Energy & Geoscience Institute

Energy Opportunities in India

Salt Lake City

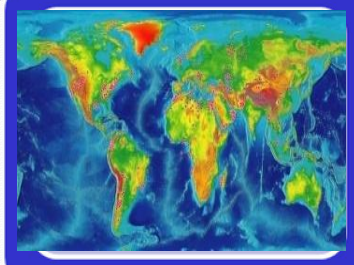
EGI Houston Calgary London Bratislava Sydney Tripoli

EGI Snapshot

- 100 EGI scientists & staff are a cost-shared laboratory
- Cooperation with > 40 International Organizations
- Largest Univ. petroleum research consortia in world
- Largest DOE University Geothermal program
- Delivered > $350 Million dollars of research

EGI

3 Core EGI Research Programs

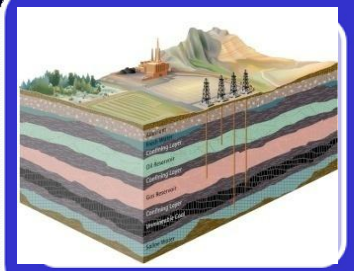


Fossil Energy

- Corporate Associates & Governments
- Exploration & Production – 62 countries

Geothermal Energy

- U.S. DOE & Industry
- Hydrothermal and Enhanced Systems



Carbon Engineering

- Climate Mitigation
- CO2 Storage & Sequestration

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65 Energy Industry Corporate Associate Members 2009

Anadarko
Apache
AWE
Beach Petroleum
BG Group
BHP Billiton
BP
Cairn Energy
Centrica
Cheseapeake Energy
Chief Oil & Gas
Chevron
Cobalt International
ConocoPhillips
Devon
DNO
Eni
E. ON Ruhrgas
Frontera Resources
Gaz de France

Hess
Hunt Oil
Japex
Lukoil
Lundin
Maersk Oil
Marathon
Mitsui
Murphy Oil
Newfield
Nexen
Niko
Nippon
Noble Energy
Occidental
ONGC
Ophir Energy
PetroAndina
Petrobras
Petronas
Petro-Canada
Petro-Hunt
Pioneer

Plains E&P
Premier Oil
Raser Technologies
Red Leaf
Reliance
Remora Energy
Repsol YPF
ROC Oil
RWE Dea
Santos
Samson
Shell
Sipetrol
Statoil-Hydro
Talisman
Teikoku Oil
Terralliance
TNK-BP
Total
Tullow
Wintershall
Woodside

EGI

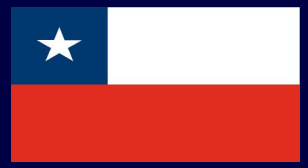
Member Companies -20 Countries

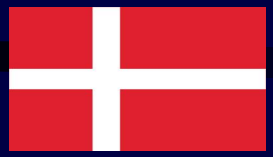
Australia

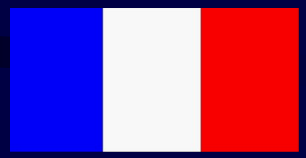
Austria

Brazil

Canada


Chile

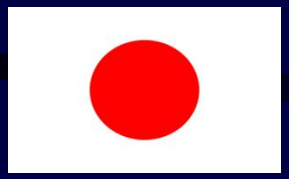

Denmark

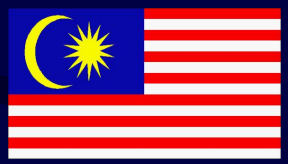

France

Germany

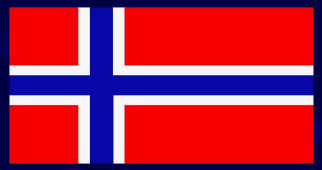
India

Italy


Japan


Malaysia

Netherlands

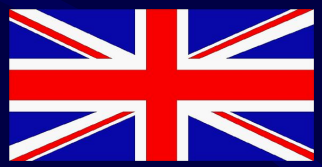

Norway

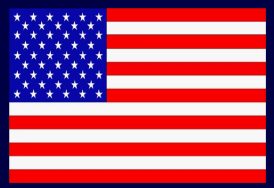
Papua New Guinea

Russia

Spain

Sweden


U.K.


United States

EGI

EGI is largest upstream supported consortia program at any University!

EGI Staff from 17 Countries

Technical Staff From:

1. Australia
2. Canada
3. Chile
4. China
5. Germany
6. Hong Kong
7. India
8. Iran
9. Jordan
10. Korea
11. Kuwait
12. Poland
13. Romania
14. Slovakia
15. South Africa
16. United Kingdom
17. United States

Language Capability:

1. Arabic
2. Chinese
3. English
4. French
5. German
6. Hindi-Urdu
7. Italian
8. Japanese
9. Korean
10. Persian
11. Polish
12. Punjabi
13. Romanian
14. Russian
15. Slovak
16. Spanish
17. Turkish
18. Kannada
19. Telugu

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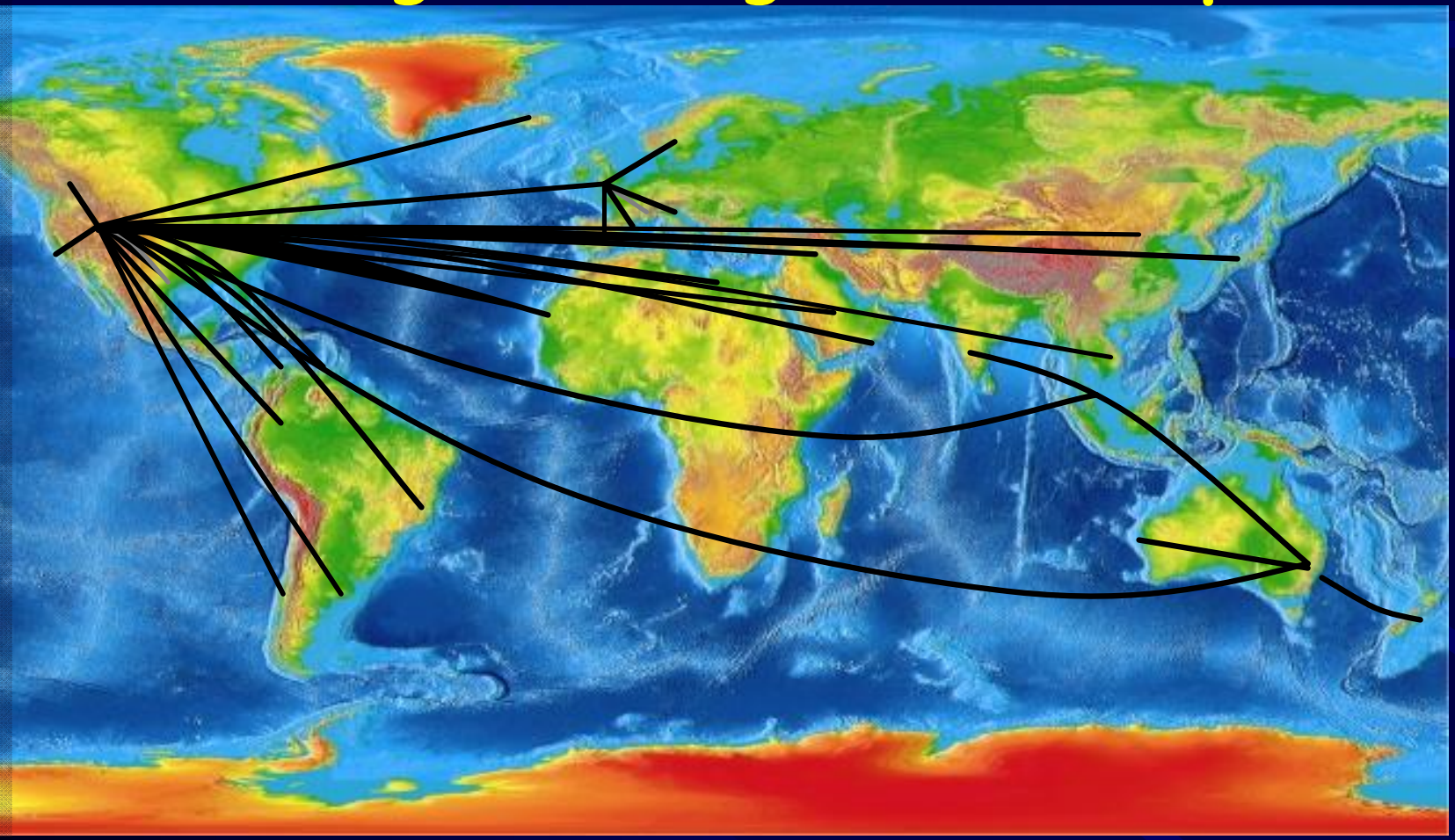
EGI Scientist Travel
Projects, Peer Assists, Training, Meetings, Workshops

Argentina
Australia
Austria
Azerbaijan
Bulgaria
Brazil
Canada
Canary Islands
Chile
China
Czech Republic
Denmark
Egypt
Emirates
France
Georgia
Germany
Iceland
India
Iraq
Italy
Japan
Kazakhstan
Libya
Malaysia
Malta
Mexico
New Zealand
Norway
Oman
Philippines
U.K.
Romania
Russia
Senegal
Spain
Trinidad
Vietnam
Yemen

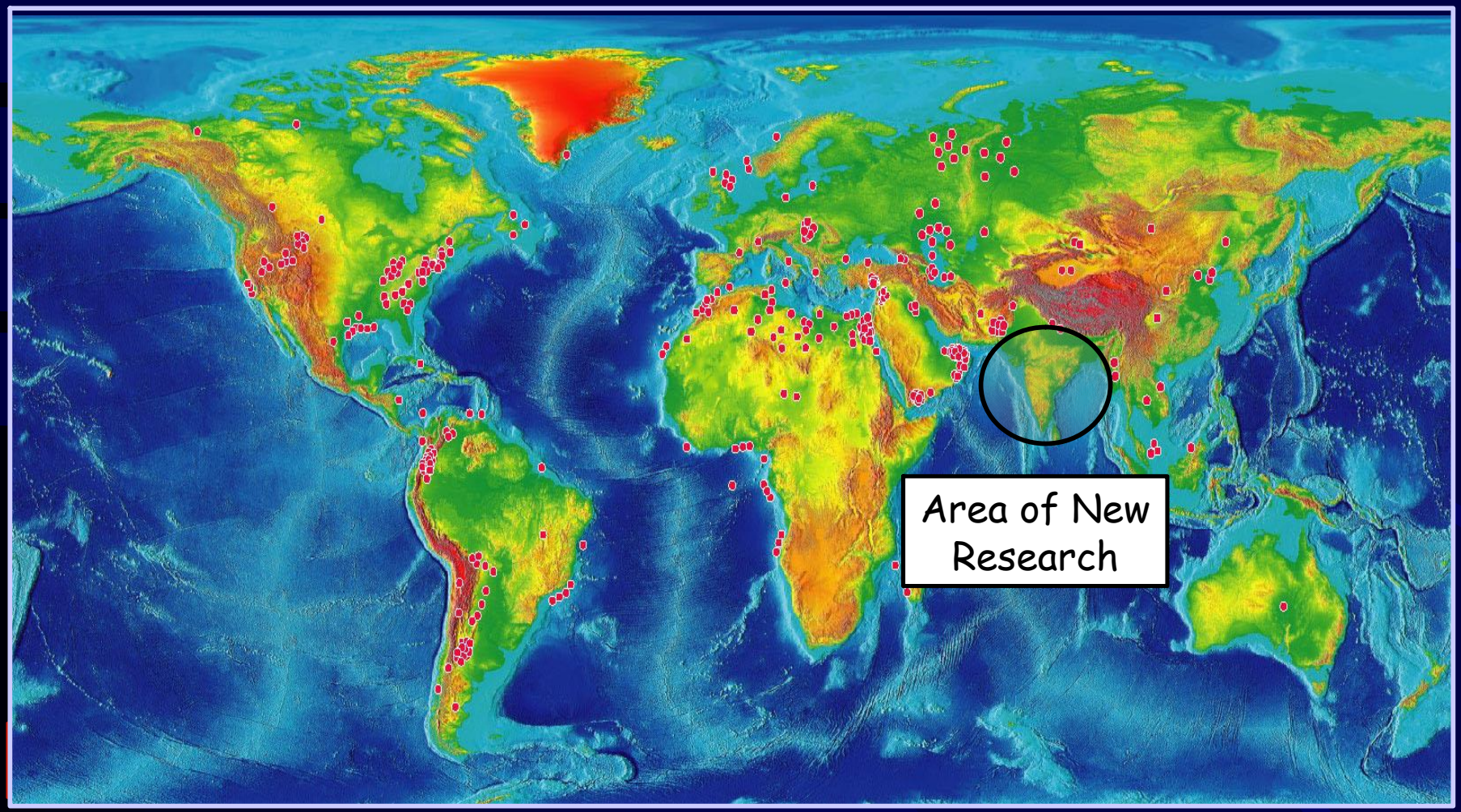


In 41 Countries in 2006 - 2008

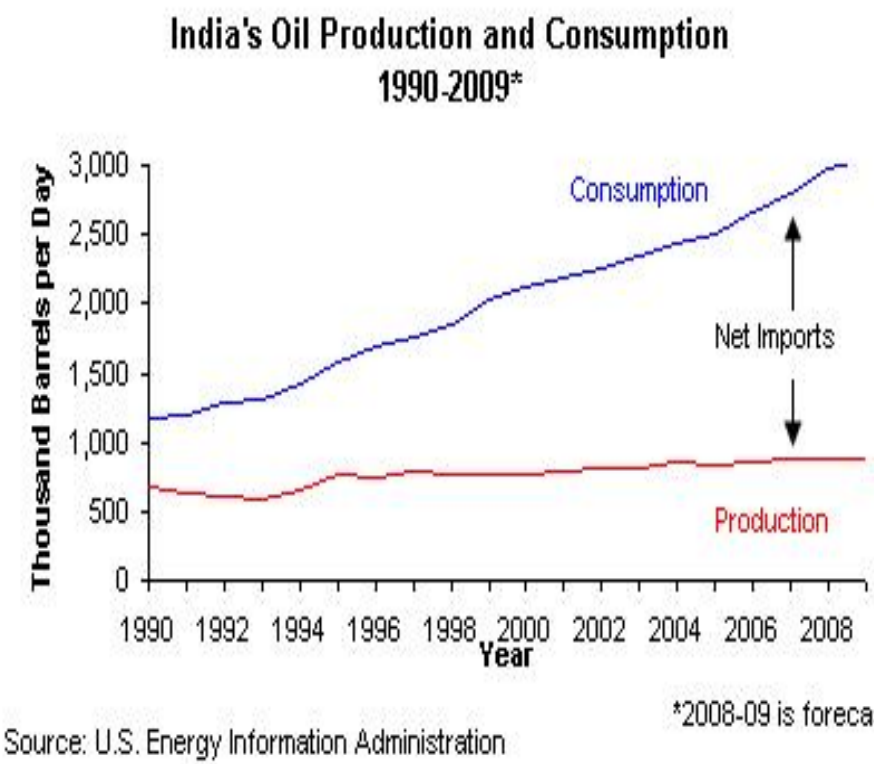
EGI Global Database & Library

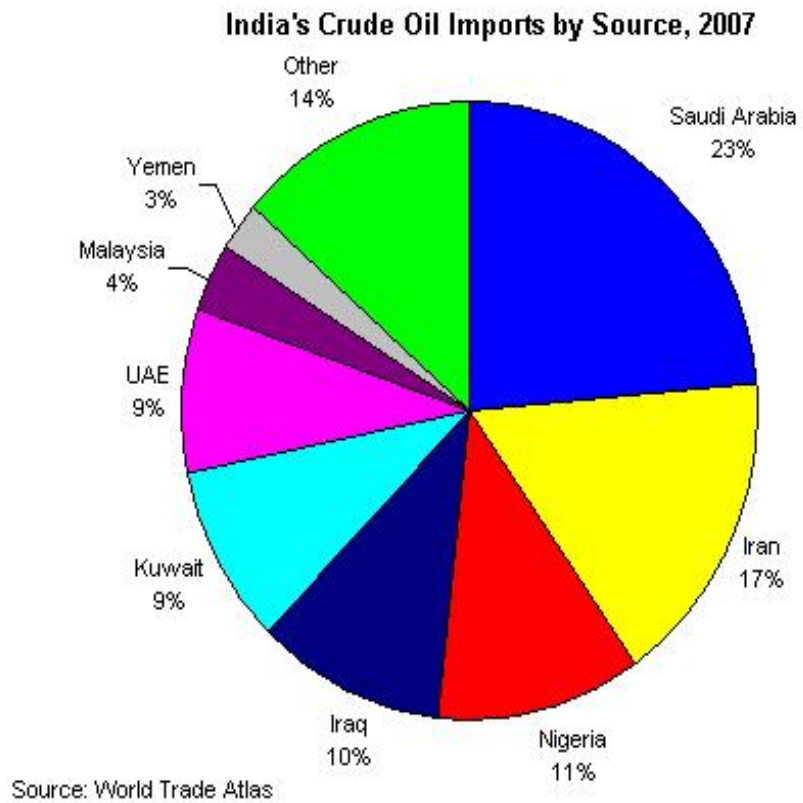
>570 EGI Reports - 62 Countries

- EGI Research Studies (Access for the members only)



Oil Sector- India





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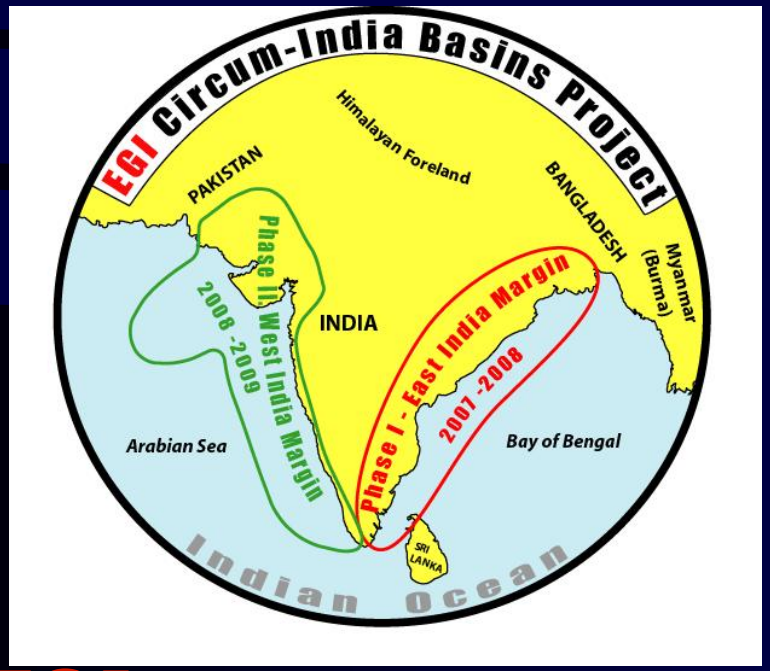
ARC-GIS Circum-India Basins Project

Phase I – East India Margin (2007-08)
Phase II – West India Margin (2008-09)



INFORMATION TO THE AB

Principal Investigators:
Dr. Sudeep Kanungo
Dr. Rasoul Sorkhabi

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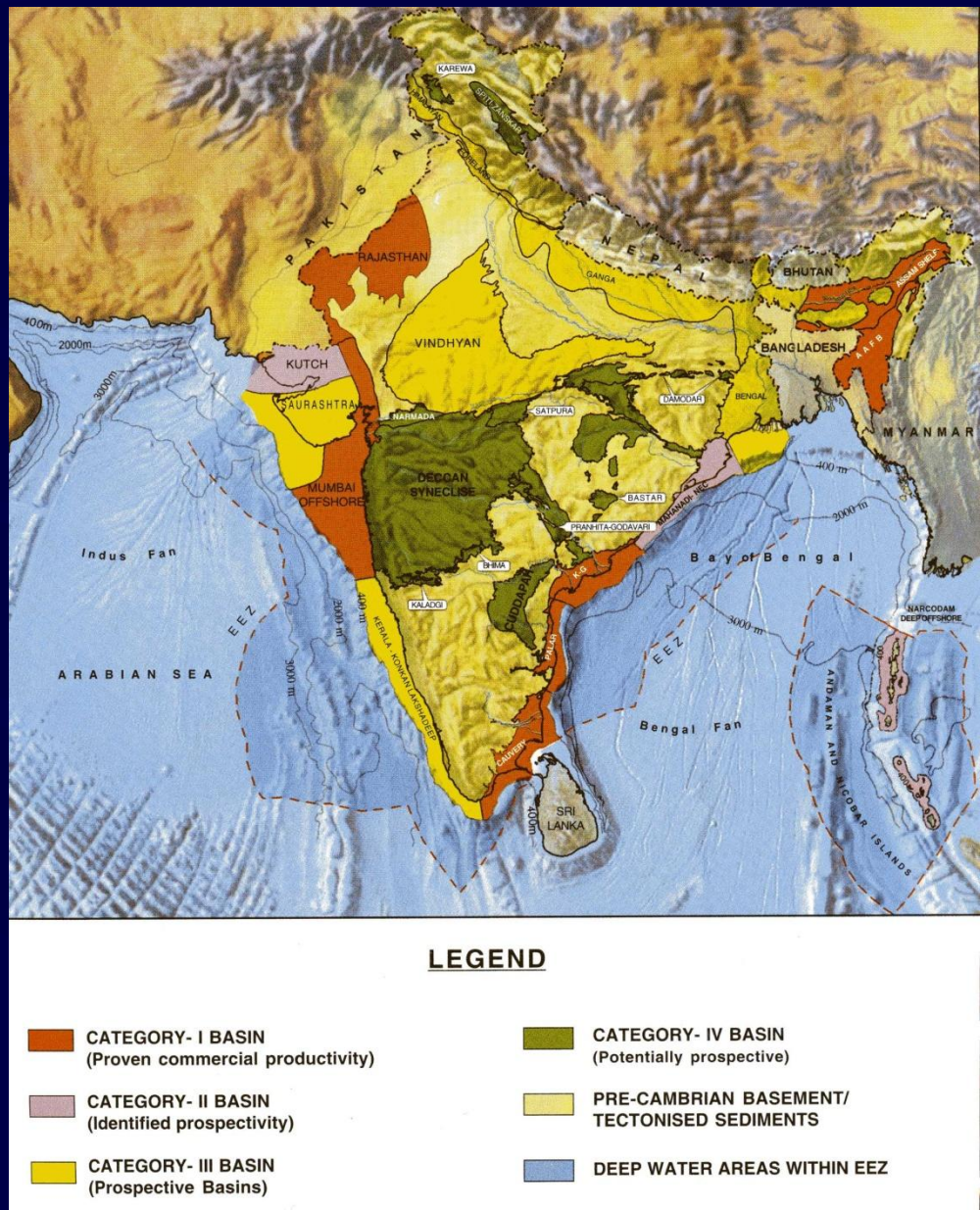
Objective

- Data mining, synthesis & interpretation of tectonics & stratigraphy of India
- Basin delineation & correlation using structural & seismics
- Petroleum systems
- Tectono-stratigraphic evolution



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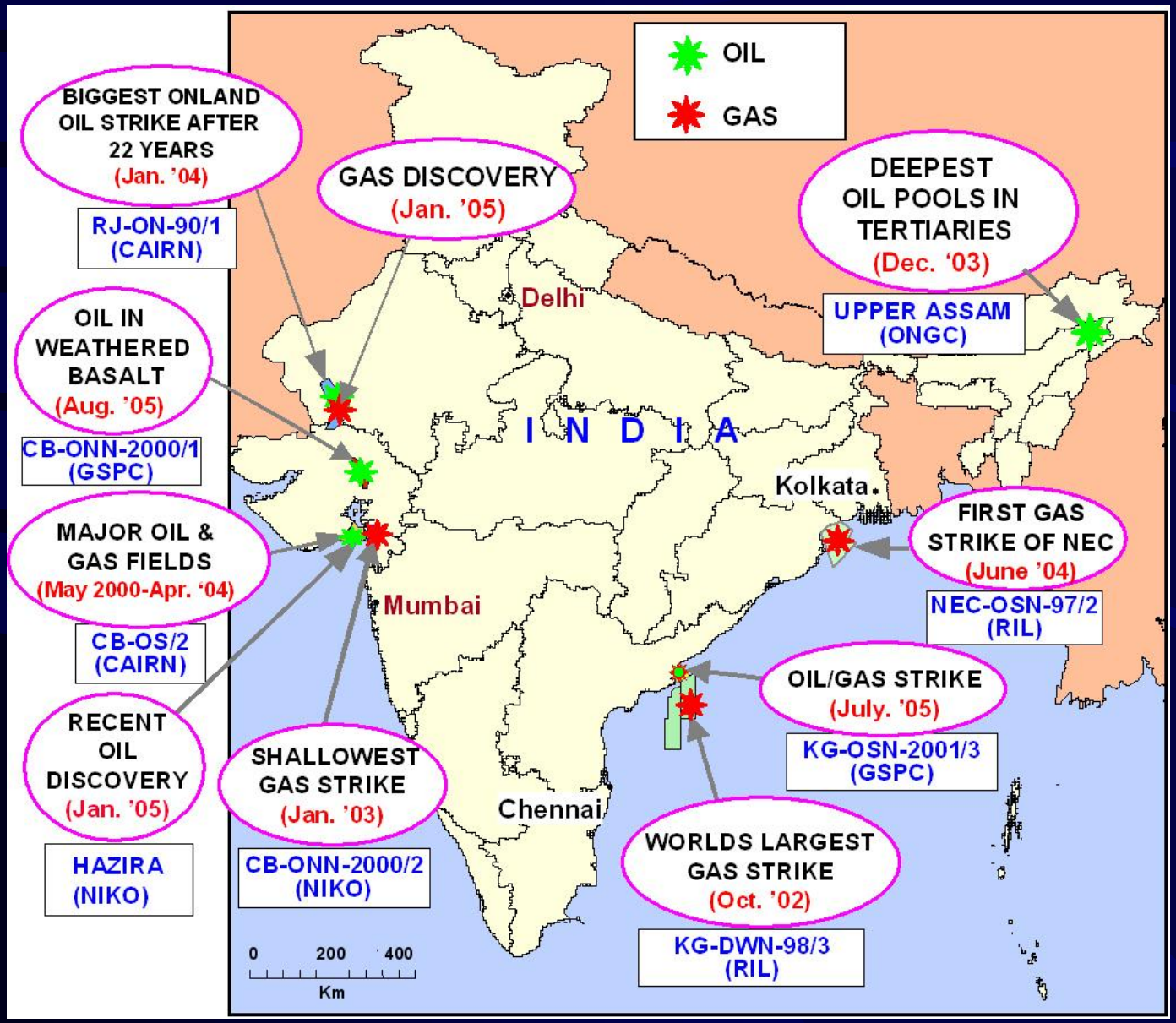
Arc-GIS 9.2

Recent oil and gas discoveries in India



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(DGH 2006)

Phase I – East India Margin

- 7 BASINS – ONSHORE TO DEEPWATER

- CAUVERY & GULF OF MANNAR
- KRISHNA-GODAVARI
- MAHANADI-NEC
- PALAR
- PENNAR
- PRANHITA-GODAVARI
- BENGAL (INDIAN PART)

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Arc-GIS 9.2

Phase I – East India Margin

- March '07- June'08: 15 months completed and delivered

Phase II – West India Margin

- Dec '08- Dec'09: 12 months

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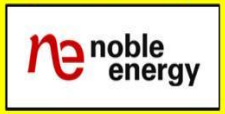
Sponsoring Companies



Phase II – West India Margin

ONSHORE TO DEEPWATER

- Indus Fan (Arabian Sea)
- lower Indus (Sindh)
- Jaisalmer
- Saurashtra
- Kutch
- Cambay
- Mumbai Offshore
- Kerala-Konkan

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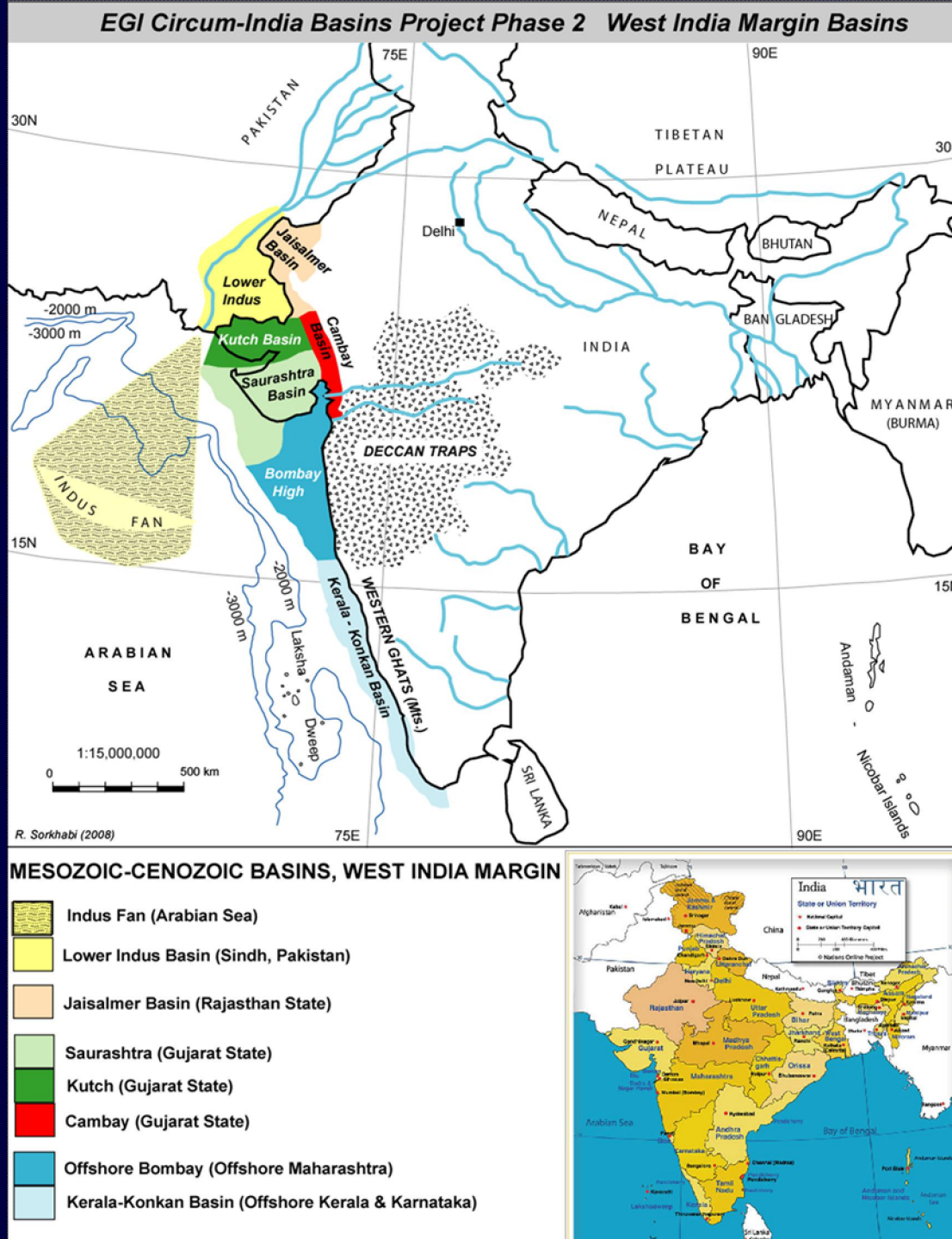
Arc-GIS 9.2



Geothermal- EGI in India

- Estimated 10,600 MW geothermal power potential
- EGI initiative in Jammu and Kashmir State. EGI is on the Energy Advisory board of the Energy Consortium, headed by the Vice-chancellors of Jammu and Kashmir universities
- Dr. Joe Moore and Dr. Bindra Thusu are members of the Advisory board

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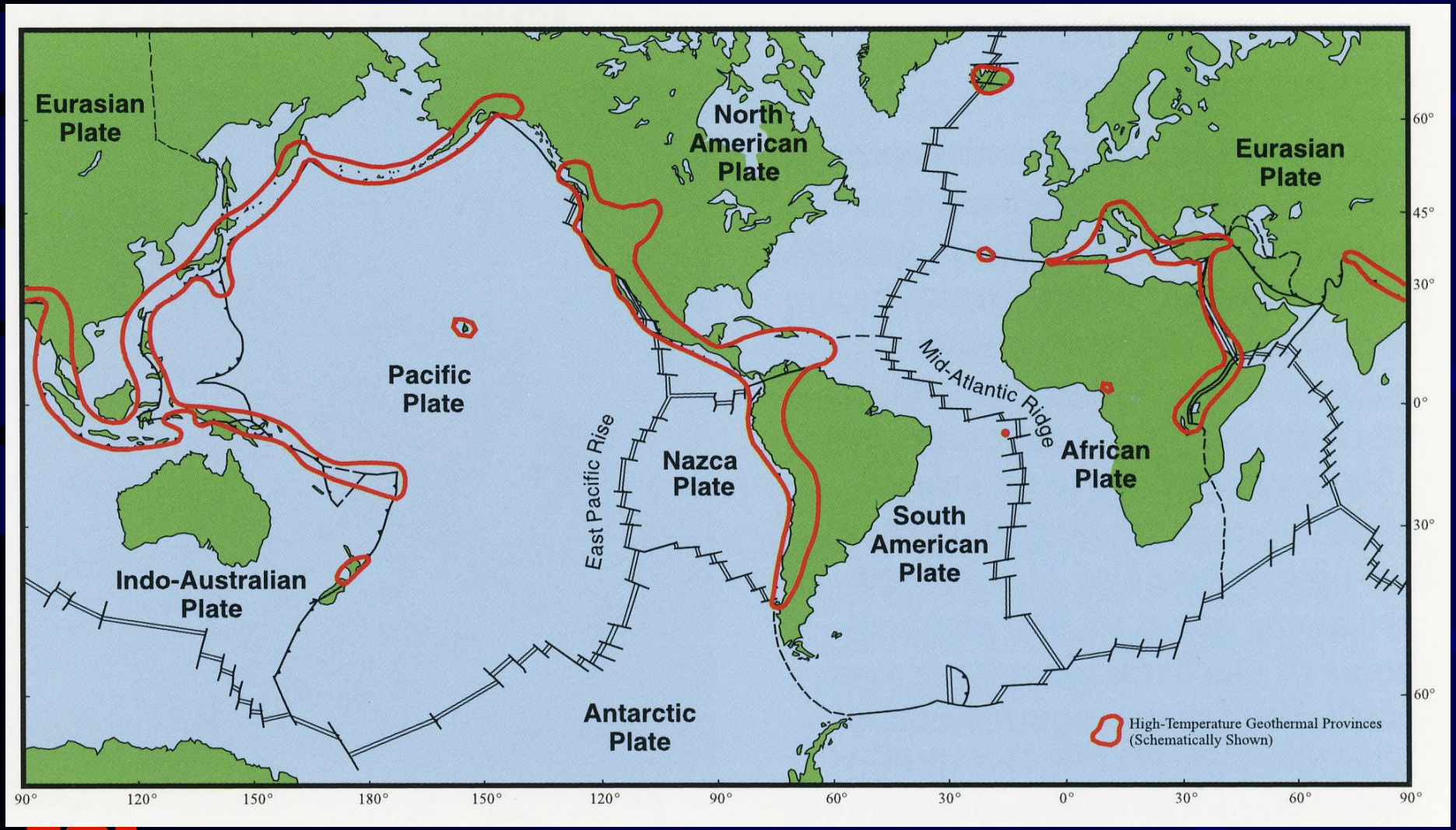
Distribution of Active Volcanoes and High Temperature Geothermal Systems



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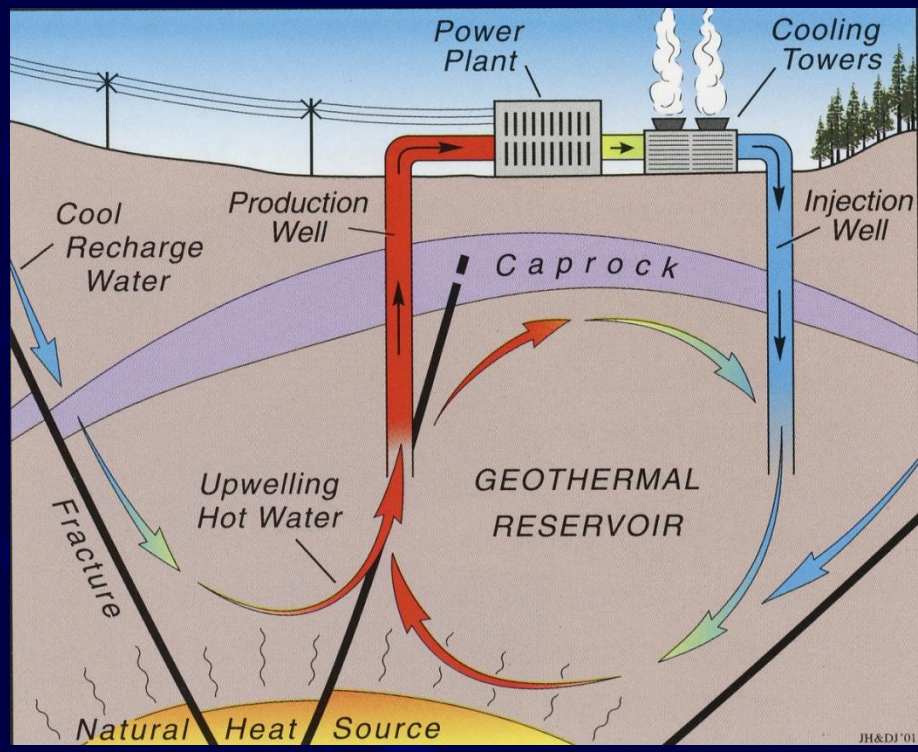
PUGA VALLEY HOT SPRING SYSTEM

- Springs discharge from a structurally complex area adjacent to the Indus Suture Zone. This fault zone separates the Indian and Asian plates
- The chemistry of the fluids suggest reservoir temperatures of at least 160-170C; higher temperatures are possible
- Geophysical measurements suggest a the reservoir lies at a depth of 1.5 to 2 km



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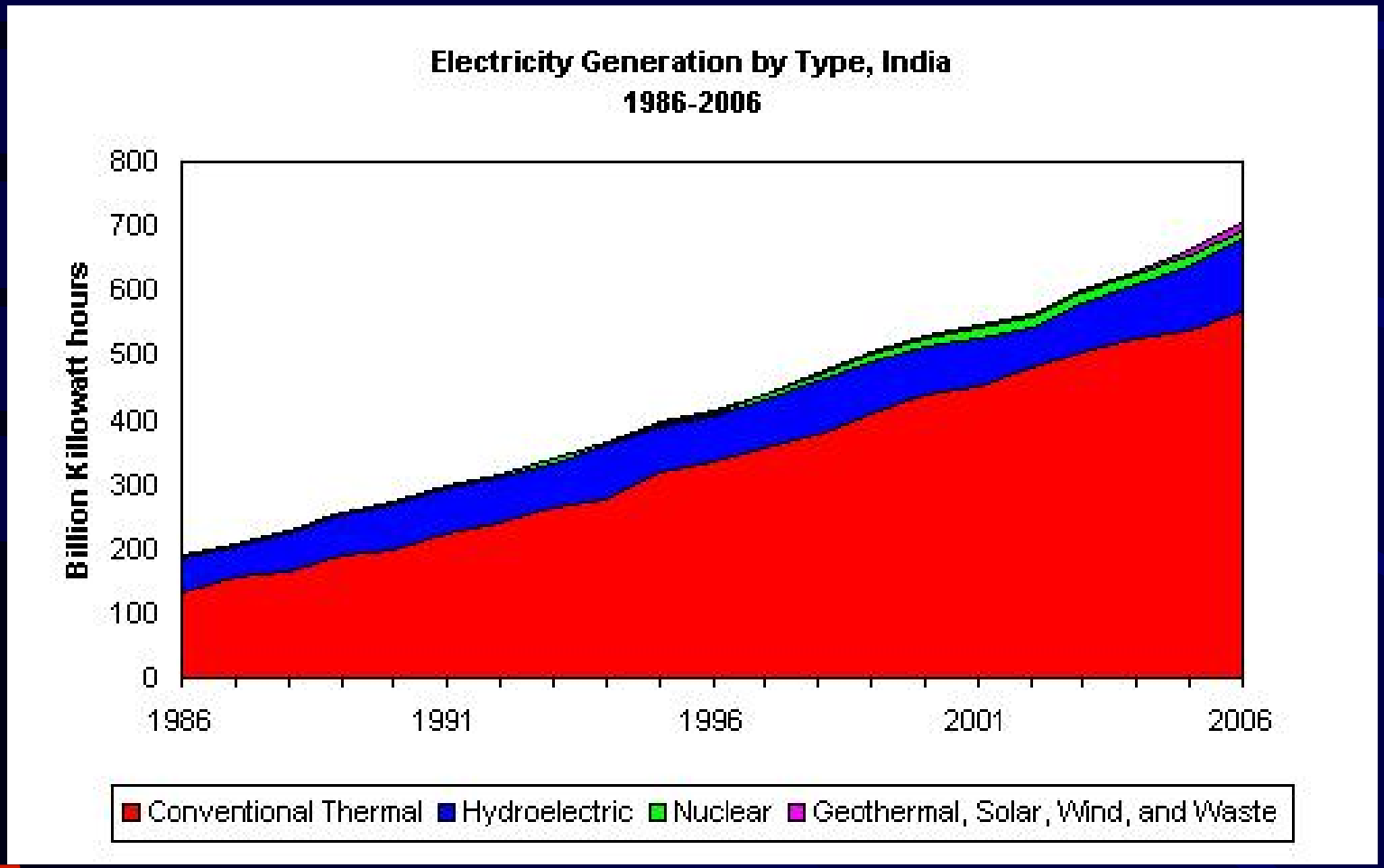
Electricity Generation Portfolio- India



Source: EIA

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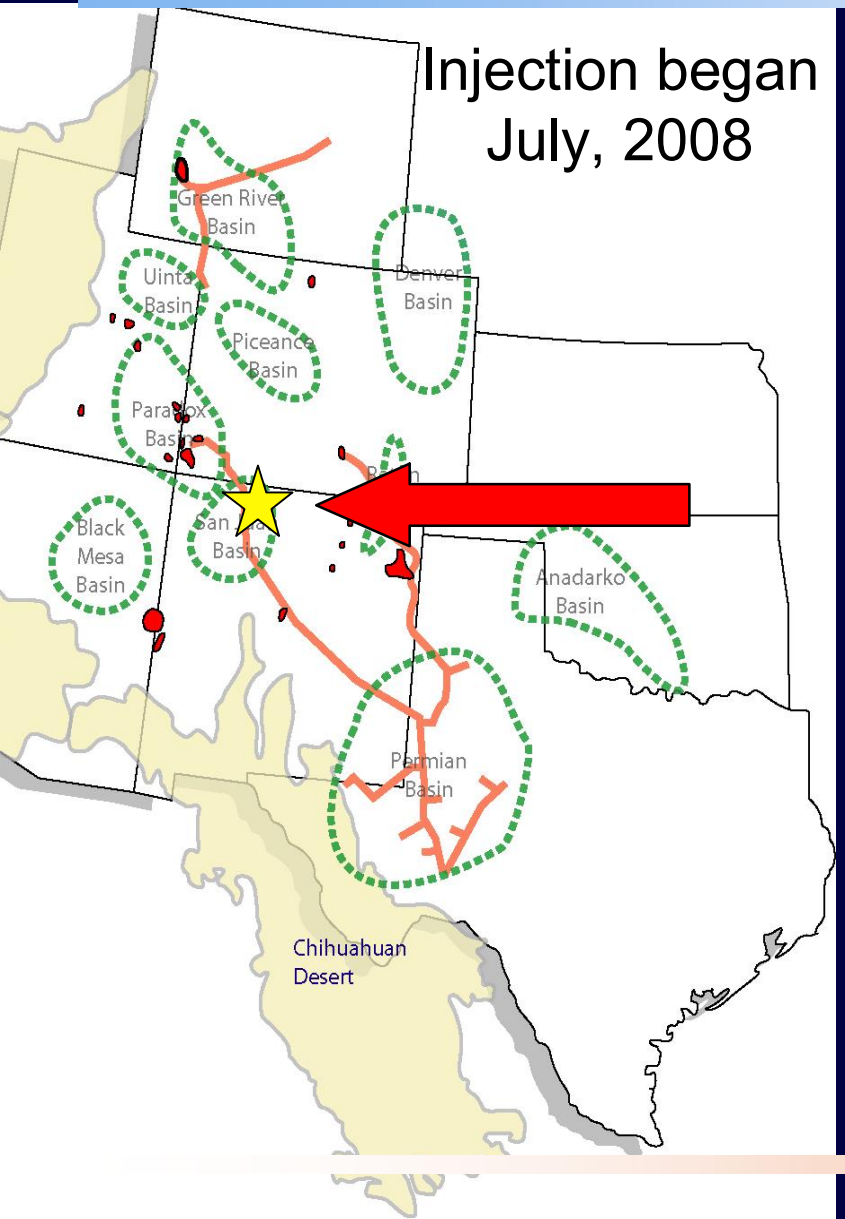
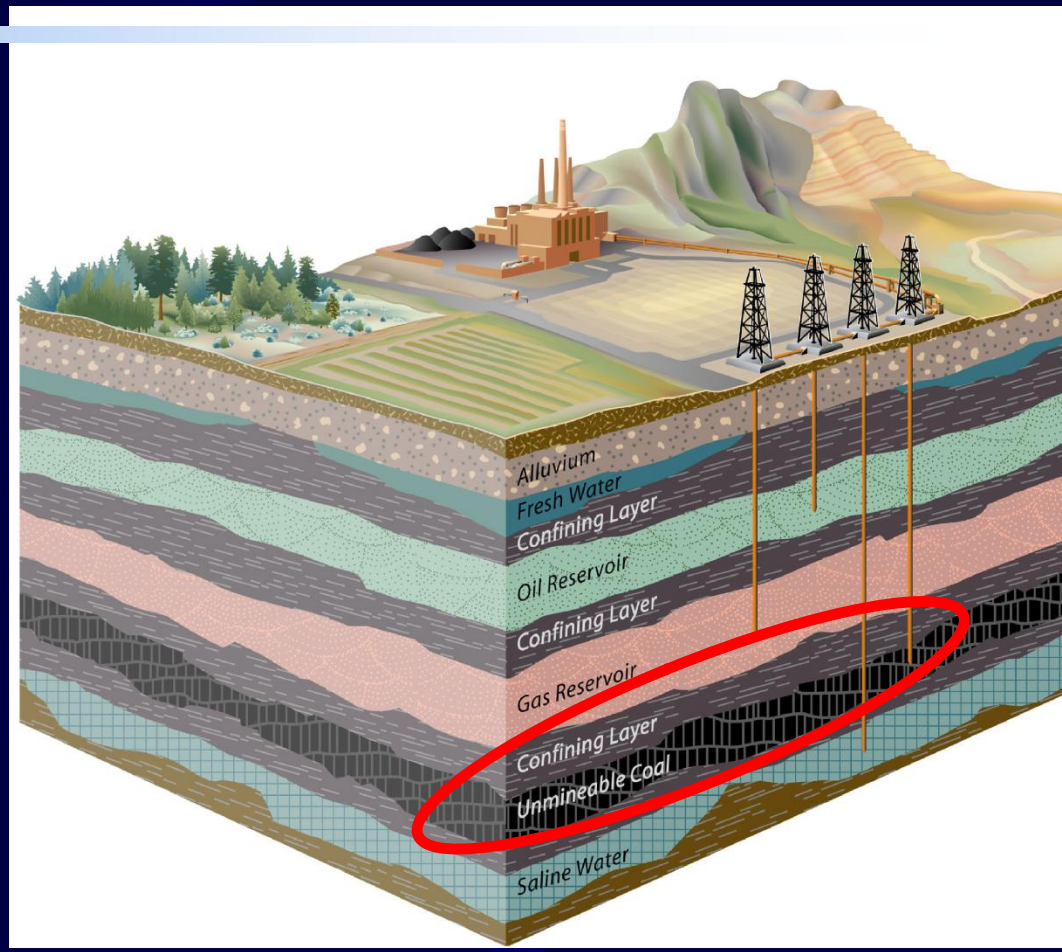
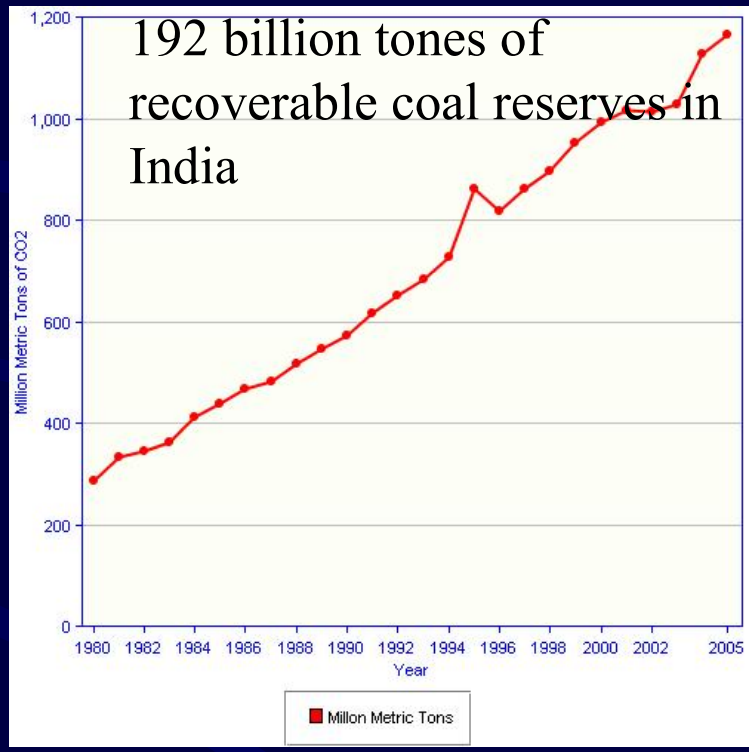
Carbon Sequestration Portfolio





EGI Opportunities in India for Carbon Management

- Coal – Major Source of feedstock for electricity generation in India
- India and China will emerge as significant GHG contributors
- EGI has contributed to a report on carbon sequestration through IRADe
- Looking at forging research & industry partnerships in the near term including EOI for a ONGC CCS project



Source: EIA

EGI

EGI signed MOU with India DGH (Feb. 2008)

EGI Meeting India Prime Minister – Feb. 2008

EGI…*the science to find energy*

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Varun Gowda- EGI
Project Manager
vgowda@egi.utah.edu

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