price will increase modestly due to copper market rebalance.
- In the long term, the price will start to increase more due to shortage of supply.



	2015 real	2016	2017	2018	2019
IMF forecast	5510	4879	5788	5765	5740
WB forecast	5510	4868	5400	5509	5620
Oyu Tolgoi forecast			4740	5203	5688

Source: IMF (Dec 2016), WB (Jan 2017) and Oyu Tolgoi (Oct 2016)

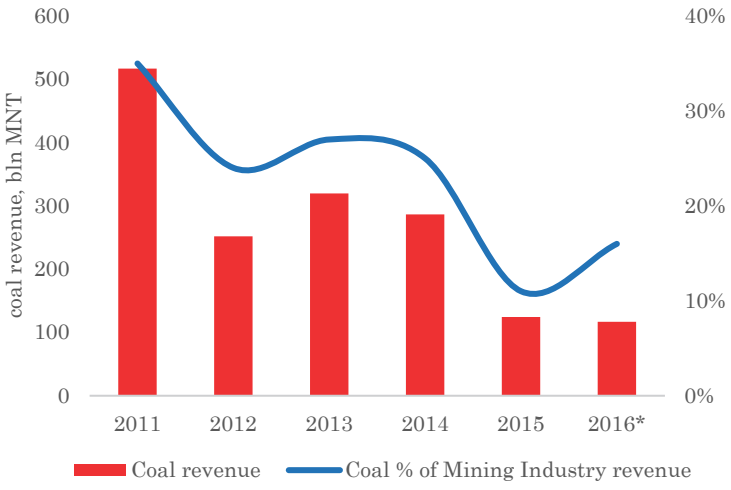
Figure 3-3 Copper price forecast

3.3.3 Coal market study

Leader: Ch. Khashchuluun (NUM)

Member: Z. Manlaibaatar (ERI), B. Munkh-Ireedui (ERI)

The study was separately conducted coking and thermal coal markets instead of considering coal broadly. This is related to that their demands, supplies and prices are not similar to each other. For instance, coking coal is one of the raw materials of producing steel whereas thermal coal is primarily used for electricity generation, heat and steam production.



Source: Mongolian Customs

Figure 3-4 Mongolia's coal sector revenue and share

Main findings:

Demand side:

• Currently, there are 17 thermal power plants and thermal plants in Mongolia. These plants constitute approximately 85 % of domestic demand; households and entities 14.1 %. Also domestic was relatively stagnant in the recent 10 years, and it is associated with that Mongolia, notably electricity sector, could not make significant reconstruction.

• Generally, there is no reconstruction plan in next 2 or 3 years. But after 5 years, it will probably be accelerated because Mongolia has planned to build newly 18 thermal plants and power plants by 2025 through public or private investment. These plants will dramatically increase domestic consumption by 12.6 million tons, and it will be 3 times higher than current level.

• At international market, thermal coal demand will be relatively weak in compared to that of the recent years. Clean Power Program (CPP) will play a key role for declining its demand. But demand of coking coal will be higher slightly in comparison with thermal coal because the research team expect that several giant reconstruction projects will be actualized in China next year.

Supply side:

• In 2015, 32.6 % of coal production was supplied to domestic consumers such as thermal power plants, households and so on, and remained 67.4 % was exported to foreign market, especially China. Also coking coal as a share of coal exports was approx. 90%.

• Mongolia was ranked at 9th among top coal exporters. In addition, Mongolia will export, according to Budget statement-2017, 23.9 million tons of coal (coking and thermal coal). As a result, the Mongolian rank will possibly grow.

• In 2016, the Chinese government imposed a several decisions and regulations which can directly influence for Mongolian supply. For instance, Gants Mod Port applies new fee to Mongolian mineral commodities, especially coal and copper. Also, one-third of steel mills will be closed temporarily in 2017 winter etc.

Price prediction:

• Basically, the prices of both coking and thermal coal will, in the future, be lower than that of current.

• In late-2016, their prices dramatically increased due to a shortage of supply. However, the trend will not be possible to last or remain at that level. Specifically, many coal-fired plants have been closed since 2010 because of the CPP in Asia, notably China, Europe, and the USA. Thus, it will adversely influence thermal coal price. In the future, a few giant reconstruction projects will be actualized, but it is not sufficient to increase coking coal price.

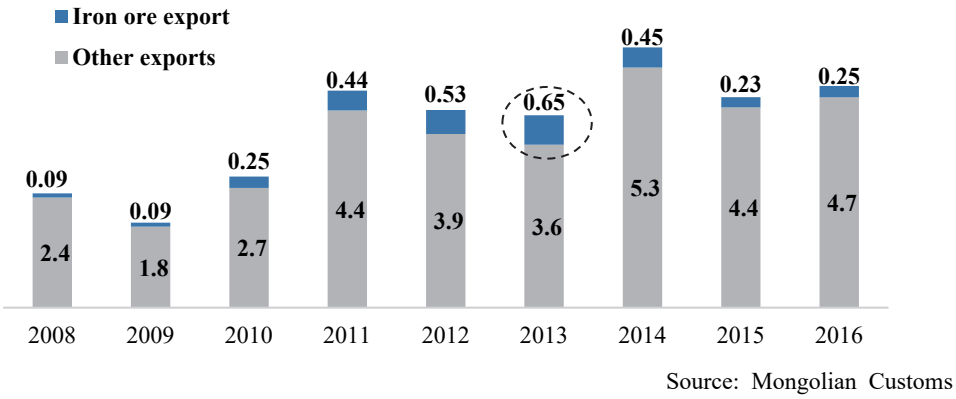
3.3.4 Iron ore market study

Leader: B. Bat (NUM

Member: Z. Manlaibaatar (ERI), B. Munkh-Ireedui (ERI)

Mongolia is rich in iron ore and total reserves of crude ore is around 1,700 million tons (Mt) as of 2016, according to Mineral Resource Authority of Mongolia. In total, 63 deposits (16.5 % - 55.6 % Fe, magnetite type) are registered, and of which 6 deposits have more than 50 Mt of ore. Mining of iron ore was started in 2005. Since 2011, 6 Mt of iron ore on average has been exported annually to China.

In 2013, iron ore export reached to record level, 15% of total export of Mongolia, but since then the amount of export decreased because of the fall in the world price and the decline in the production. In 2016, the share of iron ore export in total export was 5%.



Source: Mongolian Customs

Figure 3-5 Mongolia's export of iron ore and other products (Billion USD)

• Iron ore reserves are among the highest in Australia with 24 billion metric tons of iron content and 54 billion metric tons of crude ore, as of 2015, following Russia has 2.5, Brazil-2.3, China-2.3 and U.S.-1.15 billion tons of crude ore reserves respectively. The iron ore production reached 2 billion tons in 2015. Top producers of iron ore are Australia (40 %), Brazil (21 %), India (7 %) and China (6 %).

Main findings:

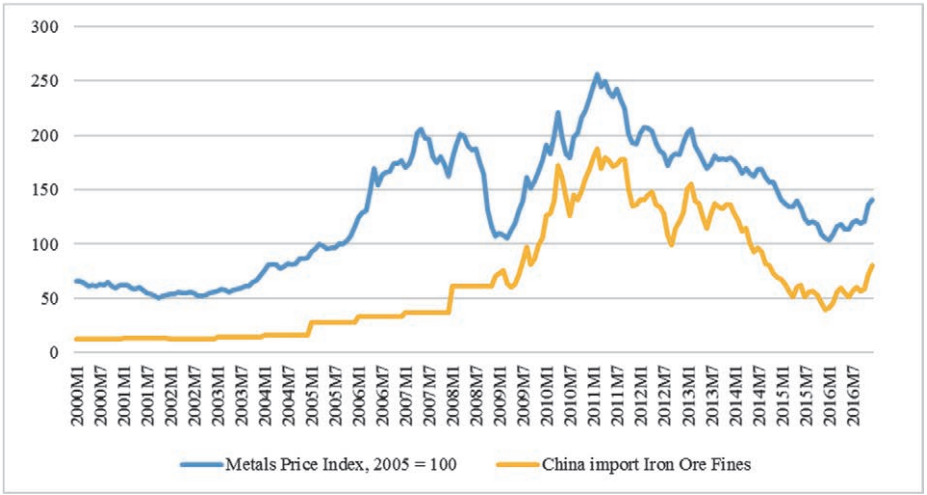
Demand and supply side:

• Demand for iron ore is influenced by the steel market because almost all of the mined iron (98%) is used to produce steel. The world crude steel production in 2015 reached 1,623 Mt. It was 41% growth from 2005 production level. Of this growth, 95% came from China. Between 2005 and 2015, global steelmaking capacity increased by 72%. As a result, overcapacity has reached to 741 Mt in 2015.
• During this period, world apparent steel use increased by 43%. The increase in China's steel use accounts for 72% of the growth and other Asia (mostly India) - 20%. A half of the steel produced globally was used in the building and infrastructure sector, 16% in mechanical equipment, 13% in automotive sector, 21% in other sectors.
• China's total steel production in 2015 was 803.8 Mt. Out of that, 34 % was produced by China's top 10 steel mills. To meet this demand, China imports more than 950 Mt of iron ore from 55 countries. Australia's and Brazil's exports account for respectively 63.7 % and 20.1 % of China's total iron ore import while Mongolia's export accounts for only 0.6 %.
• Recycling steel is an important factor that decreases iron ore demand. In 2015, 650 Mt of scrap was recycled which is 40 % of total steel making. The scrap supply will continue to grow in future. Another factor that decreases iron ore demand is technological advance in steel making. In the 1970s and 1980s, modern steel plants needed an average of 144 kg of raw materials to produce 100 kg of steel, today uses 115 kg of inputs.
• According to Rio Tinto, iron ore demand will grow moderately in the long run because China's transition toward high-income status leads to slower growth. In contrast, the demand for the commodity in other emerging markets such as India and ASEAN will grow dramatically mainly because their process of urbanization and industrialization will be highly steel-intensive.
• World total import of iron ores was 1,420 Mt in 2015 and total import value was USD 90.3 billion. The share of only 3 countries, China, Japan and Korea, is 80 % of total import. In comparison, the share of Australia and Brazil is 80 % of export market.

Price prediction:

• The price increase of iron ore since 2000 can mainly be explained by the rapid industrial development of China etc., and the increasing demand for iron ore.
• The following key factors influence on iron ore price:
  - Overall economic situation: Infrastructure development, urbanization
  - Investments and innovations in the mining capacity
  - Energy costs: Shipping prices are falling
  - Oligopolistic market: Vale, Rio Tinto and BHP Billiton control 50% of the market, but the China Iron & Steel Association became an important player
  - Speculation on the market
  - For Mongolian iron ore, few steel mills in Inner Mongolia set price
• Price projections:
  - World Bank: $55-$56.2 per ton in 2017-20
  - Morgan Stanley: less than $58 per ton in 2017-18 due to surplus

- Bloomberg: In the short-term, prices won't rise due to oversupply. However, by 2020, prices will rise due to deficit of 50 Mt per year.



Source: IMF

Figure 3-6 Iron ore price (USD per ton)

Chapter 4 Activities of Phase II : FY 2017

4.1 FY2017 Invitation and Study Plan

Mongolian researchers were invited to Japan to exchange opinions with the purpose of discussing the FY2016 study results and the FY2017 study plan. The content of the implementation is as follows.

4.1.1 Schedule and member of invited researchers

Schedule and invited Mongolian researchers are shown in Table 4-1 and 4-2 respectively.

Table 4-1 Schedule of inviting program of Mongolian researchers in 2017

Date	Time	Place to visit	Activities	Place to stay
4/17 (Mon)	07:55	Lv. Ulaanbaatar	Moving from Ulaanbaatar to Narita by Air (OM501)	Tokyo
	13:40	Ar. Narita		
4/18 (Tue)	09:30 - 09:45	JICA Headquarters	♦Courtesy call to JICA	Tokyo
	10:00 - 10:30	Kousaikaikan	♦Meeting with JICA study team ♦Discussion of detailed program of FY2017 study	
	10:30 - 12:30	Kousaikaikan	♦Exchange of views with Japanese Experts : Prof. Murakami, Tokyo University	
	13:00 - 15:00	Kousaikaikan	♦Exchange of views with Japanese Experts : Prof. Asanuma, Hitotsubashi University	
	15:15 - 17:15	Kousaikaikan	♦Exchange of views with Japanese Experts : Prof. Kuchiki, Nihon University	
4/19 (Wed)	09:45 - 11:45	Kousaikaikan	♦Exchange of views with Japanese Experts : Prof. Tanaka, Meiji University	Tokyo
	13:15 - 15:15	Kousaikaikan	♦Exchange of views with Japanese Experts : Mr. Miyatake, JOGMEC	
	15:30 - 17:00	Kousaikaikan	♦Meeting with JICA study team ♦Discussion of detailed program of FY2017 study	
4/20 (Thu)	09:30 - 12:00	MMTEC	♦Meeting with JICA study team ♦Discussion of detailed program of FY2017 study	Tokyo
	14:00 - 17:00	MMTEC	♦Rivision of the proposal ♦Preparation of the contract	
4/21 (Fri)	14:40	Lv. Narita	Return to Ulaanbaatar by Air (OM502)	
	19:10	Ar. Ulaanbaatar		

Table 4-2 List of invited Mongolian researchers in 2017

Name	Position and Organization
Economic Research Institute (ERI), National University of Mongolia (NUM)	
Dr. Tuvshintugs Batdelger	Director of ERI Associate Professor of Economics of NUM
Mr. Manlaibaatar Zagdbazar	Senior Researcher at ERI
Ministry of Mining and Heavy Industry	
Ms. Khulan Barakhas	Officer, Policy Regulation Department

4.1.2 Details of activities

(1) Exchanging opinions between Japanese experts and Mongolia researchers

ERI reported the results of FY2016 study and the FY2017 study plan to Japanese experts, and exchanged views on this. In addition, Japanese experts introduced case study that would be useful for Mongolian researchers in conducting research on this project. The titles introduced by Japanese experts are as follows.

- Recent debate in sustainable resource use and the importance of MFA/MS : Prof. Murakami (Tokyo University)
- Mongolia: Why and how the mining sector prospects are important to its macro policy management : Prof. Asanuma (Hitotsubashi University)
- The Asian IZ growth model: Flowchart approach to industrial cluster policy in Asia : Prof. Kuchiki (Nihon University)
- Legal/fisical framework to facilitate metals exploration investment : Mr. Miyatake (Japan Oil, Gas and Metals National Corporation)

(2) Discussion on detailed plans for FY2017 study

Detailed plans were discussed for the following four study themes to be implemented in FY2017, and the implementation schedule was agreed as shown in Table 4-3.

[FY2017 Study Themes]

- Commodity market study (update)

  Analyzing and forecasting mineral commodity markets: gold, copper, coal and iron ore
- Mining development strategy

  Reviewing mining policies in resource-rich countries that have succeeded in economic development and examine strategies for the development of the mineral resources sector in Mongolia.
- Mongolia FDI flow

In Mongolia, where the mineral resources sector accounts for the bulk of FDI, we examine trends and factors behind changes.

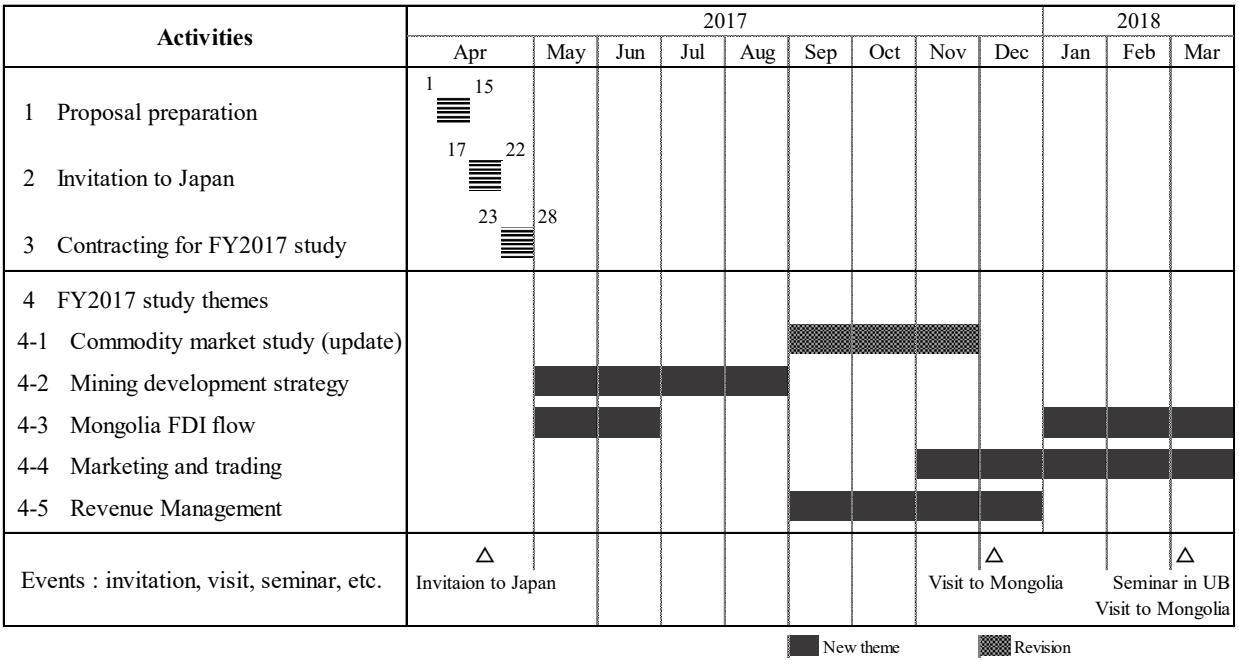
- Marketing and trading

  Considering global market prices and Mongolia's selling prices for mineral resource trading.

- Revenue management

  Studying the effects and issues of revenue consolidation by Fiscal Stability Law (Financial Stabilization Law) introduced in 2012.

Table 4-3 Study plan in FY2017



4.2. Third Visit to Mongolia (December 2017)

In the Third visit, ERI researchers made an interim report on the FY2017study to Japanese project team, and the comments of Japanese experts were introduced. Japanese team and ERI researchers were discussed on the implementation plan up to March 2018, the schedule of the seminor in Mongolia and so on. In addition, Associate Prof. Murakami of Tokyo University, an expert from Japan, gave a lecture to ERI researchers.

4.2.1. Schedule

The schedule of the third visit to Mongolia is shown in Table 4-4.

Table 4-4 Schedule of third visit to Mongolia

Date	Activities	Participated Member
12/11 (Mon)	Move to Mongolia (Lv. Narita 15:30, Ar. Ulaanbaatar 20:25)	Y. Shibata, T. Shibata, S. Miyaike (with Prof. Murakami)
12/12 (Tue)	09:00 - 12:00 Disccussion of the study progress with ERI (update of FY2016 study: gold, copper, iron and iron ore market studies) 14:00 - 16:00 Lecture by Prof. Murakami 17:00 - 18:00 Courtesy call to JICA Mongolia office	Y. Shibata, T. Shibata, S. Miyaike (with Prof. Murakami)
12/13 (Wed)	10:00 - 12:00 Visit to Coordination of Policy Implementation Department, Ministry of Mining and Heavy Industry 14:00 - 15:00 Visit to Economic Policy Department, Ministry of Finance 16:00 - 17:00 Visit to Mongolian University of Science and Technology	Y. Shibata, T. Shibata, S. Miyaike (with Prof. Murakami)
12/14 (Thu)	Return to Japan (Lv. Ulaanbaatar 07:40, Ar. Narita 16:10)	Prof. Murakami
	09:00 - 12:00 Disccussion of the study progress with ERI (Marketing and trading, FDI flow, etc.) 14:00 - 17:00 Disccussion of the study progress with ERI (Mining strategy, Revenue management)	Y. Shibata, T. Shibata, S. Miyaike
12/15 (Fri)	Return to Japan (Lv. Ulaanbaatar 08:55, Ar. Narita 14:30)	Y. Shibata, T. Shibata, S. Miyaike

4.2.2. Details of activities

(1) Discussion on the update results of the 2016 study.

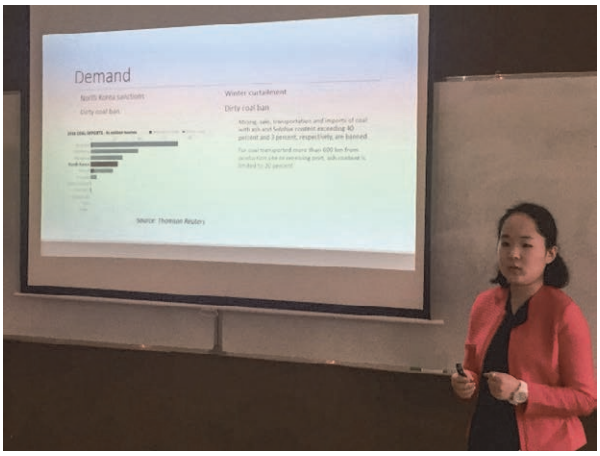
Regarding the survey conducted in FY2016 on supply and demand trends and medium- to long-term price trends for the four commodities of copper, gold, coal, and iron, the results of the data updates as of 2017 were reported by ERI.

As for copper, supply declines due to the strike at the Escondida Mine in Chile and a moderate decline in global demand were reported. In addition, Associate Prof. Murakami advised that, when examining market trends in China, copper scrap should also be considered.

As for iron, a temporary decrease in demand due to the closure of aging steel mills in China and an increase in supply due to the development of new mines by the four major companies were reported.

Regarding coal, a decline in demand for coking coal was reported as a result of reduced steel production in China. It was also agreed that delays in customs clearance of coal exported from Mongolia on the Chinese border would not be addressed in this theme, but would be examined in the "Marketing and Trading," which is the theme of the FY2017 study.

As for the supply and demand of gold, demand for jewelry and speculative goods declined, while stable demand for industrial goods was reported.



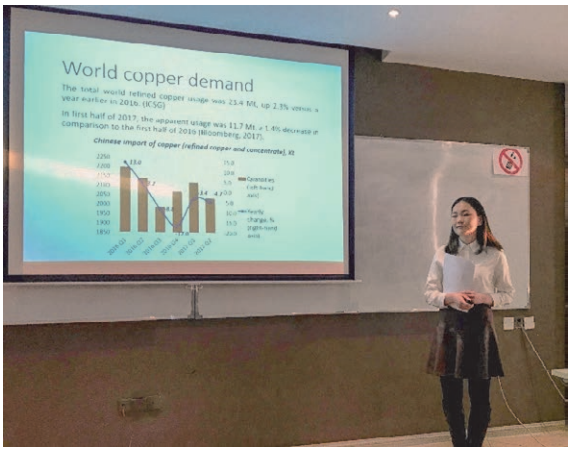


Photo 4-1 Presentation on the study progress

(2) Interim review for FY2017 study themes

ERI researchers made an interim report on the four study themes being implemented in FY2017 to Japanese project team.

(i) Marketing and trading

Because of the limited information, ERI conducted interviews with experts from related mining companies and organizations, and received responses from six coal companies, one zinc mine company, one iron ore mining company, and nine experts.

[Coal]

・For coal, many mining companies have spot contracts with intermediaries in China, and the ex mine price is applied. But Erdenes TT makes a monthly tender and determines its prices.

・Although trucking costs are high due to 270km from the Tavan Tolgoi area to the border, the prospects for railway construction are still unclear (only foundation work such as banking is still being carried out).

・Gashuun Sukhait Gate is not an international gate, but a gate between Mongolia and China only.

・Under current laws, the NTA taxes on coal mining companies in Mongolia on the basis of coal transaction prices at four ports in China, thus imposing higher taxes than theex mine price. ERI estimates that the selling price of Erdenes TT is US$ 73 per ton.

・Many coal mining companies have their buyers make payments in advance, so there are few business problems. However, there is a strong awareness that Chinese companies are buying coal cheaply.

[Iron Ore]

・The deal involves a contract with an intermediary in China (either a spot contract or a long-term contract is being confirmed) and is carried by the DAF.

・Taxation is determined in conjunction with the FOB price between China and Australia (no reference is made to the actual selling price). This is because the NTA does not trust the actual contract.

・Transportation costs from northern Mongolia to the China are high at USD17/ ton (1,100 km through Beijing to packages), and lower price competitiveness due to higher tariffs is a challenge.

[Zinc]

・With regard to zinc concentrate, Tsairt Mineral (a Chinese-affiliated company) produces concentrate. The company transports zinc by truck until Sainshand and then exports it to China by rail. However, there are problems with transportation costs.

[Recommendations]

・It is necessary to establish a trading market, establish laws concerning commodity trading, and make the transaction prices of state-owned enterprises transparent.

・Need to train experts on the transactions of each company.

(ii) FDI inflow in Mongolia

・FDI peaked in 2011 with the launch of Oyu Tolgoi projects (4.6billion USD), and has declined sharply since 2014 due to the delayed start of in-mine mining. FDI is affected by mineral resource prices.

・Mongolia needs to develop an attractive investment environment.

・In the medium term, FDI will increase due to plans to develop copper smelters, coal-fired thermal power plants, and transportation infrastructure.

(iii) Mining development strategy

・Currently, the Mongolian government has prepared (a) Sustainable Development Goals; SDGs, (b) State Minerals Policy (SMPs) 2014-2025, and (c) Government action plan for 2016-2020 policy documents.

・SDGs sets out the medium to long term directions for Mongolia, and for the mineral resources sector, it divides the periods 2016-2020, 2021-2025, and 2026-2030 into Phase I, Phase II, Phase III, respectively, and sets out targets for geological surveys and infrastructure development.

・The SMP is a document that sets forth more specific goals to be achieved from 2014 to 2025, and identifies 10 objectives to be achieved by 2025.

・The Action Plan sets out short-term plans for 2016-2020 based on the SMP.

・This study examines the strategic policy documents prepared by the Governments of Mongolia in the mineral resource area based on four aspects (a) Cognizant of reality, (b) Considering the long-term approach, (c) Comprehensiveness and (d)Inclusiveness presented by NRGI(Natural Resource Governance Institute.

(iv) Revenue management

・The impact of the mineral resource sector on the Mongolian economy and the Mongolian government's revenues were simulated by Computable General Equilibrium analysis applied general equilibrium analysis. As a result of comparing the results with the IMF's forecasts, the forecasts in this study show almost the middle prices of the IMF's forecasts, with mineral resource prices set at "Low" and "Medium" among the IMF's forecasts.

・The Fiscal Stability Law was promulgated in 2010 and enforced in 2013. The act stipulates that (a) the

budget deficit should be kept within 2 % of GDP, (b) the mineral resource sector's budget should be based on the average of actual expenditures over the past 12 years and projected figures over the next three years, and (c) the government debt balance should be kept within 60 % of GDP.

・Fiscal Stability Fund is operated, and 5 % of GDP is accumulated in the Fund, which contributes to fiscal stability.

(3) Special lecture by Associate Prof. Murakami of Tokyo University

At the National University of Mongolia, Dr. Murakami gave the following lectures, with about 20 participants, mainly from ERI.

Lecture name: "Material Flow/Stock Analysis and Mineral Economics"

Date: December 12, 2017

Photo 4-2 Lecture by Prof. Murakami

4.3 Fourth Visit to Mongolia (March 2018)

In the fourth visit to Mongolia, we discussed the results of FY2017 study with Mongolian researchers and attended a seminar to announce the results of this project to government, universities, and private sector officials on the Mongolian side.

4.3.1. Schedule

The schedule of the forth visit is shown in Table 4-5.

Table 4-5 Schedule of forth visit to Mongolia

Date	Activities	Participated Member
3/11 (Sun)	Move to Mongolia (Lv. Narita 15:30, Ar. Ulaanbaatar 20:25)	Y. Shibata, T. Shibata, H. Kobayashi, S. Miyaike
3/12 (Mon)	09:00 – 12:30 Disccussion with ERI on the followings - Details of activities during the visit - Comments from Japanese experts on the FY2017 study 14:00 – 15:40 Courtesy call to JICA Mongolia office 16:00 – 18:00 Preparation for the seminor	Y. Shibata, T. Shibata, H. Kobayashi, S. Miyaike
3/13 (Tue)	08:30 – 16:00 Participation in the seminar	Y. Shibata, T. Shibata, H. Kobayashi, S. Miyaike
3/14 (Wed)	09:00 – 17:00 Disccussion wth ERI on FY2018 study and next invitation to Japan	Y. Shibata, T. Shibata, H. Kobayashi, S. Miyaike
3/15 (Thu)	10:00 – 11:00 Visit to Mongolian University of Science and Technology 15:00 – 16:00 Visit to Coordination of Policy Implementation Department, Ministry of Mining and Heavy Industry 16:00 – 16:30 Visit to Advisor to the Minister, Ministry of Mining and Heavy Industry 16:30 – 17:30 Visit to Economic Policy Department, Ministry of Finance	Y. Shibata, T. Shibata, H. Kobayashi, S. Miyaike
3/16 (Fri)	09:30 – 11:00 Disccussion on next invitation to Japan wth ERI 14:00 – 15:30 Disccussion on overall of the project with Prof. Khashchuluun, University of Mongolia 16:30 – 17:30 Reporting to JICA Mongolia office	Y. Shibata, T. Shibata,
	Return to Japan (Lv. Ulaanbaatar 08:45, Ar. Narita 14:30)	H. Kobayashi, S. Miyaike
3/17 (Sat)	Return to Japan (Lv. Ulaanbaatar 07:45, Ar. Narita 19:40)	Y. Shibata, T. Shibata,

4.3.2 Details of activities

(1) Discussion about comments from Japanese experts on the FY2017 study

Regarding the comments made by the Japanese team during the interim review of the 2017 study, and subsequently made by Japanese experts and team for the draft report sent to Japan, Japanese team confirmed the response status of Mongolian researchers.

Photo 4-3 Discussion on the study with ERI researchers

(2) Participation in seminar

ERI carried out the seminar to present the results of FY2017 study for related ministries, companies, universities, etc. in Mongolia.

Date and time : March 13, 2018, 9:10-15:10

Venue : Best Western Premier Tuushin Hotel (Soyombo Hall)

The seminar was accompanied by a report on the results of ERI's joint project with the Bank of Mongolia, with a total of more than 600 participants. This seminar has attracted a great deal of attention in Mongolia, and many television stations, newspapers, journals and other media gathered to highlight the project's achievements in Mongolia through television news and newspapers. Table 4-6 shows the program of the seminar.

Photo 4-4 Opening remarks by Mr. Sato, JICA Chief Representative

Photo 4-5 Presentation by Mr. B. Munkh-Ireedui, ERI Researcher

Photo 4-6 Seminar attendees

Photo 4-7 Coverage from the media

Table 4-6 The seminar program for FY2017 study

Time	Topic	Presenter
8:30 – 9:10	*Registration*	
9:10 – 9:40	Opening Remarks	B. Tuvshintugs, *Director of Economic Research Institute* N. Bayartsaikhan, *Governor of the Bank Of Mongolia* Mutsumi Sato, *Chief Representative of JICA Mongolia Office*
Panel Discussion №1: Macro policies		
9:40 – 10:10	Impact of Monetary and Macroprudential policy on Resource-Rich Economies: Mongolia	Economic Research Institute, Bank of Mongolia
10:10 – 10:40	Impact of Mortgage Loan on the Economy	Economic Research Institute
10:40 – 11:10	*Coffee Break*	
11:10 – 11:40	Forecasting Inflation using Dynamic Model Averaging Method	Bank of Mongolia
11:40 – 12:10	Micro Stress Test of Household Loan	Bank of Mongolia
12:10 – 12:40	Degradation of Pastureland: Livestock Taxation	Economic Research Institute
12:40 – 13:30	*Lunch*	
13:30 – 14:00	Assessment of Export-Promotion Policies in Mongolia	Economic Research Institute, National University of Mongolia
14:00 – 14:30	The Promotion Strategy to Sustainable Growth of Export in Mongolia	Bank of Mongolia
14:30 – 15:00	Impact of Mining on Local Households' Living Standards	Economic Research Institute
Panel Discussion №2: JICA Project session		
9:40 – 10:10	Impact of Mining Sector on the Economy	Economic Research Institute
10:10 – 10:40	Mining Development Strategy	Economic Research Institute
10:40 – 11:10	*Coffee Break*	
11:10 – 11:40	Revenue Management	Economic Research Institute
11:40 – 12:10	Marketing and Trading of Mining Sector	Economic Research Institute
12:10 – 12:40	Estimating the Average Period of Price Changes	Bank of Mongolia
12:40 – 13:30	*Lunch*	
13:30 – 14:00	Impact of the Fiscal Consolidation on the Mongolian Labor Markets	Gerege Partners
14:00 – 14:30	Impact of Fiscal Consolidation on the Mongolian Economy	Economic Research Institute, PEP Team
14:30 – 15:00	Impact of an Increase in the Price of Imported Fuel on the Mongolian Economy	Economic Research Institute, PEP Team
15:00 – 15:10	*Closing Remarks*	

4.4 Summary of Study Results

4.4.1 Update of commodity market study

Leader: B. Tuvshintugs (ERI)

Member: Z. Manlaibaatar (ERI), B. Munkh-Ireedui (ERI), B. Delgermaa (ERI), T. Dulguun (ERI), T. Oyunzul (ERI), D. Unurjargal (ERI), B. Khorol-Erdene (ERI)

Gold market study

This update study focuses on recent changes in both the global and domestic markets in order to provide projections about the future gold market. As in the last study, this update looks into the demand, supply, and price of gold for both the world and Mongolian markets.

World Market:

• Gold demand for jewelry and investment purposes still makes up the largest portions of overall global demand. World demand for gold decreased in the first half of 2017 compared to the first half of 2016. Looking forward, gold demand is expected to be sluggish as jewelry demand is expected to decrease in line with global trends while gold for investment decreases from its inflated 2016 volumes. The overall volume of gold demanded for industry and by central banks is expected to rise but as the amount is only a small portion of total gold demand, overall demand is expected to decrease.

• World supply of gold decreased in the first half of 2017 compared to the first half of 2016. The world supply for gold is determined by mine production, recycled gold and net producer hedging with a particular reliance on mine production. Mine production in the first half of 2017 stayed essentially unchanged from 2016 while the level of recycled gold decreased and there was a shift from gold hedging to de-hedging. Looking forward, global supply is expected to decrease as the circumstances suppressing production continue and China, the world's largest producer of gold, is expected to systematically reduce production as it revamps its mining sector.

• Gold prices are determined by overall gold demand and gold supply. World gold price is expected to remain high in 2018 as overall gold supply is expected to drop more than global gold demand. Prevalent instability in the world economy, particularly in the US is expected to drive and keep the price of gold up in coming years.

Mongolian Market:

• In accordance with the government's Gold-2 program, the Bank of Mongolia is expected to increase its purchase of gold, keeping Mongolian demand at a relatively high level.

• Mongolian production is largely based on Oyu Tolgoi's production and is expected to be muted until 2020 when Oyu Tolgoi's phase 2 underground mine expansion is slated to complete. Gold production is then expected to sharply increase and peak in 2025. This increase in production may be sustained as several new smaller gold projects are being implemented.

• Mongolian gold prices are fully reliant on world gold prices and will follow the worldwide trend.

Copper market study

The research team studied the factors which affects the supply, demand and price of copper in the world and local markets since the beginning of 2017.

World Market:

• Copper demand was weaker in the first half but it is likely to recover in the second half of 2017 mainly

due to the steady growth of the Chinese economy. Copper industry analysts forecasted that the global demand for copper is likely to increase in 2017 and beyond. In particular, the apparent Chinese copper usage is expected to grow in 2017 and 2018 due to the fact that Chinese economic growth was higher than expected. Modest growth from the USA and Europe and solid growth in emerging markets such as India will support global copper demand further.

• Globally, copper concentrate supply decreased significantly in first half of 2017 due to the strike at the Escondida and Cerro Verde mines in addition to the Indonesian government's temporary ban on copper concentrate exports. On the contrary, refined production remained essentially unchanged. Analysts expect that mining copper production will decrease in 2017. The copper market to be roughly balanced to the end of the decade, with solid demand growth met by existing and committed supply. In the long run, grade decline and availability of power and water will constrain the copper supply globally. As a result, a structural deficit is expected to open up in the early 2020s.

• In the first eight months of 2017, the price of copper rose due to the changes in global supply and demand. The price projections from international financial and banking institutions have been changing significantly from the former ones since the beginning of 2017. Analysts expect the copper price to continue to grow in next 5 years and beyond due to the lack of supply and the solid increase in demand.

Mongolian Market:

• For the Mongolian copper market, local demand is flat in short term and could increase in the long run depending on economic growth, especially on the expansion of the infrastructure sector. On the supply side, copper concentrate production is expected to decrease in the upcoming 2 years due to the average grade decline. However, annual copper output is expected to grow over 2017-2026. The Oyu Tolgoi underground mine as well as the Tsagaan Suvarga mine operations are the key drivers of the growth.

Coal market study

As around 70-80 % of Mongolian coal exports is coking coal, a large portion of the research is focused on coking rather than thermal coal. The aim of this research is to provide an update of the coking coal market, internationally as well as domestically, since the March 2017 report.

World Market:

• Coking coal demand is determined by trends in demand for and output of steel as well as its production methods. As more countries turn towards renewable or cleaner energy, electric arc furnaces could replace blast furnaces as it requires less coal. This trend is not prevalent in China currently, where blast furnaces are used in over 90 % of crude steel production. In March 2017, China announced that it would cut total coal production by 150 million tons in 2017. Part of the initiative entails the closure of small-scale coal mines due to inefficient operations and poor safety and environmental records. Due to China's cutback, demand for coking coal from Mongolia, Australia, and Russia will significantly increase.

• Cyclone Debbie caused a supply disruption in Australian coal exports as it damaged several mines and rails, forcing some companies to declare force majeure. This caused a significant increase in prices, which had other mines advancing productions to take advantage. The supply outlook for coking coal is forecasted

to spike in 2017, followed by a decline as operations return to normal.

• As world crude steel production is expected to decrease, demand for coal will also decrease. The decrease in coal demand will decrease prices in the long-term. However, prices will experience temporary surges during short term supply shocks such as a natural disaster disrupting transportation.

Mongolian Market:

• Mongolian mines increased production to operate at almost full capacity due to the strong, short-term demand from China as well as to take advantage of high coal prices like other nations. However, since July, coal exports have decreased as border control congestion stretched over 100 kilometers.

• As Australian coal price forecasts account for decreases in crude steel production, Mongolian coal prices will fluctuate relative to Australia – price spike in 2017, followed by a steady decline before leveling in 2019 as operations return to normal and demand from China decreases as climate change targets and goals are fulfilled.

Iron ore market study

This update study focuses on changes in both the global and domestic market in order to paint a clearer picture of the current iron ore market and provide projection estimates about the future iron ore market. Similar to the last study, this update looks into the current global demand for and supply of iron ore and then utilizing the collected information to make an informed projection of global iron ore price.

World Market:

• Global crude steel production increased in 2016. World crude steel production is predicted to gradually increase from 2017 to 2019. The Australian Department of Industry, Innovation, and Science forecasts that annual growth of production will grow in 2017 and 2018. China's crude steel production growth is projected to decrease in over the next few years as the Chinese government is pursuing a strategy to reduce crude steel production due to technological and environmental factors.

• Global iron ore production grew year-on-year in 2016. This was primarily driven by an additional shipping of ore from Australia. Supply of iron ore is expected to increase in the near future. According to Bloomberg Intelligence, iron ore production of the top four producers will increase in 2018 as major iron ore producers in Australia and Brazil are planning to expand production and reduce operational costs.

• The iron ore price has increased since last quarter of 2016. Prices then declined by September 2017. The price of iron ore in the world market is expected to decline further in 2018 to 2021 as the world iron ore markets is expected to experience a supply surplus leading up to 2020.

Mongolian Market:

• Mongolia's steel production increased in 2016. In the next few years, Mongolian steel production is expected to increase as the Government of Mongolia is pursuing a strategy to develop its metallurgical production by implementing the metallurgical plant project in Darkhan and Selenge region, which relies upon the Darkhan Metallurgical Plant.

• Currently, only 65 % of Mongolia's total iron ore production capacity was used in 2016. It is expected that Mongolian iron ore miners will operate at full capacity between 2017 and 2020 as the metallurgical

plant project in Darkhan and Selenge region is implemented.

4.4.2 FDI Inflow into Mongolia

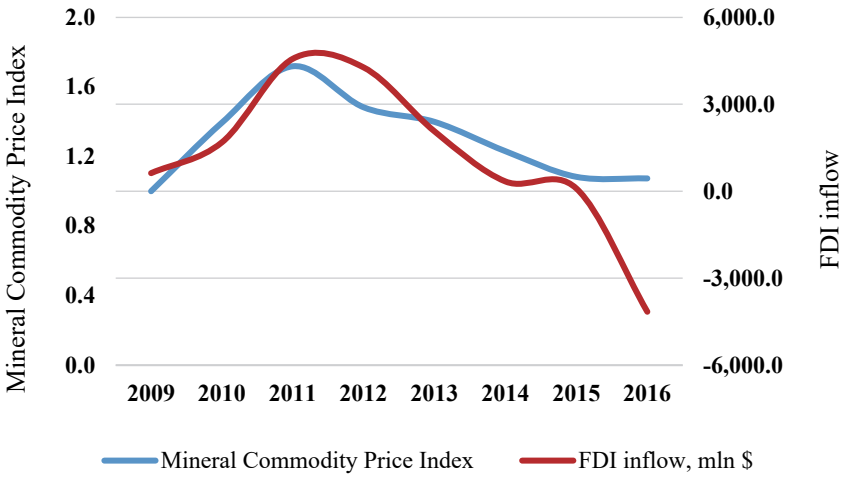
Leader: Z. Manlaibaatar (ERI)

Member: B. Delgermaa (ERI), T. Dulguun (ERI)

• To a small economy like Mongolia, FDI is a key catalyst in promoting economic growth. Thus, our research aims to estimate the impact of FDI on the Mongolian economy, identify the main factors influencing FDI, and how to attract more FDI.

• In analyzing the impact of FDI on the Mongolian economy, the Input-Output table (IOT) of 2010 and 2015 were used. The IOT consists of the balance between sectors and as this balance shows the economic structure and resource flows between sectors, it is widely used in this field of research. In 2010, FDI trend was upwards whereas in 2015, it was downwards. The IOT was used to calculate the impact of additional FDI inflow invested into the mining sector on the economy. As determined by the simulations ran by the research team, FDI positively impacts the Mongolian economy and has a positive investment multiplier. Additionally, the effect of FDI on the economy depends greatly on whether it was invested into the domestic market or used to purchase imported goods. In other words, the more the additional FDI was absorbed into the domestic market, the higher the investment multiplier.

• To better understand the fluctuations in FDI inflows, the research team examine the exogenous and endogenous factors influencing it. During the research, it was determined that changes in mineral commodity prices are an exogenous factor as Mongolia is a small player within the commodity market and has limited control over price fluctuations.



Source: Bank of Mongolia, NSO, World Bank, and the research team's calculation

Figure 4-1 Commodity price index and FDI inflow

• On the other hand, the investment climate is determined to be an endogenous factor. The Fraser Institute conducts an annual survey among mining and exploration companies around the world to determine what

influenced their decisions to invest. The Investment Attractiveness Index (IAI) is constructed from two other indices – the Mineral Potential Index (MPI) and the Policy Perception Index (PPI). The main constraints to FDI inflow into Mongolia are disputes with foreign investors and ill-conceived policy decisions. Thus, if Mongolia can improve its investment climate, its IAI ranking could rise, making Mongolia an attractive investment destination.

Table 4-7 Indices of Mongolia and Chile

	Investment Attractiveness Rank	Policy Perception rank	Mineral Potential Rank
Mongolia			
2015	85/109	94/109	59/109
2016	81/104	101/104	50/104
2017	53/91	70/91	36/91
Chile			
2015	11/109	26/109	11/109
2016	39/104	35/104	49/104
2017	8/91	25/91	7/91

Source: Fraser Institute

• In the comparative analysis, Chile was chosen to be compared to Mongolia as FDI inflows into both nations are heavily dependent on their respective mining sectors. Relative to Chile's rankings on the indices, Mongolia still has long way to go before being categorized as one of the top investment destinations. As such, countries such as Chile provide valuable experiences to learn from in order to better Mongolia's investment attractiveness.

• The research also examines how to attract FDI based on the best practices of other nations. As Mongolia cannot influence exogenous variables such as mineral commodity prices, the most suitable way to increase FDI would be to focus on improving Mongolia's investment climate. For example, countries such as Singapore, Switzerland, and Hong Kong were ranked among the top ten countries for investing and doing business in despite being countries without natural resources. These countries are able to attract large amounts of foreign investment due to their favorable investment climates. They tend to be transparent, politically stable, have easy access to well-established financial markets, world class infrastructure, and have a highly skilled and educated workforce.

Table 4-8 Indexes and rankings in 2017

Measure	Rank			
	Singapore	Switzerland	Hong Kong	Mongolia
Corruption Perception Index	6/180	3/180	13/180	103/180
Economic Freedom Index	2/180	4/180	1/180	125/180
Doing Business Index	2/190	33/190	5/190	62/190
Global Innovation Index	7/127	1/127	16/127	52/127

Source: Transparency International, Heritage Foundation, World Bank, Cornell INSEAD WIPO

• The government of Mongolia plans to start and implement numerous projects as outlined in their Government Action Program 2016-2020 and the Sustainable Development Vision 2030 with the aim to attract more FDI; however, these plans are not complete as the sources of financing are still unclear. Mongolia's current FDI outlook of supply cannot sustain its demand if these big projects are going to be financed by FDI.

• Based on the research conducted, the research team puts forth the following recommendations. First, a larger percentage of FDI inflows should be absorbed into the domestic market instead of being exported back out. As more FDI is absorbed into domestic sectors, the greater the benefit for the Mongolian economy and greater the investment multiplier. Second, Mongolia should not rely on stable high mineral commodity prices for FDI inflows as it has limited to no control over price fluctuations. Third, Mongolia has a considerable amount of mineral potential but its low policy perception is hindering its investment attractiveness.

• Chile serves as a good role model for the Mongolian economy as their mineral potential levels are similar but the perception of Chile's government policies is considered better. Thus, the policy reforms undertaken by Chile over the years to reach its current level could be modified and tailored to improve Mongolia's investment climate and economy. With more transparency and clearer legislation and regulation, Mongolia could become a very attractive destination for foreign investors.

4.4.3 Mining Development Strategy

Leader: B. Tuvshintugs (ERI)

Member: B. Delgermaa (ERI)

• Mongolia's development strategy for the mining sector is reflected on following three major pieces of legislations.

(i) Main development goals of the country is reflected in Sustainable Development Goals (SDGs) document that was adopted in 2016 by the Parliament of Mongolia, which sets out socio-economic policy targets for the country.

(ii) The next major piece of legislation of the mining sector's development strategy is a policy document entitled "State Minerals Policy (SMP) 2014-2025", which was adopted in 2014 by the Parliament. This minerals policy document is a more detailed long term view of the sector's development in the country.

(iii) The next level piece of legislation in the development strategy of the mining sector is the Government action plan for 2016-2020. In this document near term goals and programs are stipulated.

• It is expected that major strategy and policy documents should be based on realistic assumptions about the reserves and prices of commodities. However, these documents do not directly reveal the country's estimations of reserves and assumptions on pricing. Specifically, these documents do not provide specific guidelines on its resource wealth.

• Supporting policy documents of major pieces of legislation do not reveal much about the estimation or assessment of the reserves. The official estimation of reserves is primarily described in the "Annual bulletin of mining and geology". Therefore, we can see that the consensus can be further improved by conveying estimations and potential scale of the mining sector and natural resource endowments more clearly and reflect it in policy documents.
• The strategic and its follow up documents do not convey commodity price scenarios and therefore it is not clear from these documents what impact the sector will have on the economy in the long run.
• Cognizance is also assessed in terms of how the country addresses its issue of heavy dependency on the mining sector. As of 2016, the mining sector accounted for approximately 20% of Mongolia's GDP and 71% of gross industrial output. Moreover, it was also estimated that indirect contribution of the sector is approximately 10% of GDP. Development strategy documents clearly acknowledge this dependency and promote the diversification of the economy.
• The Government of Mongolia is aiming to achieve diversification by conducting series of policies by reducing costs of production and formulating and implementing heavy industry development plan. In particular, the government is aiming to support the production sector through tax policies to enhance the non-mining export and through reduction of costs of downstream value-added production by stabilization of and reduction of tariffs for water, heat and electricity, promotion of fair competition, creation of "loan of trust" for small and medium enterprises and adjusting fuel prices to the world market prices.
• Although SDGs, SMP and the Government Action Plan specify goals for sectorial developments, they unfortunately do not specify how priorities are decided and what are the costs associated with programs that promotes development of non-mining sectors. In other words, there is a lack of clarity how prioritization of programs will be done and at what costs are necessary.
• Secondly, since natural resources are exhaustive, the strategy should maintain the long-term view of the country in terms of developing and maintaining the mining sector in order for future generations of citizens can continually benefit from natural resources.
• The national strategy documents such as "Sustainable development goals" and "State minerals sector policy" are clearly designed with the long-term view.
• "Sustainable development goals" envisions high growing economy with no poverty and drastic reduction in income inequality by 2030 among other long-term goals. Goals in the mining sector are designed to promote comprehensive research in geology and geophysics and to create a favorable investment environment for explorations, conduct in-depth explorations of deposits, develop infrastructure with suitable power plant and water supply and transportation network and start developing large mining projects.
• "State minerals policy" document specifically promotes policies whose positive effect should benefit all citizens. In fact, the very first principle of the minerals sector policy is directed at maintaining policies in the sector in the long run.
• Long term impact of the sector on future generations is dependent not only on developing and benefiting from current known resource deposits and projects, but also on how the country handles pace of exploration and mining licenses, state's fiscal terms with mining companies on projects, the management of revenue

from the sector and the promotion of private sector.

• The administration of the licensing process is regulated by the “Minerals Law of Mongolia”. This law is directed at regulating how the license will be processed and is not addressing the issue of pacing the licensing. In fact, there are no follow ups to the SMP document on pacing the licensing.

• In order to benefit from the sector in the long run, it should also be assessed how the country benefits from the sector and how it will be benefiting in the future. Mongolia benefits from the mining sector by imposing royalties, taxes, tariffs on exports and dividends from the state ownership. Indeed, this is one of the highly discussed topics in the public.

• “Minerals law” also identifies deposits that are deemed strategically important that can have significant impact on national security and on society and economy or deposits that can contribute more than 5 % of GDP per year as strategically important. However, it is not entirely clear what criteria constitutes “strategically important deposit” and it needs to be clarified.

• Experience with Oyu Tolgoi project indicates that policymakers declared that in the long term the country will be benefitting from the mining sector through its state-owned mining companies. However, inefficiency and profitability of state-owned enterprises are widely believed to be lagging those of private mining companies and regular turnover of management team at the state-owned companies indicate that there is a strong incentive for politicians to yield influence in these companies.

• Long term benefit also depends on how the country manages its mineral revenue. Mongolia made great strides in terms of regulating the revenue from the mining sector. In particular, “Fiscal stability law” was adopted in 2012 and went in full effect in 2013 and the law on “Future heritage fund” in 2016.

• It should be noted that although rules for revenue management was set out in exemplary fashion, the Government found it hard to follow it through at the implementation level. In particular, major parameters such as budget deficit and debt level had to be amended every year to accommodate ever expanding government expenditure and debt level. This practice of revising major parameters of this law shows lack of commitment form the Government to the fiscal discipline.

• In general, throughout this assessment the research team emphasized that there is a lack of detailed vision on how the government intends to implement and achieve these strategic visions and policy actions.

4.4.4 Marketing and trading

Leader: Z. Manlaibaatar (ERI)

Member: B. Delgermaa (ERI) , T. Oyunzul (ERI), B. Khorol-Erdene (ERI)

• This study aims to identify the responsibilities and problems associated with every stage of the trading process of mineral commodities and define ways to addressing those problems.

• Each commodity has its own market where pricing and selling mechanisms are different. To gather an insight into specific market issues, the research team conducted interviews with mining companies, association representatives, and sector experts. According to the experts interviewed, coal and iron ore exporters are facing more severe problems in comparison to other mineral commodities. As such, the study

focused more on the issues faced in the coal and iron ore sectors.

• Mongolia's coking coal exporting activities are concentrated at the Tavan Tolgoi and Nariin Sukhait basins with Northern China as the main exporting destination. In addition, the Khushuut mine in Khovd province exports its coal to Northwestern China. Most companies sell their coal through small and medium Chinese traders such as Winsway Holdings as traders are responsible for transport and logistics and offer flexible conditions. There is no problem finding and getting into contact with buyers especially during periods of high commodity prices. Most trading contracts are one-off contracts due to the market risk and limited orders involved. There have only been a few cases of disputes over a breach of contract in the coal sector.

• For large companies, their contract prices are set to be equal to market prices, but small companies tend to sell at lower prices. Recently, Erdenes Tavan Tolgoi (SOE) started open bid sales at their mining site.

• The coal is mostly transported through a network of roads to the Chinese border. For Tavan Tolgoi basin, the distance to the border is 270 km and the railway project has been postponed for long period, leading to higher transportation cost. As traffic is heavy and the capacity of China's border control is limited, it takes a considerably longer time to cross the border. Additionally, the border port is of local status, allowing the Chinese local authorities to arbitrarily put limitations or fees on border crossing and transportation. As for the other basins, the mines are located closer to the border and there are no traffic or major border crossing issues.

• For iron ore exporters, transportation and logistics issues are also the main problems. Bold Tumur Eruu Gol is the biggest exporter of iron ore and ships its commodities via railroad (having built a 70 km railroad from its mine site to the main railroad). The sales target is the steel factories in Northern China. The distance from the mine to the Chinese border is around 1,100 km, but tariff rates for long distances and cross-borders are set higher by the Ulaanbaatar Railway, the only carrier operating, to cover its loss from passenger and other domestic freight. Furthermore, the railway from the Chinese border to Bautou, the main consumer steel mill, takes a roundabout route that covers 908 km. An alternative railroad project (~ 318 km shorter) has been planned but the proposal has not been approved.

• Depending on the specific characteristics of the commodities and their market development, coal and iron ore exporters face other difficulties such as taxation issues. In particular, there are neither commodity trading platforms nor any commodity exchanges. Additionally, trading contracts are not reliable nor transparent for tax authorities. On the other hand, according to the Law on Minerals, royalty rates for coal and iron ore depend on their benchmark prices at Chinese sea ports and the level of ore processing. The companies interviewed pointed out that the complex tax rate calculation lead to some difficulties regarding tax compliance.

• As copper and zinc are traded at global commodity exchanges, copper concentrate from Oyu Tolgoi and Erdenet, and zinc concentrate from Tsairt Mineral are traded by standardized contracts (though not transparent). Erdenet and Tsairt Mineral ship concentrates via railway, while Oyu Tolgoi uses paved road.

• In general, the trading issues of these commodities are relatively lower than that of coal and iron ore. For zinc concentrate, the main problem is extra time and cost spent at Sainshand station waiting while sending a mandatory sample of the concentrate for examination to the Customs Central Laboratory and Central

Geological Laboratory located in Ulaanbaatar.

• There are some common issues in most mining companies. Due to their limited research capacity and business model, most mining companies don't conduct any detailed marketing analysis. Another problem is that export financing services including payment and insurance are not well developed in Mongolia. As a consequence, for instance, coal exports prefer to sell the commodity directly at the mining source for up to a 30% advance payment before transporting. However, this practice of preferring advanced payment may lower the incentive of traders and buyers and limit the competitiveness of exporters.

• Based on the research findings, the following suggestions are made:

- A commodity exchange or trading platform should be established. Exploratory studies and preparations were already done to some extent by the Ministry of Mining and Heavy Industries.
- At the policy level, traders' activities should be supported. A Law on Trade may be needed to regulate and support trading activities.
- Companies in the mining sector, in particular state-owned companies, should make all contracts including sales contracts transparent.
- Export financing mechanisms should be developed. Establishing a Mongolian Export Import Bank could be a potential solution. Detailed policy research is needed.
- Capacity strengthening projects like regular training on contracting, trading, taxation and mining governance issues for mining companies, government agencies and sector specialists should be implemented.
- The participation of mining associations in the policy making process should be increased. Mining associations should also play a crucial role in raising awareness for the industry.

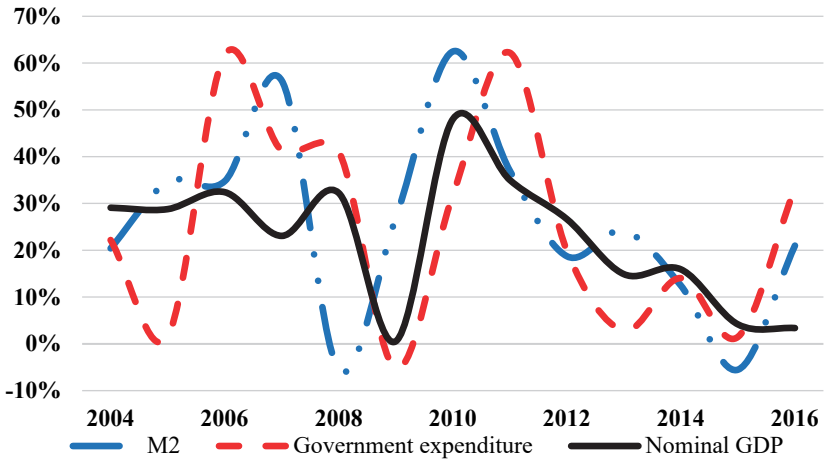
4.4.5 Revenue management

Leader: B. Tuvshintugs (ERI)

Member: L. Esmedekh (Independent consultant), B. Delgermaa (ERI), T. Dulguun (ERI)

• Over the last decade, the Mongolian economy has dealt with numerous booms and busts. Economic indicators reveal that the booms and busts are caused by changes in the mining sector; specifically, changes in mineral commodity prices with investment playing a key role. The mining boom brought with it economic fragility, notably vulnerability to commodity price drops and decreases in FDI inflows. Mongolia began to experience economic slowdown following the boom in 2012, when mineral commodity prices fell significantly on the world market. The public foreign debt grew substantially in the last few years as budget expenditure increased and revenue fell. The decrease in public revenue is due to the overestimation of mineral commodity prices by the Parliament of Mongolia.

• Fiscal and monetary policies are utilized to minimize economic fluctuations and the policies are more effective when they are counter cyclical as seen internationally. Mongolia's past fiscal and monetary policies have not reduced economic fluctuations, instead seeming to amplify it as observed in the figure below.



Source: NSO, Bank of Mongolia

Figure 4-2 GDP, budget expenditure and M2, nominal changes (%)

• In 2010, the Government of Mongolia and the Parliament of Mongolia approved the "Fiscal Stability Law" (FSL). The purpose of the law is to help restrain fluctuations in the government budget and thereby reduce uncertainty. The FSL also aids in stabilizing the economy when mineral commodity prices are fluctuating on the international market. However, due to economic difficulties, the Parliament of Mongolia amended the law, postponing the implementation of the articles related to government expenditure growth, foreign debt to GDP ratio, and budget balance to GDP ratio to 2017, 2021 and 2023, respectively. As the government budget is expected to experience repayment pressures from foreign debt, the implementation of these key articles of the law will become more significant in the future.

• This research looks into Mongolia's budget revenue management in order to study the economic effects of implementing the FSL. When analyzing the current state of revenue management in Mongolia, the research team used historical data from the Ministry of Finance, the Bank of Mongolia, and other organizations to ensure that the study is comprised of comprehensive information. In order to assess the impact of the FSL, the research team utilized an in-house Computable General Equilibrium Model (CGE).

Main findings:

- The growth of the non-mining sector is higher under FSL, emphasizing the mitigating impact of the negative effects from mining development, also known as de-industrialization.
- The FSL implementation does not have a significant impact on the means of select macroeconomic variables. However, with the help of the FSL, the magnitude of the variances of select variables are significantly reduced.
- The main finding from this study is that with the implementation of the FSL, the Mongolian economy remains stable during times when mineral commodity prices fluctuate. Based on the results of this study, the research team puts forth the following recommendations:

- The Government of Mongolia (GoM) needs to implement the key articles of the FSL mentioned above promptly, as it will help the GoM hold a counter cyclical fiscal policy and reduce fluctuations in the economy caused by the mining sector due to changes in mineral commodity prices.
- The GoM needs to focus on increasing savings accumulated in the Fiscal Stability Fund (FSF) which plays a considerable role in stabilizing the economy when economic difficulties related to the mining sector occur.
- The GoM needs to improve fiscal discipline, making sure its expenditures do not exceed its planned budget.

Chapter 5 Activities of Phase II : FY 2018

5.1 FY2018 Invitation and Study Plan

Mongolian researchers were invited to Japan to exchange opinions with the purpose of discussing the FY2017 study results and the FY2018 study plan. The content of the implementation is as follows.

5.1.1 Schedule and member of invited researchers

Schedule and invited Mongolian researchers are shown in Table 5-1 and 5-2 respectively.

Table 5-1 Schedule of inviting program of Mongolian researchers in 2018

Date	Time	Place to visit	Activities	Place to stay
4/16 (Mon)	07:45	Lv. Ulaanbaatar	Moving from Ulaanbaatar to Narita by Air (OM501)	Tokyo
	12:50	Ar. Narita		
4/17 (Tue)	09:30 - 09:45	JICA Headquarters	◆Courtesy call to JICA	Tokyo
	10:00 - 12:00	Kousaikaikan	◆Meeting with JICA study team ◆Presentation of FY2017 study results by ERI	
	13:00 - 14:45	Kousaikaikan	◆Exchange of views with Japanese Experts : Mr. Inazumi (Type of iron ore and steel products)	
	15:00 - 17:00	Kousaikaikan	◆Exchange of views with Japanese Experts : Prof. Asanuma, Hitotsubashi University (Policy studies on mining sector development)	
4/18 (Wed)	09:30 - 11:30	Kousaikaikan	◆Exchange of views with Japanese Experts : Prof. Tanaka, Meiji University (Revenue management)	Tokyo
	13:15 - 15:00	Kousaikaikan	◆Meeting with JICA study team ◆Discussion on FY2017 study results ; Marketing and trading, Mongolia FDI flow	
	15:30 - 17:00	Kousaikaikan	◆Exchange of views with Japanese Experts : Prof. Murakami, Tokyo University (Mining strategy development, etc.)	
4/19 (Thu)	09:30 - 11:30	Kousaikaikan	◆Exchange of views with Japanese Experts : Prof. Kuchiki, Nihon University (Mongolia FDI flow, etc.)	Tokyo
	14:00 - 15:00	Kousaikaikan	◆Meeting with JICA study team ◆Discussion on FY2017 study results ; Taxation and finnacial reporting	
	15:15 - 17:15	Kousaikaikan	◆Exchange of views with Japanese Experts : Mr. Miyatake, JOGMEC (Comparison of royalty between Mongolia and other countries. etc.)	
	17:15 - 17:40	Kousaikaikan	◆Meeting with JICA study team ◆Discussion on FY2018 study plan and contracting	
4/20 (Fri)	14:40	Lv. Narita	Return to Ulaanbaatar by Air (OM502)	
	19:15	Ar. Ulaanbaatar		

Table 5-2 List of invited Mongolian researchers in 2018

Name	Position and Organization
Economic Research Institute (ERI), National University of Mongolia (NUM)	
Dr. Tuvshintugs Batdelger	Director of ERI Associate Professor of Economics of NUM
Mr. Manlaibaatar Zagdbazar	Senior Researcher at ERI
Ministry of Mining and Heavy Industry	
Mr. Davaaddorj Davaajav	Director of Heavy Industry Policy Department
Ms. Khulan Barakhas	Officer, Policy Regulation Department

5.1.2 Details of activities

(1) Exchanging opinions between Japanese experts and Mongolia Researchers

ERI researchers reported the results of FY2017 study and the FY2018 study plan to Japanese experts, and exchanged views on this. In addition, Japanese experts introduced reference examples that would be useful in conducting studies on this project by Mongolian researchers. The titles introduced by Japanese experts are as follows.

- Mongolia: Anatomy of crises and search for remedies (Prof. Asanuma, Hitotsubashi University)
- History of iron and steel making from view point of utilizing iron ore resources (Mr. Inazumi)
- A regional development model using FDI: Flowchart approach to industrial agglomeration policy in Asia (Prof. Kuchiki, Nihon University)
- Review of the legal/fiscal framework of resource countries (Mr. Miyatake, JOGMEC)

(2) Discussion on detailed plans for FY2018 study

Detailed plans were discussed for the following four study themes to be implemented in FY2018, and the implementation schedule was agreed as shown in Table 5-3.

[FY2018 Study Themes]

- Commodity market study (updated)
- Mongolia FDI flow (update)

  This year the research team will review the major investment projects that attract FDI and consider the major developments affecting the implementation of these projects.
- Revenue management (update)

  Identify the difficulties and key factors in maintaining fiscal discipline in revenue management. In particular, the institutional challenges that adversely affect the implementation of revenue management will be examined.

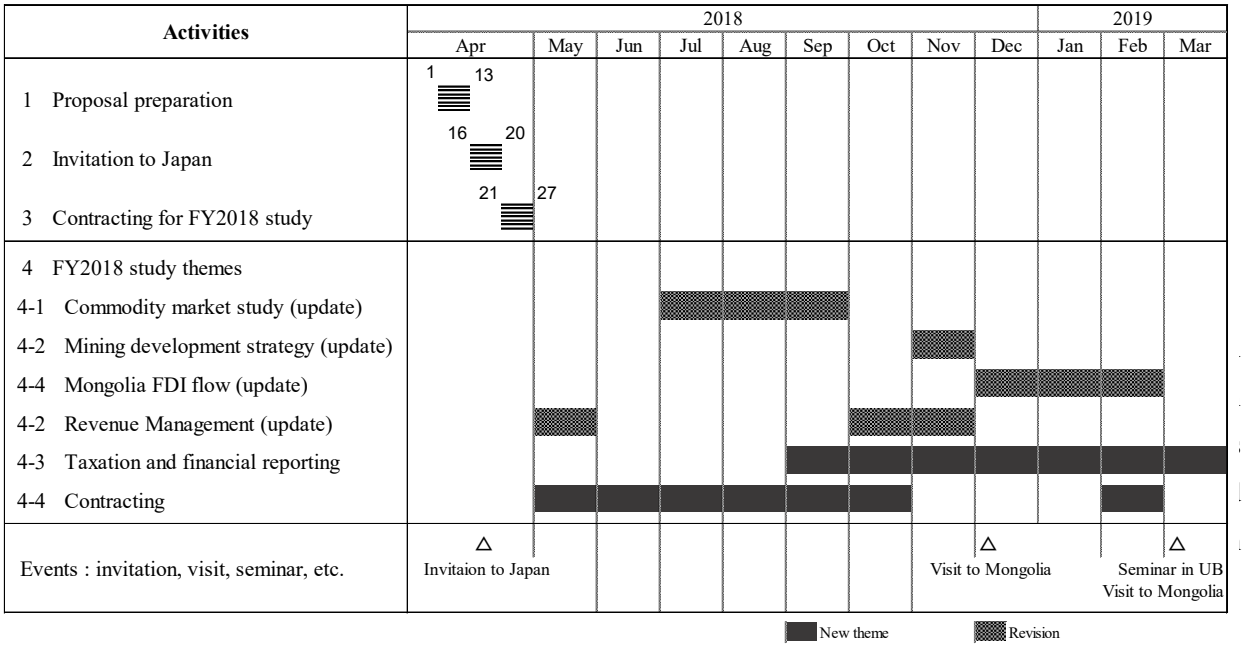
- Taxation and financial reporting

  This is a qualitative assessment of the taxation system and financial reporting of mining companies in the mining sector in Mongolia. A comparative study will also be conducted on the taxation and financial reporting systems of countries similar to Mongolia.

- Contracting

  It provides a modeling framework for contracts between the Mongolian government and mining companies based on international best practices.

Table 5-3 Study plan in FY2018



5.2 Fifth Visit to Monglia (November 2018)

In this visit, the Japanese project team checked the progress of FY2018 study and discussed with ERI researchers how to proceed with the further study to finalize the report. Comments from Japanese experts on the draft report prepared by ERI were also introduced. In addition, Japanese team reported on the status of study to the Ministry of Mining and Heavy Industry and the Ministry of Finance, and exchanged views with them.

5.2.1 Schedule

The schedule of the fifth visit is shown in Table 5-4.

Table 5-4 Schedule of fifth visit to Mongolia

Date	Activities	Participated Member
11/5 (Mon)	Move to Mongolia (Lv. Narita 15:30, Ar. Ulaanbaatar 20:25)	Y. Shibata, T. Shibata, S. Miyaike
11/6 (Tue)	09:00 - 12:00 Disccussion of the study progress with ERI 14:00 - 15:00 Courtesy call to JICA Mongolia office 15:00 - 17:00 Visit to Coordination of Policy Implementation Department, Ministry of Mining and Heavy Industry	Y. Shibata, T. Shibata, S. Miyaike
11/7 (Wed)	09:30 - 10:30 Visit to Economic Policy Department, Ministry of Finance 10:50 - 12:00 Visit to Heavy Industry Policy Department, Ministry of Mining and Heavy Industry 13:00 - 14:30 Disccussion on overall of the project with Prof. Khashchuluun, University of Mongolia 15:00 - 16:00 Visit to Advisor to the Minister, Ministry of Mining and Heavy Industry	Y. Shibata, T. Shibata, S. Miyaike
	09:00 - 12:00 Preparation for the afternoon discussion 13:00 - 17:00 Disccussion of the further study with ERI	Y. Shibata, T. Shibata, S. Miyaike
11/9 (Fri)	Return to Japan (Lv. Ulaanbaatar 08:55, Ar. Narita 14:30)	Y. Shibata, T. Shibata, S. Miyaike

5.2.2. Details of activities

(1) Confirmation of FY2018 study progress

- Taxation and financial reporting: The content was slightly revised from the original proposal, and the study started in October.
- Contracting: Draft reports have been prepared. The report will be finalized by reflecting the comments of Japanese experts.
- Revenue management (Update): Numerical simulations are conducted. The draft report will be prepared in November and sent to Japan.
- Commodity market study (Update): completed.

(2) Interm review for FY2018 study

Of the FY2018 study themes, the following three were reported.

(i) "Contracting" (Reporter: Prof. Khashchuluun)

- Because the private company's contract was not available, only Oyu Tolgoi contract was studied as a benchmark.
- The Japanese side suggested investigating international trends in resource development contracts, for example, activities by CONNEX.

(ii) "Revenue management (Update)" (Reporter: Mr. Manlaibaatar)

- The study in this year is to analyze the sensitivity of fiscal stability to the key parameters of the Financial Stability Act (FSL).

(iii)- 1 "Commodity market study (Gold and Copper; Update)" (Reporter: Ms. Khorol-Erdene)

(iii)- 2 "Commodity market study (Iron and Coal; Update)" (Reporter: Ms. Dulguun)

- The main trends in the world market were identified, and the predictions of demand, supply, and

price were examined.

Photo 5-1 Presentation by ERI researcher

Photo 5-2 Discussion with Mr. E. Nemekhbayar, Director of Macroeconomic Policy Division, MOF

5.3 Sixth Visit to Mongolia (March 2019)

In the sixth visit to Mongolia, Japanese project team discussed the results of the FY2018 study with Mongolian researchers and attended a seminar for Mongolia officials to present the results of the project.

5.3.1 Schedule

The schedule of the sixth visit is shown in Table 5-5.

Table 5-5 Schedule of sixth visit to Mongolia

Date	Activities	Participated Member
3/10 (Sun)	Move to Mongolia (Lv. Narita 15:30, Ar. Ulaanbaatar 20:25)	Y. Shibata, T. Shibata, H. Kobayashi (with Dr. Hosoi, JICA)
3/11 (Mon)	10:30 – 13:30 Disccussion with ERI on the followings - Details of activities during the visit - Final report of FY2018 study and seminor on Tuesday 14:00 – 15:00 Courtesy call to JICA Mongolia office 15:00 – 17:00 Preparation for the seminor	Y. Shibata, T. Shibata, H. Kobayashi (with Dr. Hosoi, JICA)
3/12 (Tue)	08:30 – 15:30 Participation in the seminar	Y. Shibata, T. Shibata, H. Kobayashi (with Dr. Hosoi, JICA)
3/13 (Wed)	09:00 – 12:00 Disccussion wth ERI on FY2019 study and next invitation to Japan 16:00 – 17:00 Meeting with Mr. Davaadorj, formal director of Heavy Industry Policy Department, MMHI	Y. Shibata, T. Shibata, H. Kobayashi (with Dr. Hosoi, JICA)
3/14 (Thu)	10:00 – 12:00 Visit to Coordination of Policy Implementation Department, Ministry of Mining and Heavy Industry 14:00 – 15:00 Reporting to JICA Mongolia office 16:30 – 17:30 Visit to Economic Policy Department, Ministry of Finance	Y. Shibata, T. Shibata, H. Kobayashi, (with Dr. Hosoi, JICA)
3/15 (Fri)	Return to Japan (Lv. Ulaanbaatar 08:45, Ar. Narita 14:30	Y. Shibata, T. Shibata,

5.3.2 Details of activities

(1) Discussions about comments from Japanese experts on the FY 2018 study

Opinions were exchanged on the results of the FY2018 study between Japanese project team and ERI researchers. Responses to comments from Japanese experts were also confirmed.

(2) Participation in seminar

ERI presented the results of FY2018 study for related ministries, companies, universities, etc. in Mongolia.

Date and time: March 12, 2019 9:00-12:40

Venue: Best Western Premier Tuushin Hotel (Soyombo Hall)

The seminar was held at the same time as the seminar of another project that ERI is jointly conducting with the Central Bank of Mongolia, with about 500 participants. In holding the seminar, JICA Chief Representative Ms. Tamura said, "Sustained development in Mongolia requires enhanced mining competitiveness and appropriate management of revenue, and this year's study themes include revenue management, which is expected to share information among parties concerned." At the seminar, presenters and participants actively discussed the results, and the results were reported on television and other media and widely disseminated to the general public. Table 5-6 shows the program of the Seminar.

Photo 5-3 Opening speech by Ms. Tamura, JICA Chief Representative

Photo 5-4 Seminar attendees

Photo 5-5 Presentation by Dr. Hosoi, Senior Advisor, JICA Headquarter

Photo 5-6 Presentation by Prof. Ch. Khashchuluun, National University of Mongolia

Table 5-6 The seminar program for FY2018 study

Time	Topic	Presenter
8:30 - 9:00	*Registration*	
9:00 - 9:10	Opening Remarks	E. Tamura *Chief Representative, JICA*
9:10 - 9:30	Economic vulnerability analysis : Balance Sheet Approach	D. Gan-Ochir *Bank of Mongolia*
9:30 - 9:50	Investment Reform Map for Mongolia	Xavier Forneris *World Bank Group*
Panel Discussion №1 : JICA Project session		
9:50 - 10:20	Revenue Management	Economic Research Institute
10:20 - 10:50	Contracting in Mining Sector	Economic Research Institute
10:50 - 11:10	*Coffee Break*	
11:10 - 11:40	Resource Contract	JICA
11:40 - 12:10	Foreign Direct Investment Inflow – Comparative Study	Economic Research Institute
12:10 - 12:40	Taxation and Financial Reporting in Mining	Economic Research Institute
	Closing Remarks / Lunch	
Panel Discussion №2 : Macro policies		
9:50 - 10:20	Degradation of Pastureland : Impact of the Livestock Taxation	Economic Research Institute
10:20 - 10:50	Analyses on Mongolian Economic Growth and Inflation	Bank of Mongolia
10:50 - 11:10	*Coffee Break*	
11:10 - 11:40	The Connectedness of Asian Countries : Network Analysis	Bank of Mongolia
11:40 - 12:10	Risk Analyses on the IMF's EFF Program in Mongolia	Economic Research Institute
12:10 - 12:40	Application of a Semi-structural Macroeconomic Model : Short and Medium-term Forecasts	Gerege Partners
	Closing Remarks / Lunch	

5.4 Summary of FY2018 results

Based on the study plan in FY2018, some study themes were updated, and two new themes were studied. The main results are as follows.

5.4.1 Update of commodity market study

Leader: B. Tuvshintugs (ERI)

Member: Z. Manlaibaatar (ERI), T. Dulguun (ERI), T. Oyunzul (ERI), D. Unurjargal (ERI), B. Khorol-Erdene (ERI), D. Ankhbayar (ERI)

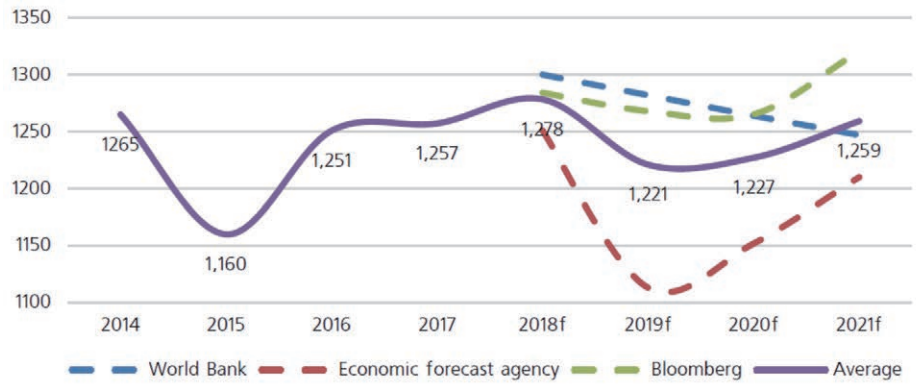
Gold market study

• World gold demand decreased by 6 % year-on-year in the first half of 2018. This decrease was due to a fall in demand for gold for investment as demand for jewelry remained constant and demand for industry

and reserves increased. In 2019, the demand for gold is expected to increase slightly as jewelry demand is expected to grow marginally, led by increased demand from China.

• Gold supply, determined by mining production, net producer hedging and recycled gold increased by 5 % year-on-year in the first half of the 2018. The primary cause of this increase was a 4 % increase in gold mining production, the largest component of gold supply. Moving forward, the outlook for the supply of gold is positive as mining production is expected to continue to modestly grow in the short term.

• The global gold price is expected to hover around the mid 1,200 USD mark as overall supply is expected to outstrip overall demand marginally. While some global instability persists, continued positive perceptions of the US economy is expected to demand for gold as a buffer against instability as investments are focused towards more lucrative options. As a result, gold prices may remain lower though gold prices are also known to be especially stable.



Source: World Bank, Economic Forecast Agency, Bloomberg

Figure 5-1 World gold price forecasts (USD per ounce)

• Mongolian demand for gold is expected to increase as the Bank of Mongolia continues to adhere to the Gold-2 program, and meets its 2018 goal of increasing gold purchases by 10 % from 2017. Mongolian supply also looks positive as Oyu Tolgoi's underground development is proceeding according to plan and the gold reserves of other projects have increased in light of more exploration drilling. Legal changes to the procurement of exploration and mining licenses are also expected to increase Mongolia's gold reserves in the near future.

Copper market study

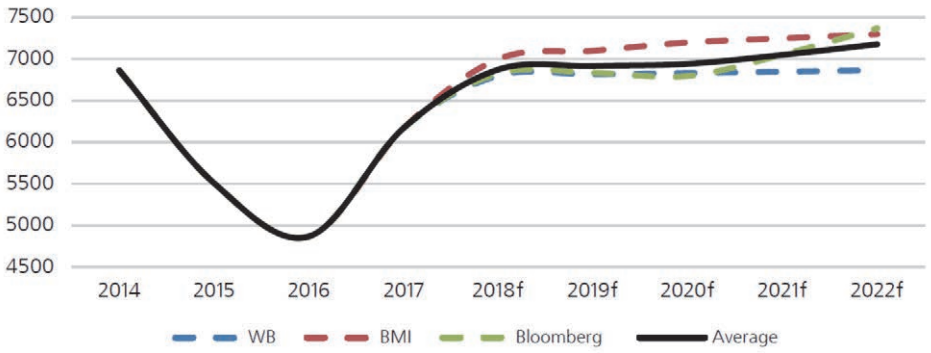
• World copper demand was flat during 2017 and decreased slightly in the first half of 2018 due to lower demand from China. According to Wood Mackenzie, the health of the global economy is to drive a modest 2 % acceleration in copper consumption growth in 2018. Also, electrifying society phenomenon which indicates transition to electric vehicles from combustion engine vehicles is the significant source of demand.

• Supply disruptions due to strikes at the Chilean Escondida and Peruvian Cerro Verde mines, the

Indonesian government's temporary ban on exporting copper concentrate as well as the fact that no new projects were started led to a 1.3 % production decrease in 2017. According to industry analysts, global copper mine production is expected to increase in 2018 by 3 % and remain flat in 2019.

• Since the third quarter of 2017, copper prices have continued to rise due to supply disruptions and US President Donald Trump's promise to invest more in infrastructure. However, since the beginning of the third quarter of 2018, the price has dropped due to supply growth, concerns of a slowdown in China's property sector as well as due to the US-China trade war. The copper price is expected to increase in upcoming years and beyond due to strong worldwide demand and constrained supply.

• Refined copper production was flat in 2017 and in the first half of 2018. According to the International Copper Study Group (ICSG), global refined production is expected to increase in short term. Increased availability of copper ore, concentrate, and scrap, as well as refinery capacity expansions are estimated to push up refinery production. Although the refined copper supply is expected to increase, demand is anticipated to grow at a faster rate. Thus, industry analysts have predicted a possible structural shortage in copper, expected to occur in late 2019.



Source: World Bank, BMI Research, Bloomberg

Figure 5-2 Copper price projection (USD per tonne)

• For the Mongolian market, local demand for cathodes is expected to increase due to the anticipated economic growth. The Chinese demand for Mongolian copper concentrate is also likely to be strong in the mid and long term due to the government's ban on importing copper scraps and overall increased electric vehicle sector demand. On the supply side, refined copper production is expected to be flat whereas copper concentrate production is expected to decline due to the grade decline of Oyu Tolgoi in short term.

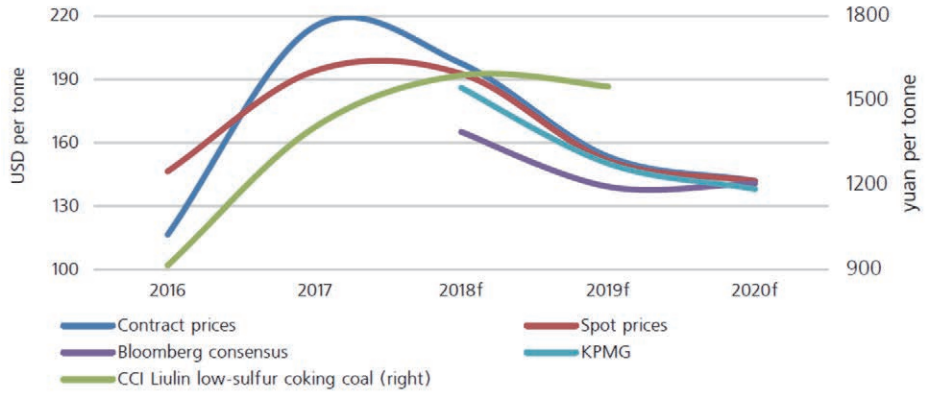
Coal market study

• World crude steel production was 1,691 million tons (Mt) in 2017, an increase of 5.3 % compared to the previous year. Economic Intelligence Unit forecasts production to increase in the short term. This is mainly driven by stronger production in Japan and India while Chinese forecasts are relatively weak due to the moderating construction activity, stricter environmental policies.

• World production of coking coal was 1,102 Mt in 2017 and it is forecasted to increase in short term.

Australian production is expected to increase due to the operation of new mines. Chinese production will remain stable and imports of coking coal is expected to decrease due to stricter environmental policies.

• Spot price of coking coal is forecasted to decline. This was mainly driven by softer demand from China whereas growing demand elsewhere in the world and constrained growth in supply are expected to provide some support to prices and it remains above 2016 levels.



Source: Department of Industry, Innovation and Science, Fenwei Energy, Bloomberg, KPMG

Figure 5-3 Coking coal price projection

• For thermal coal, hot weather, weak hydro power production and limited domestic production fostered Chinese import demand for thermal coal. But this growth is not expecting to continue due to import quote and higher domestic production. Also, environmental policies foster risk in consumption of thermal coal. From supply side, export of Indonesia and Australia is expected to remain stable in short term.

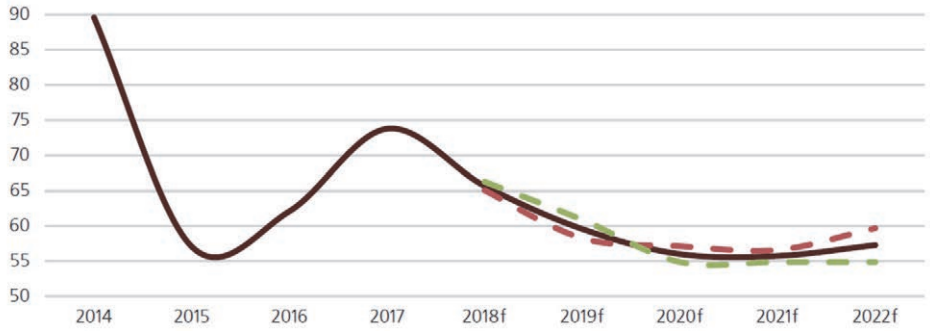
• Demand for Mongolia's coking coal is largely dependent upon the Chinese market. Mongolia exported 26.2 Mt of coking coal to China in 2017. China's imports of coal are expected to decrease in short term due to decrease of steel productions and usage of electric arc furnaces. From supply side, the total annual production capacity of Mongolian mining companies are approximately 45 Mt. Main hindrances in Mongolian export of coal are the transportation cost. There is opportunity to solve this issue through the IPO of Erdenes Tavan Tolgoi and infrastructure investments.

Iron ore market study

• World steel production was 1,689 Mt in 2017, an increase of 3.6 % year-on-year and it is projected to increase gradually in the short term. This increase was due to combination of decrease of steel production in China offset by increase of output in Japan and India. Chinese steel production is forecasted to gradually decline due to the environmental policies to fight air pollution and constrained demand whereas ongoing expansion of steelmaking capacity and increasing steel demand is fostering growth of India's steel production.

• According to BMI Research, world iron ore production rose by 3.3 % year-on-year in 2017 and it is expected to grow modestly in the short term. Australia's iron ore production is forecasted to increase due

to productivity improvements and replacement mines at Rio Tinto and BHP's operations whereas China's iron ore production is decreasing due to constrained steel demand and tightening environmental standards.
• China's decreasing steel production coupled with increasing supply in Brazil and Australia is expected to reduce iron ore price in the short term. Also, price spread among different grades of iron ore is expected to widen in the near term along with stricter environmental policies.



Source: Bloomberg, Intelligence and World Bank

Figure 5-4 Iron ore (62%) price projection (USD per ton)

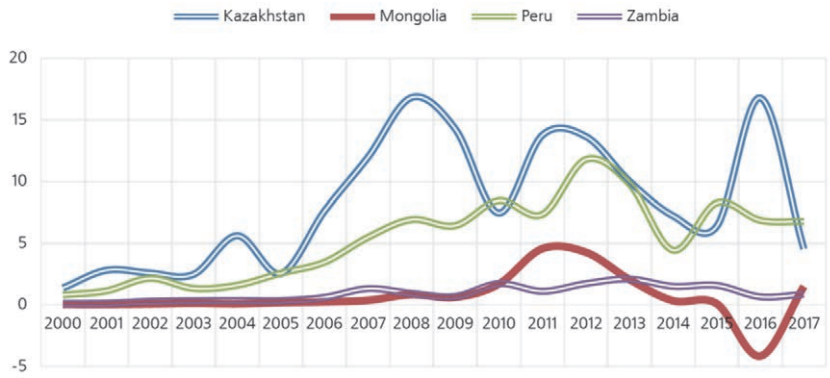
• For Mongolian iron ore industry, China is the target market. However, China's imports are forecasted to decrease due to moderating steel production. This will affect the negatively on demand of Mongolian iron ore. On the supply side, Mongolian iron ore production reached a historical high of 7.7 Mt in 2017 due to the growth of iron ore price on global market. In the long term, there are opportunities to increase exports through reducing transportation cost with the Sainshand-Khangi-Mandal-Bugat new railroad that was included on the list of planned railroads.

5.4.2 FDI Inflow into Mongolia (update)

Leader: Z. Manlaibaatar (ERI)

Member: T. Dulguun (ERI)

• In the previous two years studies, the investment climates of Mongolia and Chile were compared based on indices such as the Doing Business, Corruption Perception and Investment Attractiveness. Due to the differences in mining sector development time periods of Mongolia and Chile, in this update, three different countries were chosen for comparison. These countries' mining sector only recently began to immensely contribute to GDP and exports: Kazakhstan, Peru and Zambia. Additionally, these countries are categorized as middle-income similar to Mongolia whereas Chile was ranked as a high-income country.
• In addition to updating the indices for all four countries, their regulatory and institutional frameworks were studied to determine what gave some of these countries an edge over the others in terms of attracting foreign direct investment. In particular, the policies and trends of each country's promotion and facilitation of foreign direct investment into the extractive industries were analyzed.



Source:UNCTAD,

Figure 5-5 FDI net inflow, BoP current billion USD, 2000-2017

• Based on the analysis of the countries' investment environments, recommendations which could be applied to Mongolia based on the successful policies implemented by Kazakhstan, Peru and Zambia were made by the research team:

Diversification

- Priority sector: agriculture, such as cashmere and meat industry
- Identify other sectors which have greatest potential in attracting FDI

"One-stop shop"

- Provide assistance and help streamline licensing procedures for starting business for foreigners for all sectors, not just mining
- Accessible online and in-person

Stable environment

- Institutional and business environment should be stable, meaning regulations and laws are not frequently changed as investors prefer certainty
- Implementation of stabilization clauses for long-term investment contracts

Transparency

- Make all major investment agreements publicly available (currently only OT agreement is available along with a couple of local level agreements)
- Inclusion of local communities and public in negotiation discussions

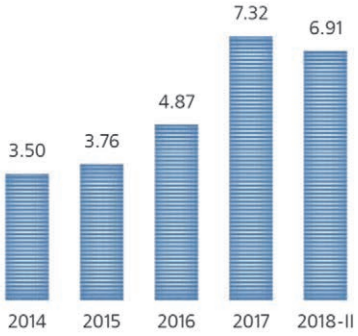
5.4.3 Revenue management (update): Fiscal sensitivity analysis

Leader: B. Tuvshintugs (ERI)

Member: Z. Manlaibaatar (ERI), B. Munkh-Ireedui (ERI), T. Dulguun (ERI)

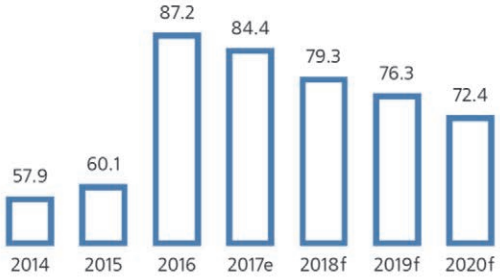
• Mongolia has experienced a number of economic upturns and downturns over the years. The economic boom in 2012 was followed by a slowdown when mineral commodity prices significantly fell on the world market. As budget expenditures increased and revenues fell, the government's public foreign debt grew substantially. The Fiscal Stability Law (FSL) was adopted in 2010 and a Fiscal Stability Fund (FSF) was

established in 2011 to prevent economic fluctuations and to promote sustainable economic growth instead. However, the implementation of these fiscal policies has been delayed and amended a number of times.



Source: Bank of Mongolia

Figure 5-6 Public debt (billion USD)



Source: World Bank

Figure 5-7 Debt/GDP (%)

• In the previous study, the impact of the implementation of the FSL on the economy was assessed. The simulations conducted in the study indicated that the FSL could counteract and lessen the de-industrialization effect of mining development.

• The FSL set ceilings on four key budget indicators such as budget revenue, budget expenditure, deficit and public debt. Thus, in this study, the sensitivity of economic performance to changes in some of the key requirement of the FSL was analyzed. Two key benchmark parameters of the FSL were relaxed: ceiling on the growth of budget expenditure and restriction on the budget revenue.

Main findings:

- The FSL contributes significantly to the reduction of economic fluctuation; however, the implementation of the law needs to be stricter.
- When not implementing provisions related to budget revenue or expenditure or both from the law, the greatest impact on the economy was observed when the government expenditure restriction was not in place. In other words, when budget expenditures significantly increase, the economy becomes more destabilized and prone to fluctuations. Another notable observation was that the FSF played a key role in limiting economic fluctuations caused by revenue.
- The simulations run in the study do not reflect the fluctuations observed in real life as the impacts of revenue fluctuations are subdued by the implementation of the FSF. Thus, economic fluctuations may be more amplified if budget revenue forecasts are high and expenditures rise significantly similar to previous years. Additionally, even though the fund stabilizes the impacts of revenue fluctuations during periods of high volatility, the economy remains fragile.

5.4.4 Taxation and financial reporting

Leader: B. Tuvshintugs (ERI)

Member: N. Enkhbayar (Independent consultant), B. Khorol-Erdene (ERI), T. Oyunzul (ERI)

• For certain countries, their natural resource endowment constitutes a significant portion of national wealth. On one hand, mineral resources can drive economic development, while on the other, mineral resources are exhaustible and nonrenewable. In light of these characteristics, maximizing the benefit from mineral resources is crucial for stakeholders in the mining industry. Most mining projects continue for decades or longer and require significant sunk costs during the initial period of the project on exploration and construction. Mining production requires expansive technologies and machineries as well as highly skilled technical and managerial human capacity. Due to the immobile aspect of natural resources and the scarcity of the technology and workers required, most resources are explored and extracted by the private sector through domestic and foreign direct investment. Therefore, governments are usually responsible for maximizing the economic benefits of mining to not only the state and local governments, but to the broader community through its fiscal regimes as well.
• Considering the importance of the mining sector taxation regime in collecting and distributing the benefits of mining, keeping an appropriate balance between promoting private mining sector activity on one hand while reaping its due benefits on the other is key. Therefore, the objective of this report lies in comparing the Mongolian taxation scheme in the mining industry to other countries in order to identify its challenges and opportunities. In particular, at the request of the Ministry of Mining and Heavy Industry, the research team focused on whether there is a need to use taxation as a tool to incentivize the mining industry, what measures or instruments are available to promote the mining industry and in this regard, what Mongolia can learn from the experiences of other countries.
• In light of the specific characteristics of the mining sector, its taxation scheme can differ significantly from those of other sectors. As defined by the Natural Resource Governance Institute (NRGI), the fiscal regime of the mining sector can be understood as the set of interrelated legal, regulatory and contractual instruments through which the state shares revenues generated by extractive projects. While these instruments can differ from country to country, when designing the fiscal regime, they are generally utilized to reach the following 4 goals.

1. Maximizing the economic return to the state from its resource endowment
2. Sharing risks and expected returns between the state and the investors
3. Consistency with national development context and strategy
4. Ease of administration and compliance

• While a multitude of varying fiscal instruments are utilized, they can also be broadly categorized into the following three divisions: fixed fees (License fees, Signature bonuses), per-unit charges (Royalties, Import tariffs, VAT, Land rents, Property taxes), and shares of measured profits (Profit taxes, Dividends, Profit shares, Production sharing arrangements, Resource rent taxes, Windfall taxes).
• Research team then looked into the international practices concerning mining taxation and incentives in resource rich countries such as Chile, Peru, Australia, Canada, Tanzania and South Africa.

• Overall, the research team found that while some mining specific regulations are detailed in legislation such as the Minerals Law, Investment Law as well as the Corporate Income Tax Law, the majority of the elements between the government and mining projects are fleshed out through investment and stabilization agreements. Considering the overall generality of mining taxation legislation in Mongolia, there is room for legislative improvement in order to promote the mining sector.
• However, previous research has found that the effectiveness of tax incentives is largely dependent on the level of institutional quality. According to the "Doing Business" report published by the World Bank, the "Economic Freedom Index" created by the Heritage Foundation as well as the "Policy Perception Index" made by the Frazier Institute, Mongolia's institutional quality is deemed weak. While Mongolia's mineral potential is quite high, and its tax challenges are not as pronounced as other similar countries, political and policy stability remains a concern for investors.
• Although there is room for tax incentives, given Mongolia's quality of institutions, it would not be the primary contributor to increasing the attractiveness of investing in mining in Mongolia. Instead, as long as political and economic stability remains a concern, policies should be targeted towards ensuring stability, improving the business environment and providing consistency.

5.4.5 Contracting

Leader: B. Tuvshintugs (ERI)

Member: Ch. Khashchuluun (NUM), Z. Manlaibaatar (ERI), Unurjargal (ERI), T. Dulguun (ERI)

• Most foreign direct investments into Mongolia are directed into the mining sector due to the investment attractiveness of natural resources. Projects in the mining sector have several impacts on the host country. First of all, large mining projects have significant socio-economic impacts pertaining to social responsibility, management of displacement, issues of water and land usages and provisions of local employment opportunities. Secondly, mining projects spill over into other sectors such as energy, infrastructure and transportation which requires additional investments. Third, due to the complex nature of mining project financing and magnitude, the repercussions on the country's finances are sizable. Therefore, it is crucial for the host country to enter into a well-developed contract which considers all direct and indirect effects.
• This study aims to study the legal and policy framework of Mongolia, specifically the Oyu Tolgoi investment agreement, in entering into agreements with mining companies and to compare this with international practices of mining investment agreements. Part of the review process is identifying the ways to increase the benefits received by the host country, which includes analysis of the fiscal benefits to the government such as royalties and taxes, equity arrangement, local procurement of goods and services, infrastructure, maximization of employment opportunities, community engagement, social and environmental issues such as land, stakeholder groups, and water. By analyzing the advantages and disadvantages of the current contracts in Mongolia, it will assist in identifying the clauses needed for subsequent agreements as well as the changes that need to be made in Mongolia's mining sector and institutional environment.

• Currently, the Oyu Tolgoi agreement is the only publicly available investment agreement for Mongolia and due to this transparency, the agreement is deemed as an example of a "good" contract in international literature. The agreement is also mindful of a number of crucial issues and includes most of the key elements of model contracts generated by international institutions. Due to the nature of mining projects, developing a standardized model contract is not possible and thus, every mining project contract is negotiated on a case-by-case basis. Thus, the Oyu Tolgoi agreement, like every mining contract, has its pros and cons.

Pro	Con
◂ Detailed articles on maximizing employment opportunities such as capacity building and trainings ◂ Community engagement is facilitated through a special council which aims to assist in regional development and dialogue ◂ Oyu Tolgoi is often cited as an example of good sustainable water usage in arid areas	◂ Double tax treaties ⇨ loss of revenue for Mongolia ◂ Equity and financing arrangements ⇨ high interest rate on loan used for 34 percent stake ◂ Issues surrounding infrastructure is mentioned in the contract in an unclear and/or broad manner

General recommendations and findings:

- The spillovers from the mining project to infrastructure, regional development and social issues are all governed by different laws, thus, a unified approach is needed
- Government should develop an integrated form of agreement with an integrated project delivery platform
- When negotiating an investment agreement, consensus from all stakeholders should be received
- Include international standards and requirements in model contract which remain unchanged despite changes in commodity prices and economic conditions
- Set limitations and ranges in certain provisions, such as taxes, of the model contracts during the negotiation process to allow for changes depending on the circumstances

Chapter 6 Activities of Phase II : FY 2019

6.1 FY2019 Invitation and Study Plan

Mongolian researchers were invited to Japan to exchange opinions with the purpose of discussing the FY2018 study results and the FY2019 study plan. The content of the implementation is as follows.

6.1.1 Schedule and member of invited researchers

Table 6-1 Schedule of inviting program of Mongolian researchers in 2019

Date	Time		Place to visit	Activities	Place to stay
4/15 (Mon)	07:45		Lv. Ulaanbaatar	Moving from Ulaanbaatar to Narita by Air (OM501)	Tokyo
	13:40		Ar. Narita		
4/16 (Tue)	09:30 - 09:45		JICA Headquarters	♦Courtesy call to JICA	Tokyo
	10:00 - 12:00		Kousaikaikan	♦Discussion on the project with JICA study team	
	14:00 - 17:00		Kousaikaikan	♦Presentation of FY2018 study results by ERI ♦Discussion on the study results with JICA study team	
4/17 (Wed)	09:30 - 12:00		Kousaikaikan	♦Exchange of views with Japanese Experts : Prof. Asanuma (Hitotsubashi University), Prof. Tanaka (Meiji University), Mr. Oura (Ministry of Economy, Trade and Industry)	Tokyo
	14:00 - 17:00		Kousaikaikan	♦Meeting with JICA study team ♦Discussion of detailed program of FY2019 study	
4/18 (Thu)	09:30 - 11:30		MMTEC	♦Exchange of views with Japanese Experts : Mr. Miyatake, JOGMEC	Tokyo
	14:00 - 17:00		MMTEC	♦Meeting with JICA study team ♦Discussion of detailed program of FY2019 study	
4/19 (Fri)	#1	14:00 - 17:00	MMTEC	♦Rivision of the proposal for FY2019 study ♦Preparation of the contract	Tokyo
	#2	14:40	Lv. Narita	Return to Ulaanbaatar by Air (OM502)	
		19:15	Ar. Ulaanbaatar		
4/20 (Sat)	#1	14:40	Lv. Narita	Return to Ulaanbaatar by Air (OM502)	
		19:15	Ar. Ulaanbaatar		

#1 Dr. Tuvshintugs, Mr. Manlaibaatar, Ms. Oyunzul
#2 Mr. Batbold, Mr. Gankhuu, Mr. Ganbayar

Table 6-2 List of invited Mongolian researchers in 2018

Name	Position and Organization
Economic Research Institute (ERI), National University of Mongolia (NUM)	
Dr. Tuvshintugs Batdelger	Director of ERI Associate Professor of Economics of NUM
Mr. Manlaibaatar Zagdbazar	Senior Researcher at ERI
Ms. Oyunzul Tserendorj	Researcher at ERI
Ministry of Mining and Heavy Industry	
Mr. Batbold Erdenebileg	Director General of Strategic Policy and Planning Department,
Mr. Gankhuu Ganbat	Head of Monitoring, Evaluation and Internal Audit Department
Ministry of Finance	
Mr. Ganbayar Javkhlan	Senior Economist, Macroeconomic Policy Division of Economic Policy Department,

6.1.2 Details of activities

(1) Exchanging opinions between Japanese experts and Mongolia researchers

ERI researchers reported the results of FY2018 study and the FY2018 study plan to Japanese experts, and both parties exchanged views .

(2) Discussion on detailed plans for FY2019 study

Detailed plans were discussed for the following four study themes to be undertaken in FY2019, and the implementation schedules and framework were agreed.

[FY2019 Study Themes]

- Commodity market study (update)
- Mongolia FDI flow (update)

  This fiscal year we will focus on international settlements of disputes, particularly arbitration, to identify methods and mechanisms for avoiding potential future conflicts in advance, effectively resolving conflicts that have arisen, and improving the contracting system of the mining sector.
- Marketing and trading (Update)

  This year, we will conduct a survey on the possibility of establishing mineral commodity trading in mineral products, especially coal. We will also conduct a detailed study of international best practices on mineral commodity exchanges, focusing primarily on coal trade practices in China and Australia.
- Revenue Management (Update)

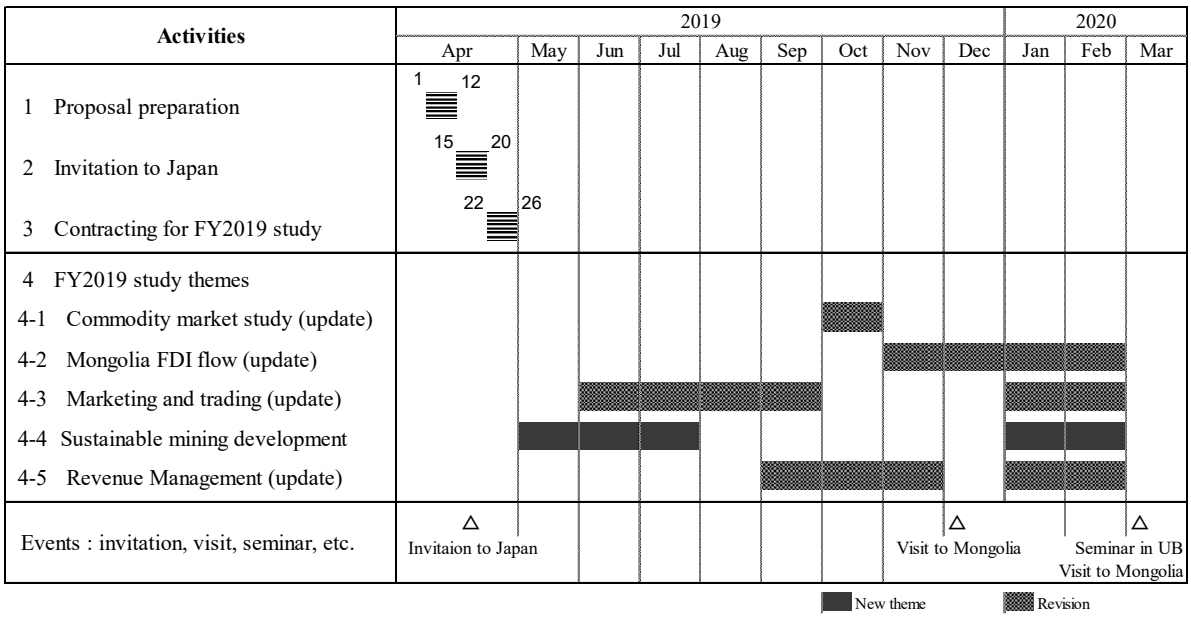
The simulation so far has assumed that the Fiscal Stabilization Fund Act (FSF) is implemented to be reflected in the Fiscal Stabilization Act (FSL), and does not take into account the effects of the Future Heritage Fund Act (FHF). Since the impact of earnings fluctuations is limited by the implementation of FSF, the simulation does not reflect actual fluctuations. Therefore, the effects of FSF and FHF on the economy will be investigated in this fiscal year.

- Sustainable mining development

  This study examines the issues that arise in the course of the mining sector's active contribution to the sustainable development of Mongolia. Particular attention will be paid to the environmental aspects of mining policy and the current regulatory framework for dealing with mining waste will be evaluated.

Table 6-3 shows the FY2019 study schedule.

Table 6-3 Study plan in FY2019



6.2 Seventh Visit to Mongolia (November 2019)

In the seventh visit, the progress of the FY2019 study conducted in ERI was reported, and the detailes of the study were discussed. Main activities are as follows.

- Confirmation of the implementation status of the FY2019 study and review of the content
- Confirmation of future implementation schedule for FY2019 Study
- Report on project implementation status and exchange of opinions with the Ministry of Mining and Heavy Industry and the Ministry of Finance
- Discussion on the seminar to be held in Ulaanbaatar in March 2020
- Discussion on the forum to be held in Tokyo in April 2020

6.2.1 Schedule

The schedule of the seventh visit is shown in Table 6-4.

Table 6-4 Schedule of seventh visit to Mongolia

Date	Activities	Participated Member
11/17 (Sun)	Move to Mongolia (Lv. Narita 15:30, Ar. Ulaanbaatar 20:25)	Y. Shibata, T. Shibata, K. Nakayama, S. Miyaike (with Dr. Hosoi, JICA)
11/18 (Mon)	10:00 - 13:00 Disccussion with ERI on the followings - Detailed activities during the visit - Progress of the study 14:00 - 15:50 ditto. 16:00 - 16:50 Courtesy call to JICA Mongolia office	Y. Shibata, T. Shibata, K. Nakayama, S. Miyaike (with Dr. Hosoi, JICA)
11/19 (Tue)	10:30 - 12:00 Visit to Heavy Industry Policy Department, Ministry of Mining and Heavy Industry 12:10 - 14:10 Disccussion on overall of the project with Prof. Khashchuluun, University of Mongolia 15:00 - 16:00 Visit to Economic Policy Department, Ministry of Finance	Y. Shibata, T. Shibata, K. Nakayama, S. Miyaike (with Dr. Hosoi, JICA)
11/20 (Wed)	Site visit to Shivee-Ovoo coal mine	Y. Shibata, T. Shibata, K. Nakayama, S. Miyaike (with Dr. Hosoi, JICA)
11/21 (Thu)	10:00 - 12:00 Discussion with ERI on the schedule and activities of next visit to Mongolia 13:00 - 17:00 Preparation for the Friday discussion	Y. Shibata, T. Shibata, K. Nakayama, S. Miyaike (with Dr. Hosoi, JICA)
11/22 (Fri)	10:00 - 12:00 Discussion with ERI on the followings - Seminar held on March 2020 in Ulaanbaatar - Forum held on April 2020 in Tokyo 16:00 - 17:00 Reporting to JICA Mongolia office	Y. Shibata, T. Shibata, K. Nakayama, S. Miyaike (with Dr. Hosoi, JICA)
11/23 (Sat)	Return to Japan (Lv. Ulaanbaatar 08:55, Ar. Narita 14:30)	Y. Shibata, T. Shibata, K. Nakayama, S. Miyaike (with Dr. Hosoi, JICA)

6.2.2 Details of activities

(1) Confirmation of FY2019 study progress

- Mongolian FDI flow (Update): Work in progress.
- Marketing and trading (Update): Completed work in fiscal 2019. The report has been prepared.
- Sustainable mining development: The draft report will be prepared by the end of November and will be sent to the Japanese side. The report will then be finalized by reflecting the comments of Japanese experts.
- Revenue management (Update): Draft reports have been prepared. The report will be finalized by reflecting the comments of Japanese experts.
- Commodity market study (Update): Update completed. The report has been prepared.

(2) Interim review for FY2019 study

(i) "Sustainable mining development" (Reporter: Prof. Khashchuluun)

- It is important to compile the results of these surveys as policy recommendations.
- It is important for Mongolia to explore sustainable economic development using the development of the mining sector.
- Attention is required in the examination of mineral reserves (how many years it is possible to develop the reserves, etc.). Since reserves are calculated under various conditions, and also depend on the price of metal at that time, care must be taken in handling the reserves.
- The diversity of industrials will be developed from the surrounding industries based on the mining sector.

(ii) "Commodity market study; Update" (Reporter: Mrs. Khorol-Erdene Researcher)

- Mongolia's statistical data indicates that it imports a large amount of copper, which is not smelted copper but rather imported as "copper products."
- The export of iron ore from Mongolia is iron concentrate containing 62% (Fe) after beneficiation.

(iii) "Revenue management": Update (reporter: Dr. Ragchaasuren)

- Fiscal Stability Fund (FSF) and Future Heritage Fund (FHF) being sovereign wealth funds have been studied for their development since 2011.
- Macroeconomic analyses were conducted using Computable General Equilibrium Model (CGE-model). The input-output tables for the 47 × 47 matrix are compiled using 2017 data.
- Simulations were conducted under the condition of combinations of the presence and absence of FSF and FHF, and the effects of revenue and GDP due to fluctuations in mineral commodity prices were examined. In the FY2018 study, simulations were conducted using only FSF.

(iv) "Marketing and trading": Update (Reporter: Mr. Manlaibaatar)

- As the necessity of a mineral commodity exchange was pointed out in the research of the previous fiscal year, the possibility of the establishment of a mineral commodity exchange was examined this fiscal year.
- The establishment of a commodity exchange is not necessarily for the solution of eliminating uncertainties in trading and improving conditions.
- Commodity exchanges are not profitable, but they are expected to increase the transparency of all transactions.

Photo 6-1 Presentation by ERI researchers

Photo 6-2 Site visit to Shivee-Ovoo coal mine

6.3 Eighth Visit to Mongolia (planned in March 2020)

The eighth visit to Mongolia was planned in March 2020 to review the results of the 2019 study and to attend a seminar to present the results of the project to the Mongolian officials, but decided to cancel it due to the pandemic of COVID-19. The seminar was postponed due to the restrictions on large scale gatherings in Mongolia.

6.4 Summary of FY2019 results

Based on the study plan in FY2019, three study themes were updated, and one new theme was studied. The main results are as follows.

6.4.1 Update of commodity market study

Leader: B. Tuvshintugs (ERI)

Member: Z. Manlaibaatar (ERI), T. Dulguun (ERI), T. Oyunzul (ERI), D. Unurjargal (ERI), B. Khorol-Erdene (ERI), D. Ankhbayar (ERI)

Gold market study

• In summary, world gold demand increased 8 % year-on-year in the first half of 2019. This increase was supported by an increase in the demand for jewelry as well as an increase in the demand for gold for investment and central bank purchases. Jewelry demand, the largest component of world demand, increased 1 % due to as 12 % year-on-year surge in Indian demand. Technology demand was low as the trade war between the US and China led to a general slowdown of the electronics sector. Meanwhile, gold demand for investment grew 2 % as the demand for gold backed ETF (Exchange Traded Fund) were boosted by overall global uncertainty. Likewise, gold purchases by central banks grew an exponential 57 % as central banks were keen to diversify their assets in response to geopolitical uncertainty, lackluster global economic growth and mounting trade tensions. Moving forward, jewelry demand is expected to be sluggish as high prices may reduce consumer demand while the ongoing trade war dampens technology demand. Continued global uncertainty on the other hand, is expected to keep gold demand for investment and central bank purchases elevated.

• World gold supply, consisting of mining production, net producer hedging and recycled gold saw a 2 % increase in the first half of 2019. Mining production in China, South Africa and Indonesia experienced continued falls as the issues detailed in the previous report persisted. This drop however, was mitigated by increased production in Russia, Canada and Ghana. Net producer hedging was led by Australia as the Australian dollar weakened during the first half of 2019 and mining companies were keen to take advantage of higher gold prices. However, the reporting period saw overall net de-hedging. Recycling increased 7 % year-on-year as countries wanted to capitalized on the high price of gold. This was especially the case in Iran, India and China. Moving forward, overall gold supply is slated to increase as production in major gold

producing countries ramp up and a steady project stream is expected.

• In light of uncertain global economic conditions, the price of goal is expected to remain elevated around the 1350 USD per ounce mark for the rest of 2019. Moreover, this is supported by monetary policy easing in several countries with the policy rate cuts by the US Federal Reserve playing a particularly important to role is keeping gold prices up.

• As a price taker, the price of Mongolia gold is dependent on the world price of gold coupled with the exchange rate. As the world price of gold is expected to continue to rise, the price of Mongolian gold is expected to increase in tandem. As for Mongolia demand and supply, demand is expected to drop as the increased gold royalty rate effective since January 2019 increases the cost of producing gold and dampens gold purchases made by the Bank of Mongolia. On the supply side, while Oyu Tolgoi's underground development has been delayed, Mongolia's overall project stream, its increase in gold reserves as well as the planned establishment of a gold refinery plant all support increased gold production in the future.

Copper market study

• International organizations such as the IMF, World Bank and Bloomberg modified their copper price forecasts in 2019 as the worsening macroeconomic environment, spurred by the escalating trade war between the United States and China, has lowered Chinese consumption levels and loosened the global copper market. However, according to industry analysts, copper prices are expected to increase in the long term as the current copper price decline is temporary and the high demand for copper will lead to a supply deficit that will drive prices up again.

• Global refined copper consumption is expected to steadily grow over the coming years, driven by demand from the power industry, rising electric vehicle production, and broadly positive global outlook. Infrastructure development in major countries such as China and India and the global trend towards cleaner energy will continue to support copper demand. On the supply side, global copper production is expected to decline by about 0.5 % in 2019 and then grow by around 2 % in 2020. As such, in the long term, global copper production is expected to display steady growth.

• As for the Mongolian market, anticipated economic growth is expected to increase local demand slightly. The Chinese demand for Mongolian copper concentrate is also likely to be strong in the mid and long term due to the government's ban on importing copper scraps and global increasing electric vehicle demand. On the supply side, refined copper production is expected to be steady and copper concentrate production is expected to decrease due to Oyu Tolgoi's delayed underground mine development and forecasted grade decline in short term. However, in the long term, copper production is expected to increase due to new projects such as the Tsagaan Suvarga and Kharmagtai projects.

Coal market study

• Coking coal demand is heavily dependent on China. The Chinese steel industry has observed a boosted production in 2019 due to government stimulus measures to promote infrastructure. However, this trend may not continue into the future as the Chinese environmental policies outweigh short term programs

implemented by the government. Additionally, quotas on annual Chinese coking coal imports have been placed by the Chinese government to promote its domestic coal industry. Thus, any changes in Chinese trade or environment policies can significantly fluctuate demand for coking coal.

• On the supply side, Australia remains the largest exporter of coking coal. However, even Australia's coal exports are heavily swayed by Chinese policies as observed in February when it took over a month for Australian coals to clear Chinese ports and customs and due to this, prices of Australian coal dropped. An interesting trend being observed over the last year is the emergence of Mongolia as a major exporter, especially to China. With favorable quality grade coking coals, there are speculations that Mongolia may surpass Australia as China's number main importer in the future.

• As supply is expected to outpace demand growth slightly, prices of coking coal are expected to decline in 2020 and remain stable around 150 USD per Mt.

Iron ore market study

• Iron ore price is forecasted to be 88.8 USD per tonne in 2019 and decline to 72.2 USD per tonne in 2022. Iron ore demand is heavily dependent upon the Chinese market whereas supply and production are dependent on Australia and Brazil. In 2019, the combination of supply disruptions in Australia and Brazil and increased Chinese demand for iron ore will likely lead to higher iron ore prices. However, this elevated level of price will not sustain. Recovery in iron ore production of Vale and large planned iron ore projects in Australia will likely increase iron ore production from 2020 and on. The end of the Chinese government stimulus program and stricter environmental regulations will limit the steel production in China. These factors on both the demand and supply side will pull down iron ore prices from 2020.

• Mongolian iron ore mines export a large majority of its products to China. In 2018 and during the first half of 2019, the iron ore exports sharply increased due to higher price. However, China's iron ore imports will likely decline due to the decrease in steel production and stricter environmental regulations. Considering expected domestic steel plants projects, there is a possibility to generate extra iron ore demand in the domestic market.

6.4.2 FDI Inflow into Mongolia (update)

Leader: Z. Manlaibaatar (ERI),
Member: T. Dulguun (ERI)

• FDI is a key driver of economic growth in Mongolia and as the previous reports by ERI have shown, Mongolia's investment environment and how it deals with investor disputes can promote or hinder FDI inflow. Thus, improving Mongolia's legal environment and how investment disputes are resolved are a vital part of promoting overall FDI.

• In terms of enforcing contracts and the number of days it takes to resolve commercial disputes, Mongolia scores marginally above the average of east Asia and Pacific region. However, it lacks in terms of the quality of its judicial processes. Thus, improvements in judicial quality, namely court structure, case management,

court automation and alternative dispute resolution are necessary.

• In term of court structure, the creation of specialized commercial and small claims courts may be needed. However, this is a long process that needs to be implemented carefully and adjusted accordingly to be successful. Thus, Mongolia should first focus on collecting data from its judicial system and conducting the necessary research in order to see if it would be beneficial to establish specialized courts.

• Likewise, in terms of case management, the government should collect more data and implement more performance measures in order to promote and enforce better judicial performance standards. As for court automation, recent strides such as making judgements public have led to improvements in how judges write up judgements. Further improvements, however, would require heavy government involvement to establish the necessary infrastructure needed (such as a fully electronic database to improve court automation). As for Alternative Dispute Resolution, better utilization of Mongolia's mediation system and more comprehensive training of mediators and judges on how to best offer mediation services could reduce the workload of the courts and improve court efficiency.

• These suggestions would lead to an overall improvement in Mongolia's legal environment, indirectly bolstering FDI. However, most FDI related disputes, particularly in the mining sector, depend on arbitration for its resolution. Arbitration is distinct in that it does not depend on the domestic judicial system of the host country and requires the prior consent of participating parties. As Mongolia is already part of an ever widening network of International Investment Agreement and Bilateral Investment Treaty, the issue of party consent does not occur often.

• However, as more Investor-State Dispute Settlements (ISDS) cases are likely to appear due to the increased FDI into Mongolia and its globalizing economy, its best to focus on preventing needless cases of ISDS moving forward. As the analysis of previous ISDS cases have shown, Mongolia's domestic legislation seems to have made improvements. However, the issue of their implementation and the government's adherence to due processes remains an issue. In fact, the majority of cases of ISDS involving Mongolia seems to be centered on indirect expropriation due to unlawful license nullification. Thus it is key for Mongolia to focus on bettering its legal environment by improving the government's adherence to due processes while learning from past ISDS cases such as the Khan Resources case. This will lead to more stable government actions are in line with the government's policies to promote FDI. In fact, the creation of the Investor Protection Council and the settlement of the Khan Resources case highlight the government's willingness to adhere to its FDI promotion policies.

6.4.3 Marketing and trading (update)

Leader: Z. Manlaibaatar (ERI)

Member: B. Delgermaa (ERI), T. Oyunzul (ERI), B. Khorol-Erdene (ERI)

• Currently, most of Mongolia's mineral commodity trading is done through direct sales contracts using intermediary traders. This practice, however, has numerous disadvantages that call for the establishment of a mineral commodity exchange. Some of the disadvantages include the same products being sold at

different prices, the undervaluation of Mongolian mineral commodities, a low interest in processing commodities, a lack of transparency of commodity sales contracts, difficulties in taxing commodity production and lower tax revenue as a result. Not only can many of these drawbacks be mitigated with the establishment of a mineral commodity exchange, Mongolia's economy will be positively affected as well.

• As with all other businesses, for a commodity exchange to be successful, the exchange must facilitate a large number of trades. This is especially true for mineral commodity exchanges which must also attract the attention of foreign buyers, intermediaries and financial institutions. In Mongolia's case, while the production volumes and quality of Mongolian coal, iron ore and copper concentrate attract significant attention from potential buyers, the country's weak transportation infrastructure poses a challenge. For a mineral commodity exchange to be viable, Mongolia must heavily invest in warehouses, logistics centers and transportation infrastructure. Moreover, Mongolia's current level of financial services development and its macroeconomic environment is lacking when compared to neighboring countries.

• In addition, Mongolia's legal environment and government policy on the development of a mineral commodity exchange is unclear and unstable. As a result, while there have been numerous attempts to establish a mineral commodity exchange, none have been successful. Moreover, while the government of Mongolia expressed an interest in establishing a mineral commodity exchange with 100% private sector investment in partnership with both foreign and domestic enterprises, currently Erdenes Mongol, a state-owned enterprise, is working on the project to establish a mineral commodity exchange. This should ideally be avoided as many international studies have found that state-owned mineral commodity exchanges have had limited success.

• In the case of establishing a new mineral commodity exchange, in addition to ensuring the availability of factors such as trading programs, networks and the technical infrastructure needed to operate an exchange, numerous regulations, guidelines and legislations have to be either amended or ratified to oversee the operations of a mineral commodity exchange. Likewise, a new exchange would require a qualified workforce in addition to well-informed buyers and suppliers. Activities to increase the capacities of all participants must therefore be regularly conducted. As these necessities all require ample investments, detailed feasibility studies of establishing a new mineral commodity exchange must be conducted and compared with other viable options.

• The first option entails expanding the current operations of the previously established Mongolian (Agricultural) Commodity Exchange to include mineral commodity trading. With this option, totally new trading programs and technical infrastructure aren't needed. The existence of relevant laws and regulations also cut down costs significantly. The MCE has expressed an interest in beginning with coal trading, adding other mineral commodities afterwards in order to mitigate risks. However, adding mineral commodity trading requires significant logistics investments in terms of warehouses, logistics centers, laboratories and financial infrastructure. Moreover, as the MCE is a state-owned enterprise, its operations may be susceptible to political influences and risks.

• Another option is making use of already established foreign mineral commodity exchanges. In light of the country's economic and geographic circumstances, Mongolia can potentially work with China's Shanghai

Futures Exchange, Zhengzhou Commodity Exchange and the Dalian Commodity Exchange. By doing so, Mongolian companies can directly trade their commodities on the aforementioned exchanges or establish either a representative's office or branch in Mongolia. In such a case, Mongolia would be able to significantly cut back on the time and costs associated with establishing a new commodity exchange while still being able to trade its commodities at more favorable prices. However, establishing connections with and cooperating with internationally renowned commodity exchanges may prove time consuming and challenging. Moreover, Mongolia would potentially be subject to the foreign mineral commodity exchange's standards.

• As previously mentioned, for a mineral commodity exchange to operate successfully, a country must have the necessary economic, business and legal environments to support it. When choosing any of the three main options for establishing a mineral commodity exchange mentioned above, it is important to note that Mongolia's economic, business and legal environments are lacking in many key respects. As such, Mongolia's policies towards establishing a mineral commodity exchange must invariably be connected with policies to improve Mongolia's overall economic environment.

6.4.4 Revenue management (update)

Leader: G. Ragchaasuren (Gerege partners LLC)

Member: Z. Manlaibaatar (ERI), B. Nyambaatar (ERI), D. Ankhbayar (ERI), Ts. Oyunzul (ERI)

• In this second follow-up study of the Revenue Management (2017), we aimed to assess the economic impacts of the FSF and FHF using our in-house Dynamic CGE model. The Government of Mongolia established FSF aiming to mitigate fluctuations related to the mineral commodity prices and encourage the economic growth in 2011. Additionally, Government of Mongolia designated FHF to save a portion of mineral revenues for the benefit of future generations.

• Within the study, we looked into good practices of sovereign wealth funds in Norway and Chile. Chilean has two sovereign wealth funds, ESSF and PRF, which are more similar to Mongolian sovereign wealth funds. The wealth funds prevented the Chilean economy from the 2008 – 2009 global financial crisis and have contributed to lower output volatility and the reduced country risk since their inception. Norway's sovereign wealth fund, the GPFG, is considered one of the best practice examples of revenue management among resource-rich countries. The fund has hampered the occurrence of budget deficit and ensured exchange rate stability during periods of decline in oil prices as observed in 2016.

• The results of the simulations indicate that both funds have significant impact on the Mongolian economy. In particular, the FSF could play a crucial role in counteracting and mitigating the economic fluctuations through the smoothing the budget expenditure. In other words, the FSF has a positive impact of restraining fluctuations in the government budget and thereby reducing uncertainty. While the FHF, by its design, have impact of decreasing total demand of the economy through decreasing the budget expenditure but it could help to allocate the rents from mineral sector across the current and future generations. These results suggest that the Government of Mongolia should implement those funds persistently to counteract the economic

cycle generated by the mineral commodities prices volatility.

• However, recent activities of Government of Mongolia are implying the insufficient implementation of the FSL and Law on FHF. Still, the implementation of the FSL have not been satisfied fully yet. The most important requirements concerning the budget deficit and public debt are still yet to be implemented. Additionally, there is a transparency issue. In particular, revenue and spending of the funds are not so transparent to the public.

6.4.5 Sustainable mining development

Leader: Ch. Khashchuluun (NUM)

Member: T. Dulguun (ERI), B.Khorol-Erdene (ERI), Z. Manlaibaatar (ERI), B. Nyambaatar (ERI), D. Oyuntugs(ERI), Ts. Oyunzul (ERI)

• The mining sector continues to have a strong influence on the Mongolian economy through both internal and external factors.

• There were three major mining development milestones in Mongolia. Milestone 1 was the 2006 amendment to the Minerals Law, creating state-owned mining companies and laying the foundation for strategic planning based on mining revenue. Milestone 2 was the OTIA which greatly expanded Mongolia's economy and created a large number of institutional changes. The agreement opened Mongolia up to international financial markets and resulted in a more complex financial system that continues to rapidly develop in order to meet the needs associated with accelerated economic growth. There were also large improvements in the quality of human resources, training and investment systems. Milestone 3 was the adoption of the UN's SDG goals by the Long-term Sustainable Development Vision of Mongolia 2030 and the strengthening of its planning system by explicit inclusion of long-term planning in the Constitution with the goal of diversification.

• It is increasingly clear that the country will need a new system for diversifying its economy and creating reserves as mineral commodity prices are inherently unstable. Currently, mineral commodities dominate Mongolian export and changes in commodity prices fluctuate government revenues. Thus, Mongolia needs to develop its non-mining sectors and focus on export diversification.

• To prevent the economic risks associated with commodity price fluctuations and to manage mining revenues properly, the Parliament adopted the FSL and established the FHF. However, their implementation and abidance to the rule of law are deficient. Accomplishments of the Fiscal Stability Fund and the FHF will depend on establishing context-appropriate rules and broad-based acceptance of the rules governing the funds. Breaking the rules undermines confidence in the public financial management system and can lead to financial mismanagement, corruption and poor development outcomes.

• Allocating mining revenues effectively between the central government and local governments is essential to promote local development. In Mongolia, mining revenues are allocated through the Local Development Fund and starting in 2020, revenues from mining fees will be transferred to local governments.

• In addition to obtaining legally required licenses to operate from the government and other regulatory

agencies, a “social license” is also becoming increasingly necessary. There have been several instances where mining developments have been delayed, interrupted or even shut down due to opposition from the public and/or local communities. Thus, in order to avoid these costly conflicts, mining companies need to obtain and maintain a “social license” to operate from local communities. Some of the most commonly cited means of maintaining a civil and respectful relationship with the public is through ongoing communication with stakeholders, transparent disclosure of information and community development agreements.

• Another controversial issue in the mining sector is the issue of human rights. Mining activities sometimes violate human rights to own property, land and free movement. Small artisanal mining is another important human rights issue. In order to address this issue, the GoM adopted a special resolution to formalize these miners and give them an opportunity to form partnerships. However, the implementation of this resolution is not sufficient due to lack of incentives for local administrations to perform coupled with a lack of information for miners. Therefore, these circumstances create opportunities in which the rights of small artisanal miners are violated.

• Artisanal and small-scale miners are also included in local communities in the informal sector. The impacts of this sector have the same level of adverse impacts on the local environment and communities, perhaps worse in some cases. As such, ASM should be formalized without penalizing these miners and their livelihood. As a result, the adverse impacts of their operational activities can be managed and minimized.

• Although there are legislative requirements set in the Minerals Law and concession agreements, mining companies should strive to go above and beyond to assist in the advancement of the local economy as a whole. One of the key areas where mining companies can assist is in healthcare and education. Mining operations have significant adverse effects on the employees and surrounding communities so the companies should utilize a case specific approach to address each need and communicate and collaborate with local health officials and authorities. Another is to contribute to the national educational system and work with local universities and schools to offer courses in specialized areas so as to help the companies meet the local employee requirements and to help the country produce qualified and skilled individuals.

• The environmental side of the mining sector is the most crucial sphere of sustainable development. If environmental issues are ignored, other benefits from the mining sector would wane eventually. In Mongolia, while mining activities continue to grow, the legal environment for environmental issues concerning mining continue to be underdeveloped. Furthermore, the implementation of existing environmental regulations is not sufficient. Most critically, as a result, the mining closures are not made properly and many environmental and social issues such as informal artisanal mining, pasture degradation, legacies of environmental hazards and community health problems continue to persist.

• In terms of governance, at all points of the mining process from its reconnaissance and development to active mining and closure, Mongolia has legislation in place to encourage and enforce good governance in the mining sector. However, despite the existence of these policies and laws, the largest issue remains their implementation and usage in real life. For instance, while the Minerals Law and the Investment Law detail how the mining process needs to be regulated, the general provisions in the laws allow for leeway when

negotiating investment agreements with real companies. This puts more importance on closed door negotiations which the public are not privy to. In addition to the general lack of transparency regarding purchasing agreements and mining activities, it is hard to say that the general public is fully integrated into the mining sector as a stakeholder.

• As for revenue collection and management, while Mongolia's taxation regime does not treat the mining sector differently from other industrial sectors, overall taxation is clear and fairly easy administratively. The collected revenue is then consolidated into the Fiscal Stability Fund and the FHF for future use. The existence of these funds and the laws that govern them are well thought out and greatly support better governance in the mining sector. However, their implementation and the abidance to the rule of law regarding mining laws in general are found lacking. As such, while the policies and the legislation governing the mining sector may be deemed satisfactory, their practical usage remains the main problem plaguing Mongolia.

• Another major drawback that hinders the efficient sharing of mining revenue and sustainable development is corruption. Although, Mongolia is improving its legal framework for fighting corruption by adopting important laws and establishing an independent agency, the implementation of these laws are still insufficient. The mining sector in particular, is vulnerable to corruption and numerous studies have shown that corruption risks are high in the Mongolian mining sector.

Recommendations and suggestions:

Based on the results of this study, the researchers have put forth the following policy recommendations and suggestions:

- The necessity to "balance" the mining with the rest of economy through more linkages, based on sustainable development – that is, to address the issues of water usage, illegal mining and management of environmental damage.
- The country needs to have a better understanding of mining resources, should pay more attention to studying the price fluctuations, competition and changes on minerals market, and should have better facilities to correctly predict mineral prices as now they are such an important part of the economy.
- The country needs to truly support mining by developing further soft and hard infrastructure for the industry itself. Currently, there is lack of infrastructure and educated personnel.
- FDI is an important part of the mining development. Further supporting and improving FDI is crucial for sustainable growth of the mining and the country itself.
- As Mongolia's economy is at the beginning stage of transformation into a truly mining-based economy, diversification is an increasingly important long-term goal. Studying examples of many mining economies, such as the United Arab Emirates, Saudi Arabia, Norway and Australia, is a good way to find ways of managing revenues from the mining sector for diversification goals. This requires further studies of possible diversification projects and their sustainability.

- Economic sustainability itself is an important issue, as the country needs to create better fiscal, monetary and financial systems to cope with the instability of revenues from the mining sector. Again, examples of the Norway's pension fund and other sovereign wealth funds are important for optimal resource management as the resources themselves are exhaustible.

Chapter 7 Activities of Phase II : April to December 2020

The original plan was to complete this project in February 2020, but it was decided to extend the implementation period until February 2022 to conduct additional studies, compile policy recommendations, and hold an international seminar in Tokyo.

7.1 Study Plan and Activities

From April to December of 2020, we conducted the study on social licensing as an additional theme, as well as a summary of the entire project based on the results of the study to date, and compiled policy recommendations. In addition to these activities, the Japanese project team was scheduled to conduct field work in Mongolia and hold an international seminar in Tokyo, but these activities were postponed because the COVID-19 infection has not ended.

The details of the study plan are as follows

[FY2020 Study Themes]

- Impact of mining on local livelihood and social licensing

  In the case of Mongolia, social license is most relevant to the mining sector. In addition to obtaining legally required licenses to operate from the government and other regulatory agencies, a social license is also becoming increasingly necessary. There have been several instances where mining developments have been delayed, interrupted or even shut down due to opposition from the public and/or local communities. Thus, in order to avoid these costly conflicts, mining companies need to obtain and maintain a “social license” to operate from local communities.

  In this study, we will assess the current state of the relationship between Mongolian mining sector and the local community – i.e., social licensing. In doing so, we will determine the key challenges the companies and community are facing in this regard. We will also analyze the ways in which they are trying to cope with these challenges.

- Policy recommendation

  In this study, we will review the past studies conducted as a part of the project, create an overview of the current state of the mining sector in Mongolia, and summarize the recommendations from the studies mentioned above. Based on the summary, we will make integrated recommendations. Following this, several action plans for each of the recommendations will be developed. These action plans provide insights on what policymakers should do in order to improve the current economic situation and mining sector.

Table 7-1 Study plan in FY2020

Activities	2020								
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1 Proposal preparation		19	12						
2 Contracting for FY2020 study			29	1					
3 Invitation to Japan								16 21	
3 FY2020 study themes									
3-1 Impact of mining on local livelihood and social licensing				■	■	■	■	■	
3-2 Policy recommendation				■	■	■	■	■	
Events : invitation, visit, seminar, etc.						△ Visit to Mongolia		△ Invitaion to Japan Seminar in Japan	

■ New theme

7.2 Eighth Visit to Mongolia
(Postponed from the original plan to be implemented in March 2020 to September 2020)

As mentioned earlier, the COVID-19 pandemic did not seem to be over by September 2020, and travel to Mongolia was still difficult, so we decided to further postpone the implementation of the visit. Therefore, we used videoconferencing to confirm the progress of the study and to exchange opinions.

As there were no new cases of COVID-19 infection in Mongolia during the summer, it became possible to hold a large-scale meeting. However, the Japanese project team participated remotely via videoconference.

The details of the seminar are as follows.

Date and time: September 30, 2020, 9:00 - 12:30
Venue: Best Western Premier Tuushin Hotel (Soyombo Hall)
Participants: 108 people (ministries, embassies, mining companies, etc.)
Program: See Table 7-2

Various questions were raised by the participants, including the following, and lively discussions ensued.

(Question) Is it appropriate to compare Mongolia with Chile and Norway regarding sovereign wealth funds? I think Mongolia's mineral production is much lower than Chile and Norway.
(Answer) It is true that Mongolia's production is small, but the Mongolian economy is driven by mining.
(Question) Why is it necessary to invest sovereign wealth funds overseas?
(Answer) Mongolia has an underdeveloped financial system, so it is too risky to invest heavily in domestic financial institutions.

(Question) In 2015 and 2016, the Asian Infrastructure Association, a Mongolian NGO, conducted a study on the possibility of establishing a mineral commodity exchange. This study was commissioned by the Ministry of Mining and the GIZ (German Development Cooperation), but did you also refer to the report of this study?

(Answer) We will ask GIZ to make the report public.

Table 7-2 The seminar program for FY2019 study

Time	Topic	Presenter
8:30 - 9:00	*Registration*	
9:00 - 9:10	Opening Remarks	Eriko Tamura *Chief Representative, JICA*
9:10 - 9:20	Opening Remarks	B.Tuvshintugs *Economic Research Institute*
9:20 - 9:40	Introduction to the Research Project and Japan's Mining History	Yoshitaka Hosoi *Sinior Advisor to Natural Resources, JICA*
9:40 - 10:10	Study Summary 2019	B.Tuvshintugs *Economic Research Institute*
10:10 - 10:40	Mongolia's Sovereign Wealth Funds and Their Economic Impact	G.Ragchaasuren/Ts.Oyunzul/B.Nyambaatar *Economic Research Institute*
10:40 - 11:00	*Coffee Break*	
11:00 - 11:30	Mineral Commodity Exchange in Mongolia	Z.Manlaibaatar *Economic Research Institute*
11:30 - 12:00	FDI in Mongolia Summary	B.Khorol-Erdene/T.Dulguun *Economic Research Institute*
12:00 - 12:30	Sustainable Mining Development	Ch.Khashchuluun *Economic Research Institute*
	Closing Remarks	

Photo 7-1 Seminar attendees

7.3 Summary of FY2020 results

The main results of the two studies conducted from April to December 2020 are as follows

7.3.1 Impact of mining on local livelihood and social licensing

Leader: Z.Manlaibaatar (ERI)

Member: T.Dulguun (ERI), D.Unurjargal (ERI), D.Oyuntugs (ERI), T.Oyunzul (ERI)

Although obtaining a social license to operate is a relatively new concept, the premise of community engagement and approval has always existed in some form. Unlike legal and regulatory licenses, a social license to operate is not tangible. Additionally, even if a social license is granted at one point in time, it does not mean that the license will remain valid indefinitely as the conditions under which the social license was granted may change due to the ever-changing political, economic and social climate. Based on the practices observed in other mining dependent countries, the way to maintain a social license to operate is to continuously assess the community's attitudes towards the mining project and other influencing factors. Then based on this assessment, a mining company's strategic plans and objectives should include actions to address the community's grievances. In addressing the complaints or issues, there needs to be transparency and an open channel of communication.

Due to the former socialist regime of the country, obtaining a social license to operate is an especially new notion in Mongolia. Moreover, Mongolia experienced massive environmental problems due to lax environmental requirements and weak enforcement of existing laws and regulations. The detrimental social and environmental impacts generated community grievance against mining operations. Pushed by local community demand, the GoM is making efforts to ensure social licensing addressing relevant issues with necessary amendments to laws and regulations. Moreover, the GoM has set several goals in the "Vision 2050" long term development policy strategy and State Policy on the Minerals Sector promoting public participation. Currently, however, the implementation of policy goals and implementation steps are not clear.

Although many mining companies operate in Mongolia, only a few implement measures aimed at obtaining a social license to operate. Oyu Tolgoi LLC and Energy Resource LLC provide transparent information on mining operations to the public, reflect the views of local community in the company's decision making, receive complaints directly and respond them quickly. Furthermore, these companies developed social responsibility plans and are implementing projects and programs based on local community demand. They also pay particular attention to the environmental rehabilitation. Meanwhile, ERMC became the first company to list its shares on the MSE and a portion of its shares to more than 5000 local residents. On the other hand, companies that have failed to obtain social licensing to operate are experiencing public opposition. This is mainly caused by insufficient efforts to provide enough information about their

operations to local communities.

It is essential to strengthen the understanding of social licensing to stakeholders, improve transparency and strengthen the enforcement of laws in the mining sector to achieve long-term policy goals. Based on the research findings, the research team has developed following recommendations:

- In order to avoid the risk of public opposition, the decision to grant mineral licenses should be based on social acceptance research. Conducting a social acceptance survey from mining affected communities including herders, farmers and local businesses is an efficient tool to assess the perception of the general public on ongoing and upcoming mining projects. The government should conduct social acceptance surveys regularly in partnership with independent research institutes.
- Monitor the attitudes of the local community to before, after and in various phases of the mining project in addition to macroeconomic situations.
- The GoM should formulate and adopt stricter regulations focused on mine closure. Local communities must then be able to monitor and ensure the implementation of these regulations.
- It is essential to provide mining affected communities with transparent and accurate information regarding feasibility studies including the economic, environmental, and social impacts of mining operations as well as the environmental and social responsibilities of the mining company. The GoM has already initiated and operationalized transparent information platforms such as the EITI, iltodgeree.mn, Environmental Information Center website (www.eic.mn). However, the information provided through the platforms are not sufficient and not well publicized. Thus, the quality of information and the accessibility of the aforementioned platforms should be improved.
- Increasing public participation in decisions and decision-making processes is crucial to improving social licensing in mining sector. As the GoM has already set a goal to establish a Policy Council including representatives from government agencies, investors, professional associations and civil society organizations, the GoM should implement the steps necessary to achieve this goal.
- It is important to provide transparency and a follow through of complaints and issues raised by local communities. Within this scope, mining companies should implement an action plan for addressing these grievances, be it through specialized actions or short-, medium-, and long-term strategic plans.
- During the desk review, the research team found that small and middle scale companies do not provide transparent information to the general public. Thus, information transparency requirements should be incorporated into relevant laws and regulations to ensure effective communication between mining companies and the general public.

- Mining companies should learn from the good practices of Oyu Tolgoi LLC, Energy Resource LLC and ERMC. In order to promote good social licensing practices, the Ministry of Mining and Heavy Industry should provide an opportunity for mining companies to share their experiences as well as provide guidelines for social licensing and communication with local communities.

7.3.2 Policy recommendation

Leader: Z.Manlaibaatar (ERI)

Member: D.Oyuntugs (ERI)

The project addresses key policy challenges and offers recommendations based on research findings. These recommendations aim to further benefit the country in making the mining sector the main driver of national sustainable growth. Some of the policy areas addressed in the research focused on the possible negative impacts of mining such as environmental pollution as well as issues such as the efficient management of mining revenue, encouragement of FDI, negotiation of fair contracts, improvements in trade and the identification of bottlenecks in the sustainable development of the mining sector. The recommendations based on the research of these policies strive to further improve the development of the mining sector and thereby, national development. As the mining sector is expected to continue to remain an important component of the Mongolian economy for the foreseeable future, the sustainable utilization of natural resources is a crucial prerequisite of economic growth.

The policy recommendations and the action programs for them are summarized in Tables 7-3 and 7-4.

Table 7-3 Summary of findings and recommendations

Study Theme	Findings and Recommendations
1. Mining Strategy **Issues:** There is a lack of a detailed vision on how the government intends to implement and achieve strategic visions and policy actions.	**[Findings]**
	• The officially ratified programs that aimed to promote economic diversification and development of non-mining sectors were not fully developed yet or are in the process of being developed. • The “Fiscal Stability Law" is an exemplary regulation in terms of managing revenues from the mining sector. However, there is a lack of discipline in terms of implementing the law, which can be seen from the numerous amendments to the law that have been made since its adoption. • Another part of the government’s mining development strategy is to promote the private sector by providing it with better infrastructure, investment environment and exploration data while encouraging more downstream processing and the adoption of environmentally friendly equipment, technologies and innovation. • It is necessary to understand that the "minable reserves" among the geological reserves vary depending on the mining cost and the metal price conditions. In addition, it is necessary to use an internationally recognized method for reserve calculation.
	[Recommendations]

	• To develop detailed programs of policy actions in order to implement and achieve these strategic visions.
2. FDI inflow **Issues:** The way to attract foreign direct investment is to improve the investment climate through legal reforms, increased transparency, combating corruption and so on.	**[Findings]**
	• Mongolia should focus on developing the manufacturing sector by producing industrial inputs such as buckets, chains, gears, etc. for large mining vehicles as well as processing mineral commodities. • A larger percentage of FDI inflows should be absorbed into the domestic market instead of being flowed back out. As more FDI is absorbed into domestic sectors, the greater the benefit for the Mongolian economy but also the greater the investment multiplier. • Mongolia should not rely on higher mineral commodity prices to boost FDI inflows as it has no control over price fluctuations. • Mongolia has a considerable amount of mineral potential but its low policy perception is hindering its investment attractiveness. Mongolia can improve its policy perception rank by reforming and promoting its investment climate. With more transparency and clearer set of legislation and regulation, Mongolia could become an attractive destination for foreign investors. • In Mongolia, inept government effectiveness, regulatory quality and rule of law tend to lead to lack of confidence from investors, which can deter or discourage investment. Thus, reforms are needed to address these issues.
	[Recommendations]
	• Improve business environment and provide stability of policies to attract FDI by: (a) Establishing “One stop shop” for investors (b) Further improving stabilization clauses (c) Preventing and combating corruption • Promote economic diversification through indirect use of mining FDI. • Refine mining revenue management
3. Taxation and Financial Reporting **Issues:** The Government should focus on improving the country's business environment in order to further incentivize private investment into the mining sector.	**[Findings]**
	• The country’s tax burden is not low and therefore tax incentives may be implemented. However, the stability of policies and improvement of Mongolia’s business environment will be more effective in incentivizing investment into the mining sector.
	[Recommendations]
	• Improve the business environment of the country, ensuring political and policy stability and thereby, maintain consistent policies geared towards attracting FDI.
4. Contracting in Mining Sector **Issues:** It is crucial for the host country to have a well-developed model contract that considers all direct and indirect effects.	**[Findings]**
	• Mongolia’s Oyu Tolgoi agreement has essentially become a template contract for large megaprojects. • The Oyu Tolgoi project, despite all of its shortcomings, created an expansive supplier ecosystem and so far significantly contributed to local and macroeconomic development. • • By taking the Oyu Tolgoi Agreement as a template, the country may bring the contract closer to best international practice, further define the legal obligations to develop the local suppliers and jobs, to regulate well the financing issues in an equity borrowing case and to establish an integrated approach in designing infrastructure projects.

	• The spillovers from major mining projects to infrastructure, social issues and regional development are all governed by different laws and regulations. However, the country lacks the capacity to develop a unified approach to address and reflect these spillovers into the contract.
	[Recommendations]
	The following are recommendations to improve mining contracts: • To clarify the definition of large projects as compared to the legally established strategic mine issue • To design an integrated form of agreement, in which all stakeholders, including local suppliers, to have their non-binding promises and to reach a consensus • To raise the awareness of the importance of having an integrated agreement with all stakeholders to agree on major project features and having a unified management
5. Marketing and Trading in the Mining Sector **Issues:** How mineral commodities are traded, sold and the challenges these processes face are a key issue in Mongolia.	**[Findings]**
	• According to mining companies and industry experts, almost all Mongolian mining companies do not conduct an in-depth market research. The main reason is that mining companies don't have the research capacity nor the understanding of the importance of research and intelligence activities. Mining companies would benefit from conducting an in-depth analysis of trading and contracting practices between main buyers, such as steel makers or traders, and mining companies from Australia, Indonesia, Brazil and Russia. • Transportation is a major problem for Mongolian companies, especially for the sale of bulk raw materials such as coal and iron ore. • In Mongolia, export financing services including payment systems and insurance are not well developed. It is possible to establish an Export Import Bank. There is also an ample room for the Development Bank of Mongolia to expand its export financing services. Commercial banks and other financial providers do not have financial products for commodity exporters. This part of the business hasn't been studied well, so there is no particular policy nor plan. • There is an option for establishing a mineral commodity exchange by expanding the Mongolian agricultural commodities exchange (MCE) to handle mineral products.
	[Recommendations]
	• In order to develop marketing and trading further, there is a need: (a) to establish a mineral commodity exchange (b) to devise policies to support and promote traders' activities (c) to make sales contracts transparent (d) to develop export financing mechanisms (e) to initiate and carry out capacity strengthening projects (f) to increase the role of mining associations in policy making and raise awareness for the sector
	• In order to establish a mineral commodity exchange, there is a need to: (a) conduct detailed and comprehensive feasibility studies for assessing following options for the exchange: a new independent exchange; expansion of the Mongolian agricultural commodities exchange (MCE) to handle mineral products; use existing exchange in a foreign country. (b) conduct studies of establishing transport and logistics centers, trading platforms, especial standard for mineral products, the possibility of participating buyers from other countries etc.,
	• There is an urgent need to build a railway from large coal deposits to the border, to increase the capacity of the existing railway, and to modernize the technology of customs clearance.

6. Budget Revenue Management **Issues:** The government should commit to the implementation of the Fiscal Stability Law (FSL), Future Heritage Fund (FHF) law and adhere strictly to these laws in order to counteract economic cycles, which can be generated by commodity price volatility.	**[Findings]**
	• The FSL is designed to reduce economic fluctuations emanating from swings in commodity prices. It is not enough to just have the law be approved, the law needs to be strictly implemented and adhered to. Only through this will the positive impact of the law on the economy be fulfilled.
	• The FSL played a key role in limiting economic fluctuations caused by volatility in the government revenue.
	• Implementation of the FSL and the Law on FHF was insufficient. Both revenue and spending of the funds are not fully transparent to the public.
	[Recommendations]
	• The Government of Mongolia needs to fully implement and strictly adhere to the Fiscal Stability Law. All provisions of the law must be in full effect with little adjustments and amendments being made.
7. Sustainable Mining Development **Issues:** How a country can be benefiting from the mining sector for the long period of time in a sustainable way?	**[Findings]**
	• If the mining sector is well managed, investments in the sector not only will generate significant revenue for the country, but will also directly and indirectly contribute to the economy and thus, positively contribute to the livelihood of citizens. • Some of the most commonly cited means of maintaining a civil and respectful relationship between the mining company and the public is through ongoing communication with stakeholders, transparent disclosure of information and community development agreements. • For Mongolia, mining activities are being accelerated lately. However, the legal framework for addressing environmental impact caused by the mining sector is weak. • While the policies and the legislation governing the mining sector may be deemed satisfactory, the lack of compliance and implementation poses major problems for Mongolia.
	[Recommendations]
	• To develop more linkages between the mining sector and the rest of the economy. This way the mining industry will positively contribute to the sustainable development of the country. For instance, the issues of water usage, illegal mining, management of environmental damage should be addressed. • To pay more attention to studying the price fluctuations, competition and developments in minerals market as well as to have better facilities to accurately predict mineral prices • To promote investment in mineral exploration and mine development • To further develop soft and hard infrastructure of the mining industry since there is a lack of infrastructure and educated personnel. • To use mining development to diversify the economy in order to reduce dependence on mining. • To increase the mining sector's contribution to the society. But there is a need to balance contributions to the nationwide and local economy. •To further improve fiscal and monetary policies to cope with the instability of the mining revenue. Examples of Norway fund and other sovereign funds are important examples for optimal resource management as the resources themselves are exhaustible.

Table 7-4 Actions to be implemented

Item No.	Policy Recommendations	Action / Action Program		Execution Period S: < 3 years M: 3-5 years L: > 5 years			Action Point
1	To develop detailed programs of policy actions in order to implement and achieve these strategic visions.	(1)	Develop and officially ratify programs that promote economic diversification and the development of non-mining sectors		M		GoM
		(2)	Estimate the country's resource wealth and study its compatibility with the country's development strategy documents.	S			MRPA
		(3)	Complete and initiate the detailed plans, detailed feasibility studies and impact assessments. Mining projects should be prioritized based on their socio-economic significance, costs and feasibilities.	S			MMHI, NDA
2	To improve the business environment of the country, ensuring political and policy stability and thereby, maintain consistent policies geared towards attracting FDI.	(1)	"One stop shop" for investors opened in 2019. It is in operation, but needs to be further improved. Foreign investors are required to open a local bank account and are required to come in person. The government needs to ease requirements and increase the use of digital technologies in public services.	S			NDA
		(2)	In order to fight corruption and ensure transparency the following needs to be implemented: • Make all major project investment agreements publicly available • Enhance the transparency of tax information and the functioning of the EITI, and focus on the quality of information • Improve the financial calculations of strategic mine deposits and analyze and compare tax options, such as whether to own shares or rely on royalty. • Companies in the mining sector, in particular state-owned companies, should make all contracts including sales contracts transparent.	S			GoM
		(3)	Develop laws and regulations to scrutinize the sources of any investment. This way the country can avoid being included in the list of international organizations as a country that finances terrorism and money laundering	S			MoF
		(4)	It is necessary to simplify the excessively bureaucratic structure of the civil service in order to reduce hurdles and reduce transaction costs associated with doing business. Also, government should ease tax and customs requirements and reduce bottlenecks in trading across borders.		M		GoM
		(5)	It is important to maintain the stability of taxation and other macroeconomic policies. Changes in laws and regulations should be limited.	S			GoM
3	To achieve the best possible mining contract by clarifying the definition of a large	(1)	Develop an integrated form of agreement before the project commences and have an Integrated Project Delivery draft contract, in which all stakeholders, including local suppliers, agree on major project features.		M		MMHI

	project as compared to the legally established strategic mine definition, designing an integrated form of agreement.	(2)	Draw up appropriate rules and regulations for designing the integrated form of agreement	S			MMHI
		(3)	Improve further the mining stabilization clauses based on other countries' best experiences.		M		MMHI
4	In order to better develop marketing and trading in Mongolia, there is a need to establish a mineral commodity exchange, support traders' activities at the policy level, make sales contracts transparent, develop export financing mechanisms, organize capacity strengthening projects and increase the role of mining associations in policy making and raising awareness for the sector.	(1)	Establish the mineral commodity exchange with appropriate legal environment and supported by government policies			L	MMHI
		(2)	Conduct detailed and comprehensive feasibility studies for assessing the possibilities of opening a new independent exchange. The GoM can expand the Mongolian agricultural commodities exchange (MCE) to handle mineral products, or use an existing exchange in a foreign country. Accordingly, conduct studies on establishing transport and logistics centers, trading platforms, standards for mineral products and the possibility of participating buyers from other countries etc.	S			MMHI
		(3)	Draft a law on trade which is designed to support traders' and intermediaries' activities	S			MMHI, AoM
		(4)	Organize capacity strengthening projects in the mining sector, increase the role of mining associations in policy making as well as raise awareness for the sector		M		MMHI, AoM
		(5)	Companies in the mining sector, in particular state-owned companies, should make all contracts including sales contracts transparent.		M		MMHI, SPC
5	To develop more linkages between the mining sector and the rest of the economy. This way the mining industry will positively contribute to the sustainable development of the country. For instance, the issues of water usage, illegal mining, management of environmental damage should be addressed.	(1)	Develop regulations that provide transparency of mining operations and procurement contracts, and accommodate increased public scrutiny at all levels		M		MMHI
		(2)	Increase coordination between authorities such as the Ministry of Environment, the Ministry of Mining and Heavy Industry, professional inspection agencies, taxation office, and local authorities in all levels.		M		MMHI
		(3)	Ensure implementation of legislations that are in place to encourage and enforce good governance in the mining sector at all points of the mining process from its reconnaissance and development to active mining.		M		MMHI
		(4)	Draft a law on mine closure		M		PoM
		(5)	Develop regulations that ensures transparency in the extractive industry		M		MMHI
		(6)	Intensify environmental protection activities, and increase oversight by citizens and local organizations.		M		MET
		(7)	Accelerate the reclamation of mines that are currently closed but not rectified	S			MET

6	To pay more attention to studying the price fluctuations, competition and developments in minerals market as well as to have better facilities to accurately predict mineral prices.	(1)	Organize regular capacity strengthening projects such as training on economic and mining concepts of taxation, royalty, market price system and competition for mining companies, roles of related government agencies and sector specialists, which can be implemented in cooperation with international organizations.		M		MMHI, MACSO
		(2)	Government organizations such as Ministry of Mining and Heavy Industry, Ministry of Finance and MRPAM, should develop models that consider the global mining commodity market outlook and can provide forecasts.	S			MMHI
		(3)	Enforce transparency of information related to mining and quarrying, such as taxes, extraction, and resources, and focus on the importance of accuracy of the information.		M		MMHI
7	To further develop further mining soft infrastructure of mining industry	(1)	Implement scholarship programs and projects to train personnel in collaboration with international and professional organizations	S			MMHI, MACSO
8	To further support hard infrastructure of mining industry since there is a lack of infrastructure and educated personnel.	(1)	Recognize the necessity of soft and hard infrastructure for mining development	S			MMHI
		(2)	Carefully study mining experiences of landlocked countries, such as Zambia.	S			MMHI
		(3)	Identify necessities of soft infrastructures for mining development and prioritize infrastructure projects based on their socio-economic impact, cost and feasibility.		M		MMHI
		(4)	Conduct detailed and comprehensive feasibility studies for high-priority projects such as road, railways, and power plants		M		GoM
		(5)	Build railways from large coal deposits to the border points, to increase the capacity of the existing railway, and modernize the technology of customs clearance.		M		MRTDCS
		(6)	Ensure high standards of infrastructure evaluation and management, so that scarce funds are being allocated to high-priority and well-performing projects.		M		MRTDCS, MMHI
9	To diversify the economy in order to reduce the dependency on the mining sector.	(1)	Carefully studying experiences of many mining economies such as Emirates, Saudi Arabia, Norway, Australia, Chile and Zambia is a good way to learn how to manage resources from the mining to achieve economic diversification goals.	S			NDA
		(2)	Set up liaison offices in most important markets, and establish affordable access to internationally certified laboratories			L	GoM
		(3)	Study and develop a feasibility study of raw materials, machinery and their equipment that can be produced domestically for the mining sector.	S			MMHI
		(4)	Develop and promote the value chain in the mining sector. For instance, gold jewelry.		M		MMHI
		(5)	Identify the list of priority non-mining sectors which should be incentivized by tax policies and business friendly legal environment	S			NDA
		(6)	Use mining development to diversify the economy.			L	GoM

10	To further improve fiscal and monetary policies to cope with the instability of the mining revenue.	(1)	Study mining countries with better fiscal and monetary policy frameworks, such as Chile.	S			MMHI
		(2)	Independent and professional monitoring of the implementation of the Fiscal Stability Law should be required.	S			MoF
		(3)	Amendments to the Fiscal Stability Law should be limited and should include expert advices.	S			MoF
		(4)	Focus on tightening the regulation of wealth funds, and study experiences of countries such as Norway in managing their wealth funds,	S			MoF
		(5)	Enhance coordination of revenue estimates among the Ministry of Finance, the Bank of Mongolia, the Ministry of Mining and Heavy Industry, the National Development Agency, the Parliament, and the Fiscal Stability Council.	S	M		GoM
		(6)	The Fiscal Stability Council should hold a public hearing before the annual budget is approved	S			FSC
		(7)	The Fiscal Stability Law sets limits on a debt threshold, budget deficits and expenditure growth. However, implementation has been inadequate and the debt limit regularly updated. Therefore, the implementation of the law should be in line with the original objectives. The law may include procedures and provisions to limit reform.	S			GoM
		(8)	The government should adhere to the Fiscal Stability Law and the Law on Future Heritage Fund consistently in order to counteract the economic cycle generated by the mineral commodities price volatility	S			MoF
11	To promote investment in mineral exploration and mine development	(1)	Study best practices of countries with well-defined rules and regulations for the mining exploration and mine development	S			GoM
		(2)	Draw up appropriate rules and regulations to promote the mining exploration and the mine development. For instance, the mining company can be eligible for the tax relief and will be able to use the tax benefits for re-exploration or the state can use the tax collected from the mining income for the exploration and the mining development.		M		GoM
12	To increase the mining sector's contribution to the society. But there is a need to balance contributions to the nationwide and local economy.	(1)	Study the best way to further increase the benefit from the mining sector to the society. For instance, various analysis can be made on the improvement on efficiency and the benefit of infrastructure development, social welfare programs, and benefits from wealth funds.	S			GoM
		(2)	Identify new and best ways for the society and civil life to benefit from mining income and coordinate its implementation.		M		GoM
		(3)	Enhance transparency of mining operations and procurement contracts, and increase public scrutiny at all levels		M		MMHI
		(4)	Develop regulations to reduce the risk of corruption at all levels	S	M	L	GoM

Chapter 8 Activities of Phase II : January 2021 to January 2022

The implementation period of this project was further extended until January 2022 to conduct additional studies, and the international seminar in Tokyo, which could not be held in 2020 due to the outbreak of the COVID-19, will be held in 2021.

8.1 Study Plan and Activities

The policy recommendations were compiled between April and December of 2020, and it is necessary to realize these policy recommendations in order to achieve the higher level goals. It is also important to study the impact of the Corona disaster on the mining sector in Mongolia, to make necessary policy recommendations, and to consider ways to ensure that ERI's think tank function can be sustained. In addition, the environment surrounding coal, which is Mongolia's main export product, has been changing rapidly in recent years as the country strives to realize a decarbonized society, and the need to respond to these changes in mining policy has become an important issue. Therefore, it was decided to conduct the following additional research and studies.

1) Preparation of basic materials for guidelines for Social License to Operate
2) Policy recommendations for downstream value chain development in the mining industry
3) Impact of COVID-19 on mining sector
4) Establishing a platform for the continuous provision of mineral commodity information and strengthen links between ERI and international organizations
5) Adaptation in carbon-constrained world for Mongolia

Furthermore, the Commodity market study (analysis and forecasting of mineral commodity market trends) was also updated.

The details of the study plan are as follows

[Study Themes for January 2021 to January 2022]

- Commodity market study (Update: analysis and forecasting of mineral commodity market trends)
- Preparation of basic materials for guidelines for Social License to Operate

  Based on the results of the study on social license conducted last year, we will prepare a baseline document for creating guidelines for social license acquisition and develop a social license evaluation method in order to promote sustainable mining development. In addition, the evaluation method will be used to assess the level of social license acquisition for actual projects.
- Policy recommendations for downstream value chain development in the mining industry

  Conduct a case study focusing on the processing of copper concentrates and the production of final products. A pre-FS study of a plant to produce copper products will be conducted to assess

profitability and project viability. Information will also be collected on the current status of iron ore, crude oil, and coal processing, as well as on projects to be launched in the future, and policy recommendations will be made for the development of downstream industrial value chains in the mining industry.

- Impact of COVID-19 on mining sector

  Develop a comprehensive understanding of the current impacts and long-term challenges that the COVID-19 pandemic is causing in the mining sector, and based on that, make policy recommendations on how best to overcome the negative impacts of COVID-19 and develop mitigation measures for the future.

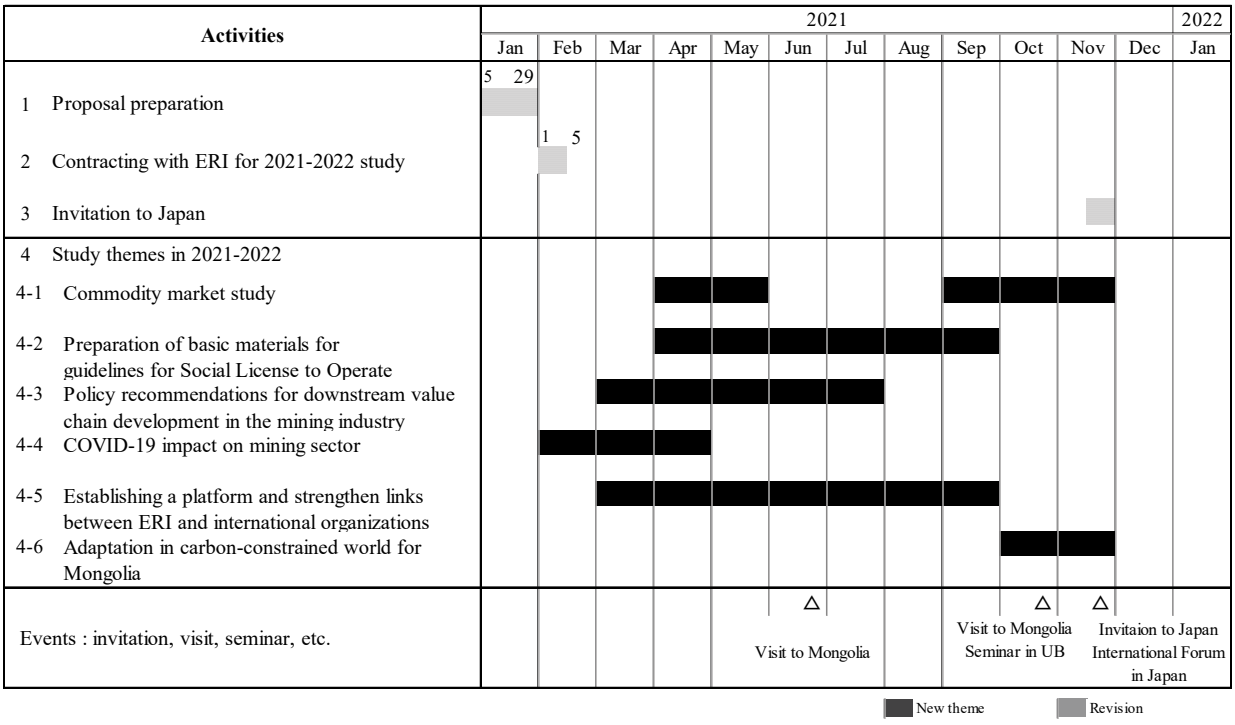
- Establishing a platform for the continuous provision of mineral commodity information and strengthen links between ERI and international organizations

  To build a platform on the ERI website to continuously provide mineral resource information collected and analyzed within Mongolia. In addition, ERI will build a network with international organizations related to mining in order to improve its ability to collect resource information.

- Adaptation in carbon-constrained world for Mongolia

  Assess the economic development options under carbon neutral policies and the long-term economic impact of negative shocks in the coal sector. Based on this, policy recommendations and strategies for transitioning to a green technology-based economy will be developed.

Table 8-1 Study plan for January 2021 to January 2022



8.2 Eighth Visit to Mongolia
(Postponed from the original plan to be implemented in March 2020 to June 2021)

Since the COVI-19 pandemic did not end in 2021 and travel to Mongolia was still difficult, we decided to cancel the field work scheduled for June 2021, and used videoconferencing to confirm the progress of the study and exchange opinions. The videoconferences were held about once a month.

8.3 Ninth Visit to Mongolia

We had planned to conduct field work in October in order to discuss the results of the study in 2021 and to participate in a seminar to present the results of this project to Mongolian officials, but due to the fact that the outbreak of the COVID-19 had not ended, we decided not to visit to Mongolia. Therefore, the results of the study were discussed via videoconference. The seminar in Mongolia was held on January 2022, based on the situation in Mongolia. However, the Japanese study team participated remotely via videoconference.

The details of the seminar are as follows.

Date and time: January 18, 2022, 9:30 am - 12:40 pm
Location: Best Western Premier Tuushin Hotel (Soyombo Hall)
Participants: 132 people (ministries, embassies, mining companies, etc., including online participants)
Program: See Table 8-2

Various questions were raised by the participants, including the following, and lively discussions ensued.

(Question) In the study using the CGE model, did you consider methane gas emissions from the livestock sector in the greenhouse gas emissions?
(Answer) In this study, the mining sector was targeted, and the livestock sector was not considered.
(Question) Does the increase in greenhouse gas emissions from the use of coal occur during mining or during utilization?
(Answer) Greenhouse gases are generated during the mining process, transportation process, and combustion during utilization.
(Question) Isn't it possible to support the implementation of SLO through legislation?
(Answer) SLOs are not prescribed and implemented by law, but it is important for businesses to do so in order to gain credibility for their development.
(Question) Will large-scale development projects led by the government bring positive results?
(Answer) In the mining sector, Chile also has government agencies participating in large-scale projects. In the development of heavy industry, examples of success through policy support can be seen in Korea and Japan.

Table 8-2 The seminar program for 2021-2022 study

Time	Topic	Presenter
9:00 - 9:30	*Registration*	
9:30 - 9:35	Opening Remarks	Tokuji Yoshimura *Senior Representative, JICA*
9:35 - 9:45	Opening Remarks	O.Batnairamdal *Deputy Minister, Ministry of Mining and Heavy Industry*
9:45 - 10:00	Opening Remarks	Yoshitaka Hosoi *Senior Advisor to Natural Resources, JICA*
10:00 - 10:20	Introduction and Study Summary 2021	B.Tuvshintugs *Economic Research Institute*
10:20 - 10:50	COVID-19 Impact on Mining	G.Ragchaasuren *Economic Research Institute*
10:50 - 11:20	Adaptation in Carbon-constrained World for Mongolia	D.Unurjargal *Economic Research Institute*
	Coffee Break	
11:40 - 12:10	Policy Recommendation for Downstream Value Chain Development in the Mining Industry	Ch.Khashchuluun *National University of Mongolia / Economic Research Institute*
12:10 - 12:40	Preparation of Basic Materials for Guideline for Social License to Operate	Z.Manlaibaatar *Economic Research Institute*
	Closing Remarks	

Photo 8-1 Seminar attendees

Photo 8-2 Opening remarks by Mr.O.Batnairamdal, Deputy Minister, MMHI

Photo 8-3 Presentation by Ms. D.Unurjargal, ERI Researcher

Photo 8-4 Presentation by Mr. Z.Manlaibaatar, ERI Senior researcher

8.4 International Forum in Japan

We had planned to hold an international forum in Tokyo to invite researchers from Mongolia to present the results of this project and exchange opinions with experts and related parties in Japan and abroad, but because the COVID-19 pandemic did not end, we had to abandon the plan to hold the forum within the project period. However, we believe that this forum is very meaningful and hope that it will be held as soon as it becomes possible.

8.5 Summary of results from January 2021 to January 2022

The main results of the six studies conducted from January 2021 to January 2022 are shown below.

8.5.1 Update of commodity market study

Leader: B. Tuvshintugs (ERI)

Member: Z. Manlaibaatar (ERI), D.Oyuntugs (ERI), B. Khorol-Erdene (ERI), E. Enkhsaikhan (ERI), D. Unurjargal (ERI)

Gold market study

• World gold demand fell 9.4 % in the first three quarters of 2020, owing to a significant decrease in gold investment demand despite increased demand in all other categories. Global economic recovery and restored consumer confidence saw an increase in gold demand for jewelry and technology. In particular, world gold jewelry demand rose 49 % year-on-year as Indian jewelry demand increased substantially and Chinese jewelry demand recovered to pre-pandemic levels. Technology demand also saw a 12.3 % year-on-year growth in the first three quarters of 2021 due to robust demand for electronics, particularly smartphones. Looking forward, jewelry demand is expected to continue recovering as both Indian and Chinese demand ramp up. Gold demand for technology is also forecasted to grow, supported by the overall growth of the electronics sector.

• World supply grew a marginal a 0.2 % year-on-year in the first three quarters of 2021, owing to a 5 % year-on-year increase in mine production. Mine production saw fewer COVID-19 related disruptions in mine operation and was supported by higher ore grades and increase production in Canada, Peru and South Africa. Conversely, producers de-hedged 25 tonnes of gold in the first three quarters of 2021 as producers were more willing to keep their production exposed to the gold spot price. Gold recycling also fell 12.3 % year-on-year in the first three quarters of 2021, highlighting people's optimistic economic outlook coupled with lower gold prices. Moving forward, world supply is expected to grow, supported by increased mine production while producer hedging, and gold recycling are forecasted to remain subdued.

• Based on these supply and demand expectations, the price of gold is forecasted to fall slightly in 2022 but remain high at USD 1695 per ounce on average. However, financial institutions and organizations remain firm in their expectation that the price of gold will normalize from the highs experienced in 2020 and fall

in the medium to long-term.

• As a price taker, Mongolian gold prices are also expected to fall in 2022, following global gold price trends. Mongolian gold demand forecasts are less clear. On one hand, the Bank of Mongolia continues to support domestic producers, extending the issuance of loans to gold producers into 2021, and the Government of Mongolia expects to export substantial amounts of gold as stated in budgetary documents. On the other hand, the Government of Mongolia has not expressed any indication of extending or replacing the Gold-2 national program whose implementation period ended in 2020. As for supply, short-term production is likely to be strong, supported by Oyu Tolgoi's access to higher ore grades. While Oyu Tolgoi's underground mine development continues to face delays, its eventual completion and the beginning of new project streams are expected to increase Mongolian gold supply in the medium to long-term.

Copper market study

• World copper prices remained elevated throughout 2021, with the price in November reaching USD 9,700 per tonne. In the third quarter of 2021, however, copper prices fell by 3 % from the previous quarter and was 7 % lower than the peak experienced in May 2021. According to forecasts from international organizations, copper prices will be high in 2021 but are expected to decrease slightly in 2022. These fluctuations are expected to be relatively minor as copper prices tend to be relatively stable over time. Stable copper prices are supported by the expected increase in demand due to the transition to renewable energy production and vehicle electrification.

• World refined copper usage is expected to be unchanged in 2021 and to increase by around 2.4 % in 2022. World refined copper demand will then steadily rise in the medium-term due to increasing demand from the power and construction sectors coupled with rising electric vehicle production.

• On the other hand, global copper mine production is forecasted to increase by 7.8 % year-on-year in 2021 as a result of multiple new projects coming online such as Kamoa-Kakula in the DRC, Quellaveco in Peru, Spence-SGO and Quebrada Blanca QB2 in Chile, and Udokan in Russia. Furthermore, low base output in 2020 will increase production levels in 2021.

• Demand for Mongolian copper concentrate is expected to remain high in the medium-term due to the increase in electric vehicle production and new infrastructure development plans in China. Mongolia's copper production is expected to grow in the medium-term due to Oyu Tolgoi's underground mine and the development of a metallurgy-chemical plant complex in Erdenet. However, it should be noted that there is still considerable uncertainty associated with these projects.

Coal market study

• Demand for steel, one of the main demand drivers for coking coal, is reaching pre-pandemic levels as the industry and economies recover. However, Chinese crude steel production began to decline in the first half of 2021 despite rising demand. Global steel demand is expected to reach pre-pandemic level by the end of 2021, except in China where steel demand is expected to decline in 2021 relative to the previous year.

• Coking coal supply was disrupted by restrictive or lockdown measures implemented amidst the COVID-

19 pandemic. As a result, the price of coking coal has soared in the reporting year. However, prices are expected to decline from 2022 as supply stabilizes.

• The greatest challenge facing the Mongolian coal market is cross border trade restrictions. Due to the COVID-19 pandemic, ports, which account for a majority of coal exports, were forced to halt trade twice in 2021. The situation has been improving in recent months as exports to China have increased and is expected to continue improving as container terminals are put into operation at key ports.

Iron ore market study

• In the first half of 2021, Chinese steel production rose sharply causing a surge in iron ore prices as an all-time high was reached in July 2021. In the second half of 2021, the Chinese government set a target of maintaining steel productions at 2020 levels and to reduce air pollution. To reach the goal, the Chinese government plans to restrict steel production until March 2022, which has led to a sharp decline in steel production. Additionally, as Brazilian iron ore production recovers and iron ore supply increases, iron ore price has been declining since August 2021. Iron ore prices are expected to fall gradually until it reaches USD 86 per tonne by 2025.

• Although there were three nationwide lockdowns that spanned between 14 and 28 days, Mongolian iron ore production increased by 7.6 % year-on-year during the first three quarters of 2021. Although production increased, iron ore exports declined due to COVID-19 related bottleneck issues at the Sino-Mongolian border. This trend is expected to continue for the rest of 2021 and until the beginning of 2022. In the short-term, if border restrictions are relaxed and the COVID-19 pandemic eases, iron ore exports might increase. In the long-term, a new railway via the Sainshand-Khangai-Mandal-Bugat route in the southern region of Mongolia could increase export capacity and reduce transportation costs.

8.5.2 Preparation of basic materials for guidelines for Social License to Operate

Leader: B. Tuvshintugs (ERI)

Member: Z. Manlaibaatar (ERI), B. Khorol-Erdene (ERI), U. Enkhsaikhan (ERI)

• An extensive literature review and international case studies, especially those from Australia, were reviewed to develop guidelines for assessing social licensing (SLO) in Mongolia. Based on the guidelines developed, a sample questionnaire was developed and the Salkhit Silver mine in Dundgovi province was selected as the target for assessing SLOs. The results obtained from this survey and the challenges in conducting the survey were analyzed for further improvement of the guidelines.

• We examined how the impacts on social infrastructure, contact quantity and trust affect the acceptance of a mining company and its operations. From the result, frequency of contact with company personnel, procedural fairness and perceived impact on social infrastructure affect community acceptance and approval by increasing or decreasing trust in the company. Furthermore, we confirmed trust as a strong and significant predictor of acceptance and approval of the company and mining project. Our findings are similar to Moffat and Zhang (2014) and other international studies.

• Mining companies in Mongolia do not have a good understanding of SLO. As such, despite the increasing number of mining projects operating in Mongolia, a social acceptance survey has never been conducted before. In light of this, the research team hopes that this study will provide valuable information on the topic of SLO and be of some help to those conducting similar studies in Mongolia in the future.

8.5.3 Policy recommendation for downstream value chain development in the mining industry

Leader: Ch. Khashchuluun (NUM)

Member: Z.Manlaibaatar (ERI), D.Oyuntugs (ERI), T.Dulguun (ERI)

• Mongolia has slowly begun developing its downstream industry as it gradually enters the focus of policies. This is contrary to a few years ago, when most policy developments concerned the development of the mining sector. Additionally, the environment for the development of the downstream industry has been improving since 2008. The general conditions for both private ownership and state-owned downstream industry have been improving.

• For state-owned enterprises, high economic growth has improved macroeconomic foundations for further investment and growth through:

- Larger GDP and higher budget revenue, which allowed for more government financing for infrastructure building in the mining and downstream industries (see the case of the Sainshand refinery, construction of railways and roads)
- Lower interest rate for sovereign bonds which also helped to finance economic development projects through the budget and DBM financing (the DBM financed projects)
- Ability to borrow more funds through multilateral and unilateral channels to finance downstream industry (see the case for the India-related loan for the Sainshand refinery)
- A new model of state owned or state-led downstream plant development as shown by the Sainsand refinery case, which involves unilateral negotiations, sovereign borrowing for the industrial project, and creation of appropriate legal environment
- Creation of Erdenes MGL as an umbrella for coordinating mines, their excavation, creation of infrastructure and, finally, creation of the downstream industries to overcome coordination and financing issues

• For private industries:

- More capable and larger private banking system, which started fo finance creation of private downstream plants
- Better ability to attract domestic private capital and FDI investment through the investment stability agreements

• Both the private and public sector have benefited from the availability of funds from the DBM, banking sector, and stock exchange. Additionally, the skilled labor pool has improved substantially since the introduction of the mining sector. The following conditions observed over the past decade have also contributed to the favorable environment created for investment into the downstream industry:

- Generally better understanding of the complexities and global character of mining and downstream projects,
- More experience of dealing with large private investment projects, both positive and negative consequences of them,
- The understanding that large mining and downstream projects require utmost attention in planning, contracting and management, the necessity to harmonize varying and sometimes contradicting interests of the actors (foreign companies, local communities, and government agencies)
- The understanding that nurturing downstream industries requires special legal attention (that is, approval of the specialized laws, which promote certain industries)

• However, there also exists some unfavorable conditions or obstacles to the development of the downstream industry:

- The current growth of the economy needs stronger efforts in diversification of exports and mining to become more sustainable, less risky and depend less on geopolitical factors, so far the diversification is not really proceeding and the specialization of the country in few mineral products is actually deepening.
- Creation of the downstream industries needs more human resources and experience for management of the downstream industries and there are higher infrastructure requirements for downstream industry than for the mining itself.
- The necessity for better coordination of the various actors in creation of the downstream industries is still very much on agenda and, so far, institutionally there is not an appropriate solution for policy coordination for creation of downstream industries (like Japan's MITI in the post war period) even despite the increasing understanding of the importance of economic planning in general.
- The financing needs for general economic and social development still are enormous; this greatly limits the possibilities for the investment in the downstream industries
- The inability to focus on specific projects or the failure to complete the projects with private investors due to conflicts among politicians, agencies and other related parties (thus the necessity for "the social contract").

• Based on these conditions and analysis, the following policy recommendations are developed for the further development of state-owned enterprises:

- The need to create more focused approach on the downstream plants, which involves all related products, makes responsibilities of related agencies clear and clarifies the leading roles of various ministries
- Need for better management and transparency of the SOE to manage the downstream projects

• For the private and public sector, the general policy needs are lower interest rates, more available public infrastructure for downstream projects, government subsidies or taxation incentives. Therefore, the recommendations are as follows:

1. Create and approve specialized legislation for ferrous and non-ferrous metallurgy, which contain taxation incentives for both private and state-owned investors in the field.

2. Narrow the Erdenes MGL activities towards steel and copper processing and provide them with the government guarantees
3. Initiate unilateral negotiations on tied grants and loans for the steel and copper plants.
4. Aim education efforts towards management of downstream processing plants and training of engineering personnel in ferrous and non-ferrous metallurgy
5. Intensify public investment in infrastructure for the industrial zones.

With these steps, the progress in metallurgy should be faster and the policy goals will be clearer. After 10 years of development of mining, the country is progressing towards the next stage of downstream processing of minerals, so the legislation and policies towards the heavy industry should be now updated and become more concrete and offer more significant incentives towards the investment in the processing industry.

8.5.4 Impact of COVID-19 on Mongolian mining sector

Leader: B. Tuvshintugs (ERI), G.Ragchaasuren (Gerege partners LLC)

Member: Z.Manlaibaatar (ERI), Ts. Oyunzul (ERI), B. Khorol-Erdene (ERI)

• In this report, the research team tried to provide a comprehensive analysis of both the current and near-term effects of the impact of the COVID-19 pandemic on Mongolia's mining sector.

• In addition to analyzing secondary data and documents, the research team conducted a phone survey among mining companies in order to analyze the impact of COVID-19 on the Mongolian mining sector in more detail. Moreover, the research team also provided a near-term economic outlook under alternative scenarios of mining sector recovery via the use of an in-house CGE model calibrated to SAM 2020.

• The secondary data analysis implied that the impacts on the mining sector were a significant driving force behind Mongolia's economic slowdown in 2020. As for the mining sector, the leading external factors of slowdown were fluctuations in Chinese demand, a drop in FDI inflow into the mining sector and global price shocks. Internal shocks include production and transportation disruptions as well as labor regulations and restrictions caused by measures implemented by the GoM.

• As for the phone survey, a total of 252 mining companies were included in the survey. The main purpose of the survey was to analyze the impact of the COVID-19 pandemic on mining companies, near-term expectations, and policy perceptions of mining companies. Based on the survey results, the research team was able to come to the following conclusions.

- Overall, the containment measures implemented by the GoM, such as restrictions on people's movement, border closures and inter-city travel restrictions, caused significant difficulties in maintaining stable operations. Smaller companies were especially affected by these measures and many mining companies also reported facing employment and financial challenges. Most of the mining companies included in the survey reported experiencing a decrease in production in 2020, largely caused by the aforementioned restrictive measures. The majority of mining companies included in the survey sold their mineral products to the domestic market and 186 companies

reported lower than anticipated sales volumes in 2020. This was due to lower production, transportation difficulties, lower demand and prices.

- On one hand, the revenues of mining companies dropped due to decreased sales and disruptions in mining operations. On the other hand, operational costs also increased due to COVID-19 related preventive measures such as increased work-place sanitation and hygiene procedures as well as regular staff testing and screening. As a result, the majority of mining companies included in the survey experienced some kind of financial problems due to COVID-19. Several could not pay wages to employees, cover operating expenses, make loan repayment nor purchase inputs involved in the production process. A significant portion of the mining companies included in the survey also reported a decrease in or delay of FDI into their projects and most had no clear expectations of how FDI will develop in the future.
- In terms of specific commodities, coal companies were mainly affected by a negative shock in sales volumes rather than by a shock in prices, implying that containment measures implemented by the GoM, especially border closures, were the main factors behind reduced sales. As for copper, the negative impact of COVID-19 was felt mainly through FDI and employee's rotation schedules. Gold was not as negatively affected due to price increases and its differing trade mechanisms. However, gold companies still mentioned obstacles in the form of labor disruptions. Iron ore companies seemed to be the most negatively impacted by COVID-19 and its related restrictions. Despite price increases, iron ore production and sales dropped due to transportation bottlenecks and a loss of customers. Smaller companies were impacted the most and could not take advantage of the increase in prices.
- However, it is worth noting that the majority of the companies that experienced a decrease in production and sales as a result of the pandemic were optimistic about future recovery with companies believing that an average of 8-9 months would be required for production and sales recovery after COVID-19.
- Moreover, many mining companies took appropriate action in response to the pandemic, implementing numerous human resources and financial measures. Almost half of the surveyed mining companies mentioned implementing human resource management measures to cope with regulations. These measures mainly included changing work schedules and extending roster periods. They also implemented financial management measures to continue their operations during the pandemic. Most focused on reducing operational expenditure by postponing investment and mine development, decreasing mining activities, cutting unnecessary operational costs and reducing labor cost by lowering salaries and bonuses. In addition to measures implemented by mining companies themselves, some took part in government relief measures such as social security payment, PIT and CIT exemptions. However, despite the challenges they faced, the majority of mining companies said they did not receive any financial support from the GoM. Conversely, more than half of the mining companies included in the survey said they made donations to the local and central government within the framework of social responsibility. SOEs donated the most to help

overcome the negative impacts of COVID-19.

- Overall, companies found COVID-19 related regulations implemented by the GoM fairly difficult to comply with. Companies found the regulations contradicting, confusing, frequently changed, and their implementation riddled with coordination failure among government agencies. In general, mining companies were unlikely to benefit from government support but were expected to finance them.

• Considering the importance of the mining sector, post-COVID-19 economic recovery will likely be closely tied to mining sector growth. Thus, the research team simulated the near-term economic outlook under 3 alternative scenarios of mining sector recovery in the upcoming two years using an in-house recursive dynamic CGE model.

- In the baseline "Smooth recovery" scenario, steady growth in the mining sector will lead to higher total demand and the overall economy is forecasted to grow 8.2% and 7.3%, respectively, in the upcoming 2 years.
- In the first "U" recovery scenario, the overall economy will be 4.4% smaller than in the "Smooth recovery" scenario owing to low growth in 2021. Finally, in the second "Inverse-U" recovery scenario, economic growth will be high in 2021 before dropping to only 1.54% in 2022 due to dwindling demand. In both alternative scenarios, the debt to GDP ratio is considerably worse than the baseline scenario.
- The first alternative scenario illustrates the detrimental economic effect of continued pandemic conditions.
- The second alternative scenario highlights the importance of diversifying the Mongolian economy beyond mining.

• Overall, the mining sector is integral to Mongolia's economic recovery post-COVID-19. However, the sector is also highly dependent on external factors and susceptible to COVID-19 related risks. Thus, policy makers should consider the consequences of preventative measures on the mining sector and balance mining sector growth with containing the COVID-19 pandemic.

8.5.5 Establishing a platform for the continuous provision of mineral commodity information and strengthen links between ERI and international organizations

Leader: B. Tuvshintugs (ERI)

Member: Z. Manlaibaatar (ERI), G. Vanchig (ERI), L. Otgonbaatar (Biznetwork LLC), M. Dulamsuren (Independent consultant)

• ERI expanded its activities beyond research to establish a permanent online platform where information and data related to the mining sector can be accessed. ERI's current website contains an e-library of publications and working papers by various researchers and institutions pertaining to the Mongolian market. This platform will be an expansion of this e-library and will also include a contain data on commodities, developments in the mining sector, and various assessments of policies.

• The goal of this project is to ultimately provide a centralized mining database and e-library that contains key mining news and information to users in an easy and accessible way. The website is made up of two main sections: an e-library containing research papers related to the Mongolian mining sector, and a database containing data for key mineral commodities. Currently, data on Mongolian mineral commodities such as production, sales, exports and prices are published on the websites of the Mineral Resources and Petroleum Authority (MRPAM) and the Customs General Administration. However, the data is often difficult to find and not user friendly. The database portion of the website we are developing aims to solve this issue by updating the relevant data from the aforementioned sources on a monthly basis such that users can find up to date mining data from one comprehensive, easy to use platform.
• The website will continue to be improved and developed. The following activities will be performed on a regular basis:

- Upload data in the database as far forward as possible
- Update database data on a monthly basis
- Enrich the archive by adding relevant reports and research papers from previous years into the e-library section
- Add any new relevant reports research papers to the e-library
- Link to Google analytics. This will allow us to gather information on how many people are visiting the website, what reports are being read, from which country users are logging in and what devices they are accessing the website from.
- Restructure the database as needed, adding new data, adding new mineral commodities, etc.

8.5.6 Adaptation in carbon-constrained world for Mongolia

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Member: Z. Manlaibaatar (ERI), D. Unurjargal (ERI), U. Enkhsaikhan (ERI), B. Khorol-Erdene (ERI)

• The Paris Agreement, an international effort to limit the increase of global warming to below 2°C, preferably to 1.5°C, from the pre-industrial level and reach climate neutral emissions by the end of the century, came into effect in 2016. 196 countries, including Mongolia, joined the Paris Agreement and the largest carbon emitting countries aim to reach peak global GHG emissions as soon as possible in order to be on the path towards carbon neutrality by 2050. If net-zero emissions are achieved by 2050, global warming could be kept under 2°C by 2100.
• The top 5 GHG emitters since 1850 include the US, EU, China, Russia, and Germany while the top 5 annual GHG emitters as of 2018 are China, the US, EU, India, and Russia (Climate Watch, 2021). G20 nations account for 75% of global GHG emissions and have set ambitious emission reduction targets that are in line with the Paris Agreement goals of a 1.5°C limit on global warming and net-zero emissions by 2050 (Climate Analytics and WRI, 2021).
• However, the implementation and enforcement of the Paris Agreement remains lacking. Global GHG

emissions are still above target levels and from 2015-2019, the level of CO_2 in the atmosphere was more than 20% higher than in the previous five years (WMO, 2019). The global average temperature increased by 0.2°C from 2015-2019 and was 1.1°C higher than the pre-industrial level. This points to accelerating global warming and according to the Intergovernmental Panel on Climate Change, even full implementation of the Paris Agreement may result in global warming reaching 3°C.

• At the 2021 COP26 meeting, countries reaffirmed their commitment to the Paris Agreement. However, current policy measures and commitments are still not enough to significantly cut global emissions by 2030. Major emitting countries are expected to renew their emission targets by the end of 2022 which will clarify if COP26 targets are compatible with the 1.5°C temperature limit.

• Amidst this international effort to combat global warming, the GoM approved its NDC target in November 2019. Accordingly, Mongolia will reduce its GHG emissions by 22.7% by 2030 from its business-as-usual projected emission level. Mongolia also announced plans to further reduce this target to 27.2% of the business-as-usual projected emission level during the COP26 meeting. To reach this target, Mongolia plans to focus on developing renewable energy resources, plant a billion trees by 2030 and allocate 1% of GDP annually to mitigating the adverse effects of climate change.

• However, in addition to reducing its own emissions, Mongolia must also consider the carbon reduction policies of other countries. China's policies related to reaching its NDC target is particularly important for Mongolia as China is its main market for coal and other mineral commodities. Mongolia's current carbon reduction policies are limited and do not yet reflect possible external risks in the coal and transport sectors.

• Globally, burning coal generates about 15 billion tons of CO_2 annually. In light of this, China set a new goal to shift investments from coal to low-emission green technology in their new 5-year plan. In contrast, Mongolia declared the coal sector as a strategically important sector and plans to make sizable investments into the coal sector in upcoming years. These plans include the construction of a coal washing plant and several coal-fired power plants.

• In general, while the GoM has set a goal to reduce GHG emissions, it is reluctant to restrict coal production and consumption due to its economic importance. Thus, Mongolia faces the ongoing challenge of managing a tradeoff between the "carbon neutral requirement from the world" and "the revenue sustainability of the Mongolian energy sector."

• To explore this tradeoff, we reviewed the country experiences of Mongolia and major GHG emitters in carbon reduction and the strategies they employ to meet their NDC targets to achieve net-zero emissions. We then assessed the long-term economic and environmental impact of implementing various carbon-neutral policies in Mongolia. To do so, we developed a CGE model based on the PEP standard CGE model to project long-term economic development and changes in CO_2 emissions under the following alternative scenarios:

- Coal production, use and exports are restricted
- Use of renewable energy increases
- Use of improved coal briquettes increases
- The above three conditions are met simultaneously

• Based on these assessments and analysis, the research team has put forth the following conclusions and recommendations:

1. As the Mongolian economy is highly dependent on the mining sector, a decline in the investment into and production of the coal sector resulted in the slowdown of several dependent sectors. This reflects aspects of Dutch disease and has a negative impact on macroeconomic indicators. For instance, GDP growth, investment growth, government and household income growth and foreign trade growth all decelerated in Simulation 3 and 4 where investments into the coal sector fell. The worldwide shift toward reducing CO_2 emissions and eventually eliminating coal consumption had a considerable negative impact on the Mongolian economy and emphasizes the need to diversify and develop its non-mining sectors.
2. In Mongolia, 68.5% of household CO_2 emissions are due to the burning of high emission raw coal. Thus, increasing the production of improved coal briquettes and providing more households with it is an effective method of reducing household CO_2 emissions. However, as household CO_2 emissions account for a very small percentage of total CO_2 emissions, reducing household CO_2 emissions alone is not enough to make a considerable dent in emissions.
3. This study examined how increasing the installed capacity of the renewable energy sector may lead to reductions in CO_2 emissions. However, a detailed look into the renewable energy sector found it unable to significantly reduce emissions due to its low utilization and inefficiency. For instance, the renewable energy sector's production accounted for only 2.2% of the energy sector's total production in 2020. As such, even if the installed capacity of the renewable energy sector improved, its share of the energy sector's total production is likely to remain low. Moreover, the Vision 2050 long-term policy document includes provisions to make significant investments into Mongolia's energy sector, the sector that contributes most to CO_2 emissions. The implementation of these provisions will weaken the effect of policies aimed at improving the installed capacity of the renewable energy sector and reducing CO_2 emissions. To make meaningful improvements in reducing CO_2 emissions, there is a need to improve the installed capacity of the renewable energy sector, limit investments into the conventional energy sector, and improve the overall efficiency of the entire energy sector.

Chapter 9 Conclusion

This project was conducted with the aim of strengthening and cultivating the functions and human resources of Mongolia to formulate policies based on accurate and appropriate information in order to ensure the stability and development of the national economy independent of the excessive influence of the world affairs of mineral resources and the movements of the domestic administration. Specifically, it aims to strengthen the functions of understanding trends in global mining development and international mineral resource markets from the perspective of investors, researching and analyzing international trends in FDI conditions and mining-related taxation, and disseminating practical policy and measure recommendations based on the results to policymakers. It is also hoped that through this project, the international competitiveness of the investment environment in the mining sector in Mongolia will be improved, resource revenues will be managed appropriately, and strategic and sustainable investment in mining development will be realized.

The project started in June 2016 and conducted studies for five and a half years until January 2022. The titles of all the study themes and their implementation schedules for each year are shown in Table 9-1.

The results obtained from this project and recommendations for the future are described below.

9.1 Results of the project

In this project, global and domestic information on demand, supply, and medium- to long-term price forecasts for four mineral resources (copper, gold, coal, and iron) that are important to Mongolia were collected and analyzed, and the results for each year were compiled and published. Since Mongolia does not have easy access to global and domestic resource information data, the resource information compiled by this project is very useful for government agencies and private sector mining professionals.

Subsequently, studies were conducted on mining development strategies, revenue management for mineral resources, FDI inflows, marketing and transactions, tax and financial reporting, contracts, and sustainable mining development, and issues in each theme were identified and recommendations were made for immediate implementation or improvement. These issues were summarized and compiled as policy recommendations, and action plans were formulated to implement them. The summarized policy recommendations are shown in Table 9-2.

Table 9-1 Overall study implementation schedule

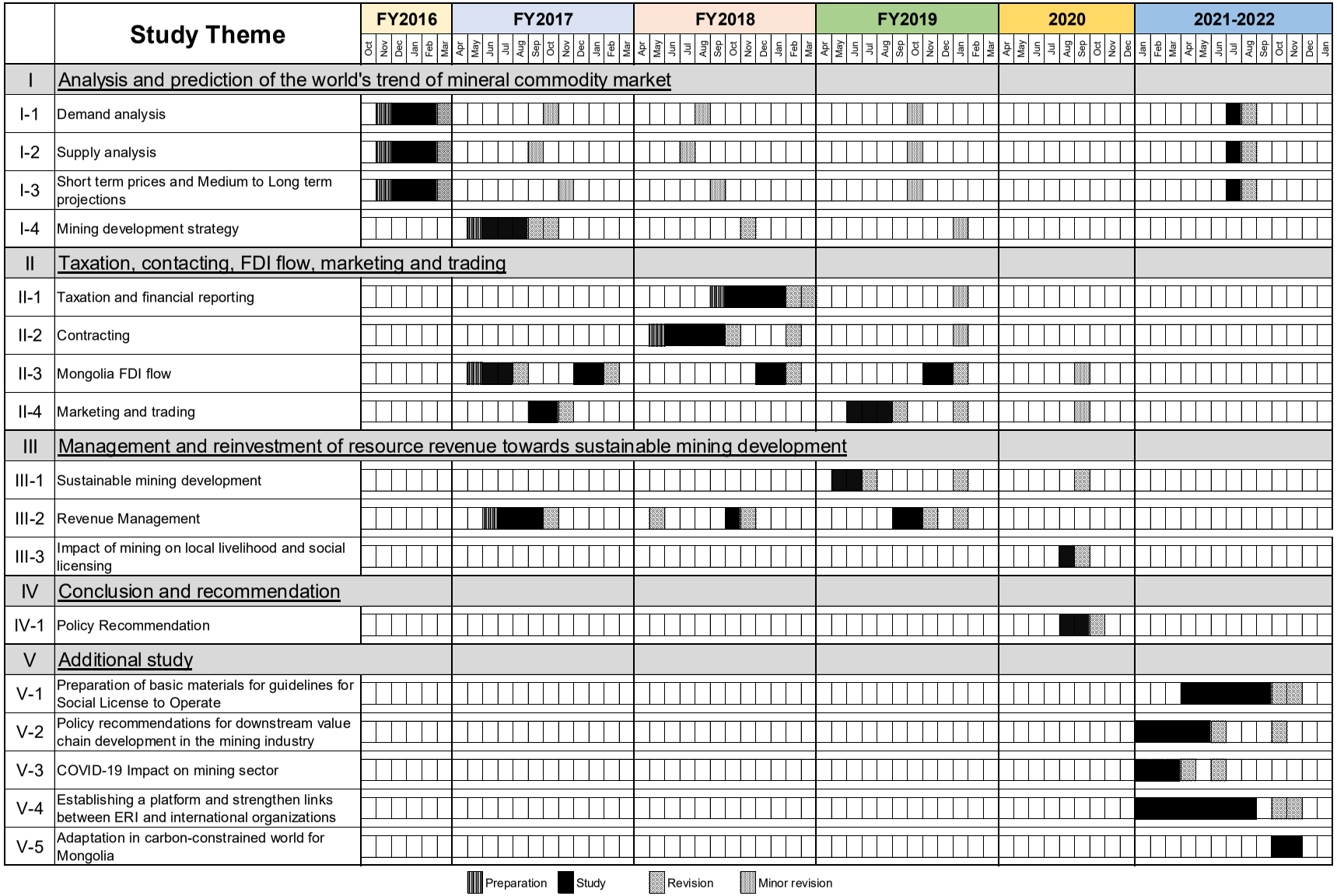

Table 9-2 Policy recommendations on the mining sector for economic stability and development in Mongolia

Study Theme	Policy Recommendations
1. Mining Strategy **Issues:** There is a lack of a detailed vision on how the government intends to implement and achieve strategic visions and policy actions.	• To develop detailed programs of policy actions in order to implement and achieve these strategic visions.
2. FDI inflow **Issues:** The way to attract foreign direct investment is to improve the investment climate through legal reforms, increased transparency, combating corruption, etc.	• Improve business environment and provide stability of policies to attract FDI by: (a) Establishing "One stop shop" for investors (b) Further improving stabilization clauses (c) Preventing and combating corruption • Promote economic diversification through indirect use of mining FDI. • Refine mining revenue management
3. Taxation and Financial Reporting **Issues:** The Government should focus on improving the country's business environment in order to further incentivize private investment into the mining sector.	• Improve the business environment of the country, ensuring political and policy stability and thereby, maintain consistent policies geared towards attracting FDI.
4. Contracting in Mining Sector **Issues:** It is crucial for the host country to have a well-developed model contract that considers all direct and indirect effects.	The following are recommendations to improve mining contracts: • To clarify the definition of large projects as compared to the legally established strategic mine issue • To design an integrated form of agreement, in which all stakeholders, including local suppliers, to have their non-binding promises and to reach a consensus • To raise the awareness of the importance of having an integrated agreement with all stakeholders to agree on major project features and having a unified management
5. Marketing and Trading in the Mining Sector **Issues:** How mineral commodities are traded, sold and the challenges these processes face are a key issue in Mongolia.	• In order to develop marketing and trading further, there is a need: (a) to establish a mineral commodity exchange (b) to devise policies to support and promote traders' activities (c) to make sales contracts transparent (d) to develop export financing mechanisms (e) to initiate and carry out capacity strengthening projects (f) to increase the role of mining associations in policy making and raise awareness for the sector
	• In order to establish a mineral commodity exchange, there is a need to: (a) conduct detailed and comprehensive feasibility studies for assessing following options for the exchange: a new independent exchange; expansion of the Mongolian agricultural commodities exchange (MCE) to handle mineral products; use existing exchange in a foreign country. (b) conduct studies of establishing transport and logistics centers, trading platforms, especial standard for mineral products, the possibility of participating buyers from other countries etc.,
	• There is an urgent need to build a railway from large coal deposits to the border, to increase the capacity of the existing railway, and to modernize the technology of customs clearance.

6. Budget Revenue Management **Issues:** The government should commit to the implementation of the Fiscal Stability Law (FSL), Future Heritage Fund (FHF) law and adhere strictly to these laws in order to counteract economic cycles, which can be generated by commodity price volatility.	• The Government of Mongolia needs to fully implement and strictly adhere to the Fiscal Stability Law. All provisions of the law must be in full effect with little adjustments and amendments being made.
7. Sustainable Mining Development **Issues:** How a country can be benefiting from the mining sector for the long period of time in a sustainable way?	• To develop more linkages between the mining sector and the rest of the economy. This way the mining industry will positively contribute to the sustainable development of the country. For instance, the issues of water usage, illegal mining, management of environmental damage should be addressed.
	• To pay more attention to studying the price fluctuations, competition and developments in minerals market as well as to have better facilities to accurately predict mineral prices
	• To promote investment in mineral exploration and mine development
	• To further develop soft and hard infrastructure of the mining industry since there is a lack of infrastructure and educated personnel.
	• While developing the mining industry, focus on expanding into other industries to diversify the economy.
	• To increase the mining sector's contribution to the society. But there is a need to balance contributions to the nationwide and local economy.
	•To further improve fiscal and monetary policies to cope with the instability of the mining revenue. Examples of Norway fund and other sovereign funds are important examples for optimal resource management.

The policy recommendations in Table 9-2 were compiled in FY2020. Recognizing that these policy recommendations need to be realized to achieve the higher-level goals, in 2021, the project prepared policy recommendations on downstream industry development in the mining sector, develop guidelines on social licensing, and develop a continuous mineral resources platform for the provision of information was developed. In addition, we studied the impact of the COVID-19 on the mining sector in Mongolia, and made necessary policy recommendations on the issue of the COVID-19 and decarbonization, which have suddenly emerged as issues. We also examined the future of mining policy in response to the rapid changes in the environment surrounding coal, which is Mongolia's main export product.

In this project, the Mongolian Economic Research Institute (ERI) conducted the study, and the Japanese team managed the overall project, provided information to ERI, advised on research methods and content, and reviewed the reports prepared by ERI, and commented on corrections and additions. Through this project, ERI's ability to quickly collect appropriate mineral resource information and analyze it has been greatly enhanced. In addition, the results of the study have been highly evaluated, and ERI has begun to play a role as a think-tank, for example, by developing closer relationships with the Ministry of Mining and Heavy Industry and state-owned mining companies and being asked to participate in policy formulation.

9.2 Recommendations for the future

The mining sector will continue to be an important industrial sector that drives the Mongolian economy, and the sustainable development and utilization of mineral resources is an extremely important prerequisite for Mongolia's economic growth. For this reason, the need for a think tank that can collect and analyze information on overseas and domestic markets, make recommendations on resource policies, and provide advice on corporate strategies is expected to increase. Therefore, ERI is expected to play an important role as a think tank in the future and is expected to serve as a model for think tanks in Mongolia and contribute to the development of think tanks to follow.

Based on the results of this project, the following recommendations have been compiled in order to further stabilize and develop the Mongolian economy in the future.

(1) Implementation of measures based on policy recommendations

It is essential that the Mongolian government steadily implement the action plans based on the policy recommendations compiled in this project. We are confident that the implementation of the action plans will lead to the stabilization and sustainable development of the Mongolian economy. However, these action plans need to be made more concrete and actionable in accordance with the ever-changing overseas and domestic markets and conditions. In order to achieve this, think tanks such as ERI are expected to participate in the formulation of policies by the Ministry of Mining and Heavy Industry, and to make recommendations and provide advice.

(2) Continuous dissemination of overseas and domestic mining information

It is important to enhance the platform for providing mineral resource information incorporated into the ERI website and to disseminate it on a continuous basis. In particular, we believe that timely dissemination of accurate information on overseas markets and overseas mining conditions to those involved in the mining industry in Mongolia is extremely important for the formulation of resource policies and corporate strategies. Furthermore, disseminating information on policies, economics, laws and regulations related to the mining industry in Mongolia to government agencies and mining companies overseas will help promote foreign direct investment in the mining sector.

(3) Strengthen cooperation with international organizations

It is important to cooperate with international organizations in order to collect information on overseas markets and overseas mining conditions, and to understand the current situation and future forecasts. It is also necessary to strengthen cooperation with international organizations in order to make unbiased assessments and judgments of the domestic situation based on international standards. This is also a particularly important requirement for the development and strengthening of think tanks.

4) Continuous support by JICA

It will take a long time for the Mongolian economy to stabilize and develop, and we must continue to aim for a better direction while implementing the action plans for the policy recommendations compiled in this project. In order to achieve this, the contribution of think tanks is absolutely necessary, and it is expected that JICA will continue to focus on fostering and strengthening think tanks. In addition, the active participation of think tanks with experience and familiarity with the Mongolian mining industry and economy in JICA's projects will enable them to plan projects more effectively, operate more efficiently, and achieve better results. This will also help to improve the capacity of think tanks.

In the case of Mongolia in particular, as was the case during this project, ministries and agencies tend to change within a short period of time, and the existence of the project is often forgotten, and the useful results compiled after much analysis and discussion are not passed on. In addition, since the structure within JICA changes in a short period of time, the follow-up of completed projects is usually left to counterparts, and it is easy to fall into a situation where the results are not fully utilized. All of the projects are challenging important and difficult issues, not issues that can be quickly solved and accomplished only after several years of implementation. After the project is completed, it is important to monitor it closely, conduct necessary follow-ups, and provide continuous support, which will lead to real results.

Therefore, we would like to recommend that JICA continue to monitor this project to ensure that the action plan is steadily implemented, and also provide support to make the action plan more concrete and actionable in response to the ever-changing market and situation. It is also recommended that JICA continue to foster and strengthen think tanks in Mongolia through such support.