



# **International Union of Geological Sciences Commission Group on Fossil Fuels (CGFF)**

**Leader**  
Prof. R.Sinding-Larsen  
Norwegian University of  
Science and Technology  
7491 Trondheim Norway

## **ANNUAL REPORT 2005 TO THE INTERNATIONAL UNION OF GEOLOGICAL SCIENCES**

### **SUMMARY**

During 2005 the Commission on Fossil Fuels has continued its efforts to show how a region's Fossil Fuels endowment and its potential future supply are of vital importance for good resource management and sustainable growth.

Bolivia has emerged as a new area of focus in addition to the ongoing emphasis on the central African rift system. Bolivia holds the second-largest gas reserves in South America discovered in the mid-1990s in the sub-Andean fold and thrust belt. The Bolivian government's plan to build a pipeline to the Pacific coast met a lot of opposition. Civil war was averted when interim President Eduardo Rodriguez, who took office after Carlos Mesa who was ousted, promised to hold national elections on December 18 of 2005. If confirmed officially Aymara Indian Evo Morales won a convincing victory in these elections and will early 2006 become Bolivia's first indigenous president.

Regional resource assessments and collaboration regarding sustainable resource management at both national and regional levels may neutralize some of the conflict triggers and lower the risk of local and regional conflicts. The Santa Cruz-Tarija geologic province covers acreage in Bolivia, Argentina, Brazil and Paraguay with a large potential for regional cooperation. Such cooperation could follow the planned cooperative efforts on the geology of the central African rift system and resource management between Chad, Niger and Sudan that was initiated at a workshop in Oslo in 2003. This type of CFF initiative may be one of many contributions helping to secure the fragile peace agreement in Sudan and mitigate potential conflict risk in countries or regions with similar geopolitical situation.

In line with its mandate of addressing Fossil Fuel Resource issues that have great societal relevance, the IUGS Commission on Fossil Fuels has put priority on the central African rift and the southern sub-Andean areas of Bolivia and neighboring countries

The Commission will focus on the following activities in order to promote regional cooperation for sustainable resource

1. Promote cross-border geoscientific studies jointly carried out by adjacent provinces or countries
2. Enhance capabilities of local geoscientists/researchers in various areas of petroleum-related disciplines through the use of internet.
3. Demonstrate how the hydrocarbon potential of the sedimentary basins in a region can be promoted to industry by means of resource assessment.
4. Help to establish national/international research networks/linkages both at the province and country levels

The tasks to be implemented in support of the listed activities will be identified during the inception phase period of the respective projects. The plan is to start the inception phase early 2006 after the new Bolivian government has taken office.

The IUGS-UNESCO YPE (Year of the Planet Earth) initiative has in 2005 been a major issue for the Commission and its points of view are well reflected in the provisional brochure on Resources prepared for the YPE effort (<http://www.esfs.org/downloads/Resources.pdf>).

## **1. TITLE OF CONSTITUENT BODY:**

**Commission on Fossil Fuels (CGFF)**

## **2. OVERALL OBJECTIVES (mission statement and goals):**

It is important to set the IUGS Commission on Fossil Fuels in the proper context: the International Union of Geological Sciences (IUGS) can, with its geological know-how and impartiality, directly relate to global and regional issues that involve the geosciences such as the demands for transparency of revenues lately addressed to the extractive industries. Efforts to increase transparency in the oil, gas, and mining sectors gained momentum when U.K. Prime Minister Tony Blair launched the Extractive Industries Transparency Initiative (EITI) at the World Summit on Sustainable Development in September 2002. This initiative, involving governments, publicly traded, private and state-owned extractive companies, international bodies, NGOs, bilateral donor agencies, U.N. agencies and intergovernmental task forces, tries to find answers to resolve corruption and governance problems among others related to the extraction of fossil fuels. The Group of Eight (G8) issued a statement at its 2005 summit agreeing to give enhanced support for greater democracy, effective governance and transparency, and to help fight corruption and return stolen assets.

A central objective of the CFF is therefore to complement and support the objectives and work of the Extractive Industries Transparency Initiative (EITI), including in particular:

- a) promote geoscientific research in support of efficient, economic and sustainable exploitation of fossil fuels - both under an environmental and a resource management perspective,
- b) offer easy access to critical information on geoscience issues related to the transparency initiative,
- c) identify barriers to the free access to resources and potential supply information world-wide,
- d) provide links to the work of key partners in related areas,
- e) promote the discussion on, and implementation of, an exchange forum, a Web Portal for communicating fossil fuels research and resource assessment methodology between IUGS member countries and governmental and non-governmental research organisations within the fossil fuels field.

The following goals derive from the above mission statement:

- a) study of geological problems of fundamental and applied character related to the fossil fuels industry,
- b) facilitate the investigation of problems related to fossil fuels which require interdisciplinary and international co-operation between academic and industrial researchers,
- c) study how regional and national resource management practices can be devised in order to neutralise triggers for conflict and comply with the transparency initiative EITI.

## **3. FIT WITHIN IUGS SCIENCE POLICY**

The objectives for the IUGS Commission on Fossil Fuels are in line with the IUGS mandate of facilitating international co-operation in geological research as well as dissemination and use of geological information internationally.

#### **4. ORGANISATION (broad description):**

##### **Roles and responsibilities.**

In accordance with its objectives, the roles and responsibilities of the CFF commission over the short to medium term (next 3 years) will be:

- Develop formal and informal mechanisms for the regular exchange of information between IUGS member countries with a mature fossil fuels energy sector and those IUGS member countries which have potential to develop such a sector in order to pursue the transparency initiative.
- Show how the Central African countries and the South American Cone countries- Argentina, Bolivia, and Paraguay can benefit from joint regional resource assessments as a basis for cooperation and sustainable resource management.
- Organize symposia and workshops in support of the listed objectives.
- Maintain and develop the geointelligence site ([www.geointelligence.org](http://www.geointelligence.org))
- Promote the dissemination of best practice fossil fuels research agendas.

##### **Modus operandi**

Membership of the CFF is open to all current and potential IUGS member countries and. New members in addition to the existing one will be solicited both from developed and developing countries. The next commission meeting will be in Vienna in middle June 2006 in conjunction with the 68 conference of the European Association of Geoscientists and Engineers. The Commission is managed by the executive officers supported by members from IUGS countries with a strong fossil fuels sector as well as with representatives from countries with a potential or emerging fossil fuels sector covering countries from North America, Central and South America, Europe, Middle East and North Africa, Sub-Saharan Africa, Former Soviet Union, South Asia as well as Asia & Pacific. Current membership represents more than 30 countries distributed over 7 regions of the world. Membership from Bolivia, Madagascar, Sao Tome, Timor Leste, Vietnam, Zambia was added during 2005. Non-developing country members will be added during the first half of 2006 .

##### **Executive Officers:**

Professor Richard Sinding-Larsen, Norwegian University of Science and Technology, is Leader of the CFF and responsible for resource assessment and resource management as well as overall co-ordination.

Professor Jean-Marie Monget, Ecole des Mines de Paris, France, is responsible for organising the Geointelligence effort including a dedicated Web-Portal ([www.geointelligence.org](http://www.geointelligence.org)).

Minister of Petroleum Mohamed Nasser from Chad and the Petroleum section director of the Ministry in Niger Mohamed Ado Mahaman as well as the head of Basin Analysis Mohamed Zayed Awad Mousa from Sudan are coordinating the Central African cooperation effort.

Bolivian hydrocarbon advisor Victor Hugo Sainz Ossio from the Prefectura de la Ciudad de Cochabamba will be coordinating the Santa Cruz-Tarija cooperation effort.

CFF is currently facilitated by the Norwegian University of Science and Technology (NTNU) in Trondheim, Norway, which also provides the Secretariat. The secretary is Research Scientist Kristian Brandsegg from NTNU.

The CFF officers meet on a need basis, at least once a year. The preferred method for conducting out of session business is videoconferencing, NetMeeting and electronic mail.

## **5. EXTENT OF NATIONAL/REGIONAL/GLOBAL SUPPORT FROM SOURCES OTHER THAN IUGS:**

The activities of the Commission has in the past benefited from financial support from the World Bank section of the Norwegian Ministry of Foreign Affairs, as well as the Norwegian Academy for Science and Letters. The French embassies in Norway, Niger and Chad have supported the Central African initiative, in cooperation with the Centre for the Study of Civil War (CSCW) at the International Peace Research Institute in Oslo (PRIO).

Prevailing high oil prices and a positive attitude to the EITI initiative reflecting a pronounced corporate social responsibility by the petroleum industry will hopefully present opportunities both for the funding of the Bolivian as well as the Central African Resource Management Initiative over the short and medium term especially in view of the gas agenda of the new Bolivian President and the fragile peace agreement in Sudan.

## **6. INTERFACE WITH OTHER INTERNATIONAL PROJECTS:**

The Commission will continue its contacts with international projects dealing with resource management issues. One of the most prominent is the World Energy Consortium run by the USGS. The training offshoots of these projects will be offered to Earth scientists from IUGS countries through collaboration with academic and governmental institutions. Collaboration has been continued with the Peace Research Institute in Oslo who has a World Bank project on governance and natural resources that is relevant both for the southern Sub-Andean and the Central African region.

In areas dominated by deadly conflict over natural resources, governments, companies and UN organizations often face severe limits to their scope of action. NGOs and IUGS in particular, can play a role as 'honest broker' providing a forum where contesting parties can come together in the search of solutions. The emerging action of IUGS in Central Africa has been one of the many small positive signs of hope recently regarding Sudan's encouraging peace agreement. For the South American Cone country initiative a dialogue with Victor Saints from Cochabamba has started.

## **7. CHIEF ACCOMPLISHMENT IN 2005:**

The IUGS-UNESCO YPE (Year of the Planet Earth) initiative has in 2005 been a major issue for the Commission/Commission and its points of view are well reflected in the provisional brochure on Resources prepared for the YPE effort (<http://www.esfs.org/downloads/Resources.pdf>).

A continuous effort has been used to develop, deploy and exploit the ability of the geointelligence methodology towards the IUGS community through the web [www.geointelligence.org](http://www.geointelligence.org).

The Commission has demonstrated how anybody today can acquire pertinent hydrocarbon project information using Internet tools and calibrate this information through resource modeling. This capability is of prime importance especially for developing countries and groups outside the major industry players. The second half of 2005 has been devoted to the elaboration of a resource assessment and management plan for Bolivia in line with the policy of the new government to increase the benefits of the nation's hydrocarbons to the people.

Preparation for a second Central African Rift Petroleum Resources and Regional Governance seminar with invited representatives from mining and oil directorates in Chad, Niger and Sudan has been ongoing throughout the year. This seminar will allow the interested groups to discuss the needs for institutional capacity building and regional co-operation relative to sustainable resource management strategies. The Central African Hydrocarbon Resource Management Initiative that is a follow-up of the first Seminar will be discussed at the EAEG meeting in Vienna in June 2006.

Discussions held during 2005 have shown that developing countries can acquire the skills needed to collect the geoscientific parameters necessary for the evaluation of the intrinsic as well as the social and environmental value derived from the development of natural resource. A Web Portal has been established ([www.geointelligence.org](http://www.geointelligence.org)) where geoscientists from current and potential IUGS member countries can learn how to exploit these new techniques.

## **8. CHIEF PROBLEMS ENCOUNTERED IN 2005 (if any):**

To secure sufficient funding for a second seminar on Central African Petroleum Resources and Regional Governance and to solve organizational obstacles regarding the Central African Hydrocarbon Resource Management Initiative.

## **9. PUBLICATIONS IN 2005:**

Publications of special relevance to the Commission on Fossil Fuels are:

Sinding-Larsen, R. and Xu, J., 2005, *Bayesian Discovery Process Modeling of the Lower and Middle Jurassic Play of the Halten Terrace, Offshore Norway, as Compared with the Previous Modeling*, Natural Resources Research, Vol. 14, No. 3,.

## **10. SUMMARY OF EXPENDITURES IN 2005:**

The allocation by IUGS for 2005 activities of the Commission/Commission was used for administrative expenses as well as travel expenses for meeting with commission members and for discussing the work of the commission at World Energy Consortium meeting at the Federal Centre in Lakewood, Colorado.

## **NEXT YEAR**

### **11. WORK PLAN FOR NEXT YEAR**

The Commission will enlarge its membership from both developing and developed countries. The Commission will implement its strategic directions for Fossil Fuel research activities and assessment projects according to its terms of reference and seek to have a further expanded version of the Web Portal on Geointelligence operational by the end of year 2006. Preparation for a special educational session in Trondheim 2006 is underway with participants from many countries. An inception phase mission to Bolivia is planned for early 2006. Hopefully the first working session of the Central African Hydrocarbon Resource Management Initiative patterned after the CCOP co-operation in South-East Asia can be announced during 2006.

The next steps to be taken in 2006 to start implementing the Bolivian resource assessment and the proposed Central African Hydrocarbon Resource Management Initiative are outlined below.

1. Establishment of information networks, training and capacity building, and revenue management are areas of priority, all of which require taking a multilevel approach that distinguishes between regional and local issues, policy and technical cooperation, and resource and energy planning.
2. The Commission member from the Republic of Sudan will pursue contacts with the UNDP regarding opportunities for the Central African nations to meet and progress with the resource management initiative.
3. The Commission member from the Republic of Sudan will further consider hosting a small meeting for Sudanese policy representatives, with outside financial support, in order to discuss the findings of the November 2003 seminar, discuss the possibility of a long-term partnership for improving regional hydrocarbon resource management, and start discussions about the content of a program with their Central African counterparts.

## **12. CRITICAL MILESTONES TO BE ACHIEVED NEXT YEAR:**

**20 – 25 March 2006 :** *Discussion of the Central African Hydrocarbon Resource Management Initiative in Trondheim with rep. from both European and non- European countries.*

**15 – 18 May 2005 :** *Preparatory working session of the Southern Sub-Andean Resource Management Initiative in Cochabamba, Bolivia*

**12 – 19 June 2005 :** *Establishment of information networks at the Commission Officers meeting at the 68th EAGE Conference & Exhibition.*

**5 – 8 November 2006 :** *Working session of the Central African Hydrocarbon Resource Management Initiative at the AAPG meeting in Perth*

## **13. ANTICIPATED RESULTS/PRODUCTS NEXT YEAR:**

The Task Group's objectives will during the next two years be attained through the transfer of technology and assessment studies. The 2006 effort aims at deploying state of the art experiences in natural resources evaluation based on collaborative knowledge gathering from global Internet data stores. E-learning possibilities will be developed through the Geointelligence Web Portal. The IUGS-UNESCO YPE (Year of the Planet Earth) initiative will in 2006 continue to be a major issue for the Commission/Commission and its efforts will be reflected in the proposals for research on Resources to be conducted under the YPE. A second workshop for the Central African region on fossil fuel resources and conflict and resource governance will be initiated. The feasibility of a regional co-operative project in the Bolivian region similar to the one in Central Africa and CCOP in South East Asia will be evaluated and hopefully initiated.

## **14. COMMUNICATION PLANS**

The Commission will be following the general requirements given by the IUGS with respect to how to communicate the results of the project to geoscientists, decision makers and the industry. In addition to this, the project will set up a WWW service which describes the results obtained. All the articles produced in the project will also be available through these WWW pages. The primary means for communicating the results will be through pilot projects exploiting data provided by the IUGS member countries. The IUGS member countries will be able to follow the progress of the Commission in the periodically organized NetMeeting sessions. The results will also be given to the Commission participants as validation reports describing the empirical results obtained from the case studies performed by the Commission.

## **15. SUMMARY BUDGET FOR NEXT YEAR:**

The organization of the activities planned for 2006 will need 5000 \$ in seed money from IUGS to facilitate the participation of scientists from less developed countries in the Commission activities. The efforts to develop resource management strategies and involve planners and scientists in developed as well as developing countries will be a crucial milestone. The Central African and Southern Sub-Andean Resource Management initiative will highlight the importance of good resource knowledge as a prerequisite for sustainable resource management and development.

**16. POTENTIAL FUNDING SOURCES OUTSIDE IUGS  
(INCLUDING NON MONETARY FINANCIAL SUPPORT):**

We still anticipate that future meetings may be partly funded by the oil industry, who is increasingly interested in showing their Corporate Social Responsibility and maintaining good communications with the governments, the environmentalists and NGO's. The requested (\$5,000) in seed money from IUGS will however be most needed in our 2006 effort to supplement funding from other sources. The training offshoots from the activities of the Commission has been accepted by academic institutions like the Norwegian University of Science and Technology as well as the Ecole des Mines de Paris which have already incorporated the geointelligence concept in their teaching. These institutions support the Commission with in-kind contributions.

**NEXT 5 YEARS**

**18. SUMMARISE ANTICIPATED OBJECTIVES AND WORK PLAN FOR NEXT 5 YEARS  
(PERIOD 2006-2010).**

For onshore oil and gas projects local governments and local communities often seek a direct share of revenues, raising questions about equity among resource-rich and other regions of an individual country. In Sudan, such tensions contributed to a 40-year civil war that recently ended through a peace agreement including an agreement on sharing of the country's wealth.

Future areas of activity for the Commission include developing networks to improve regional information sharing and the capacity for regional coordination. Priority needs here include databases of resources and capacities (such as available sources of funds for training), improved utilization of the internet and other public resources, improved ability to conduct resource assessments, links to regional universities, links to UN, trans-national, governmental, African Development Bank, World Bank, and NGO resources that support such cooperation, and communication channels to international companies in the sector.

A second area of activity is training and capacity building in support of applications of technical knowledge and other region's management strategies into "fit-for-purpose" practices suitable for the Central African region. Workshops and seminars will be a primary activity in support of this goal.

Thirdly, there is a need for strategies to address the issue of governance of revenues and assets in order to curb problems of corruption and resource looting e.g. by demonstrating how geointelligence and modelling can be used to evaluate future oil revenue streams under different prospectivity scenarios based upon geological as well as technological-economic knowledge.

The planned 2006 activities using global Internet data stores for regional co-operation in Central Africa can be considered as a pilot phase which later (2007-2008) will be proposed as an activity under the IUGS-UNESCO YPE (Year of the Planet Earth) in order to prepare for a longer term CCOP like regional co-operation project.

The three following activities of an over-arching and integrative nature have proven to be operational for the transfer of technology and will be pursued during the next five years:

- arrangement of topical workshops, with responsibility for summarising the state-of-the-art within important scientific fields related to fossil fuels,
- regional capacity building in fossil fuels sciences and the establishment of regionally based resource assessments and corresponding resource management options through the compilation of basic geoscientific information using "geointelligence" and modern map integration technology.
- use of geodata, prospectivity data and full cycle economic modeling to support the Extractive Industries Transparency Initiative (EITI) .

The Southern Sub-Andean areas of Bolivia and the Central African Hydrocarbon Resource Management Initiative will be initiated using remote link techniques via Internet and by setting up intensive meeting periods and workshops. This type of activity will help to ensure that necessary resources are secured for the attainment of the Commission's short-term objectives and help enhance institutional capacity in the co-operating countries.

## ADDRESS UPDATE

### 19. LIST OF OFFICERS WITH FULL ADDRESS

Professor  
**Richard Sinding-Larsen,**  
Norwegian University of Science and  
Technology  
7491 Trondheim  
Norway

Professor.  
**Jean-Marie Monget**  
CIG/GSTI - Ecole des Mines de Paris  
Rue Claude Daunesse  
BP 207  
F-06904 Sophia Antipolis Cedex, France

Hydrocarbon advisor  
**Victor Hugo Sainz Ossio**  
Prefectura de la Ciudad de Cochabamba  
Cochabamba  
Bolivia

Minister  
**Mahamat Nasser Hassane,**  
Ministere des Mines et de l'Energie  
N'Djamena  
Chad

Director of the Petroleum Section  
**Mahaman Ado**  
Ministere des Mines et de l'Energie  
Niamey  
Niger

Head of Basin Studies  
**Mohamed Zayed Awad Mousa**  
Greater Nile Petroleum Company  
Karthoum  
Sudan

**NAME:** Richard Sinding-Larsen

Signature:



Address: Department of Geology and Mineral Resources Engineering  
Norwegian University of Science and Technology, 7491 Trondheim, Norway  
E-mail: richard.sinding-larsen@geo.ntnu.no

Date: 18.12.2005  
Telephone: 47-73 59 48 37

## Appendix

### Members of the Commission on Fossil Fuels for countries outside Europe, US and Canada

Region	Country	Name	Organisation
Asia	Bangladesh	A.K.M. Shamsuddin	Ministry of Energy and Mineral Resources
	China	Shugen Liu	Chengdu University of Technology
	Lao	Souvath Sisoutham	Department of Geology and Mines
	Nepal	Krishna Prasad Kaphle	Department of Mines and Geology
	Pakistan	Muhammad Abbas Khan	Ministry of Petroleum and Natural Resources
	Papua New Guinea	Dominic Sebong	Department of Petroleum and Energy
	Timor-Leste	Manuel Antonio Correia De Lemos	Timor Sea Designated Authority
	Vietnam	Ha Van Tuan	Office of the Government S.R.V
Latin America	Bolivia	Victor Hugo Sainz Ossio	Prefectura de la Ciudad de Cochabamba
	Cuba	Juan Barrizonte	Union Cubapetroleo (Cupet)
	Ecuador	Edmundo S.Davila	Petroproduccion
	Mexico	Efrain Ceballos Medina	Ministry of Energy
	Nicaragua	Martha I. López Reyes	INE, Instituto Nicaragüense de Energía
	Venezuela	Tahio Mendez de Requena	Ministerio de Energia Y Minas
Former Soviet Union	Kazakhstan	Arman K. Kashkinbekov	National Oil & Gas Company
	Russia	Gayane Stepanyan	Ministry of Fuel and Energy of Russian Fed.
Middle East and North Africa	Algeria	Radia Sedaoui	SONATRACH/SPE
	Iran	Mohammad Mazraati	National Iranian Oil Company (NIOC)
	Yemen	Amin Al_Maktari	Ministry of Oil and Mineral Resources
Sub-Saharan Africa	Angola	Eleutério Mavela	Ministry of Petroleum
	Chad	Ado Mahamane M	Ministry of Petroleum
	Eritrea	Teklehaimanot Debretsion	Ministry of Energy & Mines
	Ethiopia	Tesfaye Mekonnen Tache	Ethiopian Petroleum Enterprise
	Mali	Brahima Tembely	Direction Nationale de la Geologie et des Mines (DNGM)
	Niger	Nasser M	Ministry of Energy & Mines
	Nigeria	Oluwole Akinyosoye	Dept. of Petroleum Resources
	Madagascar	Andry Ralijaona	Presidency Of The Republic Of Madagascar
	Sao Tome	Guilherme Alves da Mota	National Petroleum Agency
	South Africa	Gloria Pulane Sebothoma	Department of Minerals & Energy
	Sudan	Awad Mousa Mohamed Zayed	Greater Nile Petroleum Company
	Zambia	Maka Sikazwe	Ministry of Energy and Water Devp.