

APPENDIX

APPENDIX I

Minutes of Meeting in FY 1987

M E M O R A N D U M

1. In accordance with the Scope of Work for the Feasibility Study on Effective Utilization of Banko Coal in the Republic of Indonesia, JICA sent the study team (No. A) headed by Mr. Takehiko Sato to the Republic of Indonesia from July 20 to July 29, 1987.

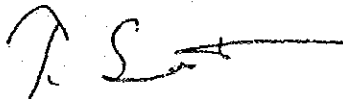
According to the prepared program BPPT (the counterpart team) and the study team have discussed implementation plan of the coal gasification test, coal sampling work and other related works.

2. The study team prepared and provided 15 copies of the Inception Report Revised in July, 1987 to BPPT and relevant organizations.
3. After discussion, BPPT and the study team agreed on the Inception Report on July 28, 1987.
4. The study team explained that the Interim Report III (FY 1986) and its Summary would be provided by JICA around the beginning of August.

Jakarta, July 28, 1987

For Japan International
Cooperation Agency

For the Agency for the
Assessment and Application
of Technology



TAKEHIKO SATO
Leader of the
Study Team
Japan International
Cooperation Agency.



SUBAGIO IMAM BAKRI
Leader of the Study Team
Agency for the Assessment
and Application of Technology.

MINUTES OF MEETING

1. The parties concerned (Badan Pengkajian dan Penerapan Teknologi, Pusat Pengembangan Teknologi Mineral and the survey team sent by Japan International Cooperation Agency, hereinafter, referred to as BPPT, PPTM and JICA survey team, respectively) confirmed mutually that all the planned work had been performed satisfactorily, by strenuous efforts of the work team sent by PPTM and favored by fine weather.
2. Works performed at the site in the fiscal year, are as follows :
 - i). Coal sampling for the coal gasification test in Serpong :
 - a. Coal samples were taken from Jelawatan, Enim 1 and Enim 2 coal seam in North Suban Jeriji, and, from Mangus 1 (A-1), Mangus 2 (A-2), Suban 1 (B-1) Suban 2 (B-2) and Petai (C) coal seam by means of large diameter core drilling, respectively. (see attached sheet 1).
 - b. Coal samples also were taken in Banjarsari and Arahan (A-2 coal seam) by pitting, on advice of Departemen Pertambangan, Direktorat Jenderal Pertambangan Umum, Direktorat Batubara (see attached sheet 1).
 - c. Moreover, coal sample (from A-1 coal seam Air Laya pit) was collected at the stockyard, through the courtesy of Bukit Asam coal mine of PT. Tambang Batubara Bukit Asam (see attached sheet 1).
 - ii). (Coal) spontaneous combustion test.

The heading test was carried out at coal heaps (height 2.00 meters area of the base of cores : 36.3 m^2), constructed by fresh, unweathered coal in a old test pit excavated by shell in Central Banko (B-1 coal seam). The observations will be analyzed in detail by the hands of the JICA survey team in their report.

The valuable observations on spontaneous combustion in the stockyard of Bukit Asam Coal Mine were presented by the safety department of PT. Tambang Batubara Bukit Asam.
3. The Indonesian counterpart expressed strongly the hope that spontaneous combustion test will be gone on in the 1988/89 fiscal year by the hands of the parties concerned, because spontaneous combustion is quite important and unavoidable matter for coal in South Sumatera coal field.

The JICA Survey Team promised that the hope expressed by the Indonesian counterpart would be conveyed to the JICA headquarters.

4. The valuable data for the feasibility study on Banko Coal effective utilization were presented by Departemen Pertambangan dan Energi, Direktorat Jenderal Pertambangan Umum, Direktorat Batubara and PN. Tambang Batubara.

5. The parties concerned expressed their gratitude for kind cooperation to the following Governmental Organizations.

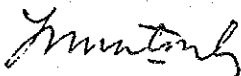
Departemen Pertambangan dan Energi, Direktorat Jenderal Pertambangan Umum, Direktorat Batubara.

PN. Batubara

PT. Tambang Batubara Bukit Asam.

25th September, 1987.

on the behalf of
BADAN PENGKAJIAN DAN PENERAPAN TEKNOLOGI,



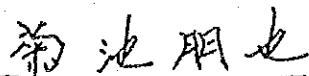
PRAPTO HERYONO

on the behalf of
PUSAT PENGEMBANGAN TEKNOLOGI MINERAL,



KOMAR PRIATNA ANWAR

on the behalf of
JICA SURVEY TEAM,



TOMOYA KIKUCHI

MINUTES OF MEETING

1. In accordance with the Scope of Work for the Feasibility Study on Effective Utilization of Banko Coal in the Republic of Indonesia, JICA sent the study team (No.C) headed by Mr. Takehiko Sato to the Republic of Indonesia from Sep. 28 to Oct. 16, 1987.

According to the prepared program, BPPT (the counterpart team) and the study team have performed satisfactorily all the following studies:

- i) Preliminary analysis of coal gasification test data
- ii) Preliminary evaluation of gasification characteristics of North West Banko Coal, Central Banko coal and North Suban Jeriji coal
- iii) Review and modification of coal gasification test procedure, if necessary

2. BPPT confirmed the acceptance of 30 copies of the Interim Report (FY 1986) sent by JICA

3. The study team prepared 15 copies of the Field Report summarizing the results of the study. After discussion, BPPT and the study team agreed on the Field Report on Oct. 16, 1987.

Summary is as follows:

- i) 22 times of coal gasification tests have been already carried out by Oct. 9, using all 20 sorts of coal which were sampled at North West Banko, Central Banko and North Suban Jeriji.

ii) Almost of tests were succesful. However, some fluctuations were recognized in generated gas composition because of air contamination and fluctuation of coal feed rate.

iii) After data analysis, it was confirmed that the test data obtained in this gasification test show almost same tendency with experiences by molton iron process.

iv) Preliminary estimation of gasification characteristics expected in a commercial plant is as follows:

Coal	Gas amount Nm ³ /coal-t	Gas composition % wet base		
		CO	H ₂	CO ₂
N.W. Banko (Mangus seam)	2089	54.1	30.4	3.6
C. Banko (Suban Seam)	1921	54.8	29.6	3.7
N.Suban J. (Enim Seam)	1835	54.0	30.2	3.6

It was confirmed that any technical difficulty would not be found in gasipication of Banko coal by molten iron process.

v) Further coal gasification test, including training of the counterpart, will be continued until the beginning of December, 1987.

MINUTES OF MEETING

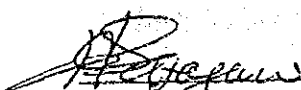
1. In accordance with the Scope of Work for the Feasibility Study on Effective Utilization of Banko Coal in the Republic of Indonesia, JICA sent the study team (A) headed by Mr. Hirotaka Sasaguri to the Republic of Indonesia from July 20 to December 12, 1987.

Based on the prepared program, BPPT (the counterpart team) and the team (A) have performed the following studies satisfactorily;

- i) Analysis of coal sampled in 1986 and 1987.
 - ii) Gasification of coal samples.
 - iii) Documentation of the coal gasification data.
 - iv) Analysis of gasification characteristics of each coal.
2. Both parties talked over the study results (Field Report) and agreed on them.

The results of coal analysis, all data at gasification and analyzed results of gasification characteristics of each coal are attached.

3. Preliminary estimation of produced gas which excludes involved air and includes leaked gas are shown on the table 5-1.
4. Necessary jobs covering parts and putting desicant in them in order to keep the facilities in good condition were done. Besides this, BPPT agreed to circulate cooling water once a week to keep the circuit clean, during stoppage.


HIROTAKA SASAGURI

9th Dec. 1987. Serpong.
Gasification leader,
JAPAN INTERNATIONAL
COOPERATION AGENCY


WARDIMAN DJOJONEGORO

9.12.87
Deputy Chairman for
Administration, AGENCY
FOR THE ASSESSMENT AND
APPLICATION OF TECHNOLOGY

MINUTES OF MEETING

1. In accordance with the Scope of Work for the Feasibility Study on Effective Utilization of Banko Coal in the Republic of Indonesia, JICA sent the study team (No. D) headed by Mr. Takehiko Sato to the Republic of Indonesia from Feb. 15 to Feb. 24, 1988.

According to the prepared program, BPPT (the counterpart team) and the study team have discussed the following subjects:

- i) Explanation and discussion in Draft Interim Report (Stage III)
 - ii) Discussion on "the necessity to step forward to the 3rd stage (feasibility study stage)" in accordance with the Scope of Work
 - iii) Explanation and discussion on the Implementation plan of the 3rd stage in FY 1988
2. The study team prepared 15 copies of the Draft Interim Report (Stage II) summarizing the results of the study in the 2nd stage. After discussion, BPPT and the study team agreed on the Draft Interim Report (Stage II) on Feb. 16, 1988.

Summary of discussion is as follows:

- i) 40 times of coal gasification tests have been satisfactory carried out, using all 20 sorts of sample coal which were sampled at North West Banko, Central Banko and North Suban Jeriji.

The test data show some fluctuation in generated gas composition because of fluctuation of air amount contaminated and coal feed rate.

However analysis of the test data shows that almost of tests were successful and characteristics of Banko Coal could be grasped through gasification test.

Both sides confirmed that any technical difficulty for design of a large scale plant was not found in gasification test of Banko coal by the molten Iron process.

ii) The master plan proposed in the Interim Report (Stage II) seems to be prospective. However built up schedule of the project should be studied furthermore in details in the 3rd stage of the study.

iii) The project seems to be feasible in technical and economic point of view. Therefore the detailed feasibility study will be carried out in the 3rd stage.

3. In accordance with the Scope of Work, both sides evaluated the results of the coal gasification test stage and discussed "the necessity to step forward to the 3rd stage (feasibility study stage)".

After discussion, both sides agreed to proceed the 3rd stage in view of technical and strategic aspects. Both sides confirmed that it is unnecessary to modify the Scope of Work.

4. The study team prepared 15 copies of the Draft Inception Report (Stage III) and explained the outline of the implementation plan of the study in FY 1988.

The counterpart (BPPT) agreed upon the implementation plan proposed by the study team, expressing strongly the following hopes:

- i) BPPT and PUSPIPTEK explained their plan to continue a coal gasification test using the coal gasification test facilities provided by JICA.

For that purpose, BPPT requested to dispatch the experts of operation and maintenance as well as test planning and analysis for technical assistance.

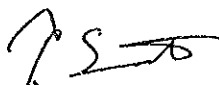
- ii) BPPT and MTDC explained their plan of spontaneous combustion test of Banko coal. For that purpose, BPPT requested to provide instrument for the test.

The study team promised that the hope mentioned above would be conveyed to the JICA Headquarters.

Jakarta, February 16, 1988


For Japan International
Cooperation Agency

For the Agency for the
Assessment and Application
of Technology


FL 16 '88

TAKEHIKO SATO

Leader of the
Study Team,
Japan International
Cooperation Agency



WARDIMAN DJOJONEGORO

Deputy Chairman for
Administration,
Agency for the Assessment
and Application of Technology

APPENDIX II

**List of Organization and Personal Visited
by the Study Team in the 2nd Stage**

FY 1985

Organi-
zation

Name

BBPT Dr. Wardiman Djojonegoro

Mr. Subagio Imam Bakri

Mr. Bambang Suwondo

Mr. Achmad Setiadi

Mr. Djoko Sulaksono

Mr. Herry Supriyanto

Mr. Suharjono

Mr. M. Harsono

PUSPIPTEK

Mr. Rustamadji

Mr. Sulaiman Kurdi

PPTM Mr. Bambang Sulasmoro

Mr. Komar P.A.

Mr. Zurni M. Nur

Mr. J.K. Massora

Mr. Yuyun Basyuni

Mr. Samsa

Mr. Arifin Karim

Mr. Hadi Nursarya

Mr. Burhandin

Mr. Kusunawan

Mrs. Nunung N.

PTBA Mr. Soetjipto Wijodi

Mr. A. Suhatri Arif

Mr. Andi Massalangka

Mr. Rachmen Soekandi

Mr. C.S. Jauary

DOC Mr. Brawi Hendarto

PLN Mr. R.M. Sayid Budihardjo

Mr. Sugeng Pribadi

Mr. Lumbangaol

Pertamina

Mr. H. Arifin Abubaka

Mr. R. Siregar

Mr. Susilo Martodiwirjo

Mrs. T. Indrawanti Pudiyanto

Mr. P. Agus Budiasto

Mr. Imam Soeharto

Mr. Abdul Gani

Mr. Yan Iskandar

Mr. M.S. Mustafa

Ministry of State for Population
and Environment

Prof. Dr. Koesnadi Hardjasoemantri

D.G. of Sea Communication

Mr. Zainal Abidin

Mr. M. Soewignjo

FY 1986

Organi-
zation

Name

BPPT Dr. Wardiman Djojonegoro
Mr. Subagio Imam Bakri
Mr. Bambang Suwondo
Mr. Achmad Setiadi
Mr. Djoko Sulaksono
Mr. Herry Supriyanto
Mr. Suharjono
Mr. M. Harsono
Mr. Untung Sumotarto
Mr. Unggul Priyanto
Mr. Prapto Heljono
Mr. Amiral A.
Mr. Helmy Said
Mr. Joko Prihiastoto
Ms. Saraswati
Mr. Indra Budi Susetyo
Mr. Ayusak Lubis
Mr. Fathor Rahman
Mr. Eddy
Mr. Teddy

PUSPIPTEK

Mr. Sulaiman Kurdi

PPTM

Mr. Komar P.A
Mr. Yuyun Basyuni
Mr. Koen Mabsora
Mr. Endang Yuyu Wiraatmadja
Mr. Mochammad Rochim

PTBA Mr. Soetjipto Wijodi
Mr. Ardi Massalangka
Mr. Rachman Soekandi
Mr. Zulyadin

DOC Mr. Subandoro
Mr. Parigan

PLN Mr. Sudjanadi
Mr. P. Oka
Mr. A. Soetjipto
Mr. Krisno Pandito
Mr. Sofyan Taca

CV RENE

Mr. Thalib Nasution

Pertamina

Mr. H. Sudradjat
Mr. Torie Setiawan
Mr. L.M.L. Tobing
Mr. Djoko Hernowo
Mr. Ibrahim L. Chaniago
Mr. Hardono
Mr. Bambang Pitoyo
Mr. Javed Sumbung
Mr. Santoso Koerdi

Ministry of State for Population
and Environment

Ms. Sri Hudyastuti
Mr. Hendra Setiawan

D.G. of Electric Power & New Energy

Ms. Maritje Hutapea
Mr. Maraudin Panjaitan

D.G. of E & NE

Ms. Maritje Hutapea
Mr. Pelayun
Mr. M. Panjaitan

C.B. of Statistics

Mr. Soewondo
Mr. T.H. Suprono
Ms. Supati
Mr. L. Gintung

D.G. of MIGAS

Mr. T. Sitanggang
Mr. Widartomo
Mr. E.E. Hantoro Ariadji
Mr. Gono Soedimo
Mr. Hasyim

D.G. of Basic Chemical Industries

Mr. Soenaryo Danusaputro
Mr. Jaweldin Purba
Mr. H. Silaen

D.G. of Industry

Mr. J. Purba
Mr. Waluyo

LEMIGAS

Mr. Hendro Prawoto
Dr. Rachman Subroto
Mr. Hirwan Effendi

Ministry of Communication

Mr. Maskur Effendi
Mr. Mahdi Siahaan
Mr. Soemanto
Ms. Amala Nurhaida
Mr. Panal S.
Mr. Toga Hutabarat

Ministry of Transmigration

Dr. Soedjino

FY 1987

Organi-
zation

Name

BPPT Dr. Wardiman Djojonegoro
Dr. Lolo M. Panggabean
Dr. Zuhai
Dr. Hotma Tobing
Mr. J. Morsito
Mr. Subagio Imam Bakri
Mr. Bambang Suwondo Rahardjo
Mr. Suharjono
Mr. E.S Sudirahardja
Mr. Mahally Kudsi
Mr. Dwi Husodo
Mr. Herry Supriyanto
Mr. Bungkus Prihadi
Mr. A. Setiadi
Mr. Suardi
Mr. Hasnedy
Mr. Amiral A.
Mr. Novianto

PPTM Mr. Bambang Sulasmoro
Mr. Komar Priatna Anwar
Mr. Soedjoko
Dr. U.W. Soelistjo
Mr. Yuyun Basyuni
Mrs. Nunung N.
Mr. Wahyu K.
Mr. Engkos Kosasih
Mr. Machmmad Rochim

PTBA Mr. Rachman Soekardi
Mr. Soetjpto Wijodi

DOC Mr. Johannas
Mr. Sbandro
Mr. Abderhachman

PTB Dr. M. Kusna
Mr. Soehandojo
Mr. Adeng Sumardy

PUSPIPTEK

Mr. Sulaeman Kurdi
Ms. Yusunitati
Mr. Heru Kuncoro
Mr. Herman A.
Mr. Riyanto M.
Mr. Roy Indra
Mr. Darmawan
Mr. Soni S.
Mr. Didik BT
Mr. Roughman
Mr. Taufik S.

APPENDIX III

**Member List of the JICA Mission
in the 2nd Stage**

FY 1985

<u>NAME</u>	<u>UNDERTAKING</u>	<u>AREA OF EXPERTISE</u>
Takehiko SATO	Team Leader	Registered Consulting Engineer in Mechanical Engineering
Shozo IDA	Assistant Leader, Coal Mining	Mining Engineer
Taizo HAYASHI	Assistant Leader, Energy Demand & Supply for Transportation	Evaluation of Alternative Energy
Tomoya KIKUCHI	Coal Mining	Mining Engineer
Kimihiko ITO	Coal Mining	Mining Engineer
Yutaka KANBAYASHI	Coal Analysis	Analyst
Atsushi NAKAI	Equipment Installation	Chemical Analyst
Shozo OKAMURA	Pilot Plant Building	Authorized Building Engineer
Toshitake YANAGI	Pilot Plant Building	Authorized Building Engineer
Katsunobu UDAGAWA	Pilot Plant Building	Authorized Building Engineer
Naomichi NIRE	Pilot Plant Building	Authorized Building Engineer
Hisao NISHIMURA	Pilot Plant Building	Authorized Building Engineer
Mitsuichiro FUKUDA	Pilot Plant Building	Authorized Building Engineer
Akira IKEZAWA	Methanol Cost	Project Engineer
Shigeo NAKAJIMA	Methanol Cost	Registered Consulting Engineer

FY 1986

<u>NAME</u>	<u>UNDERTAKING</u>	<u>AREA OF EXPERTISE</u>
Takehiko SATO	Team Leader	Registered Consulting Engineer in Mechanical Engineering
Shozo IDA	Assistant Leader, Leader of Coal Mining	Mining Engineer
Tomoya KIKUCHI	Coal Mining	Mining Engineer
Hajime NOZAKI	Coal Mining	Mining Engineer
Tatsuya YONEMITSU	Mining Cost Estimation	Mining Engineer
Atsushi NAKAI	Equipment Installation	Chemical Analyst
Taizo HAYASHI	Energy Demand Forecast	Evaluation of Alternative Energy
Ryo SUZUKI	Methanol Production & Distribution System	Chemical Engineer
Masayoshi SOGA	Demand Projection of Fuel Alcohol	Chemical Engineer
Satoru NISHIYAMA	Ethanol Production & Distribution System	Chemical Engineer
Kenjiro TAKASE	Utilization Technology of Fuel Alcohol	Mechanical Engineer
Hamao HAYASHI	Environment & Safety	Applied Chemistry
Hiroataka SASAGURI	Leader of Test Plant Construction	Mining Planning
Ichiro TANIWAKI	Mechanical Construction	Mechanical Engineer
Toru MURAKAMI	Control of Electrical Work and Instrumentation	Electrical Engineer
Toshitaka YANAGI	Leader of Test Operation, Test Plant Building	Authorized Building Engineer
Yoshiharu NAKASHITA	Design of Electric System	Electrical Engineer
Yasuaki HATAKEYAMA	Process Analysis	Technology of Coal Utilization
Koichi TANAKA	Test Plant Operation	Mechanical Operation

Shinji SUGIMOTO	Instrumentation	Electrical Engineer
Shigeharu YAMAGUCHI	Furnace Construction	Furnace
Kimikazu OTANI	Melting Furnace Control	Furnace
Noboru ENDO	Melting Furnace Operation	Operation of Blast Furnace
Masanobu KOBATAKE	Gasification Furnace Operation	Operation of Gas Furnace

FY 1987

<u>NAME</u>	<u>UNDERTAKING</u>	<u>AREA OF EXPERTISE</u>
Takehiko SATO	Team Leader	Registered Consulting Engineer in Mechanical Engineering
Shozo IDA	Assistant Team Leader, Chief of Integrated Evaluation	Mining Engineer
Hiroataka SASAGURI	Assistant Team Leader, Chief of Coal Gasification Test	Mining & Mechanical Engineering
Mitsuichiro FUKUDA	Process Analysis	Coal Gasification Technology
Koji OKANE	Process Analysis	Coal Gasification Technology
Yasuaki HATAKEYAMA	Coal Gasification	Coal Gasification Technology
Toshitaka YANAGI	Coal Gasification	Mechanical Engineering
Ichiro TANIWAKI	Mechanical Maintenance	Mechanical Engineering
Koichi TANAKA	Gasification Plant Operation	Gasification Plant Operation
Masanobu KOBATAKE	Ditto	Ditto
Keiichi NISHIMURA	Ditto	Ditto
Katsuya KITAGAWA	Ditto	Ditto
Noboru ENDO	Ditto	Ditto
Chikara SAKIMURA	Ditto	Ditto
Hiroyuki OKADA	Instrument Maintenance & Gas Analysis	Instrumentation
Mitsuru AOYAMA	Iron & Slag Analysis	Analyzing Technology
Kimikazu OTANI	Furnace Adjustment	Electrical Engineering
Toru MURAKAMI	Electrical Maintenance	Electrical Engineering
Tomoya KIKUCHI	Coal Mining	Mining Engineering
Hajime NOZAKI	Geology	Geological Engineering

Ryo SUZUKI

**Production & Distribution
System of Fuel Methanol**

Chemical Engineering

Taizo HAYASHI

Energy Demand Forecast

Energy Economics

JICA