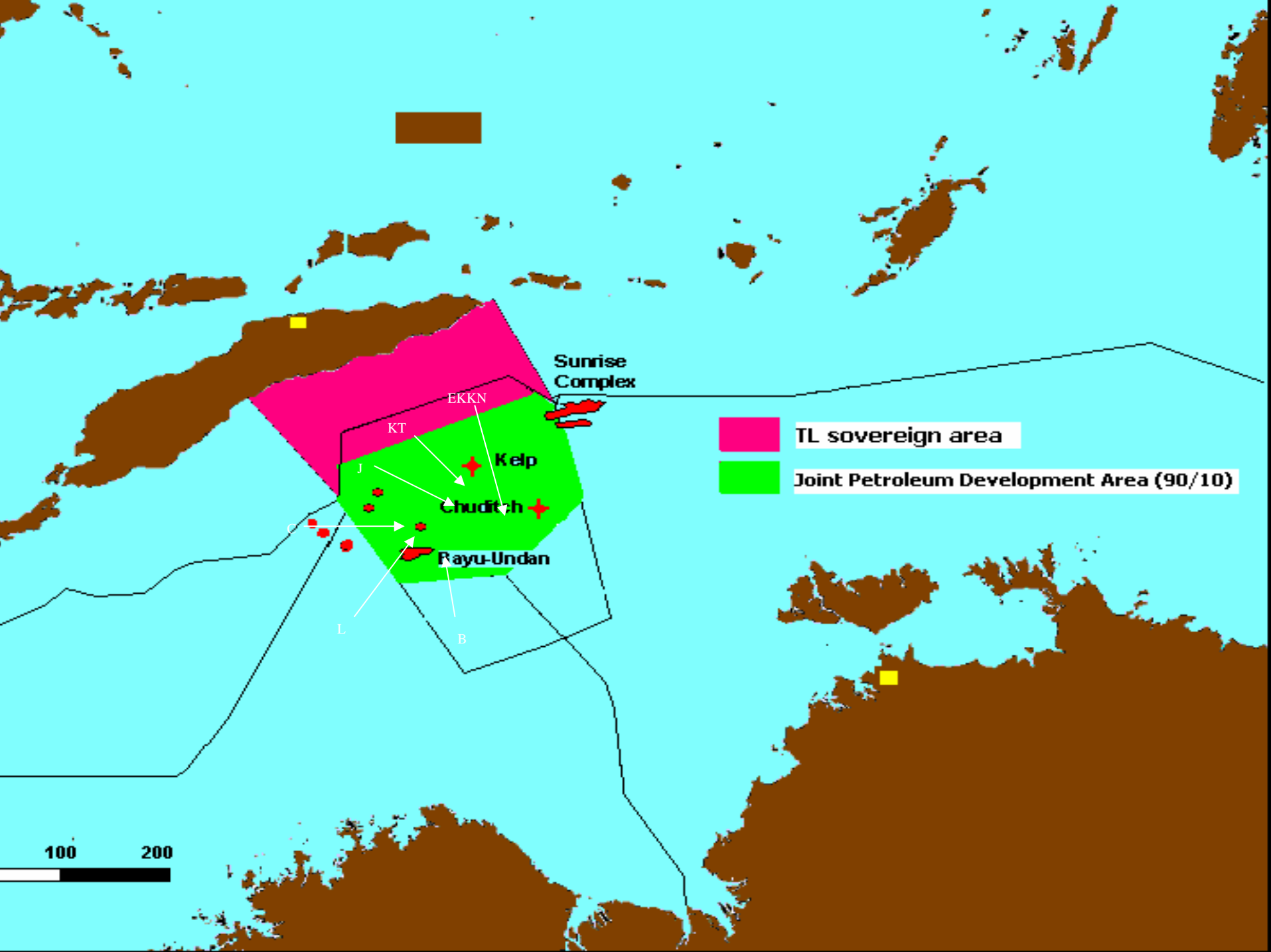


# The Petroleum Potential of Timor-Leste

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advisor

Ministry of Development and the Environment

May 2005



Sunrise Complex

- TL sovereign area
- Joint Petroleum Development Area (90/10)

100 200

EKKN

KT

Kelp

Chuditch

Rayu-Undan

J

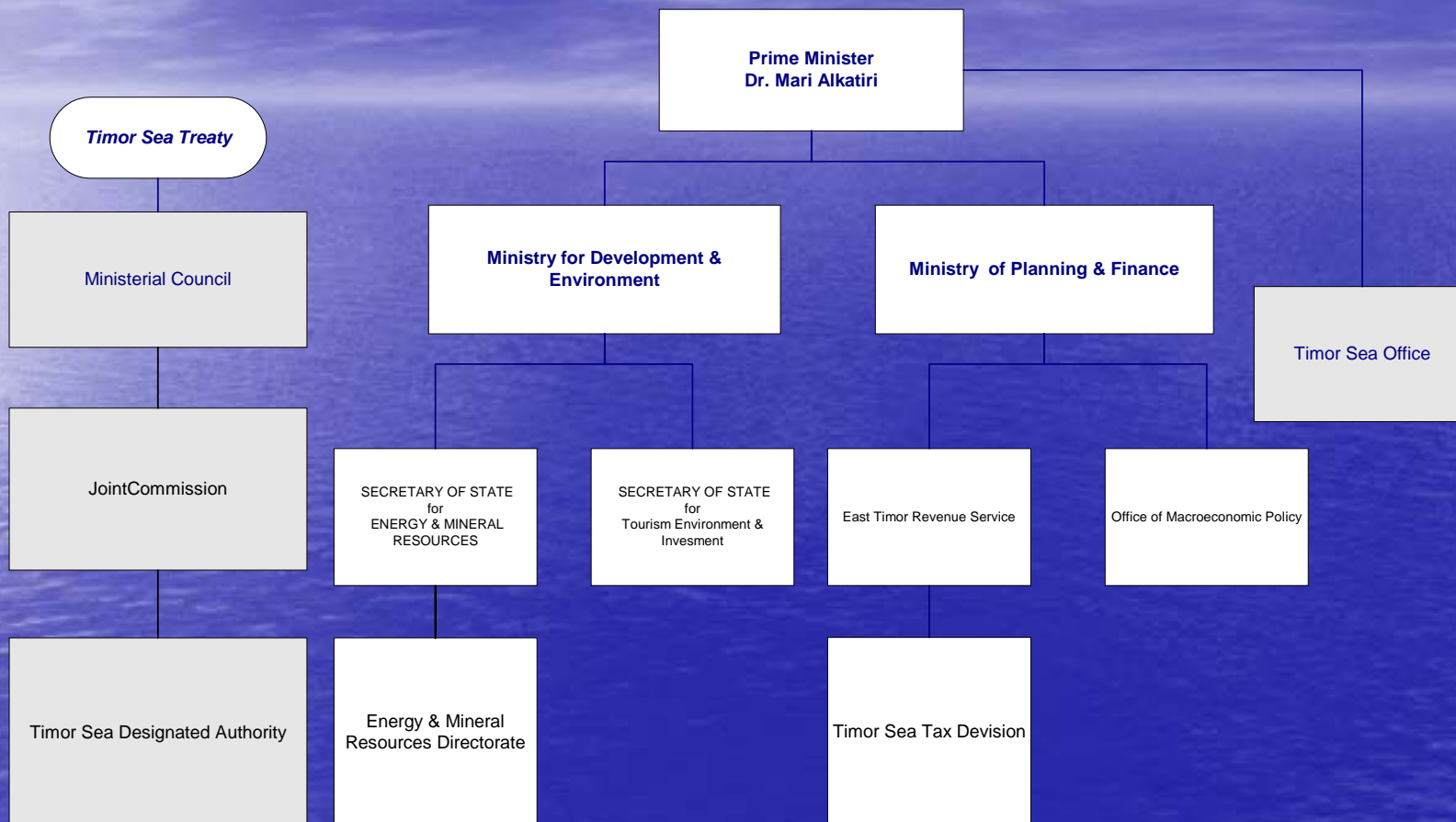
L

B

# Roles

- Energy and Mineral Resources Directorate (EMRD) administers all areas on- and offshore Timor-Leste, outside of the JPDA
- Timor Sea Designated Authority (TSDA) administers the JPDA

# Petroleum Sector of Timor-Leste



# The NORAD/NPD project

- **The project:** Assistance in developing the management of the petroleum sector in Timor-Leste government
- **The goal of the project:** That the public sector petroleum administration in Timor-Leste will be capable of managing the upstream petroleum activity without significant use of foreign advisors
- **How we do that:** Cooperation between Norwegian Petroleum Directorate and MDE and other units, offer Norwegian and international experience for a period of six years with a budget of 4.7 MM USD

# Petroleum in Timor-Leste

- Timor-Leste has known petroleum occurrences in all its territories, both onshore and offshore
- The petroleum geology of T-L is almost identical to what is found on the Australian Northwest shelf
- Petroleum has been explored for and produced for more than 100 years in T-L

# Petroleum systems

- Today, world-class oil and gas discoveries have been made in the Timor Sea (JPDA)
- Well documented petroleum systems are found onshore T-L, wells, seeps and petroleum combusting
- The area between the island and the JPDA is now being mapped in preparation for licensing later this year

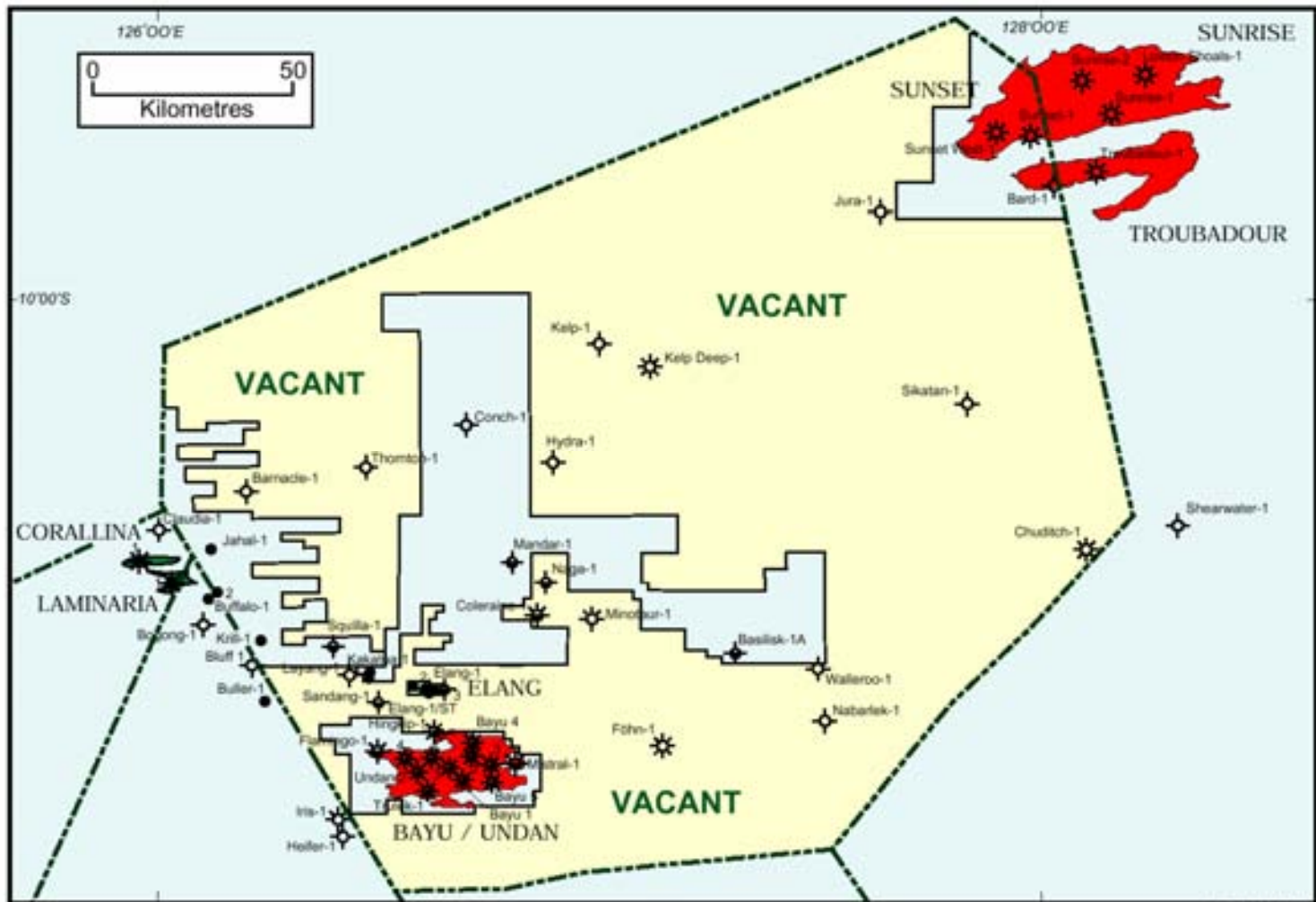
# New developments

- T-L has acquired more than 6,600 kms of modern 2D seismic in 2005, which will be the data for the first exploration licensing round in the country
- The area offered will be the sovereign T-L offshore area between the JPDA and Timor island. Including the deepwater Timor Trench

# What does the new areas look like?

- The geology is very similar to the prospective geology in the JPDA (Bayu Undan, Sunrise etc.)
- The areas under the TT looks particularly attractive
- Areas South of TT may have avoided leaking of hydrocarbons

# Open areas, JPDA



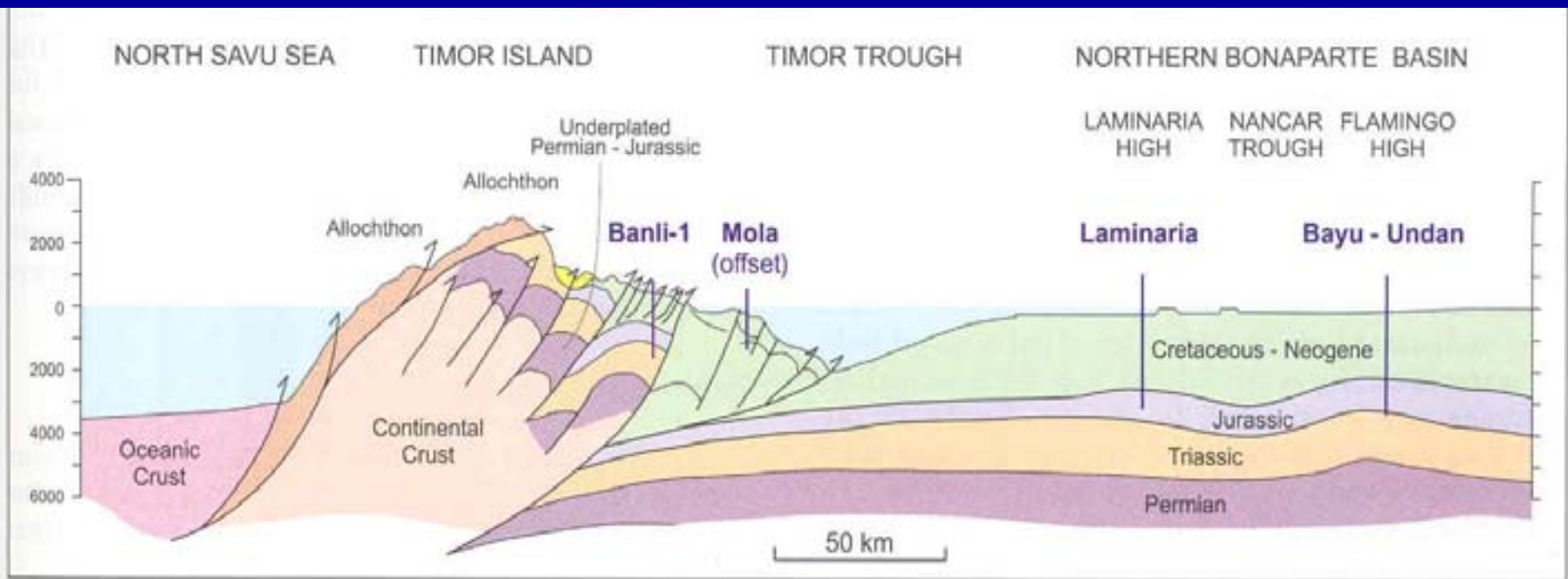


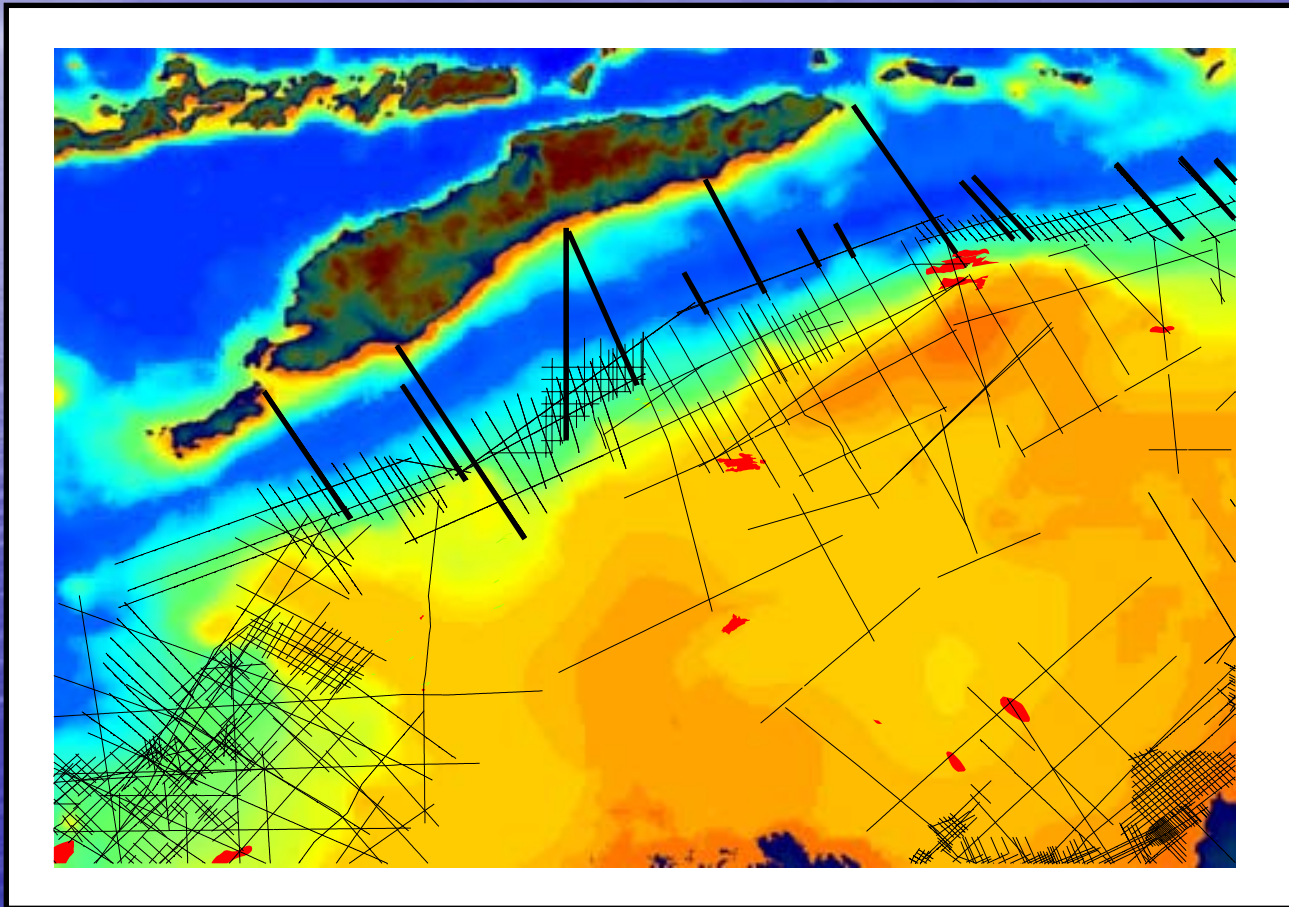
Figure 13. Schematic cross-section through Timor Island to the Northern Bonaparte Basin (modified after Norvick, 1997).

Conventional view of Timor Geology showing

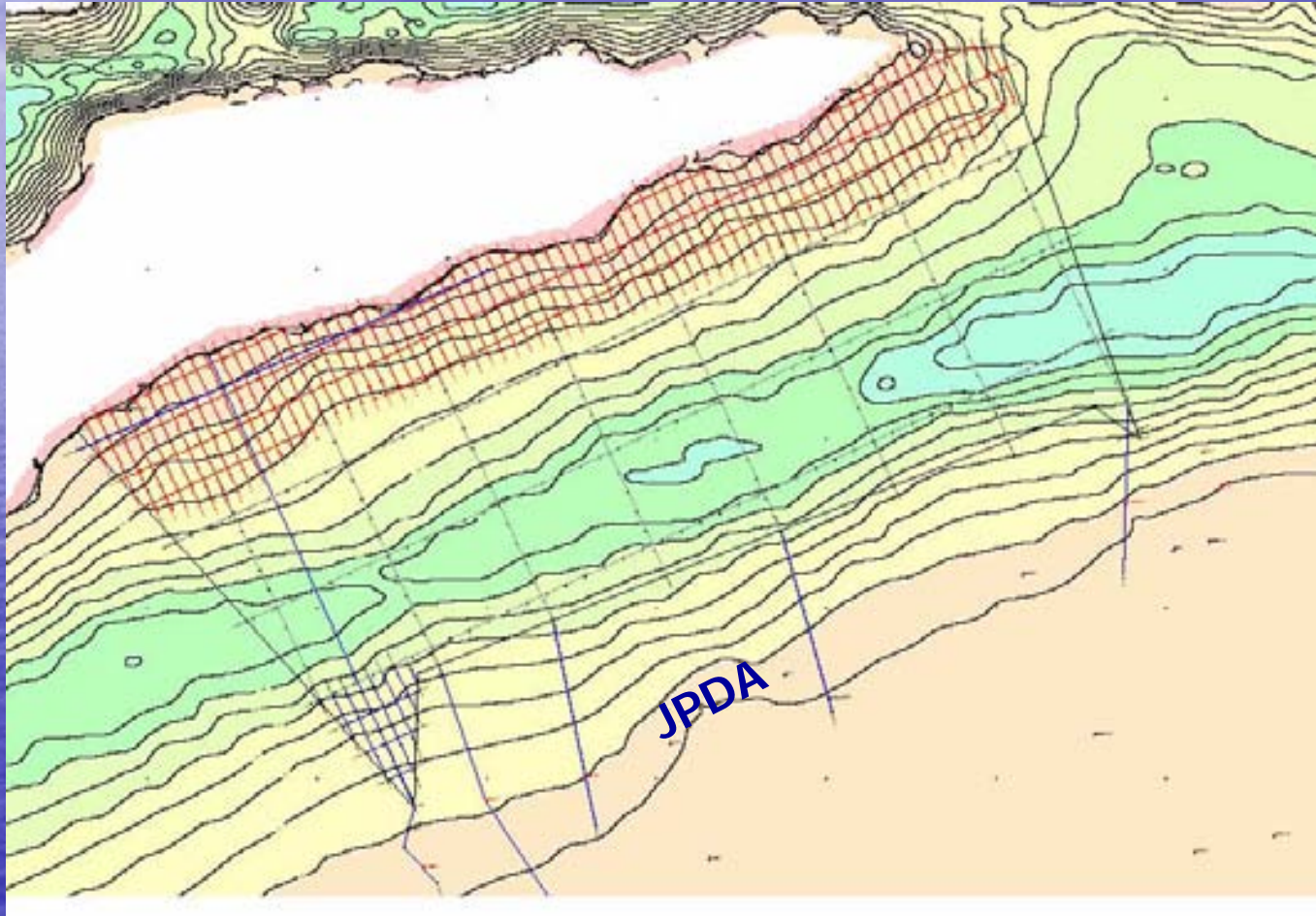
- 1) Oceanic Crust to North of Island
- 2) Continental Crust Underlies both Island and Trough
- 3) Mesozoic Rocks of Same Facies as Australian Equivalents

# 1997 Seismic

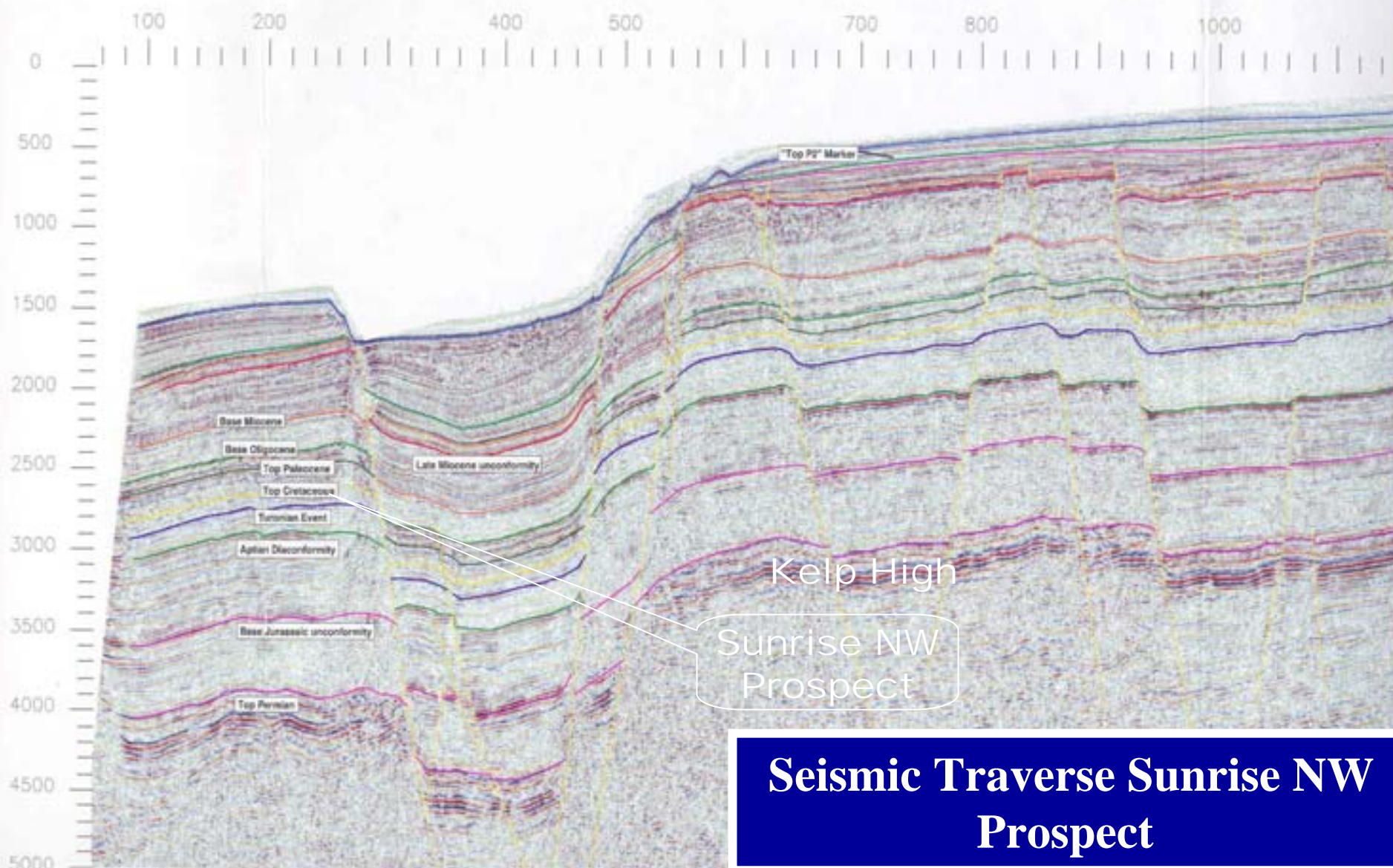
(N. Hoffmann, 2003)



## 2004 regional 2D seismic

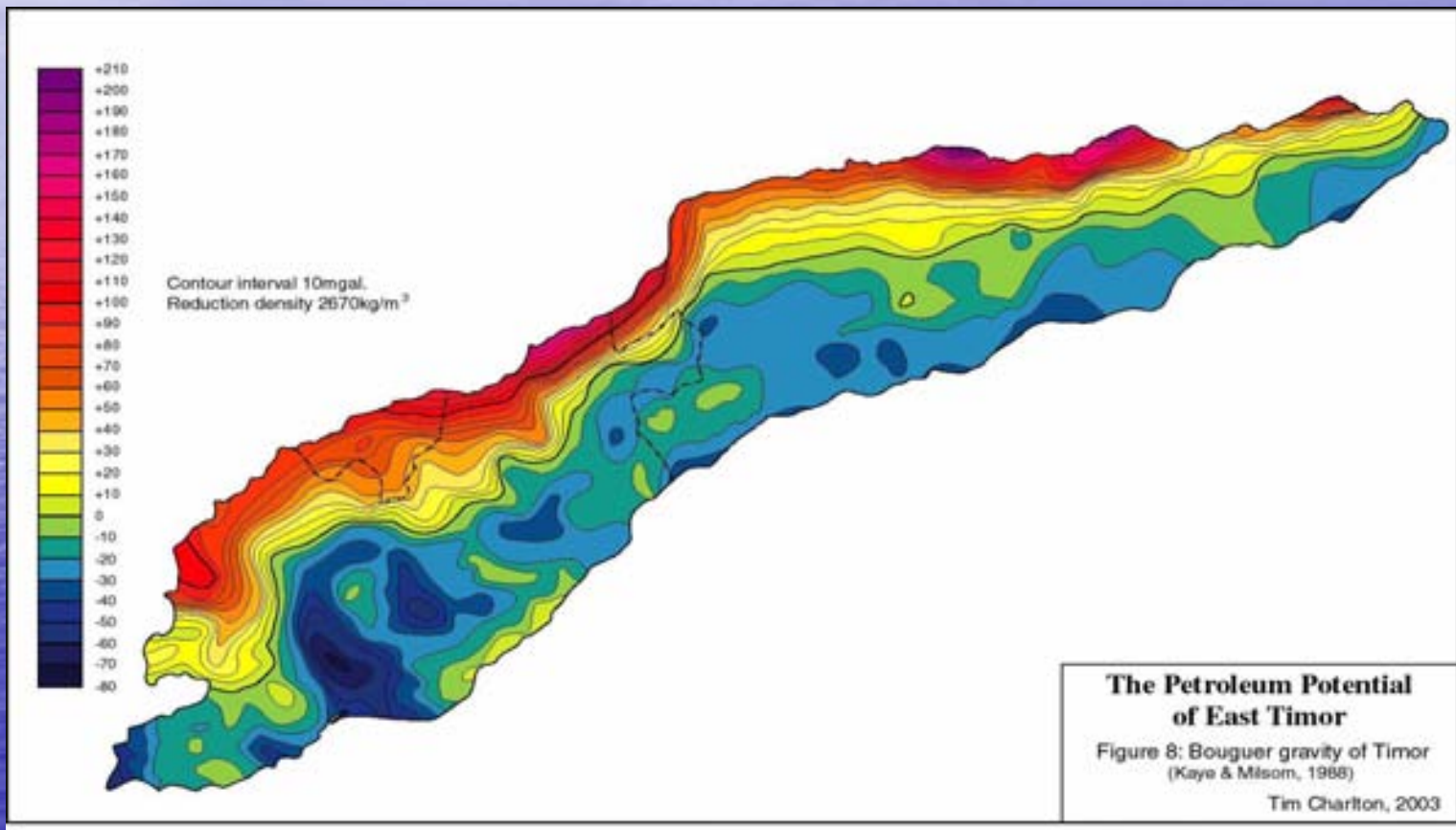


North

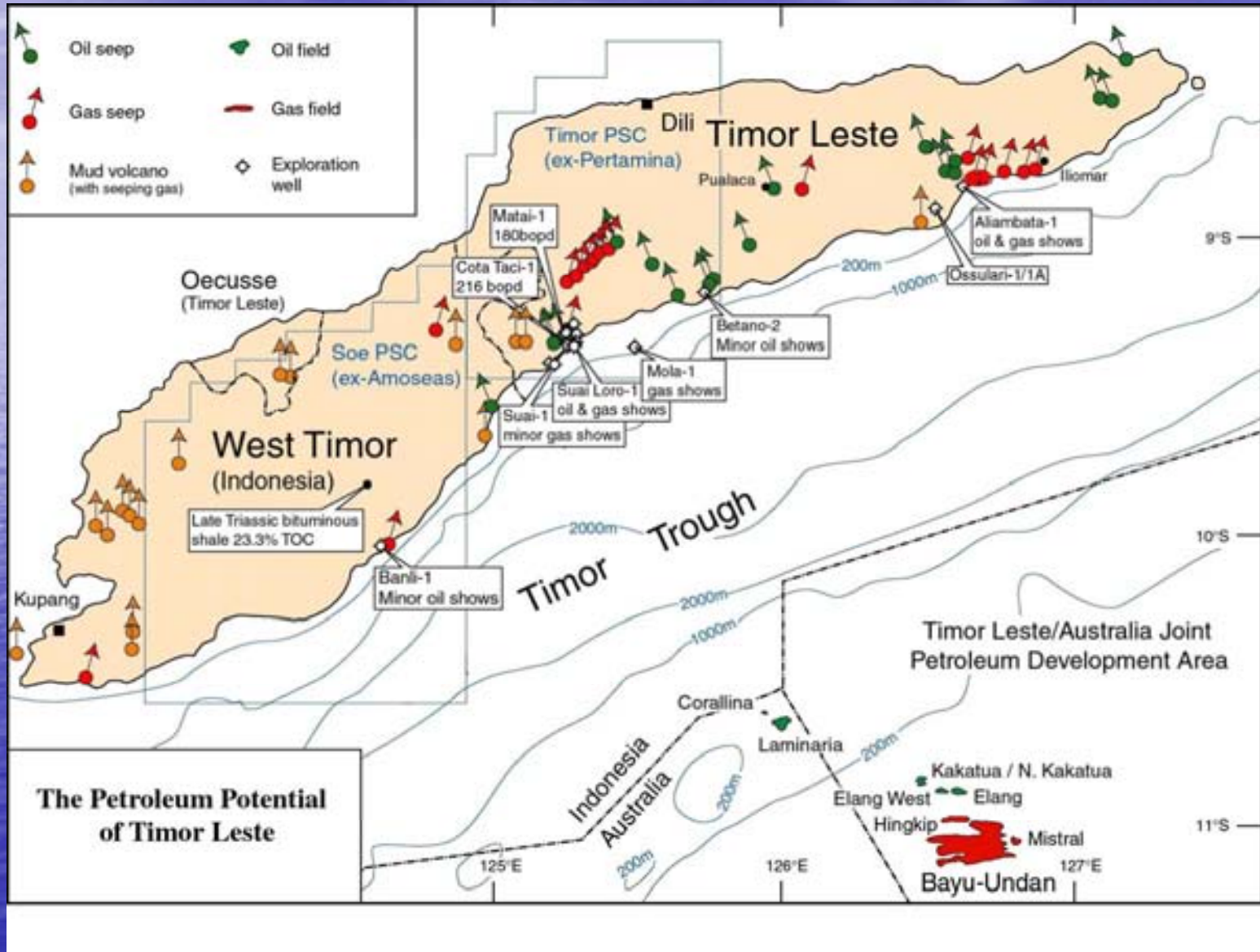


**Seismic Traverse Sunrise NW Prospect**

# Gravity map Timor-Leste



# Onshore petroleum potential





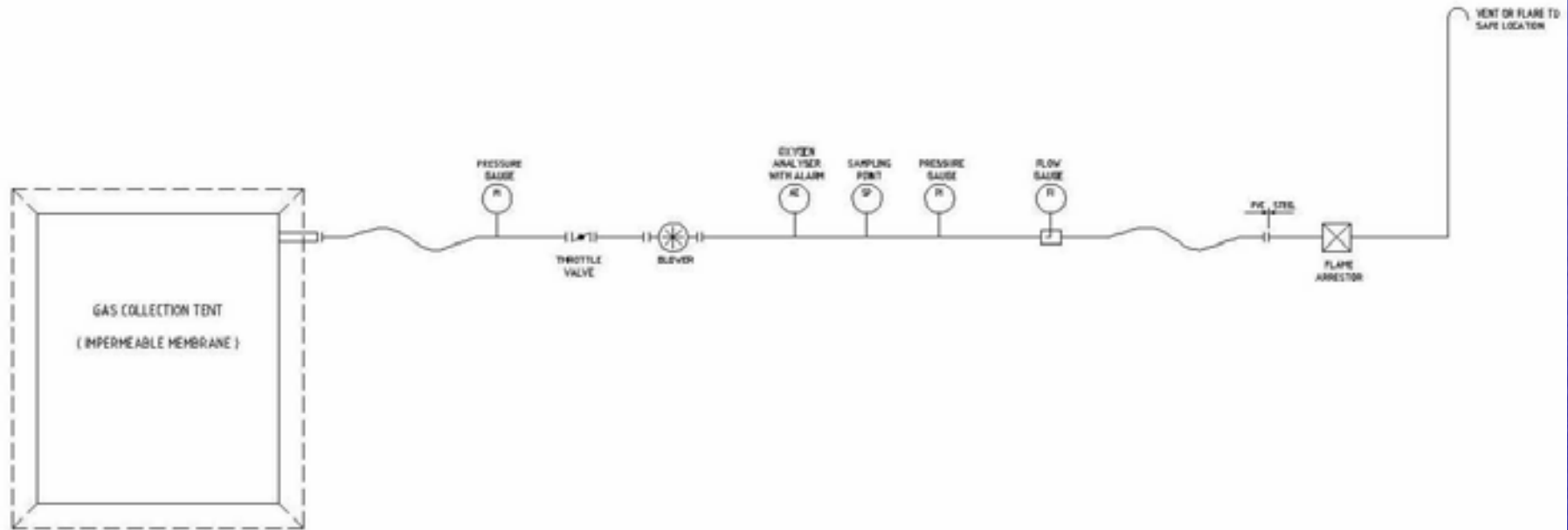
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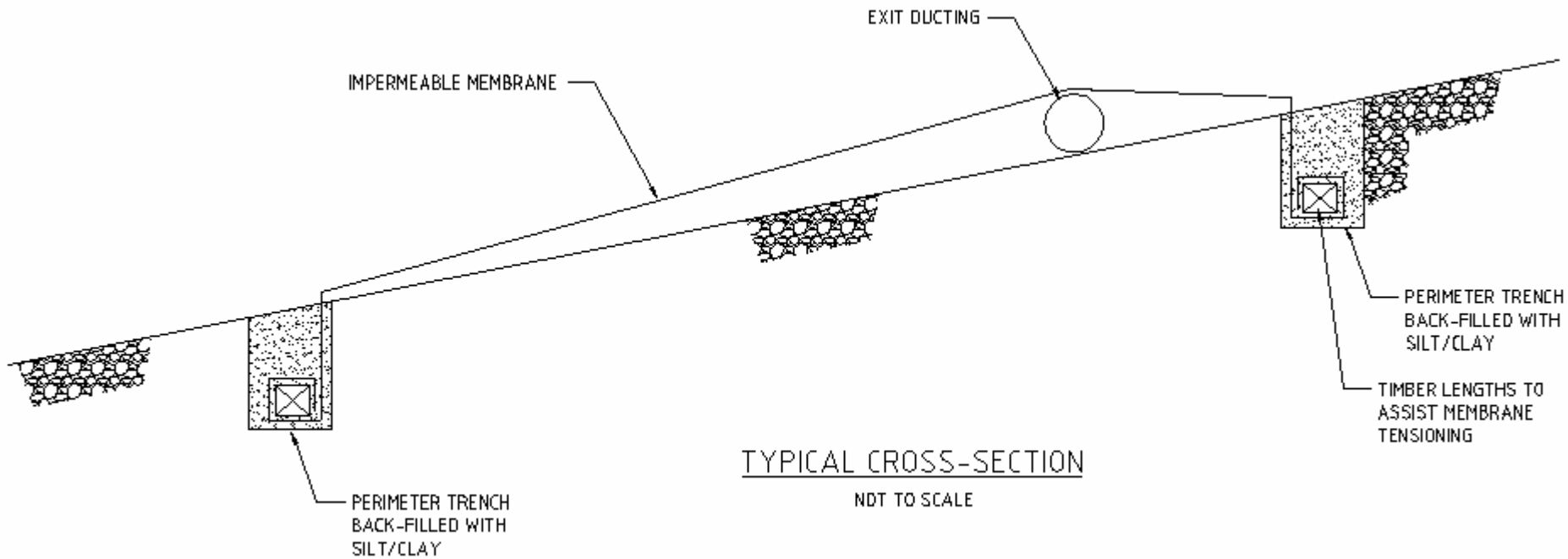
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# Site Work - Harvesting System Schematic



# Site Work - Membrane Sealing Arrangement



# Site Work - Installed Harvesting System





# *Interpretation of results (PRELIMINARY pending gas analysis)*

## Natural Flow

- Say 1 ft<sup>3</sup>/s
- Equates to between 130 & 275 kW Generation  
Dependant upon quality of gas (pending analysis)
- Which is electricity for between 1300 & 2750 homes  
Assuming low usage (100W / home)

## Forced Flow

- Say 5 ft<sup>3</sup>/s
- Equates to between 650 kW & 1.300 MW Generation  
Dependant upon quality of gas (pending analysis)
- Which is electricity for between 6500 & 13,000 homes  
Assuming low usage (100W / home)

# Timelines, offshore Timor-Leste

- 1Q05
  - 2D seismic acquisition, first data available
- 2Q05
  - Block size and numbers decided
  - Petroleum and tax laws, model PSC's approved
  - Final seismic datapackage ready (ticket)
  - Road shows (Houston, Singapore, London)
  - 1st expl. License round opens
- 3Q05
  - Technical conference for potential bidders
  - Industry interpret data
- 4Q05
  - Bid deadline (yearend)
- 1Q06
  - Bid awards

# Conclusions

- Timor-Leste has a number of highly potential areas for petroleum, with proven petroleum systems and low geological risk, both onshore and offshore
- There is strong industry interest for both areas
- However, there is strong regional competition for investor's funds
- The proposed T-L commercial and legal regime is considered competitive in SE Asia and Australasia, and should not be a deterrent to investors
- The timely passing of the petroleum laws is of the greatest importance, without those we cannot proceed!!