COUNTRY REPORT
INDONESIA OIL AND GAS DATABASE MANAGEMENT

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Workshop on CCOP Metadata Standard and Requirement Analysis
Shanghai, China, 1 – 3 April 2009

Content

(focused on the upstream activities)

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3. Recommendations

1. Background of Oil & Gas Activity in Indonesia

1.a) Petroleum Legislations

– The 1945 Constitution of Indonesian Republic (UUD'45). Article 33

– <u>Law No. 22/2001 On Oil And Gas</u>

- Oil and Gas Business divided into the upstream and downstream activities
- PERTAMINA be changed to be as state owned company only

– Law No. 30 / 2007 on Energy

– Gov. Regulation <u>(PP) No.35/2004 On Oil and Gas Upstream Activity</u>

- Ministry of EMR offer/tender oil and gas working area to business entity
- Contractor might stored and utilize the data that obtained from their general survey
- All data that obtained from PSC's activities are belonging to the state

– PP No.36/2004 On Oil and Gas Downstream Activity

– <u>PP No.42/2002 On Executive Agency for Upstream Oil and Gas Activity</u>

- BPMIGAS decided as Regulator body for oil and gas upstream activity
- BPMIGAS gives approval of PSC's work plan and budget /financial expenditure

– PP No.67/2002 On Executive Agency for Downstream Oil and Gas Activity

– Presidential Decree No. 5 / 2006, on the National Energy Policy

Note: Hierarchy of Indonesia Regulation
UUD =>Law(UU) => Gov. Reg.(PP) =>Presidential Decree (Keppres) =>Ministry Reg. (Permen)
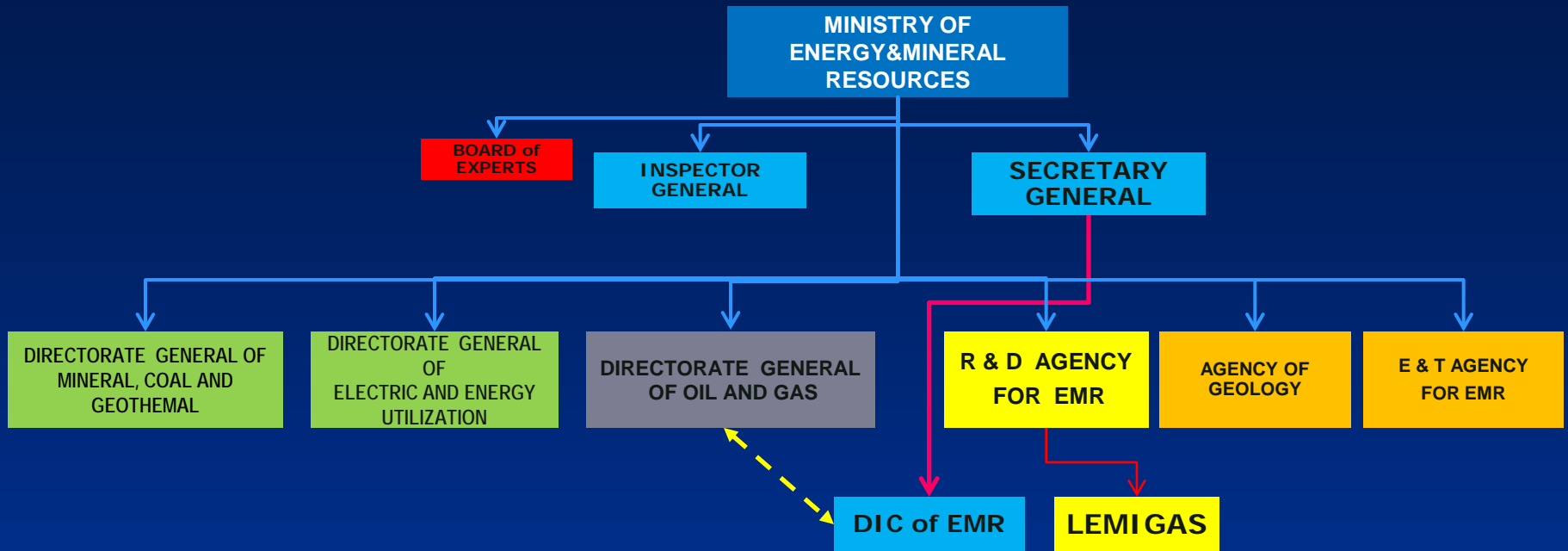
1.b) Data Management Policy and Strategy

➢ The Regulation of Minister of EMR No.27/2006, on Data Management and Utilization of Data Generated from Oil and Gas General Survey, Exploration and Exploitation Activities.

- All E&P oil and gas data type are belonging of Government.
- To use the data has to obtain approval from Director General of Oil and Gas.
- All E&P oil and gas data must be submitted to Data & Information Center EMR
- Contractors/Companies have a limited authorization of data utilization as long as its operation period within its contract area.

1.c) History of Petroleum database management

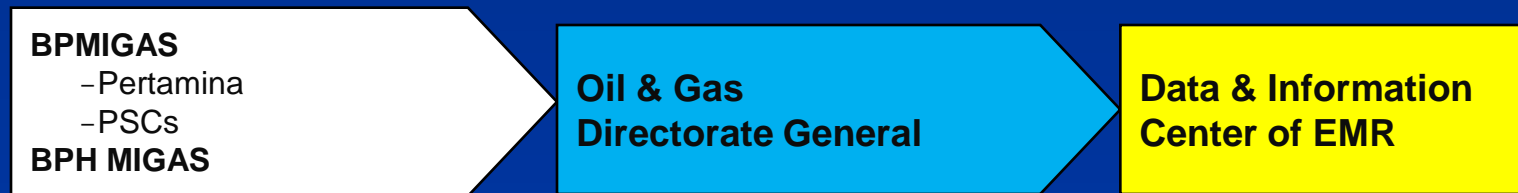Before 1998 → 1998-2000 MDM -> PND → NDC Study → 2006-present DIC of EMR
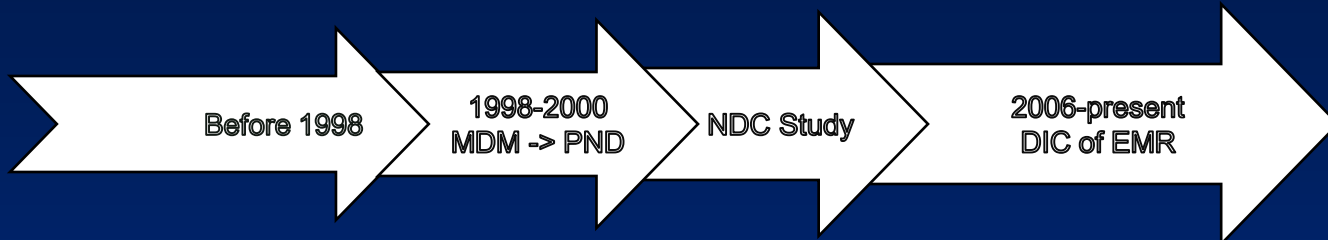
- Before 1998 year, PERTAMINA -as state company and government representative- arranged and managed all data E&P oil and gas. Its stored in Pertamina and PSC's data warehouse. The national standard of data structure is not decided.

- End of nineties year – beginning of 2000 year, Directorate General of Oil and Gas issued the metadata standard structure of "Oil and Gas Data Management (MDM)"and referred to PetroBank data management system, held by Patra Nusa Data (PND), company which supported by Oil and Gas Directorate General and ELNUSA.

- Beginning period of Law No.22/2001 validated, compiling of all natural resources database was proposed as National Data Center (NDC).

- At present time, all of energy and mineral resources data are managed under Data & Information Center of EMR. (Pusdatin ESDM)

1.d) Organization

MINISTRY OF ENERGY&MINERAL RESOURCES

BOARD of EXPERTS

INSPECTOR GENERAL

SECRETARY GENERAL

DIRECTORATE GENERAL OF MINERAL, COAL AND GEOTHEMAL

DIRECTORATE GENERAL OF ELECTRIC AND ENERGY UTILIZATION

DIRECTORATE GENERAL OF OIL AND GAS

R & D AGENCY FOR EMR

AGENCY OF GEOLOGY

E & T AGENCY FOR EMR

DIC of EMR

LEMIGAS

Oil and Gas metadata submission flow

BPMIGAS
– Pertamina
– PSCs
BPH MIGAS

Oil & Gas Directorate General

Data & Information Center of EMR

2. Standard and metadata structure Oil & Gas in Upstream Activities

2.a) Metadata design and structure

➢ Refer to Regulation of MEMR no.27/2006, classified data

Base on type	Base on status
General Data	Restricted (Closed) data
Basic/Raw Data	Open data
Processed Data	Active data
Interpretation Data	

Exploration and Exploitation data submission
1. Well Data
2. Seismic Data
3. Geological & Geophysical Data
4. Production
5. Reservoir
6. Study

2.b) International standard used

- GIS base technology
- Seismic data : SEGY, SEGB and SEGD format in Cartridge
- The number of character are adopted from POSC Epicenter
- Images use JPG or TIFF format
- Reporting in PDF file

2.c) Metadata elements used

Seismic Display Metadata

Attribute	Description	Data type
CONTRACTOR	Contractor who own the license	Varchar2(80)
WORKING AREA	Area where the survey is conducted	Varchar2(80)
FIELD_AREA	Part of working area	Varchar2(80)
COUNTRY	Country where it is conducted	Varchar2(40)
SURVEY_NAME	The name of survey	Varchar2(40)
SURVEY_DATE	The starting date of the survey	Date
PROCESSING-CONTRACTOR	Contractor who process the data	Varchar2(40)
PROCESSING-DATE	The starting date of the processing	Date
LINE NAME	The name of the line in the survey	Varchar2(40)
FIRST-SHOTPOINT	First shotpoint of line seismic	Number(5)
LAST-SHOTPOINT	Last shotpoint of line seismic	Number(5)
FIRST-CDP	First CDP of line seismic	Number(5)
LAST-CDP	Last CDP of line seismic	Number(5)

TYPE OF EXPLORATION AND EXPLOITATION DATA

No	Activities	General data	Basic data	Processed data	Interpretation data
1	**Cartography Geography**	– General information – Production Facilities Maps – Oil and Gas Field Location Maps – Well Location Maps – Oil and Gas Working Area Maps – etc			
2	**Seismic**	– General information – Basemaps – Datum Reference Geodetic information	– Seismic Field Data – Weathering Zone Data – Field Quality – Control Plot – instrument Test	– Brute Stack – Pre Stack – Pre-Stack Migration (if exists) – Stack – Post Stack	– Earth Modelling – Geophysical Cross Section – Seismic Interpretive Data – Subsurtace Structural Maps (Time-Depth Contour Maps)

3	**Production**	– General information
		– Production Facilities :
		  - Pipeline
		  - Separator
		  -Compressor
		  - Accumulation Tank
		  - Lifting Terminal
		  - Well Status
		– Pertamina/ Contractor Production
			– Production Data:
			  - Qo, Qg, Qw
			  -GOR
			  - BS & W
			  - Ps, Pwf, Pwh
			– EOR Data
			– Production Test Data
			– Temperature Gradient
			– Pressure Gradient		

4	**Reservoir**	– General information – Reservoir Formation – Hydrocarbon Result	– Workover Pertormance – PVT Reservoir – Reservoir properties(SW,Vshale,etc) – Reservoir Mineralogy	– Rock Qualification, Source Rock, – Hydrocarbon Type – Reservoir Characteristic Analysis – Acreage Calculation – Seismic 4 D Data Analysis (related to reservoir condition)	– Reservoir Simulation – Reserve Estimation – Production Estimation

2.d) Quality Control

➢ MIGAS DIRECTORATE and DIC of EMR

2.e) System and technologies used

- Storage of Physical/document, Digital and Other metadata system in compliance with the Regulation of MERM no.27/2006
- Present technology, ex. POSC Epicenter (Petrotechnical Open Software Corporation)

2.f) Data flow and access

- Submission/request : Business Entity => Migas Directorate => DIC of EMR
- For the Active Data: BPMIGAS ⇔ Internal Policy of Pertamina/PSCs
- Public domain: *see* DIC of EMR web

Examples: access data from web site DIC of EMR
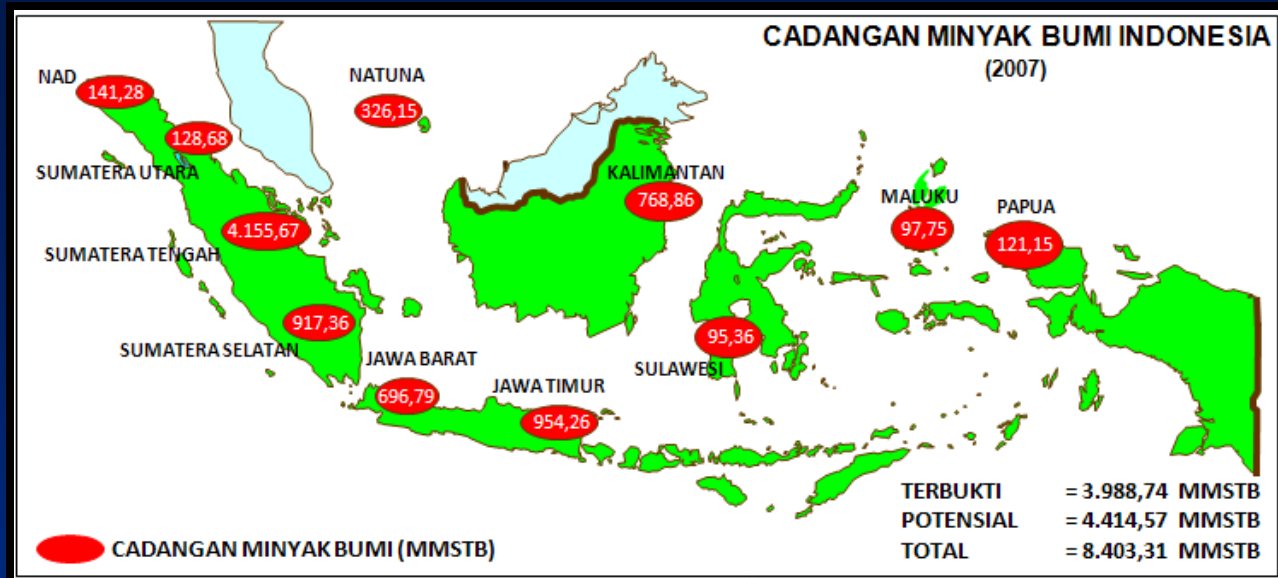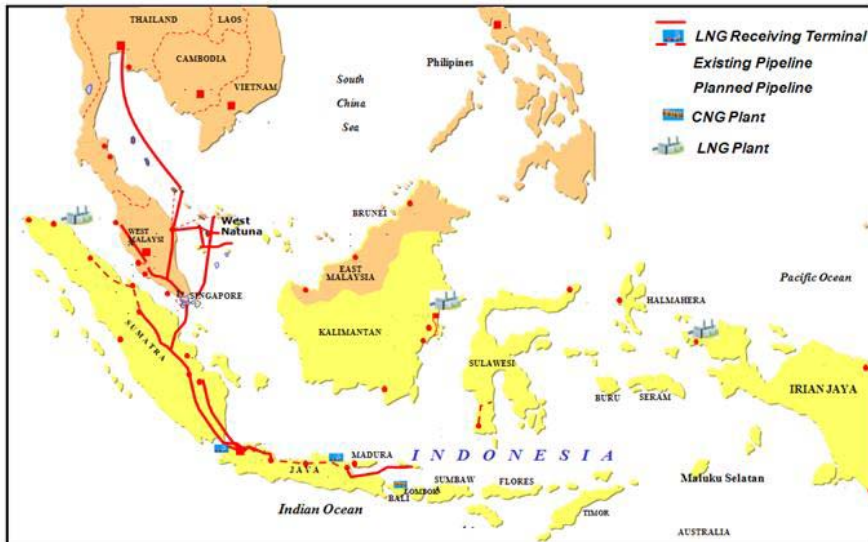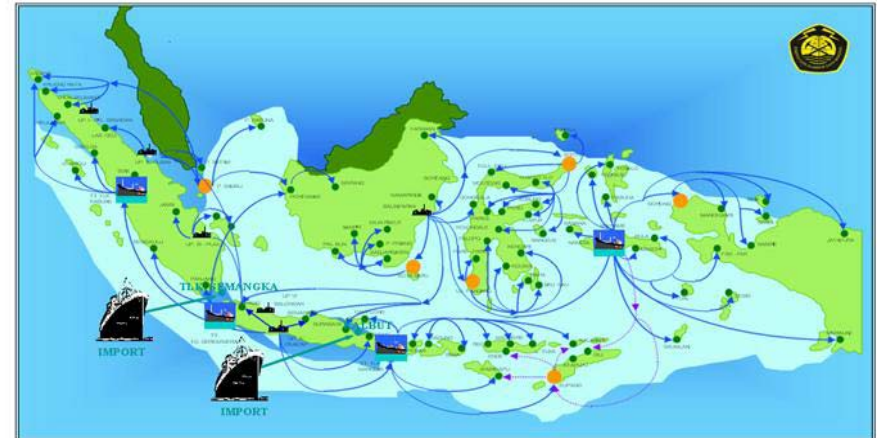
2.g) Challenges to Indonesia national database management

- Huge and spread of the existing data
- Lost information/record of vital content
- Various database system, especially in navigation references system
- Very high cost of investment
- Less of high competency of local human resources

2.h) On going or future plans to improve database management

- Indexation/catalog & classification

- Digitalization of physical old data/document that obtained before year nineties, ex. Core data, seismic, well log and others related exploration oil and gas data.(before 1980)

- Competency improvements of local human resource, especially, in quality control system, data management and entrepreneur ship

- Modern National Data Warehouse/Storage Building

- Applied one standard, well organization relationship, easy to access/web base, cheap and user friendly

3. Recommendations

3.a) CCOP natural gas metadata design and structure

- Continue improvements and promote general design interface that could be applied by members
- Suggestions general standard for the CCOP purposes

3.b) Required capacities to be developed by member countries

- Held the advance course to achieve personal capability
- Technical assistance by sponsor/donor institutions that approved by CCOP TS

3.c) How knowledge learned from the CCOP Metadata workshops can be shared to your organization

- Joint study
- Published frequently by using the CCOP's media and institutional access to member country and it's personal expert

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Thank you – terima kasih