

UNCTAD

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Extractive Industries and Sustainable Job Creation

**Petroleum Licensing in Ethiopia: Current activities
and opportunities**

By

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The views expressed are those of the author and do not necessarily reflect
the views of UNCTAD.



PETROLEUM Licensing IN ETHIOPIA: Current Activities and Opportunities

Federal Democratic Republic of Ethiopia

KetselaTadesse
August, 2015

Outline of the presentation

- Background
- Petroleum Potential of Ethiopia
- None Conventional Petroleum Resources
- Recent Activities and Successes
- Opportunities
- Conclusion

Background

Location:- *Ethiopia is Located in the Horn of Africa*

Neighbours: *Kenya, Djibouti, Somalia, Sudan, South Sudan and Eritrea*

Surface Area = 1.13 million km²

Climate: *Two seasons;*

- *Dry season:- Oct. – May*
- *Wet season:- June – Sept*

Population:- *> 90 million*

Capital city:- *Addis Ababa*

Economic growth:- *Double digit GDP growth for the past 10 years*



Licensing Policies

- For only a single interest – one to one negotiation can be carried out after the proposal submission to the Minister(MOM).
- If more than one company interest for a block exists, bid round will be floated.
- Notice will be floated on the “Ethiopian Herald” – the English version of the Ethiopian National News Paper.
- The notice will also be floated in the Ministry’s website <http://www.mom.gov.et>

Investment policies

Conducive investment policies are already established for various sectors in Ethiopia.

Role of the Government as a Regulatory Body:-

The Government issues licenses and administer the contracts in accordance with the agreements through the Licensing Authorities. There are two regulatory directorates under the MoM:

i) Mineral Licensing & Administration Directorate

ii) Petroleum Licensing & Administration Directorate

Licensing

- Bid documents will be prepared and can be collected from the Ministry(MOMPNG)
- The notice will stay at least for 45 days
- The beginning and ending dates will be specified.
- Evaluation will follow based on the scored cards set at beginning
- The winner will be notified officially to all bidders
- Signing date will be fixed with the winner
- Signing ceremony with the Minister and authorized company representative will be followed

Licensing

- If there is only one interest
- Negotiation will be carried out between the company team and Ministry of Mines team
- When agreement is reached on various fiscal terms and articles of the PPSA, report will be submitted the Ministers offices(MOM).
- The PSA will be endorsed to the Council of Ministers
- The Council of Ministers, chaired by the PM will approve the PPSA.
- After the approval of the Council, the Minister and the authorized company representative will sign the agreement.

Fiscal Regime

- The Petroleum Laws/Proclamations
 - The Petroleum Operations Proclamation – 295/1986
 - The Petroleum Income Tax Proclamation- 295/1986
 - The Petroleum Income Tax Proclamation (amendment) -226/2000
- Types of Agreements
 - Petroleum Production Sharing Agreement(PPSA)
 - Petroleum Development Agreements (PDA)
 - Joint Study Agreements (JSA)

Fiscal regime

- Exploration
 - Initial Exploration Period - Up to 4 years
 - Extension –Up to 4 years
- Production – 25 years
 - Extension – Up to 10 years
- Royalty –Negotiable
- Production Sharing – Negotiable
- All petroleum operation costs – 100% recoverable
- Income tax – 30% -fixed
- Training fund – Negotiable
- Community Development- Negotiable
- Annual land rent - Negotiable
- Bonus (Signature/Production) - Negotiable

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45th Year — No. 6



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Addis Ababa, 26th March, 1986

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ነጋሪት ፡ ጋዜጣ ። NEGARIT GAZETA

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1986
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PROCLAMATION No. 295/1986
A PROCLAMATION TO REGULATE PETROLEUM OPERATIONS
‘ETHIOPIA TIKDEM’

አርባ አምስተኛ ዓመት ቁጥር 7
45th Year — No. 7



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Addis Ababa, 5th April, 1986

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Proclamation No. 296 of 1986
Petroleum Operations Income Tax Proclamation Page 71

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የወጣ አዋጅ

PROCLAMATION No. 296/1986
A PROCLAMATION TO PROVIDE FOR
PAYMENT OF INCOME TAX
ON PETROLEUM OPERATIONS

«ኢትዮጵያ ትቅደም»

‘ETHIOPIA TIKDEM’

የነዳጅ ሥራዎች በሚገኝ ገቢ ላይ የሚከፈለውን የገቢ

Production
Sharing
Agreement is
the main form
of agreement
currently
implemented.

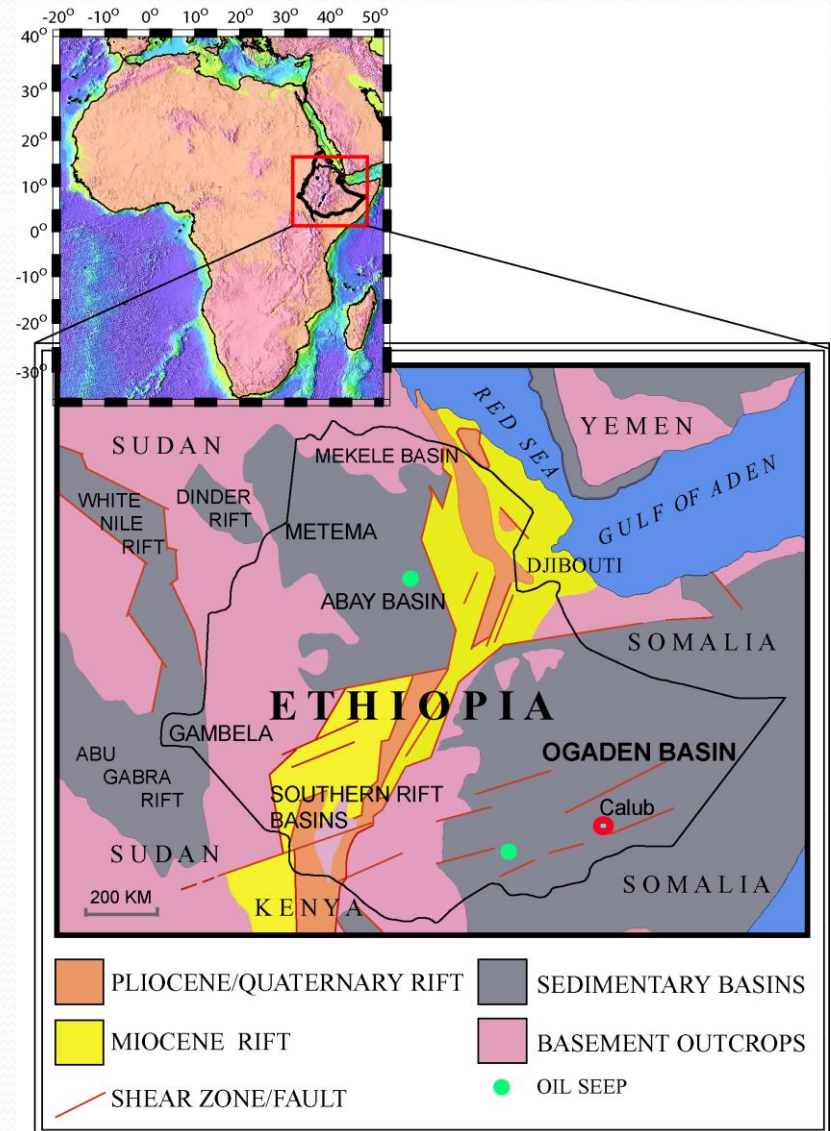
Model Petroleum Production Sharing Agreement

**Between the Government of Federal
Democratic Republic of Ethiopia and
“the Company”**

October 31, 2011

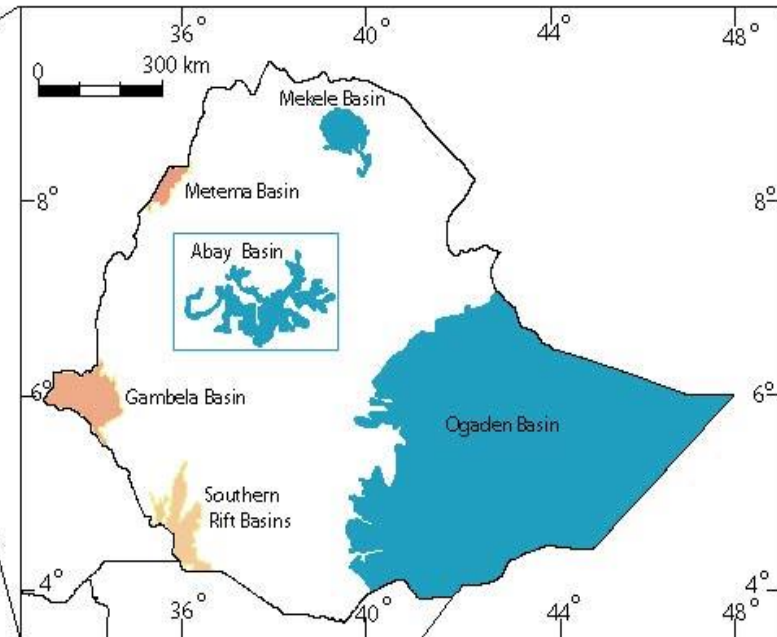
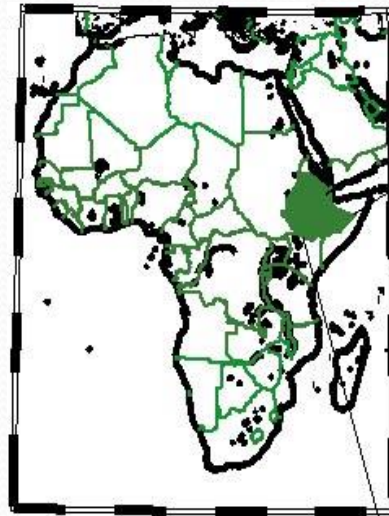
Regional Geology

- Largely extended basin and inter related with many East African basins
- Older and recent structures and sediments exist through out Ethiopia
- Modern rift system – a recent exploration target areas



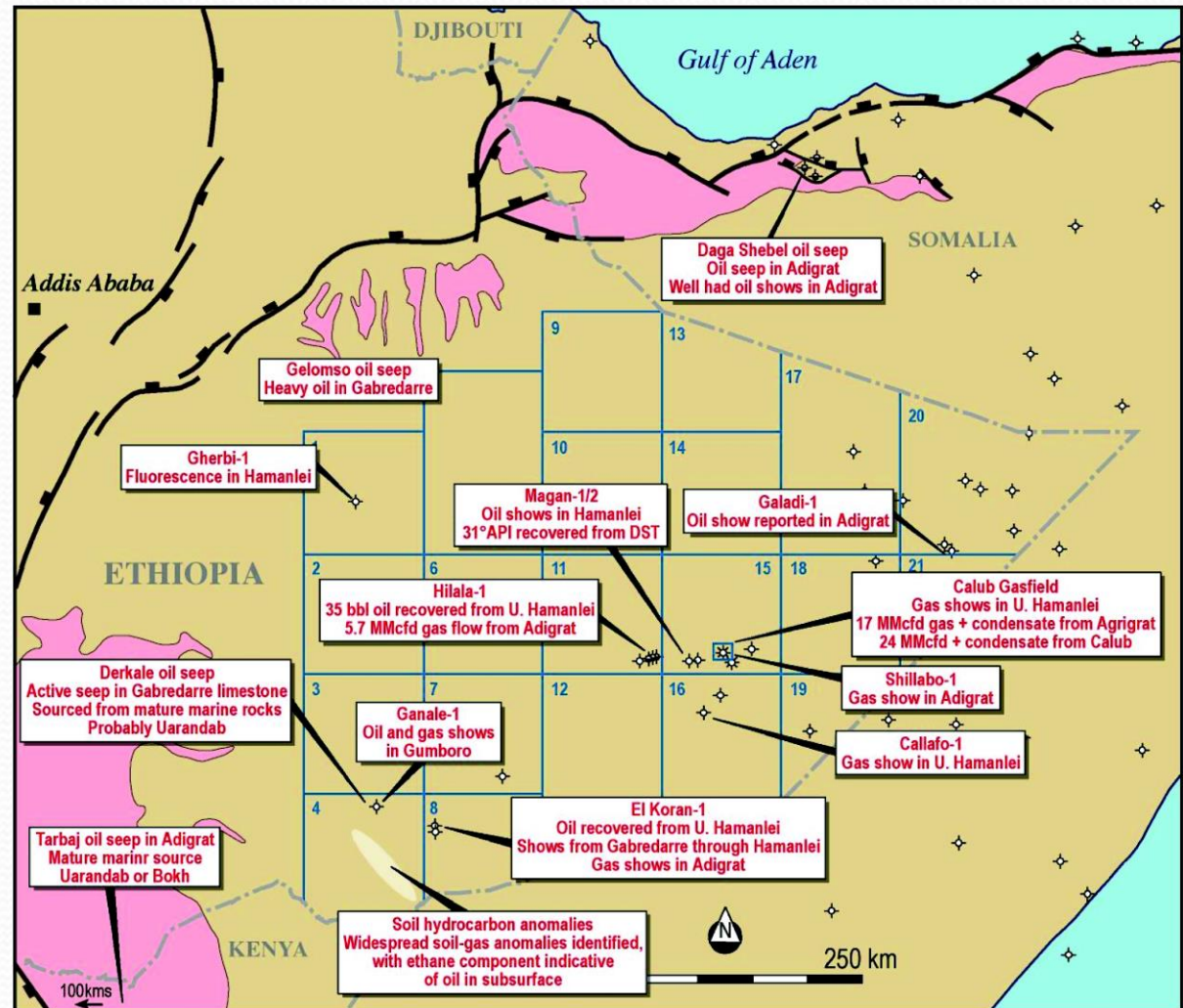
Petroleum Potential of Ethiopia

- More than 30% Sedimentary cover
- Known Sedimentary basins
 - ◆ The Ogaden Basin
 - ◆ The Abay/Blue Nile Basin
 - ◆ The Gambela Basin
 - ◆ The Mekele Basin
 - ◆ SER and Metema



Petroleum Potential of Ethiopia

- Oil seeps in different parts of the country
- Oil and gas shows in many of the exploratory wells
- Recently found oil stained/impregnated reservoir rocks

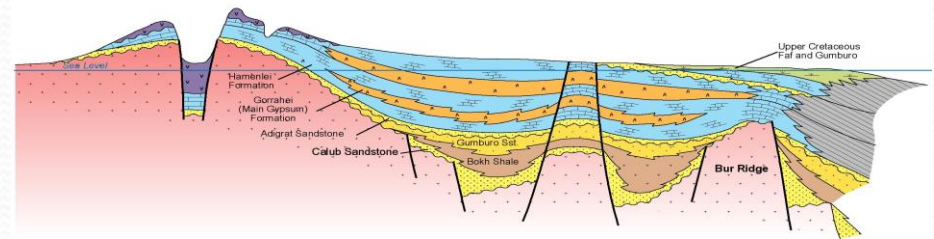


APPROXIMATE AGE	LITHOSTRAT-GRAPHY	LITHOLOGY	DEPOSITIONAL ENVIRONMENT	SEA LEVEL Rising Falling	STRUCTURAL ENVIRONMENT	
EOCENE - PALAEOCENE	TALEH AURADU		Open marine		Late Tertiary uplift and volcanics - Tertiary East African rift phase	
	JESSOMA		Fluvial to marginal marine			
MAASTRICTIAN TO CENOMANIAN	BELET UEN		Open marine			
	FERFER		Shallow open marine to restricted lagoonal			
ALBIAN TO APTIAN	MUSTAHIL FM					
	BARREMIAN TO VALANGINIAN	MAIN GYPSUM				Shallow open marine to restricted lagoonal
L. GORRAHEI			Stable carbonate platform overall shallowing upward			
GABBREDARRE FM			Shallow open marine			Local reef development
BERRIASIAN TO ? L. OXFORDIAN	UARANDAB FM		Open marine			REGIONAL TRANSGRESSION
? E. OXFORDIAN TO CALLOVIAN	UPPER HAMANLEI		Shallow open marine			Local structural movements in Ogaden, (?) Rifting to northeast of Marda lineament Carbonate platform
BATHONIAN TO EARLY JURASSIC	MIDDLE HAMANLEI		Marginal marine to sabkha	CONTINENTAL ONLY	Stable carbonate evaporite platform: local open marine depressions and reef rims	
	LOWER HAMANLEI		Fluvial to marine			
	TRANSITION		Open marine		EARLY JURASSIC TRANSGRESSION (REGIONAL)	
TRIASSIC TO ? LATE PERMIAN	ADIGRAT FM		TOP KARROO	Sedimentation overstepping basement		
	GUMBORO FM		Fluvial	Rift fill - tectonically stable		
	BOKH FM		Lacustrine	Rifting		
	CALUB FM		Fluvial			
EARLY PALAEOZOIC AND OLDER	BASEMENT					

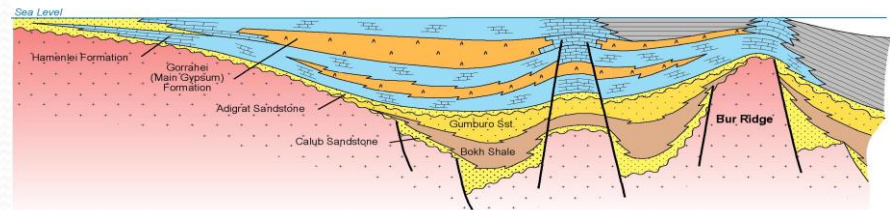
Petroleum Potential Cont....

- The Karoo and Jurassic/Cretaceous rift
 - poorly understood - structurally & Stratigr
- Basins formed during this multiphase episode contain major oil accumulation in Sudan and Yemen & other countries
- Understanding the age, rifting pattern and basin development in the Ogaden basin is crucial

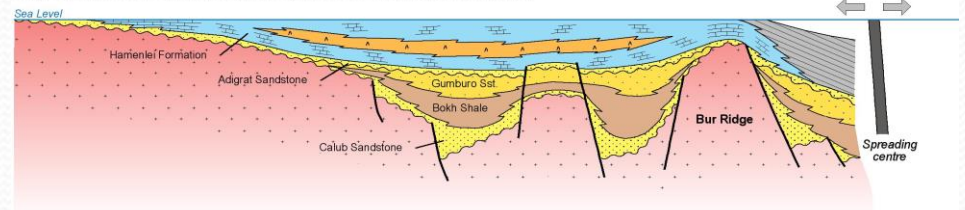
Tertiary
Ethiopian / East African rifting.



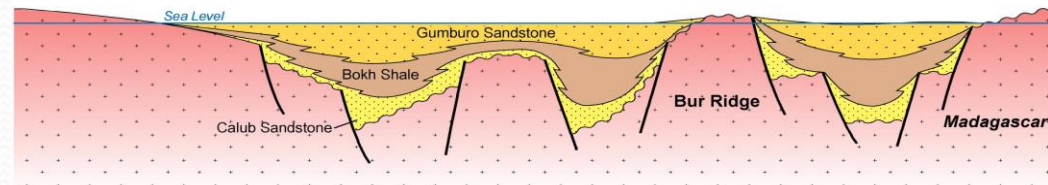
Lower Cretaceous
Pan-African rifting (Sudan). Silled evaporitic basin in Ogaden. Wrench faulting.



Jurassic (Callovian)
Sag basin in Western Ogaden; marginal sag basin over subsiding African margin



Permian Rifting



Petroleum systems

- Four petroleum systems in the Ogaden basin
 - Bokh Shale _ Calub Sandstone
 - Urandab Shale – Upper Hamanlei Limestone
 - TOC 2.3 - 3 % as high as 7%
 - Transition zone – Adigrat Formation
 - The Middle Hamanlei Carbonates and Lower Hamanlei reefal build ups
- New petroleum system recently identified
 - Bokh Shale – Gumburo Sandstone

Petroleum Systems

- Traps

- Structural traps

- ★ Faults, drag folds, domal features

- Stratigraphic traps

- ★ Mesozoic beds

- ★ Pinch outs

- In the SW part of the Basin

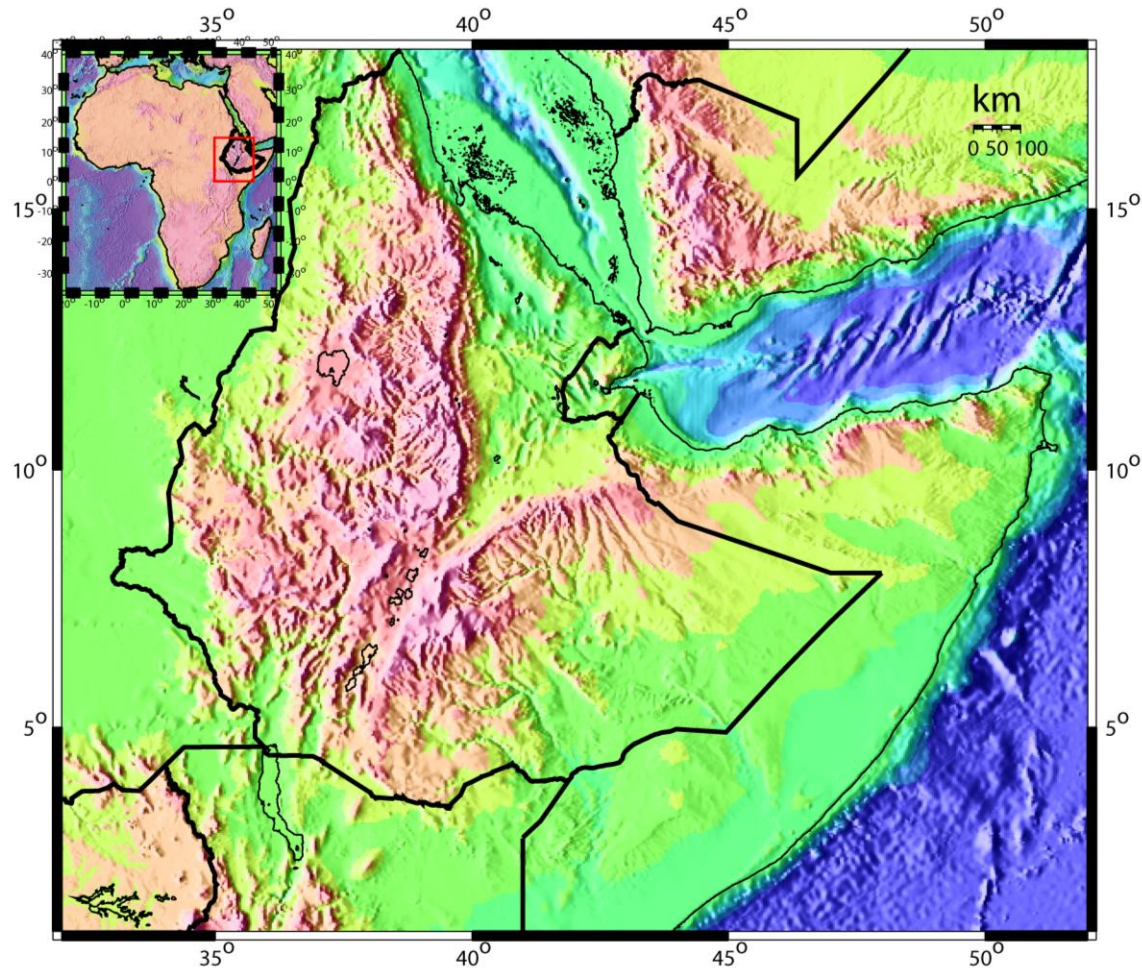
- Seals

- Urandab Formation (Shale), Middle Hamanlei (Shale intercalation)

- Bokh Shale, Transition zone, the Hamanlei Carbonates

The Ethiopian rift

- The Ethiopian rift
 - Provides new opportunities
- Recent mapping results indicated source and reservoir rocks
- More geophysical and geological data are needed

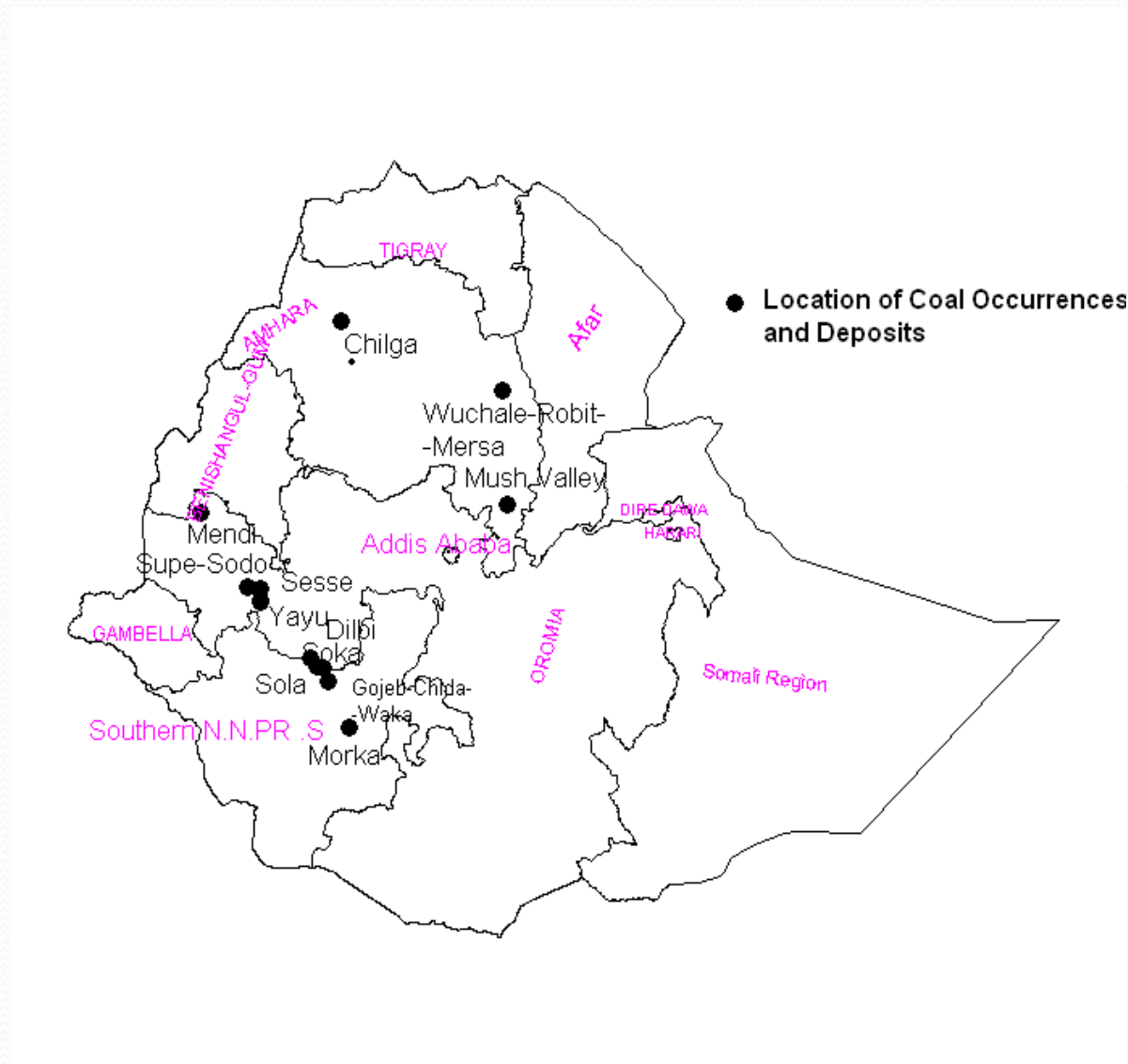


None conventional hydrocarbon potential

- Oil Shale
 - In different part of the country
 - High TOC – up to 55- 60%
 - Oil generated – detected in some bore holes
- Thick Shale formations
 - Urandab Shale - ~ 400 m thick
 - Bokh Shale- up to 800 m thick
 - Shale formation- with in Carbonate rocks
- Coal in different parts of the Country
- Boifuel

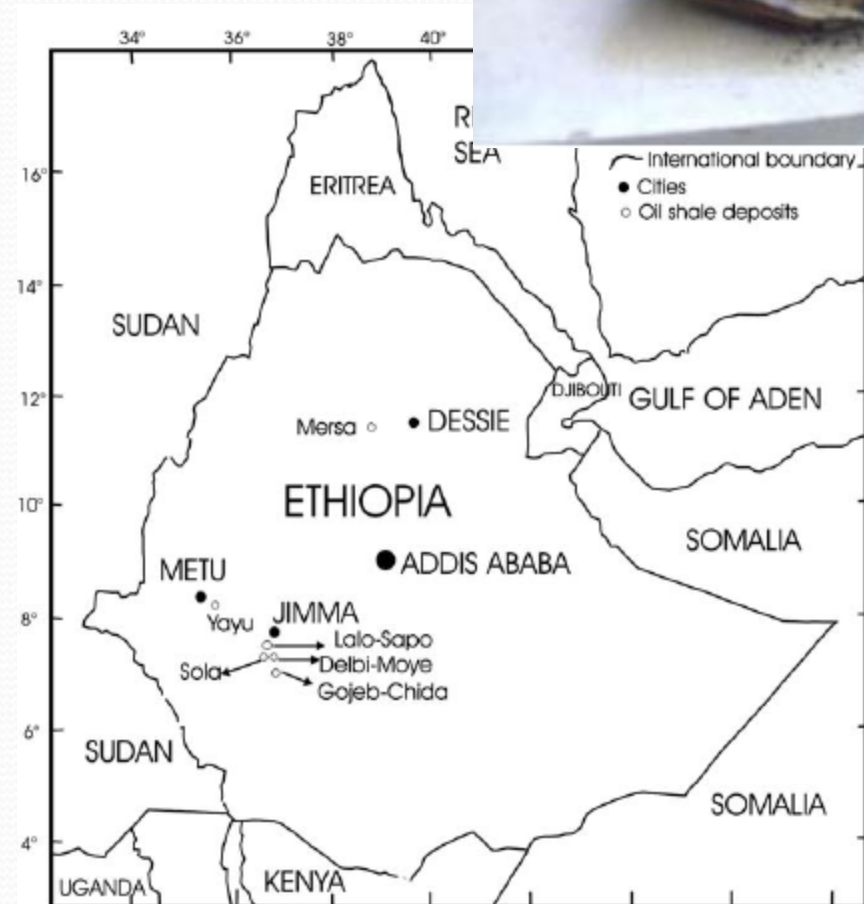
Coal occurrences

- ~500 Million Ton reserve
- New deposits in other areas are also reported recently



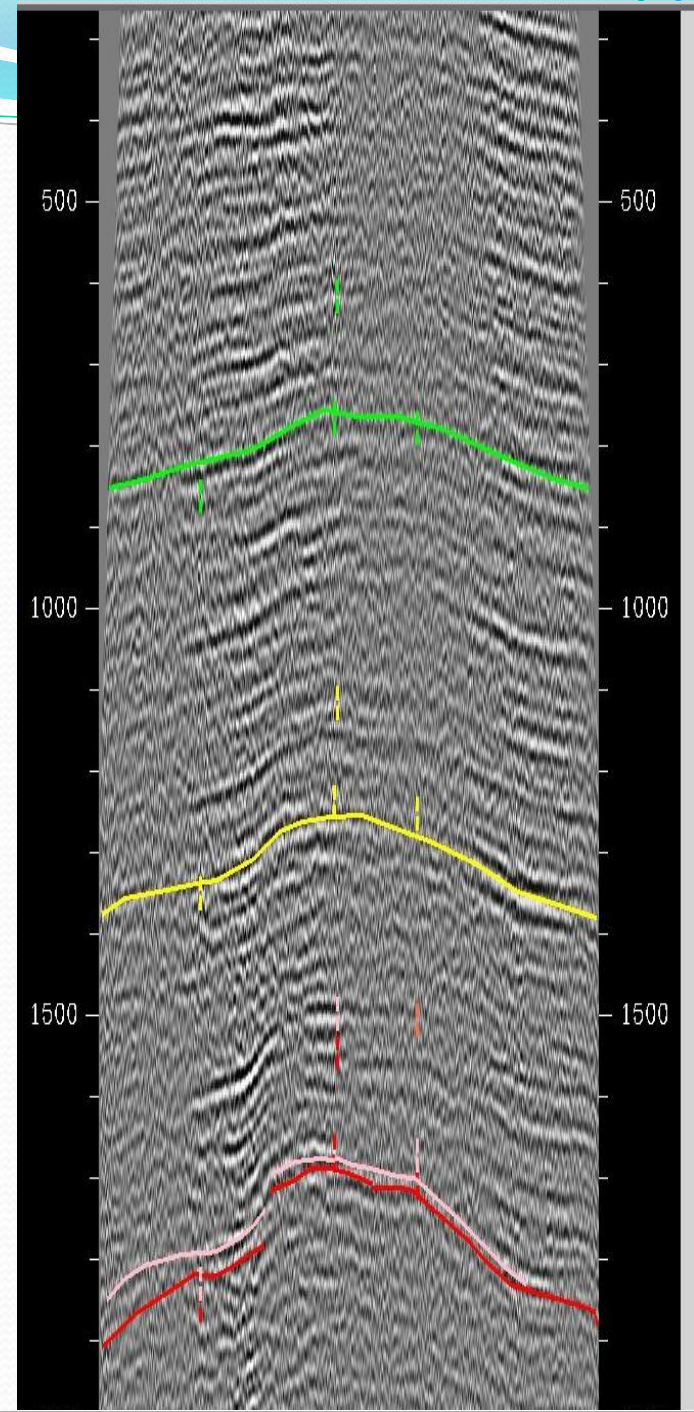
Oil Shale Occurrences

- Miocene Oligocene
 - West South West part of Ethiopia
- Recent mapping results indicated outcrops in the northeast central part of Ethiopia
- ~1 billion Tons reserve



Data

- Geological and Geophysical data
- Rock samples from field
- Geophysical data – Old and New
 - Seismic data – raw and processed data
 - 9-track –SEG-D, SEG-Y
 - Tapes – Exabyte 8mm Tapes, IBM 3480, 3590, DLT
 - Gravity and Magnetic data
- Well data
 - Well logs – various types
 - Core samples
 - Cuttings



Seismic Data acquisition

Over 3000 line
km seismic
data is
available

New National
Data
Repository is
under
construction



Database Center under construction



Community Development

GELADI HIGH SCHOOL HAND OVER December 14/2010



GELADI HIGH SCHOOL HAND OVER December 14/2010



GELADI HIGH SCHOOL HAND OVER December 14/2010

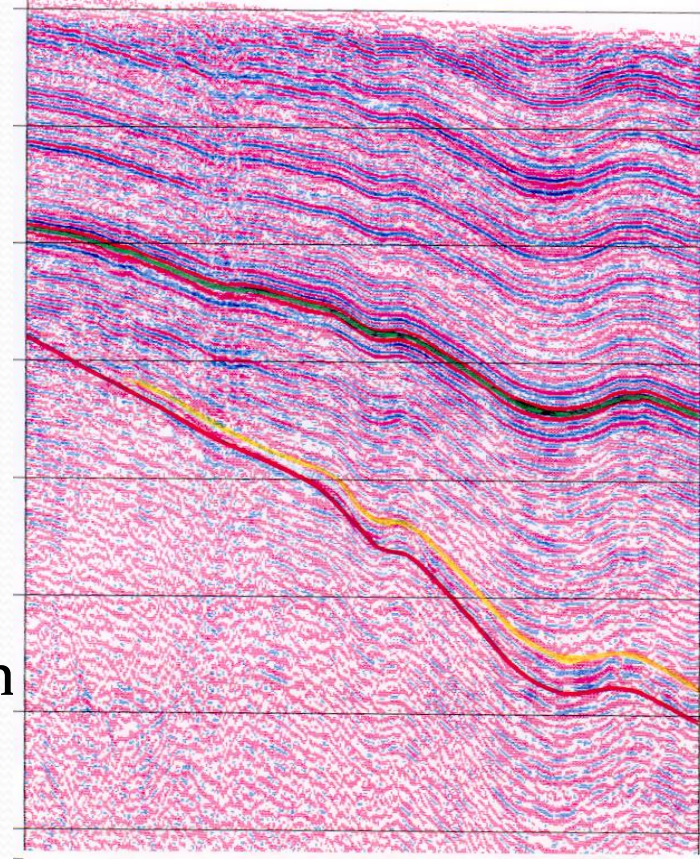


GELADI HIGH SCHOOL HAND OVER December 14/2010



Recent Activities & Successes

- More geophysical and geological data acquisition
 - Airborne geophysics
 - Gravity and magnetics
 - Seismic data acquisition
 - 2D seismic data acquisition
 - with 1 seismic crew
- Drilling activities
 - Two companies carried out drilling
 - Some companies –under preparation
- Farm out – farm in activities



Discoveries

- New discoveries
- Genale area – Block 4
- Stratigraphic trap
- New reservoir –Gumburo Sandstone
- Reservoir
 - Primary – Gumburo
 - Secondary – Calub
 - Porosity- 10 – 14%
- Estimated Reserve -766BCF
- NewAge - El Kuran (Block 8)



Recent Success

- New discovery - Increased reserve
- Previous discoveries –Ogaden basin
 - Calub -2.7TCF
 - Hilala – 1.3 TCF
 - El- Kuan
- Several prospects and leads are delineated
- Companies are prepared for more drilling



Calub Gas Field

- Discovered in 1973
- 10 wells – all productive
- Two reservoirs
 - Adigrat – Condensate
 - Calub – dry gas
- Development plan under consideration
- Wells completed

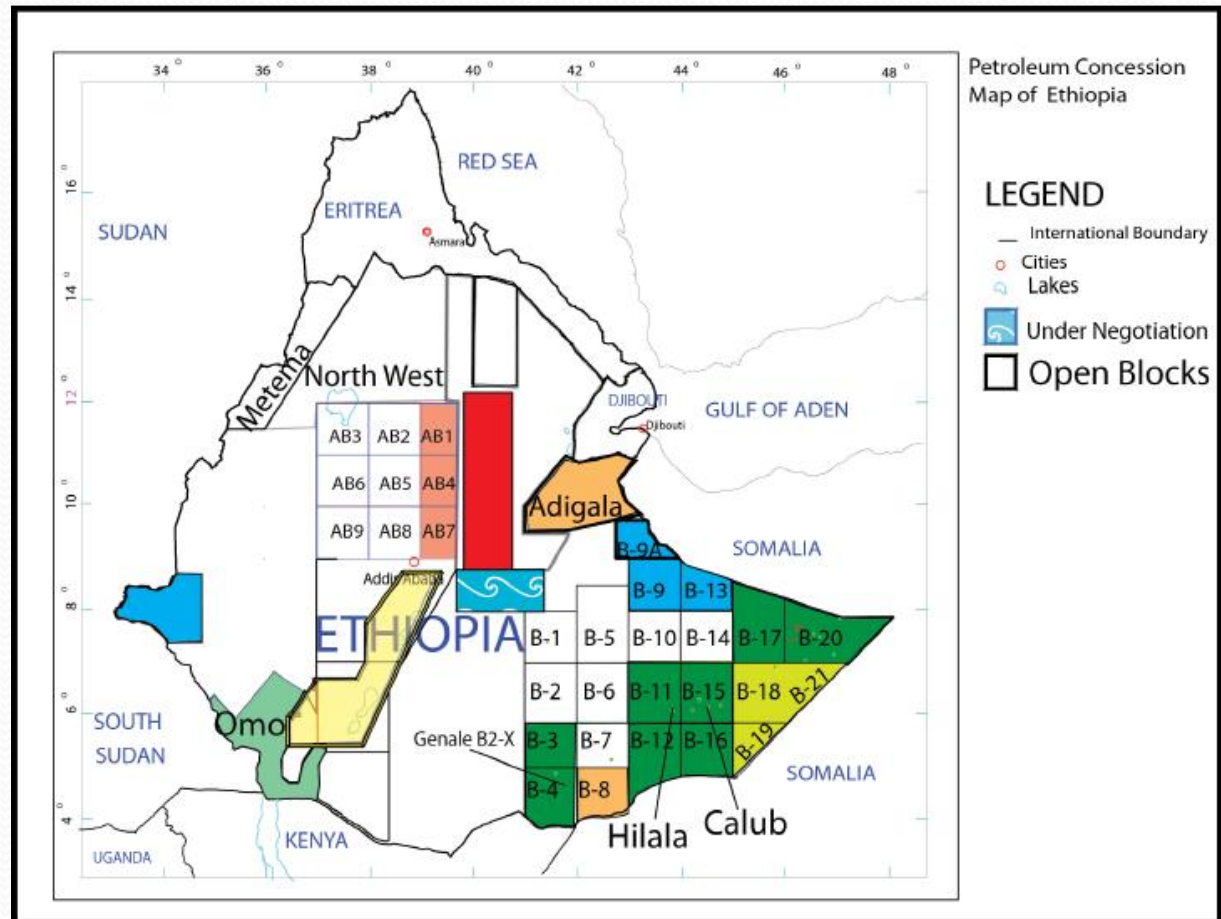


Possible Production

- LNG
- GTL
- CNG
- Various liquid products – from the condensate
 - Benzene
 - Kerosene
 - Diesel oil
 - Jet fuel
 - LPG

Available Opportunities

- The greater Afar Block
- The Mekelle Basin
- The Segen rift basin
- Abay basin
- The Ogaden basin



Downstream Activities

- More local players are increasing



United Petroleum
(Yetebaberut)

Conclusion

- More mapping activities were carried out and still going on
- Community development in some contract areas
- Several prospects and leads - delineated in different blocks
- Previous and New discoveries were made
- Valid geological model for stratigraphic traps in the Ogaden region is proved
- New petroleum system identified
- Two drilling rigs and five seismic crews are actively working
- Opportunities for investment (exploration , production and transportation) still available



Thank You

