Konferensia Nasional Fundu Minarai-2016

Potensia Desenvolvimentu Rezerva Rekursu Naturais hodi Substitui Mina & Gas Iha Futuru

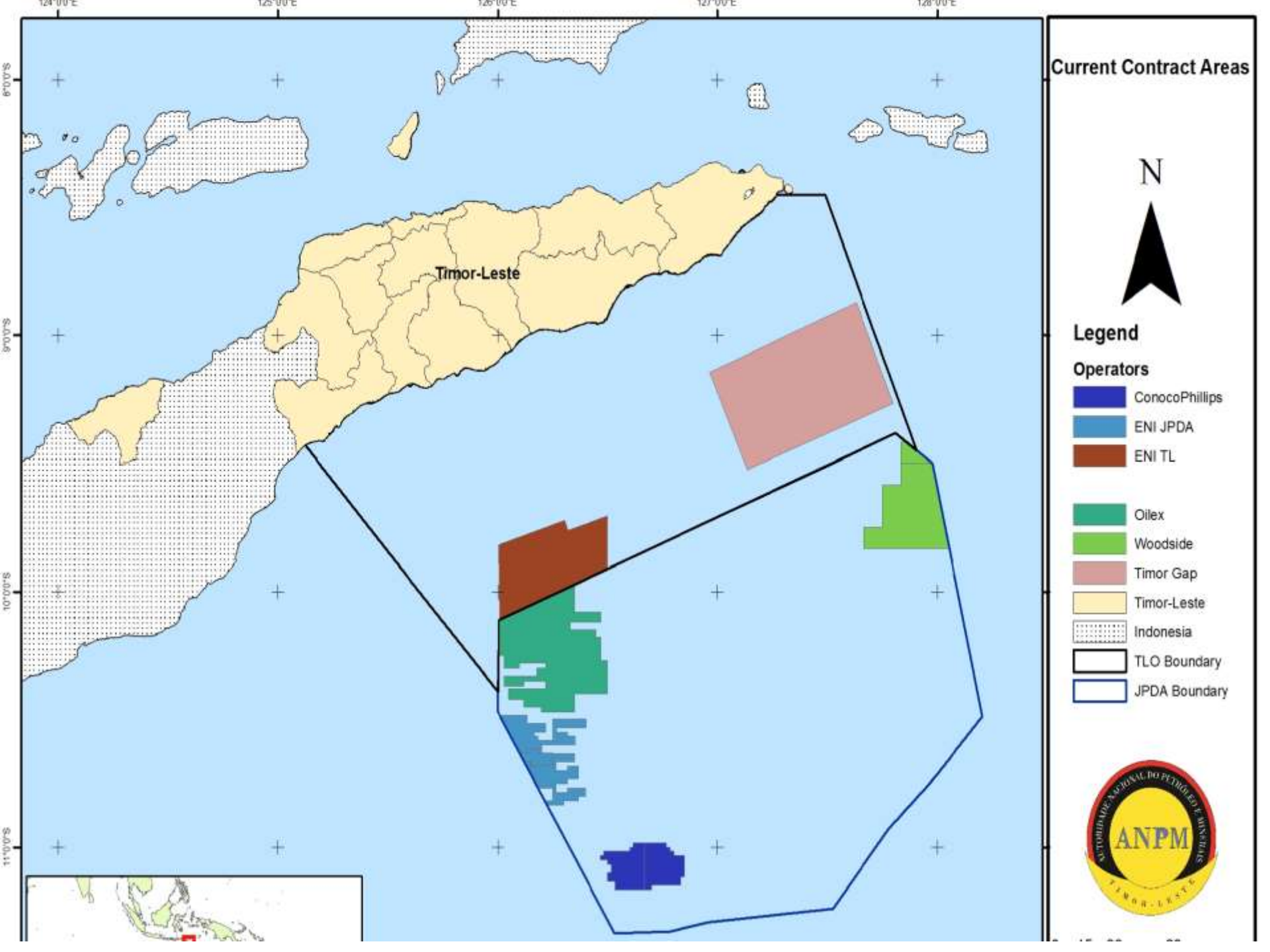
AUTORIDADE NACIONAL DO PETRÓLEO E MINERAIS

ANPM

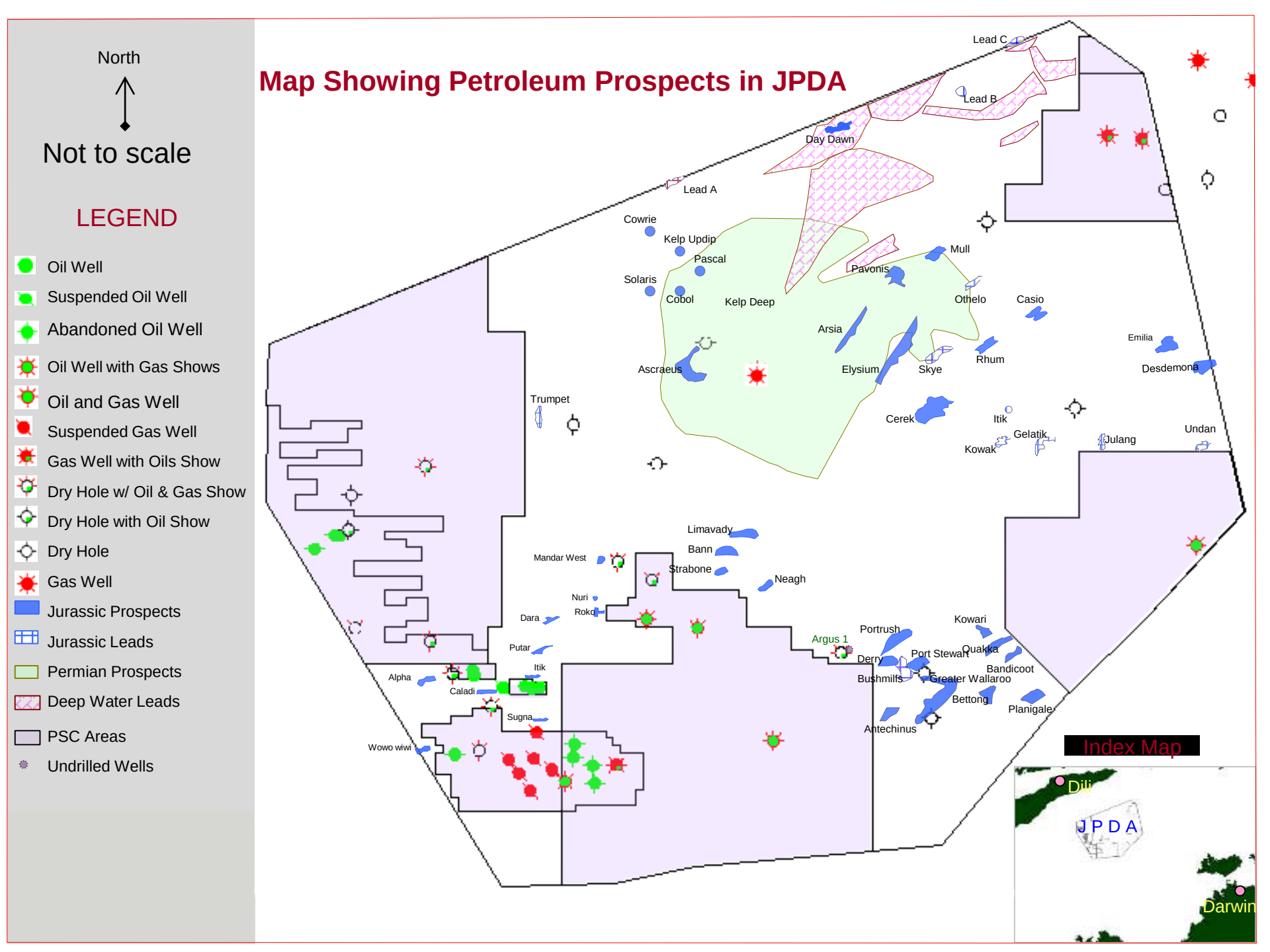
TIMOR-LESTE

PONTUS IMPORTANTE RUMA …

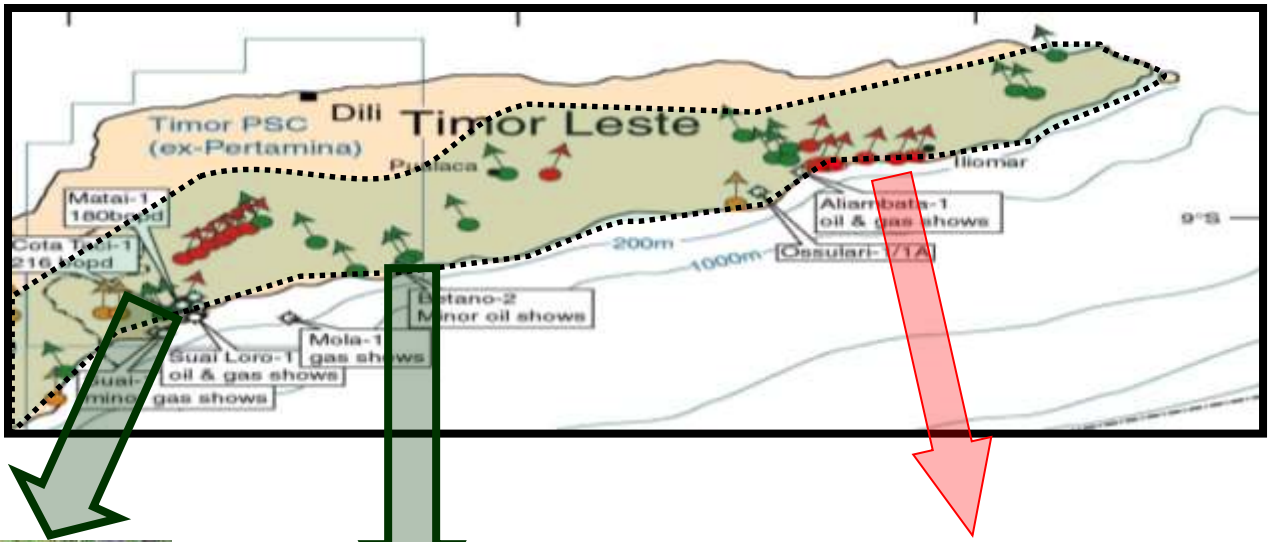
- **Significant petroleum potential (up to ~6 BBOE)**
- Requires **$25-30 bn** in investment (to 2040) across onshore, shelf and deepwater plays
- Need to confirm **resource potential,** change **perceptions** on prospectivity and business environment
- **Maximize, sustain investment in exploration, unlock development** and **extend production**
- Upstream revenue at stake (2015-2040) **up to $40 bn** and additional value from:
  - ***Favourable interest rates***
  - ***Skills development*** *(>1,000 jobs by 2030)*
  - ***Local content growth*** *(>$1.7 bn to local supply chain to 2030)*
  - ***TIMOR GAP participation*** *(operated production ~70 kboed by 2030)*


Current Contract Areas
N
Legend
Operators
ConocoPhillips
ENI JPDA
ENI TL
Oilex
Woodside
Timor Gap
Timor-Leste
Indonesia
TLO Boundary
JPDA Boundary
Timor-Leste
ANPM

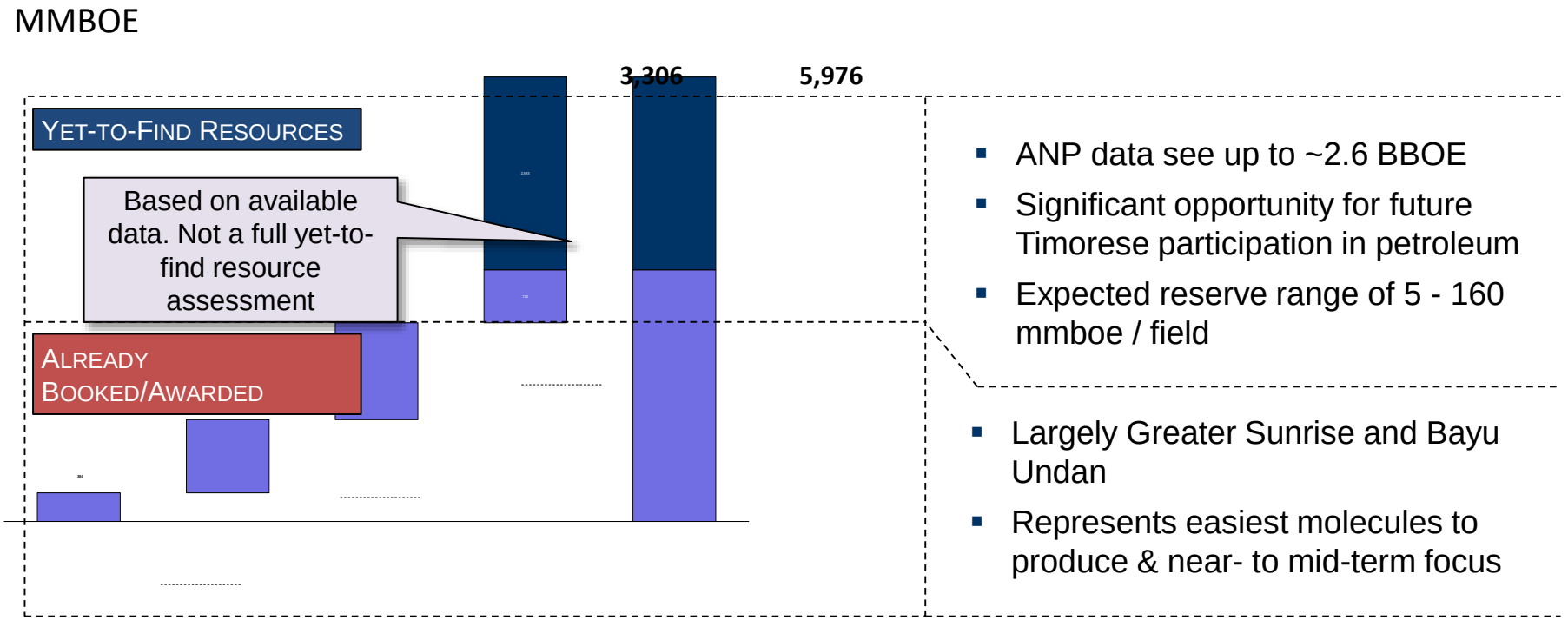
Map Showing Petroleum Prospects in JPDA



Onshore Petroleum PotentIAKS – T-L



TIMOR-LESTE RESERVES VOLUME AND PROSPECTIVE RESOURCES[1-4]



- ANP data see up to ~2.6 BBOE
- Significant opportunity for future Timorese participation in petroleum
- Expected reserve range of 5 - 160 mmboe / field

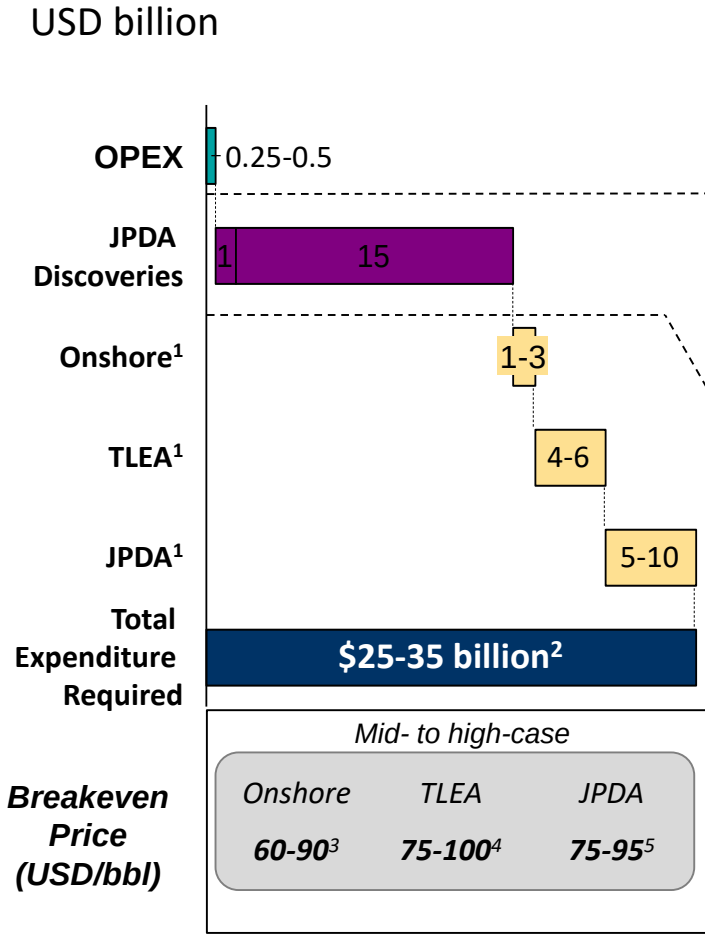
- Largely Greater Sunrise and Bayu Undan
- Represents easiest molecules to produce & near- to mid-term focus

High Reserves / Resource life as a result of undeveloped Sunrise field resources & declining production

Notes: 1) Data a combination of all external data (Rystad, IHS, Wood Mackenzie and internal ANP data (including the results of the Spectrum survey) – see "Resource Potential & National Priorities" section in full report for more details; 2) Does not include definitive view of new prospectivity in TLEA from the 2014 CGG survey with higher resolution and view on e.g. sub-thrust, shallow and other plays; 3) 50% Greater Sunrise included in JPDA; 4) Remaining reserves for BU & Kitan calculated based on reserve data provided minus cumulative production since data of reserves estimate; 5) Based on 2014 production

Source: ANP data; IHS; Rystad; SBC analysis

EXPENDITURE REQUIRED TO DEVELOP TL RESOURCES THROUGH TO 2040



ACTIONS TO ATTRACT CAPITAL

1. **MAXIMIZING PRODUCTION FROM EXISTING FIELDS**
   - Field life extension, Operations excellence on Kitan and Bayu Undan to maximise recovery and value
2. **UNLOCKING DEVELOPMENT**
   - Sunrise ($15bn), others, e.g. Kelp Deep, Chuditch ($1bn)
3. **ATTRACT EXPLORATION INVESTMENT**
   - The amount required will depend on actual prospectivity, licensing round success and exploration success

A. **UNDERSTANDING BASIN TECHNICAL CHALLENGES TO DRIVE PARTNER CHOICE AND REDUCE BREAKEVEN PRICE**

B. **STABLE, ATTRACTIVE AND LOW COST ENVIRONMENT THROUGH REGULATION**

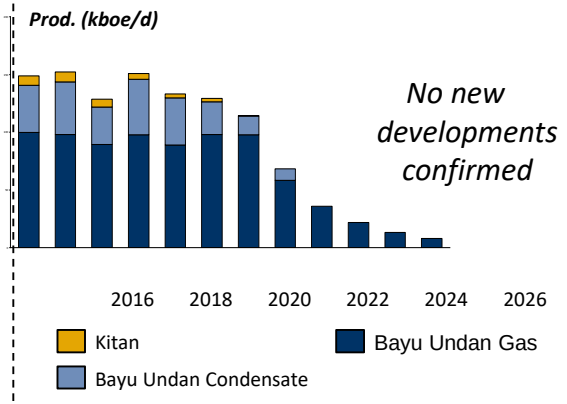
Notes: 1) Risked Capex estimates - High scenario assumes 30% exploration success rate, 4 prospects drilled per year onshore, 2 offshore; Most likely scenario assumes 20% exploration success rate, 2 prospects drilled per year onshore, 1 offshore; 2) Most likely to high scenario range; 3) PNG Papuan lowlands and highlands range as analogue; 4) Wood Mackenzie ultra-deep upper limit; 5) Wood Mackenzie JPDA Bonaparte range

Source: ANP Data; Wood Mackenzie; IHS; SBC analysis and Capital Projects database

ISSUES AND OPTIONS TO UNLOCK MORE BARRELS

Issues

- Production is declining with no imminent new developments or re-developments



- Extending the life of, and accelerating barrels from existing fields is the quickest & most cost-effective means to boost near-term revenue

Field Life Extension Examples

Increasing ultimate recovery through…

Technology

- Address technical challenges and commerciality of marginal and other near-field prospects at Kitan, Bayu Undan & Elang

Rejuvenation

- Assess commerciality of using Enhanced Oil Recovery (EOR) to rejuvenate Kitan

Revised Fiscal Terms

- Incentivise near-field exploration & marginal develop't at Kitan, Bayu Undan & Elang

+

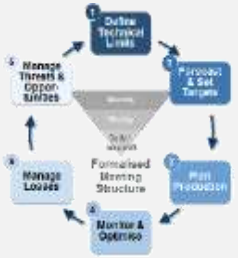
Operations Excellence Examples

Increasing primary recovery through…

Asset Management

- BU

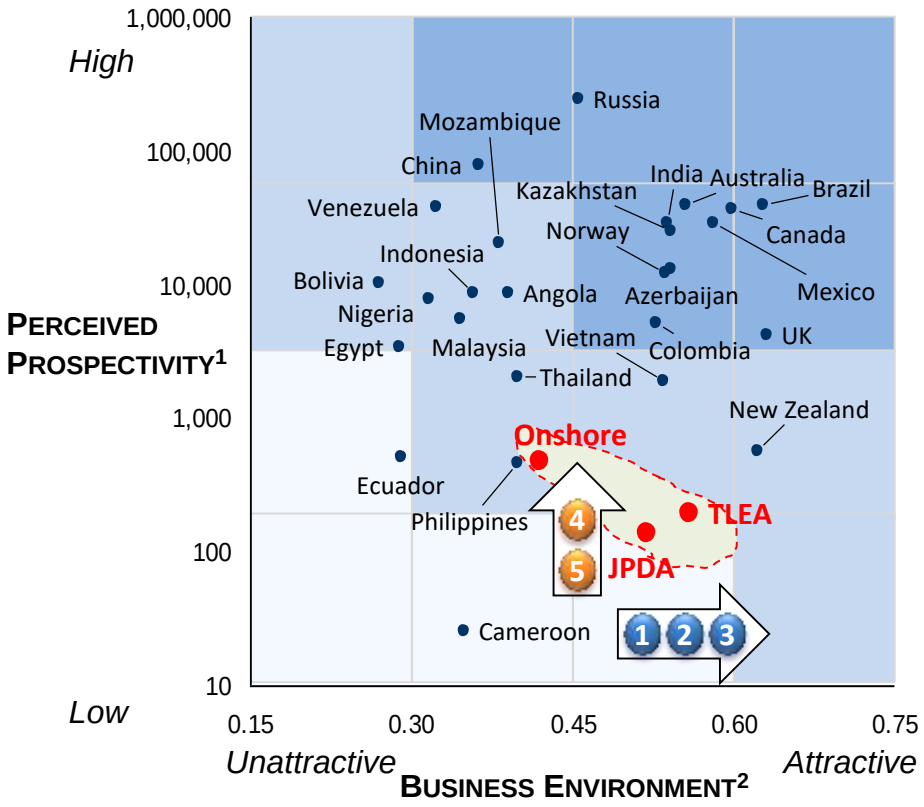
Production Management



- BU

Source: SBC analysis; ANPM production forecasts

TIMOR-LESTE OIL & GAS ATTRACTIVENESS



ACTIONS TO IMPROVE ATTRACTIVENESS

Finalise existing actions to confirm our business environment attractiveness:

1. FINALISE PSC / FISCAL TERMS FOR ONSHORE, TLEA AND JPDA
2. FINALISE REGULATIONS AND CREATE LEGAL FRAMEWORK TO OPEN UP ONSHORE
3. PROGRESS DEVELOPMENT TO DEMONSTRATE FEASIBILITY OF LARGE GAS DEVELOPMENTS

Complete additional actions to improve our perceived prospectivity:

4. INVEST IN SUBSURFACE DATA, ANALYSES, PLAY AND RESOURCE ASSESSMENTS
5. IMPROVE AND TARGET MARKETING TO ATTRACT THE RIGHT COMPANIES

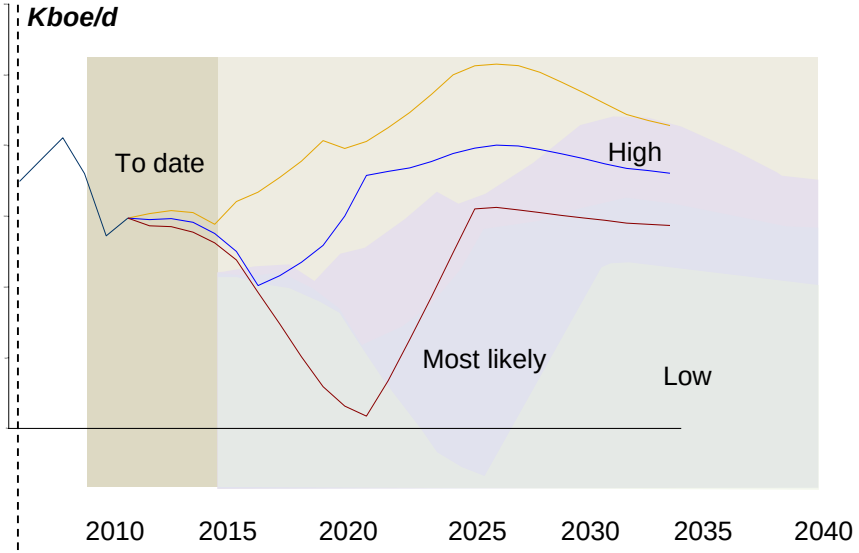
Notes: 1) Prospective resources * industry perception of materiality & value creation; 2) Composite score of fiscal regime, local content & regulatory qualifiers. Assumes new PSC terms and regulations (e.g. those required to open onshore) will be agreed and implemented and any new local content requirements will remain attractive; (see "Resource Potential & National Priorities" section in full report for details of methodology)

Source: Rystad; Wood Mackenzie; WorldBank; UN CIP Index; Local Content Policies in the Oil and Gas Sector; World Economic Forum; Resource Governance Index; Comparative Assessment of the Federal Oil and Gas Fiscal Systems

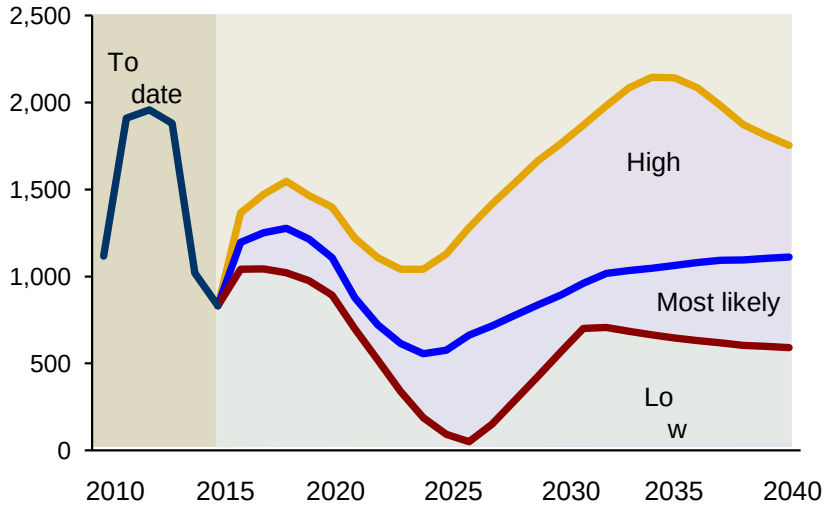
Potential upstream revenue of $40bn up to 2040 and the added value benefits of a strong petroleum industry

Forecast Scenarios to 2040[1]

Production



Net Revenue to Timor-Leste



Potential Maximum Revenue[2]

Unlock development	Attract new exploration investment	Unlock new barrels from existing production
$12 bn	**$18 bn**	**$1 bn** (+$9bn existing)

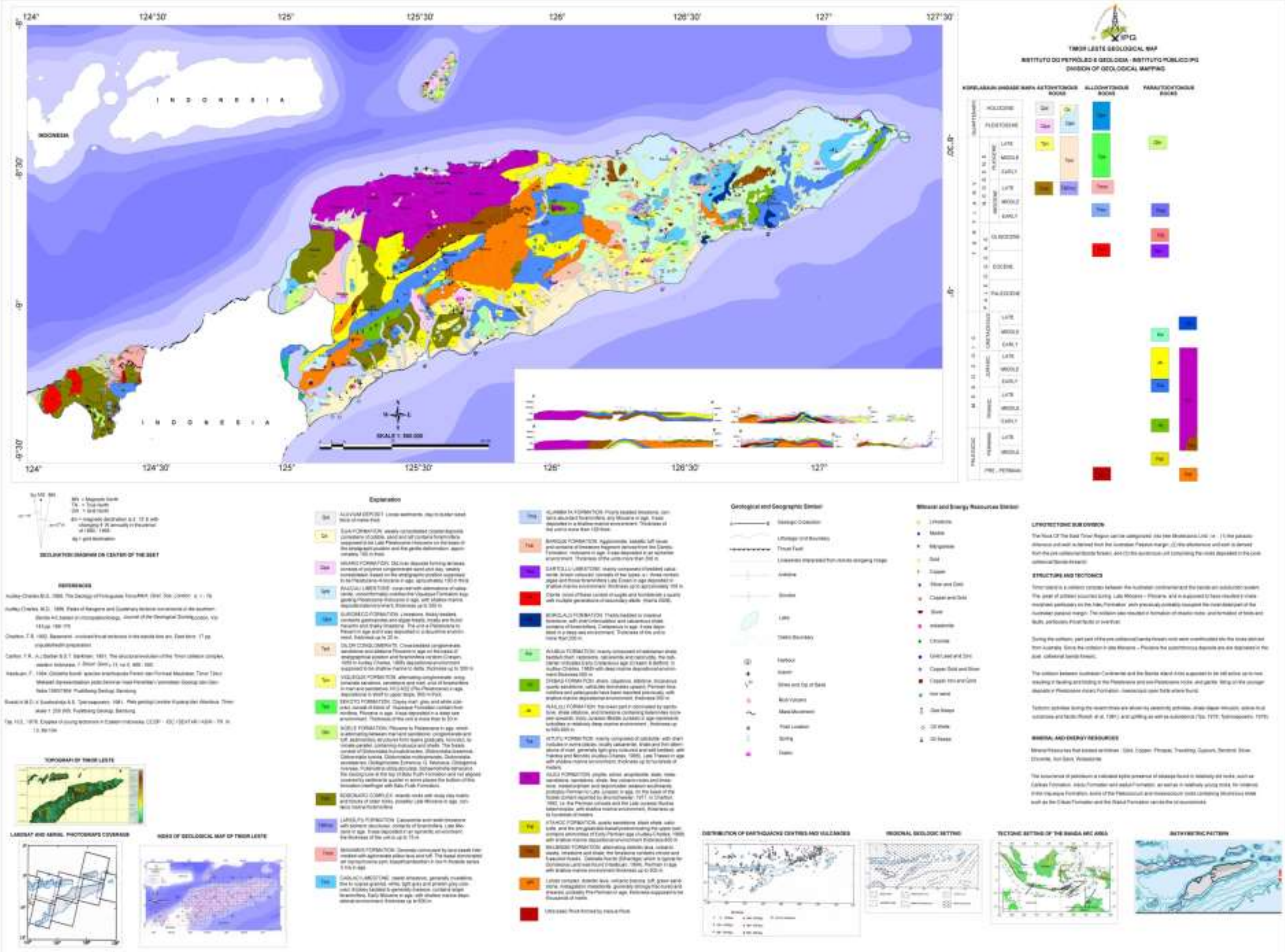
Added Value Extraction

- Non-petroleum sector growth
- Local content growth
- TIMOR GAP participation
- Downstream sector growth[3]

Note: 1) All forecasts are 5 year moving averages – see appendix for detailed inputs and assumptions; 2) High scenario, above ~$9bn from base production; 3) Not within the scope of this report

Source: ANP Data; SBC analysis

POTENSIA MINERAIS IHA TIMOR LESTE



TIMOR LESTE GEOLOGICAL MAP
INSTITUTO DO PETRÓLEO E GEOLOGIA - INSTITUTO PÚBLICO IPG
DIVISION OF GEOLOGICAL MAPPING
AUTOCHTHONOUS ROCKS
ALLOCHTHONOUS ROCKS
PARAUTOCHTHONOUS ROCKS
HOLOCENE
PLEISTOCENE
OLIGOCENE
EOCENE
PALEOCENE
INDONESIA
I N D O N E S I A
124°
124°30'
125°
125°30'
126°
126°30'
127°
127°30'
Explanation
REFERENCES
Geological and Geographic Simbol
Mineral and Energy Resources Simbol
LITHOTECTONIC SUB DIVISION
STRUCTURE AND TECTONICS
MINERAL AND ENERGY RESOURCES
TOPOGRAFI OF TIMOR LESTE
LANDSAT AND AERIAL PHOTOGRAPHS COVERAGE
INDEX OF GEOLOGICAL MAP OF TIMOR LESTE
REGIONAL GEOLOGIC SETTING
TECTONIC SETTING OF THE BANDA ARC AREA
BATHYMETRIC PATTERN

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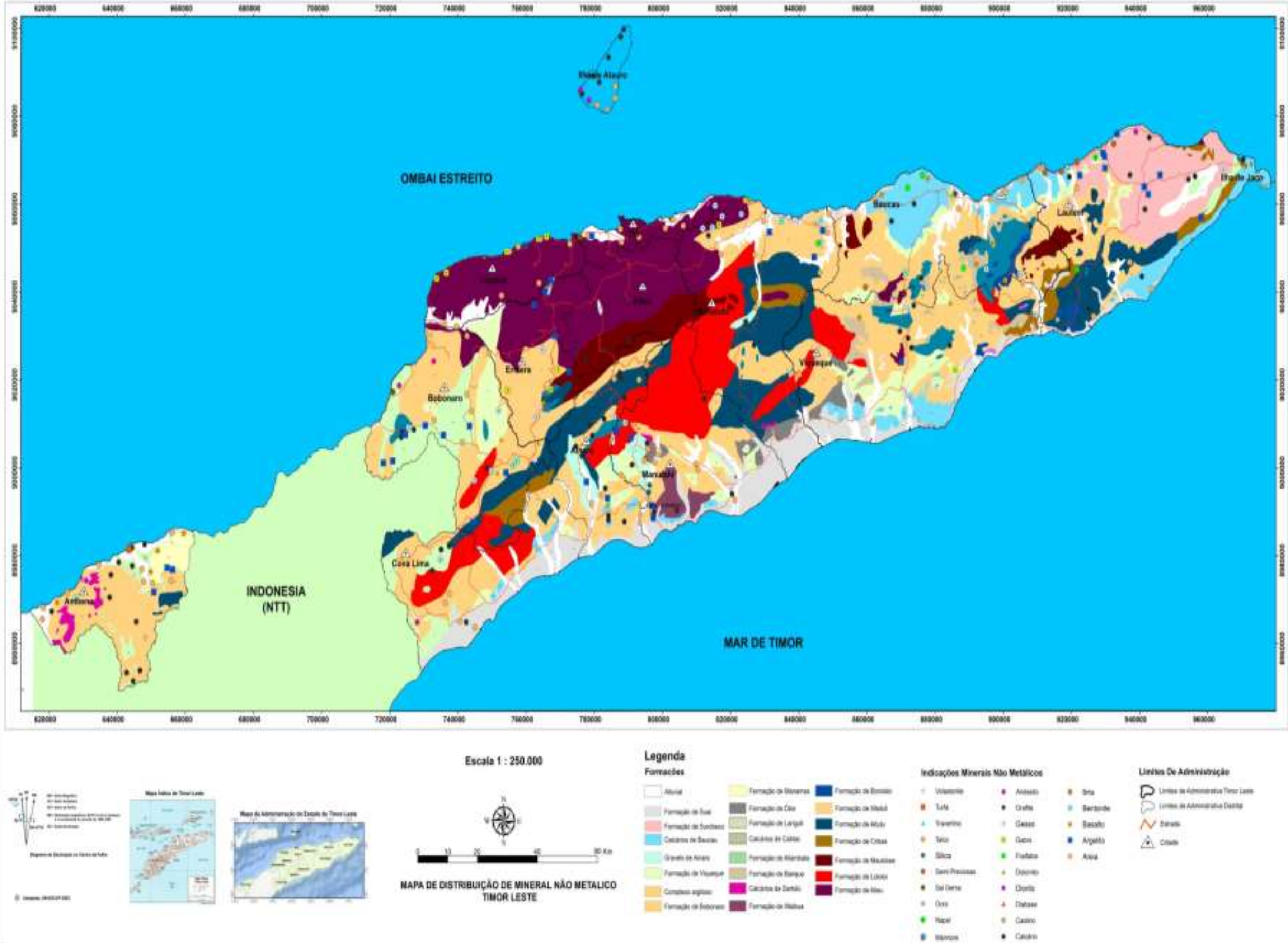
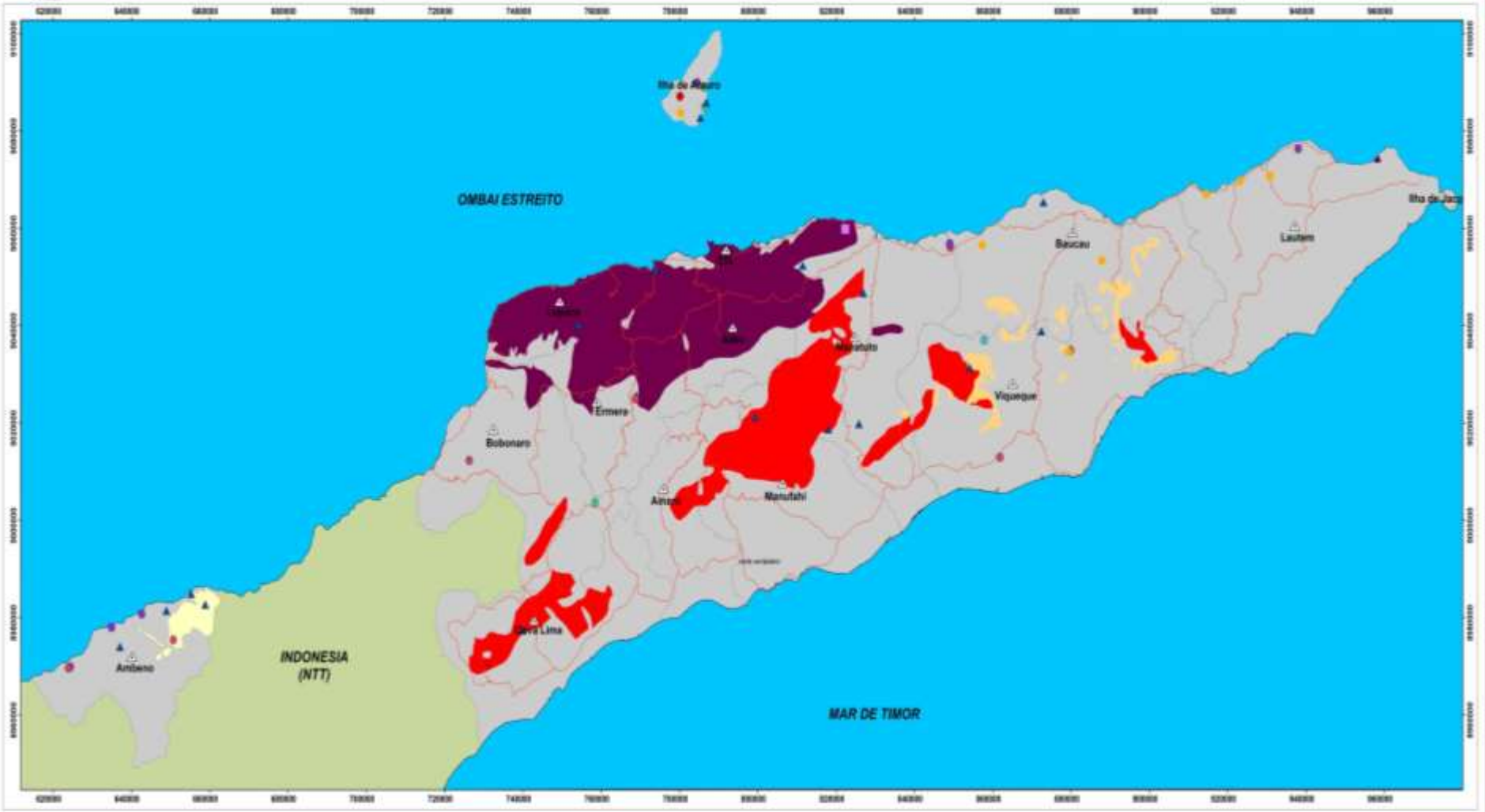
DIVISÃO RECURSOS MINERAIS



INSTITUTO DO PETRÓLEO E GEOLOGIA - INSTITUTO PÚBLICO

DIVISÃO RECURSOS MINERAIS



Escala 1 : 250.000

MAPA DE DISTRIBUIÇÃO DE MINERAL METALICO
TIMOR LESTE

Legenda

Formações

- Formação de Marainas
- Formação de Barique
- Complexo de Lolotoi
- Formação de Aileu

Indicações Minerais Metálicos

- Prata
- Ouro e Prata
- Ouro
- Manganês
- Ferro
- Enxofre
- Crómio
- Cobre

Limites De Administração

- Limites de Administrativo Timor Leste
- Limites de Administrativo Distrital
- Estrada
- Cidade

PROJETO LEI- Código Mineiro

20 CAPITULOS – 168 ARTIGOS – 3 ANEXOS

CAPÍTULO	
I	Disposições Gerais
II	Classificação de Minerais
III	Atribuição de Licença de Prospecção e Pesquisa, Direitos Mineiros e Fases das Atividades Mineiras
IV	Programas de Trabalho e Orçamentos, Dados, Informações, Registos e Relatórios
V	Ocupação da Terra, Indemnização por Danos e Reassentamento de Comunidades Locais
VI	Regime Ambiental
VII	Responsabilidade e Obrigações em Matéria de Seguros
VIII	Saúde e Segurança
IX	Regime Laboral e Aprovisionamento de Bens e Serviços
X	Transmissão de Direitos

CAPÍTULO	
XI	Comercialização
XII	Cessação
XIII	Royalty Mineiro
XIV	Disposições Diversas
XV	Resolução de Litígios
XVI	Monitorização, Inspeções e Fiscalização
XVII	Infrações e Sanções
XVIII	Registo Mineiro
XIX	Transparência e Boas Práticas
XX	Disposições Finais e Transitórias

Provisions and Phases of Mining Activities

RECONNAISSANCE | EXPLORATION | DEVELOPMENT | MINING | MARKETING | ABANDONMENT






Including provisions regarding Health Safety and Enviroment, Local Content, Labor regime, Sanctions and Infractions, Mineral Registry, Transparency and Good Practices

Mineral Classification


Metallic Minerals **

- Prescious Metals
- Base Metals


Gemstone Minerals


Radioactive Minerals


Industrial Minerals ***

- Construction Minerals
- Process Minerals
- Dimension and Ornamental Stones

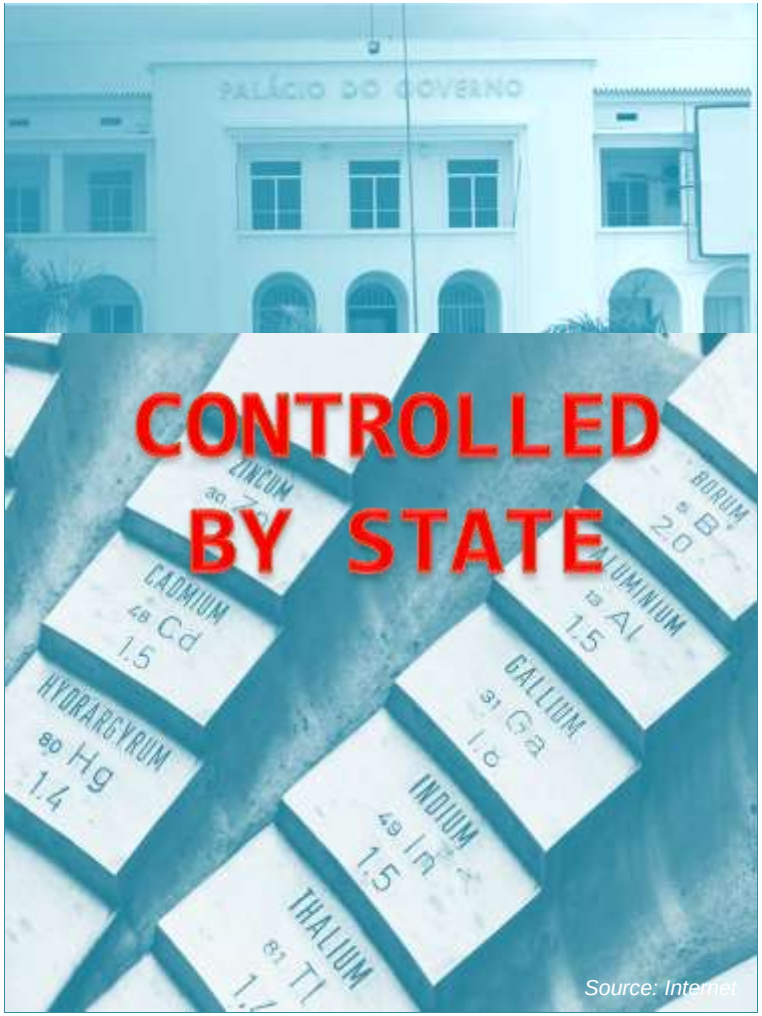

Rare Earth Minerals


Coal

Strategic Minerals

- Nation economic, energy security, and balance of trade;
- Hazardous Minerals which shall require a specific technical and mining aspect;
- Rarity;
- National defence and security; and
- To support the growth domestic manufacturing industries, more specifically in agriculture, housing and infrastructures industries.

Types and Participation to be defined by the Council Of Ministers



Award of Prospecting License, Mineral Rights, and Mining Activities Phases

Mineral Rights

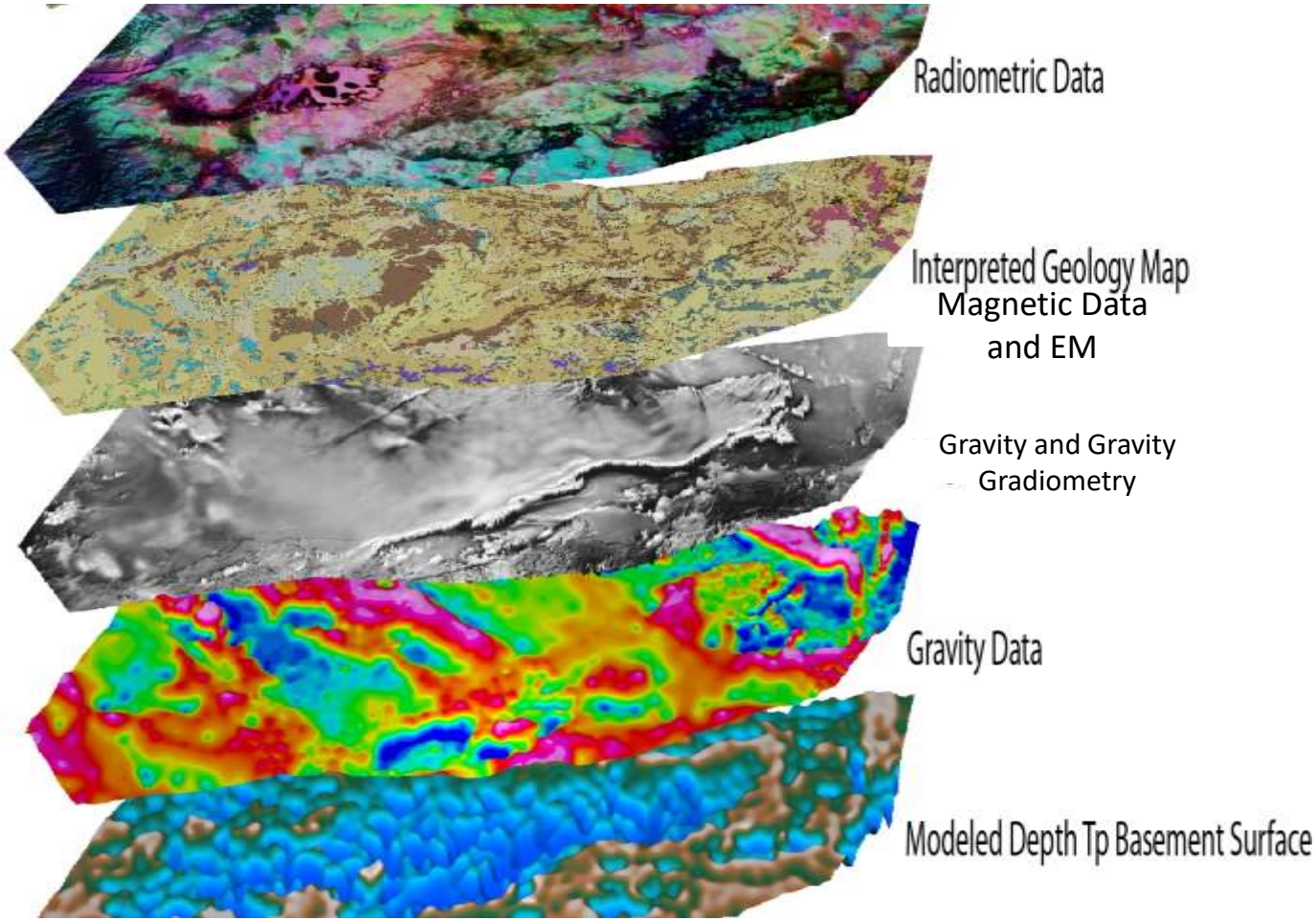
Mineral Pass	Mineral Permit	License

Artisanal Mining

Industrial Minerals

Others

INTEGRATED AIRBORNE GEOPHYSICAL SURVEY AND LIDAR DATA



Airborne Magnetic and Radiometric

As part of this phase of acquisition these data would be interpreted and modelled to produce surficial geological maps and basin architecture maps that detail the basin(s) geometry and the primary structural controls

Airborne Gravity

Airborne gravity provides a rapid, lower cost alternative to ground gravity acquisition over deep sedimentary basins.

Targeted Gravity Gradiometry and Electro Magnetic Ground Validation survey

OBRIGADO BARAK!!!