

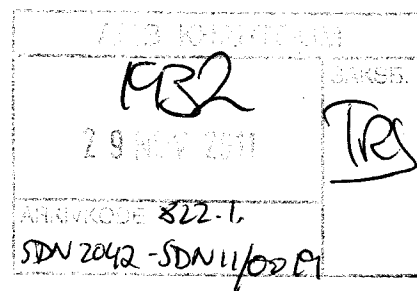
**Republic of The Sudan
Ministry of Petroleum
Sudanese Petroleum Corporation
Secretary General Office**



**جمهورية السودان
وزارة النفط
المؤسسة السودانية للنفط
مكتب الأمين العام**

November 19, 2011

To: H.E. Jens-Petter Kjemprud
Ambassador
The Royal Norwegian Embassy Khartoum
Street 49, House 63, Khartoum 2, Sudan



Dear Mr. Kjemprud,

After due compliments

Subject: Cooperation Project, Oil for Development

This is in reference to the email received from Mr. Søliland, project coordinator, and our letter to the Royal Norwegian Embassy in Khartoum, dated September 11, 2011, and hitherto meetings and correspondences between the Sudanese Ministry of Petroleum (MoP) and the Norwegian Side, headed the Norwegian Ministry of Foreign Affairs (NMFA), as represented by the Royal Norwegian Embassy in Khartoum, and representatives from the Norwegian Petroleum Directorate (NPD), and the Norwegian Agency for Development Cooperation (Norad). Once again, it gives me pleasure to express our sincere gratitude to the Norwegian cooperation, in all areas where we have been receiving help and support.

With finalization of the programme document, from our side, and the hope that the text document of the final agreement has been approved by the Norwegian party, I am happy, on behalf of the MoP, to **officially request new cooperation**, under oil for development, **between Sudan (MoP) and Norway**; stating our high hopes and needs for the cooperation project. Please find enclosed herewith the programme document. Also I would like to **request the participation** of Norwegian experts in both our upcoming annual **HSE forum and the workshop** that follows, due to be held December 13-14, 2011, with the theme of both being on environmental compliance. The programmes of both the forum and workshop have been sent to the representative of NPD and coordinator of the project.

I would take the opportunity to express our sincerest appreciation for your continued support and valued cooperation. Thank you.

Yours,

Awad A. Mohamed

Awad Abdelfatah Mohamed
Secretary General
Ministry of Petroleum

Enclosure

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**COOPERATION PROGRAMME FOR
SUSTAINABLE DEVELOPMENT AND MANAGEMENT
OF THE PETROLEUM SECTOR IN SUDAN¹**

BETWEEN

THE SUDANESE MINISTRY OF PETROLEUM

AND

**THE NORWEGIAN MINISTRY OF PETROLEUM AND
ENERGY²**

2011-2015

*Notat med
fölgebrev
från MoP
daterat 19.11.2011,
som officiellt sekernad*

¹)Based on an Agreement between the Norwegian Ministry of Foreign Affairs and the Sudanese Ministry of Petroleum and on the MoU between the Norwegian Ministry of Foreign Affairs and the Sudanese Ministry of Energy and Mining, 15 October 2008 (attached)

²) Implementation of the programme will be delegated to the Norwegian Petroleum Directorate

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1 HISTORY OF NORWEGIAN-SUDANESE PETROLEUM COOPERATION

Norway has cooperated with the petroleum sector of the Sudanese governments since 2006. A Memorandum of Understanding (MoU) regarding Cooperation in the Petroleum Sector was signed by the Sudanese Minister of Energy and Mining and the Norwegian Minister of the Environment and International Development in Oslo on the 15th October 2008. A number of projects have been implemented under this MoU serving both the Government of National Unity (GoNU) and the Government of Southern Sudan (GoSS).

1.1 Longer term capacity building and technical cooperation programmes

Towards GoSS the main focus has been on capacity building activities which have been carried out in cooperation with the Ministry of Petroleum and Mining (MoPM) and Nilepet in Juba. The main activity has been the extensive Petrad capacity building programme which was based on a Training Needs Assessment carried out in 2009. A separate Oil for Development programme is currently being implemented as a separate Norway- South Sudan programme. Support to the Petroleum Unit in Khartoum of GoSS MoFEP on oil revenue sharing assessment, reporting and general support was also included.

Towards GoNU a number of projects including joint North/South projects have been carried out including:

- Environmental and Social Impact Assessment of the Oil Industry
- Training courses
- Review of some of the main EPSAs
- Review of some EPSAs with respect to possible gas developments
- MEM/MoP Organisational Review
- Improved Oil Recovery Project

The first phase of the MoPM/MoP organisational review was completed with an updated MoP report in August 2010. The project is planned to continue under the new programme in 2011. Within resource management an assessment of the improved oil recovery (IOR) potential for the Heglig, Unity and Neem oil fields started in June 2010 in cooperation with MoP and GoSS MEM. The study was headed by the Norwegian Petroleum Directorate (NPD) and the first phase was finished in November 2010. The Steering Committee decided late last year to continue with more detailed studies which will form an important part of the new programme. Other resource management projects may start in 2011 under the new programme. HSE capacity building support has been discussed and planned and will be implemented under the new programme. A review of the EPSAs for blocks 1, 2 and 4 has been carried out and a review of fiscal terms for gas in the EPSAs of blocks 8 and 13 was recently initiated, but the project is waiting on release of information.

1.2 Exit strategy

Underlying the Programme and its component activities is the premise that the Norwegian assistance programme is a transitory phenomenon. The main objective of this assistance is to enable Sudan to manage the new situation with a sustainable and effective petroleum administration. The programme is based on the expectation that the Norwegian assistance over time shall become superfluous and thus be phased out gradually.

2 PROGRAMME JUSTIFICATION

As one of the witnesses to the 2005 Comprehensive Peace Agreement (CPA), Norway is committed to support the implementation of the CPA. This commitment includes support to

the petroleum sector in Sudan and has entailed a commitment to work with the Government of National Unity (GoNU) and with the Government of Southern Sudan (GoSS). The Referendum in January 2011 resulted in the secession of Southern Sudan from Sudan in July 2011. This has dramatic consequences for Sudan's oil production. 80 per cent of the oil production in the Sudan came from the south. Following secession of the South, Sudan's production has been reduced from the current average of approximately 450 000 barrels a day to around 100 000 barrels; roughly equivalent to the domestic consumption of oil in Sudan today. Based on the currently producing fields, Sudan's status has changed from that of a substantial oil exporter to a nation just self sufficient in petroleum.

Sudan's petroleum administration must therefore adjust to this development within a short period of time. There is a need for a substantial shift of focus in MoP and probably also for a substantial reduction of manpower. Sudapet is Sudan's national oil company with a current staff of about 250 persons. There is a need to consider a refocus of the company's tasks and responsibilities to suit the new situation. This new situation means that the current policies in the petroleum sector (as part of the larger energy sector) have to be reformulated in accordance with the changing circumstances:

- Sudan has to develop an exploration policy and strategy for what remains of petroleum potential in Sudan and discuss an accelerated work program with the operators of the exploration areas. Relicensing of relinquished areas to new companies with new ideas for their petroleum potential may also be an option as well as collection of new data.
- There is a need for increased focus on improved oil recovery (IOR) from producing fields. The IOR potential, as indicated from the work on the Heglig, Unity and Neem fields, is very large. Through good governance and active dialogue, the field operators and the governments must invest in reactivating the fields to realize this potential.
- More focus on safety, health and environment, including emergency preparedness will also make the industry more sustainable.
- To be able to adjust to the changing circumstances Sudan will need a new, focused petroleum administration, a new petroleum Policy and a revised Petroleum Law.
- Sudan should prepare for a possible support to the Republic of South Sudan in a transition period in petroleum management and operation of common infrastructure / petroleum production facilities.

The existing organisation and capacity may not be optimal to meet the above challenges. Access to external assistance in the transition phase will be important and Norwegian experience has been requested. These five policy elements, supplemented by others, have to make out an integrated and coherent product tailor-made for Sudan at this particular time in their history.

The above assumptions also make up the backbone of a baseline where the current gaps are laid out in more detail in the organisational assessment of MoP (evaluation).

2.1 The way forward

As a result of the referendum in January 2011 the Republic of Sudan and the Republic of South Sudan became separate states as of July 2011 and the cooperation with Norway in the petroleum sector will continue under two separate programmes.

This programme has been developed to carry forward important activities of the existing GoNU – Norway cooperation in the petroleum sector, and as discussed between the parties some new elements are included, particularly within HS&E management.

A new Agreement between Sudan, represented by the Ministry of Petroleum (MoP) and the Norwegian Ministry of Foreign Affairs (MFA), represented by the Royal Norwegian Embassy in Khartoum is planned to be signed as the basis for this cooperation. An Institutional Cooperation Agreement will be entered into between MoP and Norwegian Ministry of Petroleum and Energy (MPE). The MPE will delegate the implementation of the programme to the Norwegian Petroleum Directorate. The NPD will be acting on behalf of MPE and will also represent other Norwegian institutions involved in the Programme. The present Programme Document will be attached to the Institutional Cooperation Agreement and a summary of the Programme Document will serve as an annex to the MoP/MFA Agreement.

Similar agreements and Programme Document will be established between Southern Sudan and Norway. NPD will also administer this programme and the parties will assess the possibility to coordinate activities between the programmes and look for synergy gains.

Within this programme, MoP will have access to the long experience of the MPE, NPD, the Norwegian Petroleum Safety Authority (PSA), the Norwegian Climate and Pollution Agency (Klif) and other Norwegian institutions, and will thus be in the position to adjust and strengthen its competence particularly within petroleum resource management and HSE management. The focus on the legal framework and work procedures will also enable MoP to address any transparency issues. Long term formal training will be included in the programme, and the gender issue will be taken into consideration when selecting candidates.

The intension of Norway is to continue the support regarding the management of the petroleum resources to the two independent countries of Sudan, recognising the economic importance of the oil sector to the future development of the two states. A new country agreement between Sudan and Norway for continued cooperation in the petroleum sector will be signed in parallel to this Programme Document.

3 PROGRAMME MANAGEMENT

The programme will be governed through the Annual Meeting between the Norwegian Embassy in Khartoum and MoP. The Embassy will use Oil for Development (OfD) personnel for technical support.

For the Management and implementation of the Programme MPE will delegate its responsibilities to the NPD, but MPE will contribute with quality control and support, particularly regarding policy and legal /regulatory issues. NPD will assist MoP as an observer to the Annual Meeting.

MoP and NPD will establish a Programme Steering Committee (PSC) for the management of the programme. MoP will have the chair of the PSC. (The composition of the PSC will be decided after the planned meeting with MoP) The Norwegian Embassy may participate as an observer to the meetings. The PSC will prepare the reporting, accounts, plans and budgets which MoP will present to the Annual meeting. The PSC will also recommend actions to mitigate problems encountered in the implementation of the Programme.

MoP and NPD will each nominate a Programme Manager responsible for the implementation of the Programme. Sub Project managers will be nominated by MoP and NPD as required and Technical Project Committees may be needed for some projects. The NPD need for

additional resident coordinating capacity in Khartoum will be considered for the implementation of the programme activities. This Resident Coordinator will report to the NPD Programme Manager. Other Norwegian institutions like the MPE, the Ministry of the Environment (ME) with subordinate institutions, the Petroleum Safety Authority (PSA) and Petrad will be subcontracted by NPD.

On the Norwegian side OfD will establish a coordination meeting for informal coordination between the Norwegian institutions which will provide services to Sudan under the programme. A similar arrangement may be considered by Sudan.

4 GOAL HIERARCHY: PROGRAMME OBJECTIVE AND PURPOSE

The ambition of the programme is to contribute to the further development and strengthening of a governance system for the petroleum sector in Sudan that fosters efficiency, transparency, anticorruption and which is in compliance with the principles of Good Governance. A governance system based upon a national petroleum policy, improved petroleum legislation, regulations and model contracts will facilitate the work of the institutions in the sector to create a level and competitive playing field for the industry and protect the national interests with due considerations to health, safety and environmental issues.

On these premises the following goal hierarchy has been developed for the program, together with corresponding indicators with reference values (baseline) and target values:

Overall programme objective: *Economically, environmentally and socially responsible management of petroleum resources which safeguards the needs of future generations in Sudan.*

Indicators for the overall objective:

1. Oil recovery rates in Sudan's producing fields
2. Quantity of produced water injected
3. Quantitative measure of serious incidents

To realize the overall objective, three outcomes have been defined for the programme:

Outcome 1: *Sudanese policymakers set goals, and define and assign responsibilities in a manner which promotes the overall objective of the programme.*

Indicators for Outcome 1:

1. Approval by the Sudanese government of a written petroleum policy which is appropriate for the new political and economic situation.
2. A new petroleum law is enacted by the Sudanese Parliament
3. MoP is reorganized in a manner which separates its policy making role from the regulatory functions of the Oil Exploration and Production Authority (OEPA) and the commercial operations.

Outcome 2: *Sudanese petroleum sector regulatory authorities Oil Exploration and Production Authority (OEPA) and General Directorate for Environment and Safety (GDES) carry out their assigned responsibilities*

Indicators for Outcome 2:

1. Number of qualified resource assessments and production forecasts provided by OEPA to the Ministry of Finance and Economic Planning

2. Heglig, Unity and Neem oil field technical studies on IOR approved by MoP and GoSS MEM
3. Number of environmental audits of the petroleum companies conducted by GDES
4. Number of health and safety inspections on producing fields conducted by GDES

Outcome 3: *Sudanese policy makers and regulatory authorities are held accountable for their management of the petroleum sector.*

Indicators for Outcome 3:

1. Publication by OEPA on its website of resource assessments and production forecasts in English and Arabic
2. Approved Petroleum policy and enacted petroleum legislation published on MoP website
3. Sudan is approved as a candidate country for the implementation of EITI

5 PROGRAMME DESIGN AND DESCRIPTION

The programme has been designed so as to further develop and strengthen petroleum sector administration and experience transfer to the government in Sudan. Activities have been developed based on discussions with the governments in Sudan and active cooperation since 2005 and focus is on the vital governmental functions such as:

- Petroleum policy and legal and institutional framework for the petroleum sector
- Qualified resource assessments and production forecasts to the Ministry of Finance and Economic Planning
- Improved oil recovery projects for producing oil fields in cooperation between the oil companies and the government
- Handling of environmental challenges, in particular related to handling of produced water, chemicals and wastes, but also related to environmental assessments, monitoring and auditing.
- Health and safety management, inspection, monitoring and auditing based upon an adequate set of HS regulations
- IT and information management support
- Training

The programme activities will each year be prioritized by the Annual Meeting based upon recommendations by MoP and NPD. The activities will be grouped as follows:

5.1 Petroleum policy, legal and institutional framework

A good petroleum policy updated for the new situation in Sudan is essential for governing the petroleum industry. The Ministry of Petroleum has asked Norway for support for developing such an update and the Norwegian advisers have recommended that also the Petroleum Law be reviewed for the new situation. A relevant legal framework with laws, regulations and contracts is of major importance for managing the petroleum sector and Norway is willing provide support as needed in the programme period.

An organizational review of the Ministry of Energy and Mining was completed during spring 2010 and was then updated for the Ministry of Petroleum in August 2010. When MoP has

made a decision on implementation, support will be provided as needed during the implementation of the reorganization.

5.2 Resource management

Revenues from the petroleum resources are essential for Sudan's economic and social development. Good estimates of reserves and production forecasts are therefore very important. Norwegian support within resource mapping and resource classification will therefore be available in the near and longer term.

Production from oil fields in Sudan is characterized by declining oil production and high water cut. Several fields are in the primary production phase without or with limited injection to maintain reservoir pressure and to displace the oil. The recovery factors are low compared to fields worldwide. Some fields have heavy oils which require special recovery methods. There should therefore be a large potential for improved oil recovery (IOR) projects and redevelopment of oil fields in Sudan.

This potential has been demonstrated in a feasibility study for Heglig, Unity and Neem oil fields in blocks 1, 2 and 4 in 2010 and 2011. Included in the project is also support to the ministries in their discussions with the operator on studies and field tests needed for commercial implementation of IOR projects. Such studies and tests will take several years, and Norwegian support to MoP will probably be needed for several years to come, and may also be needed for other fields in Sudan.

5.3 Geospatial Data and Information Systems GDIS

The importance of petroleum geospatial data management, especially for (OEPA), was emphasized at the meeting between the Sudanese and Norwegian teams. The importance stems from that fact that geospatial techniques support decision making and facilitates monitoring several oil activities in which time is an important factor. Considering the wide experience of NPD in GIS and similar applications, it is believed that NPD can help in transferring the knowledge and technology. A visit by GDIS staff, early in 2012, to NPD will be important and provide exposure that help in knowledge and experience transfer.

It is believed that NPD's support would help achieving the following :

- QC of the data received from petroleum operating companies such as seismic, well, facilities etc.
- Creation of GIS model for tracking exploration activities and field data (QC).
- Supervision of GIS and RS related projects in oil operating companies.
- Generation of an integrated geographical information system that supports all MOP departments.
- Development of uniform standardized mapping standards for oil section.
- Determination of the location of all environmental impacts resulting from the oil activities.

To achieve these goals, while recognizing budget constraints, the following priorities can be considered:

- Surface Data collection and Geographic Information System Environment Exchange.

- Standardization of Geospatial Data.
- Subsurface Data Management.
- GIS Geospatial Data visualization.
- 3D modeling.
- New trend of remote sensing for oil exploration.
- Remote sensing as outsource provider to support oil exploration and production.
- Mastering NDP GIS Model as guide reference for GDIS project.

5.4 Environmental management

A Norwegian team headed by the Norwegian Directorate for Nature Management carried out in 2007 and 2008 a study of Environmental and Social Impacts of Petroleum Activities in Southern Sudan. The study was requested by SPLM and the team was supported by the General Directorate for Environment and Safety (GDES) in MEM in Khartoum. The study was presented in seminars in Juba and Khartoum in October 2010.

MoP GDES requested during spring 2010 support from Norway within environmental management such as practical training through workshops, seminars, conferences and on-the-job training. Topics of interest were inspection and auditing training, Environmental Impact Assessment (EIA) studies, Geographical Information Systems (GIS) training for environmental reporting, selection of environmentally friendly chemicals such as drilling mud etc.

Discussions took place during 2010 and the Norwegian Ministry of the Environment assisted by the Norwegian Directorate for Nature Management (DN) and the Norwegian Climate and Pollution Agency (Klif) prepared a 3-year cooperation proposal early in 2011. The topics proposed that have to be prioritized are

- GIS and remote sensing
- Development and support training for environmental data monitoring and information dissemination systems
- Environmental Management Systems incl. inspections and compliance monitoring
- EIA and Strategic Environmental Assessments (SEA) training
- Produced water management
- General guidance and support on environmental management

The cooperation within environmental management will commence soon and continue as needed during the programme period.

5.5 Health and safety management

The General Directorate for Environment and Safety (GDES) is also the regulatory arm of the MoP in issues related to occupational health and safety in the Sudanese oil industry. GDES has asked for Norwegian support related to health and safety management and in particular within occupational health and safety inspections, emergency response training, risk assessment, blowout, fire and accidents prevention, etc.

A general health and safety management policy support will be discussed and planned with the Petroleum Safety Authority Norway (PSA). Technical regulations, use of international standards, guidelines and methodology for inspections and audits are proposed as issues for discussion.

A programme for training safety inspectors is being planned in cooperation with Rogaland Training and Educational Centre (RKK) and Stavanger Offshore Technology College (SOTS). This training can start in January 2012 and the first phase training may finish 1Q 2013. The training in Norway may involve candidates from Sudan and Southern Sudan.

Further health and safety support will be considered as needed in the programme period. PSA has positively expressed that such support is possible provided that they receive an early request.

5.6 ICT, data management and information

ICT and data management are very important issues for efficient petroleum management and have been included as one group of activities in the programme.

Systematic management of production and subsurface data is an important issue that will be discussed.

Another issue is implementation of Geographic Information Systems (GIS) important both for seismic and field data. This has explicitly been requested by GDES related to environmental data presentations.

With GIS and similar systems in place, an information strategy and procedures should be worked out to enhance the general knowledge of the sector in Sudan

Discussions on ICT and data management is not yet mature except for GIS implementation, but will be a topic to discuss during the programme period.

5.7 Formal training

Master studies in Norway or elsewhere can be offered to some candidates during the programme period from 2012. Selection of candidates will be performed by MoP and education will depend on acceptance of the candidate's individual applications at the Universities.

6 PROGRAMME BUDGET

The budget proposed below is reflecting the continuation of important support activities mainly in 2012. New important areas for support, like environment, health and safety, ICT and Data Management are planned to be started in December 2011 for continuation in 2012 and the following years.

The support programme is designed to provide support in a transition phase, for that reason a scaling down of the budgets is planned for the last part of the programme. The budget for 2012 will be further developed in parallel with the development of the project plan. At this stage the budgets for the following years will not be detailed any further, but the detail will be presented to the Annual Meeting for approval.

The NPD, as an implementing institution, has own resources to carry out activities, but the availability of such resources will vary in line with the implementation of NPD core functions on the Norwegian Continental Shelf, commitments to other OfU programs and the general capacity available. When NPD's own capacity is not available similar expertise will be procured from consultants, universities etc and NPD will carry out quality control of the procured services. Any split of cost on consultants, institutional support etc will not be made at this stage.

NPD will undertake procurements according to Norwegian procurement practices, but all external procurements and TOR's will be agreed with MoP before implementation. All consultants will report to the NPD.

Programme budget, Mill NOK²					
Year	2012	2013	2014	2015	2016
Policy, legal, organisation	5.50	3.00	1.00	0.00	0.00
Resource management	6.00	5.50	4.00	4.00	3.00
Geospatial Data and Information Systems in OEPA	2.00	1.00	1.00	1.00	0
Environmental management***	1.50	3.00	3.00	3.00	2.00
Health and safety management	1.20	2.00	2.00	2.00	1.00
ICT , Data management and info.**	0.50	1.50	1.50	1.00	0.50
Formal training	1.00	1.00	1.00	0.50	0.50
Administration*	0.80	1.20	1.00	0.80	1.00
Contingency	1.00	1.50	3.00	2.00	2.00
Sum	19.60	19.70	17.50	14.30	10.00

*The cost of a resident coordinator will be allocated to the activities. Administrative costs will depend on the frequency of meetings in Khartoum / whether teleconferences can be used.

**75%/25% split between consultancy and software / hardware

***Including funds for 2011 from previous programme

7 CONTRIBUTIONS BY SUDAN (TO BE EXTENDED)

The Sudanese Ministry of Petroleum (MoP) will provide office space for the Norwegian coordinator, while in Khartoum, and liaise with the Sudanese Ministry of Foreign Affairs for the provision of visas to the Norwegian team, at the quickest possible. MoP will provide space for holding meetings and workshops, within its buildings. Also MoP will arrange contacting Sudanese experts and/or interested groups, from outside MoP, to attend workshops, if deemed necessary.

8 RISK ASSESSMENT

• Relevance of programme:

The cooperating partners have made the proposed programme as relevant as possible to the challenges facing Ministry of Petroleum and Sudan in managing the petroleum potential, with focus on

- Regulatory and institutional framework
- Efficient Resource Management with focus particularly on IOR
- HS&E with particular focus on produced water handling and safety
- ICT, data management and information
- Training

² Exchange rates will vary. In June 2001 USD 1 = approx NOK 5.50.

A well discussed and designed programme is an important tool in reducing the risks for not meeting the programme objectives. In the programme design, the activities for the first year are relatively specific, for the rest of the programme period the uncertainty is higher but the main focus is maintained and ample funds are allocated to meet specific high priority needs.

- Specific risk factors:
 - Future cooperation model between Sudan and South Sudan
 - To the extent that Sudan shall support South Sudan in the operation of fields in the border area and which use infrastructure for processing and transportation in the Sudan, technical and administrative capacity must be in place
- Petroleum resources and markets, external uncertainties that which can have impact on the programme execution:
 - Exploration opportunity and risk
 - Future rates of recovery from producing fields
 - The conditions for future investments from the private sector in development of new fields and reactivation of old fields and infrastructure
 - Petroleum prices and market development
- The political and security risk is important:
 - A peaceful future for the two Sudanese countries will be of paramount importance for the political risk involved
 - The progress of the political process of approving policy and legislation
 - Violent interference with the petroleum activities
- Risk regarding availability of technical staff:
 - Training opportunities in Sudan and abroad
 - Efficiency of governance tools
 - Work force stability
 - Work force availability to the programme activities
 - Work force skills and ability to manage the sector efficiently
- Risk regarding Management capacity:
 - Efficiency of the institutional organisation of the sector and clarity regarding the split of responsibilities
 - Efficiency of the management and organisation of the individual institutions
 - Efficient data management and communication
- Risks related to environment and climate
 - There may be negative climate effects from the Sudanese petroleum sector. The programme is considered to have a positive effect – if any - on climate issues by seeking to insure that appropriate measures are included in the legal framework
 - The programme is expected to have a large positive effect on petroleum sector environmental issues by for instance increasing the reinjection of produced water, and by providing capacity building on key environmental topics such as environmental monitoring.
- Risks related to the impact on gender equality

- Training programs and other activities must be designed with care to ensure that women have the opportunity to participate
- Negative social impacts related to petroleum activities may disproportionately affect women.
- Risk related to corruption
 - Corruption in the petroleum sector could undermine the achievement of a range of program goals. The program is in itself expected to have a preventative effect related to corruption in the sector by helping to establish a sound legal framework and by increasing the transparency of the sector.

To mitigate the identified risks, and to ensure that positive anti-corruption, gender equality, environmental and climate change components have been integrated, the following revisions have been done to earlier drafts of this program;

- The focus on sector transparency in the program has been increased, including plans for a website for publication of relevant information and for implementation of EITI. These
- Planning will be conducted on how to ensure that those who receive training through master scholarships are legally required to return to the Sudanese public petroleum sector to work for a specified number of years
- Training providers under the programme will be asked to take special precautions to facilitate the participating of qualified women in relevant training activities. Data on training activities shall be gender-disaggregated, so as to monitor the programme's performance related to the promotion of women in the sector
- Any social impact assessments that are to be conducted under the programme will take into account whether or not there will be a particularly negative impact on women from petroleum activities

Throughout the implementation of the programme, revised risk assessments and mitigation strategies will be included in each annual planning process.

9 ACTIVITIES DECEMBER 2011 AND 2012

Below is a set of activities covered by this Programme for December 2011 and the whole of 2012. Each activity intends to deal with an aspect of the same overall challenge - the need for the Sudanese petroleum administration to adjust to the new reality. The activities are:

- A petroleum policy review
- A petroleum law review
- An organisational review of the petroleum administration (the MOP)
- An EPSA review
- IOR potential assessment
- Geospatial Data and Information Systems in OEPA support
- Environmental management support
- Health and safety management support
- ICT and data management support
- Formal training

- Transparency and publication of information

Activity budget from 1 December 2011-2012

Activity budget December 2011 - 2012, Mill NOK	
Policy, legal, organisation	5.50
<i>Petroleum policy review</i>	<i>0.75</i>
<i>Petroleum law review</i>	<i>1.50</i>
<i>MoP organisational review</i>	<i>2.50</i>
<i>EPSA review</i>	<i>0.75</i>
Resource management	6.00
<i>IOR potential assessment</i>	<i>6.00</i>
Geospatial Data and Information Systems in OEPA	2.00
<i>Geospatial data management systems</i>	<i>1.00</i>
<i>GDIS resources development and training</i>	<i>1.00</i>
Environmental management	1.50
<i>Environmental management systems</i>	<i>0.50</i>
<i>Produced water handling</i>	<i>1.00</i>
Health and safety management	1.20
<i>Health and safety management policy</i>	<i>0.20</i>
<i>Safety inspectors training</i>	<i>1.00</i>
ICT, data management and information	0.50
<i>GIS implementation in MoP GDES</i>	<i>0.50</i>
Formal training, planning	1.00
Administration	0.80
Contingency	1.00
Sum	10.50

9.1 Petroleum policy, legal and organisational framework

9.1.1 Petroleum policy review

- Norwegian institution: MPE
- Sudanese institution: MoP
- Budget 2011: 0.75 MNOK
- Activity description:

MoP in Khartoum has asked Norway to assist in developing a petroleum policy. A new policy is needed for the following reasons. The present Sudanese policy is informal and unwritten. It has been developed in and for a different political and economic situation than the one Sudan is facing today. Therefore a formal and adequate policy framework must be put in place. In addition, Sudan will, upon secession of the South, shift from a major crude exporter to becoming barely self-sufficient. In the medium to long term Sudan will become a net importer of petroleum and the oil industry in North Sudan will go through a major change. This

calls for a major review of the main goals and focus areas for the oil industry as a foundation for designing a petroleum policy, as part of an overall energy policy, in response to this new situation for Sudan.

The project is relevant and in line with the MoU between Norway and Sudan. The petroleum sector is economically and politically a cornerstone in today's Sudan. Whether this will remain so depends in part on whether the North Sudanese government is able to bridge the change from large crude exporter to a barely self-sufficient oil producer. This project will potentially play a substantial role in defining the focus areas of the Sudanese petroleum administration.

The project objective and plans are realistic, and describe a necessity for the MoP. The need for Norwegian resources and budget appropriation will depend on the progress made and the efficiency of the interaction between the Norwegian and the Sudanese components. The main cost component for this project will be related to man hours. The amount of work involved for the Norwegian consultants and the number of visits to the Sudan required.

Main risks: insufficient progress and delayed completion due to insufficient commitments by the MoP in this turbulent time for the Sudan.

- Activity status:
In the planning phase. The Embassy has agreed the project in principle with MoP, and there is mutual intent to start project in 2012. Impetus for project is dual; partly from the situation surrounding the secession and partly from the several other projects that Norad/the Embassy has carried out with the MoP.
- Progress plan: Q1/2012 – Q4/2012

9.1.2 *Petroleum law review*

- Norwegian institution: MPE
- Sudanese institution: MoP
- Budget 2012: 1.5 MNOK
- Activity description:
There is a need to review the present law in light of the new circumstances following secession. Three important elements must be ascertained in the review. The relationship to the oil companies and their commercial terms have to be respected and secured. There should be a petroleum legislation in Sudan and South Sudan which basically follows the same principles regarding terms and conditions for the oil companies.
- Activity status: Activity is in the planning phase.
- Progress plan: Q1/2012 – Q4/2012

9.1.3 *MoP organizational review*

- Norwegian institution: MPE/NPD
- Sudanese institution: MoP
- Budget 2012: 2.5 MNOK
- Activity description:
The scope of Phase 1 was to assess and map the current management structure of the entire petroleum industry on the national level and evaluate whether the existing

structure is optimal or if modifications should be considered. Main focus was on the Ministry of Petroleum. A key focus area was to evaluate if the roles and responsibilities of each institution is clearly defined and are being adhered to. In addition, the study covered.

- Identify the functions of each institution
- Identify the skills and competences needed in order to perform these functions
- Identify the current level of competence within the various institutions
- Perform a gap analysis
- Define training needs, including possible need for leadership training
- Review the current procedures for employment and promotions
- Proposal for organizational changes if deemed necessary

Phase 1 ended up in a report with a number of recommendations. The main recommendation was to clearly separate the policy making role of the Ministry, the regulatory functions of the Oil Exploration and Production Authority (OEPA) and the commercial operations.

The Ministry of Petroleum has decided to implement the main recommendations. Due to the planned secession of the South, however, and the fact that the level of cooperation between the north and the south after secession has still not been agreed, the actual involvement of MoP in the petroleum operations in the south is uncertain. Consequently, the tasks and the amount of work for MoP after July 2011 are uncertain.

Further, the secession of the south represents a discontinuity in the petroleum sector of the North that calls for a review of the existing strategy. Based on this, it has been agreed that the initial work of Phase 2 should be to conduct a review of the future focus of the MoP. This work will be closely linked to the work related to the development of the Petroleum Policy

Following this review, the MoP will decide which parts of the proposed implementation programs identified for Phase 2 that shall be initiated and the phasing of them.

Norway has cooperated with GoNU MoP since 2006 with good experience. To secure progress of the projects, it is expected that a significant part of the administration and practical follow-up have to be conducted by the Norwegian team.

- Activity status: Phase 1 was completed fall 2010. Phase 2 has not started.
- Progress plan: Phase 2 is expected to start spring 2012 and be completed by the end of 2012.

9.1.4 EPSA review

- Norwegian institution: MPE
- Sudanese institution: MoP
- Budget 2012: 0.75 MNOK
- Activity description:

Gas has been proven in Block 13 in the Red Sea and onshore in Block 8. The operating companies for these blocks have approached MoP and argued that the commercial terms of the existing EPSAs will not make gas developments profitable. The EPSAs have been developed with focus on oil, so the operating companies' arguments could be correct. Consequently, MoP has approached Norway and asked for a legal and commercial evaluation of the existing ESPAs in order to see if they

are appropriate for gas developments.

AdeB has initiated a legal evaluation of the two EPSAs with the aim of checking if there are any clauses in the EPSA could cause problems for a gas development and should possibly be changed. Econ has initiated a desktop study of a possible gas development including a gas fired power plant to assess the profitability of such a development. If the current conditions does not allow for a reasonable profitability, alternative modifications of the terms will be evaluated and recommendations presented.

As gas has been proven both offshore and onshore, it is important for MoP to get a verification on whether the commercial terms of the EPSAs will justify gas developments or not. Further, following the secession of the south there is a significant need for development of new oil or gas fields to enhance the revenue from the petroleum sector. Finally, as there is a growing need for electricity in Sudan, possible development of gas fields involving gas fired power plants, will represent an important addition to Sudan's power production.

This is a fairly small project with limited budget and mainly involving desk top studies. Goals and budgets should therefore be realistic.

- Activity status:
- Progress plan:

9.2 Resource Management

9.2.1 IOR potential assessment

- Norwegian institution: NPD
- Sudanese institution: MoP OEPA/GoSS MEM
- Budget: 2012: 7.0 MNOK
- Activity description:

Phase 1 of the project was carried out for the Heglig, Neem and Unity oil fields from June until end October 2011. The purpose of the studies was to assess the technical and economic IOR potential for the oil fields, identify possible IOR methods and to address the need for further data acquisition and more detailed studies. A team of government officials from both Sudan and South Sudan conducted reservoir modeling supported by petrophysics evaluations, which resulted in validation of STOOIP estimates, simulation models and estimates of where remaining oil is in the reservoirs. The Phase 1 studies demonstrated a significant IOR potential. The results were presented in a technical workshop in Khartoum in November 2010 and October 2011.

Continued technical work and on-the-job training by the professionals of MoP will provide the Ministry with better technical arguments in their dialog with the operator in an effort to make them commit to carry on the IOR initiatives and execute IOR pilots.

A scope to continue into commercial work is to

- Assess and define the Ministry role towards the operating companies regarding IOR assessment and possible investments and implementation
- Support the Ministries in planning their process toward the operating company
- Evaluate the EPSAs with respect to incentives for future IOR investments
- Assess the ongoing CSS initiatives in Block-6 and carry out 1-2 IOR studies

- Activity status: In planning Stage
- Progress plan:

9.3 Geospatial Data and Information Systems in OEPA

9.3.1 Geospatial Data Management Systems

- Norwegian institution: (NPD)
- Sudanese institution: MoP OEPA
- Budget 2011: 1.0 MNOK
- Activity description:
 - MoP asked Norway to assist in Geospatial Data Management in OEPA through NPD. The present GIS is uncontrolled and Qc. OEPA initiated new section (GDIS) to manage it.
- Activity status: Planning is underway.
- Progress plan: To be discussed

9.3.2 GDIS resources development and training

- Norwegian institution: (NPD)
- Sudanese institution: MoP OEPA
- Budget 2011: 1.0 MNOK
- Activity description:

Since (NPD) has long experience in applications of GIS, in oil industry sector, OEPA requests Norwegian assistance towards development of GDIS to carry out the following functions:

 - Entering, modifying, storing, processing, and analyzing GIS data.
 - Database orientation.
 - GIS customization.
 - GIS server and script.
 - Remote sensing (RS).
 - 3D modeling.
 - Remote sensing and GIS integration.
 - Artificial neural network (ANN).
 - RS and GIS and ANN integration.
- Activity status: In planning stage
- Progress plan:

9.4 Environmental Management

9.4.1 Environmental management systems

- Norwegian institution: ME
- Sudanese institution: MoP GDES
- Budget 2012: 0.5 MNOK
- Activity description:
 - Organize seminars/workshops on compliance monitoring focusing on the different roles of operating companies and public authorities, management of hazardous substances, chemical safety, reporting and databases

- For training purposes, undertake and discuss an actual inspection on a select petroleum operations site with representation from Sudanese authorities and with Norwegian experts in an observatory role
- Activity status: Under planning, but seminar and workshops are preferred to start in December 2011
- Progress plan: To be discussed

9.4.2 *Environment inspectors training*

- Norwegian institution: ME
- Sudanese institution: MoP GDES
- Budget 2012: 1.5 MNOK
- Activity description:
Develop a theoretical and practical training for Sudanese environment inspectors for inspections of onshore and offshore operations in Sudan, including chemical storage, produced water handling, oil spill, marine terminals, and air emissions. The training will start with introductory seminar in Sudan followed by three two weeks training modules in Norway supported by e-learning material. ME will assist the inspectors in meetings with operators in Sudan prior to field inspections supported by ME during inspections and reporting. The prime purpose is capacity building to enable GDES staff to carry out their environmental inspection and auditing duties professionally. The training program will be arranged in 2012.
- Activity status: Under planning, but would like start Q1 2012
- Progress plan:

9.4.3 *Produced water handling*

- Norwegian institution: ME
- Sudanese institution: MoP GDES
- Budget 2011: 1.0 MNOK
- Activity description:
 - Collection of reliable data for assessing the current situation and future prospects when it comes to produced water and water contamination issues associated with petroleum exploration and production in Sudan.
 - Inception workshop. This will involve international experts on different aspects of produced water management, representatives of relevant national government authorities, regional authorities, petroleum and service provider companies, academia NGOs and Norwegian OfD partner institutions. The purpose will be to discuss available data and information, different aspects involved and available options for meeting the challenges.
 - Draw up a terms of reference document for further work to improve water management in the Sudanese petroleum industry.
- Activity status: Under planning, but would like inception workshop to be held in December 2011 and the rest to start in Q1 2012.
- Progress plan: To be discussed

9.5 **Health and Safety Management**

9.5.1 *Health and safety management policy*

- Norwegian institution: PSA

- Sudanese institution: MoP GDES
- Budget 2012: 1.2 MNOK
- Activity description:
MoP GDES will be supported by the Petroleum Safety Authority Norway in establishing the health and safety regulatory authority for the petroleum sector, including policy and regulations
- Activity status: Under planning, but would like to start early in Q1 2012
- Progress plan: To be discussed

9.5.2 *Safety inspectors training*

- Norwegian institution: PSA
- Sudanese institution: MoP GDES
- Budget 2012: 1.0 MNOK
- Activity description:
A theoretical and practical training program is being developed for Sudanese safety inspectors for inspections of drilling, well and production operations in Sudan. The training will start with introductory seminar in Sudan followed by three two weeks training modules in Norway supported by e-learning material. PSA will assist the inspectors in meetings with operators in Sudan prior to field inspections supported by PSA during inspections and reporting. The training program will be arranged in 2012.
- Activity status: Under planning, but would like to start theoretical classes early in Q1 2012
- Progress plan:

9.6 **ICT and Data Management**

NPD will coordinate these activities.

9.6.1 *GIS implementation in MoP GDES*

- Norwegian institution: DN
- Sudanese institution: MoP GDES
- Budget 2012: 0.5 MNOK
- Activity description:
 - The first element would as a matter of priority, be that the environment information section in DN, as the lead institution of this activity, make a fact finding mission to Khartoum and Juba to get an overview of the existing data equipment and software and the level of institutional competence in this specific field. They should also establish an overview of currently available data sets relevant for environmental management. Further, also try to identify possible local institutions with activities or particular competence in this field. Time, early 2011.
 - Arrange a combined workshop on GIS and the use of remote sensing techniques in environmental management. The workshop would give detailed information on the use of these tools and their potential to address and answer questions related to geo-referencing of data for petroleum activities and their impacts. Plans should be developed for a workshop early 2011.
- Activity status: Under planning, but would like to start early in Q2 2012
- Progress plan: To be agreed

9.7 Formal training programme for current and future staff within the petroleum sector authorities

NPD will coordinate these activities. The first candidates will be nominated for 2012. Planning activities and development of selection criteria for candidates.

9.7.1 Preparations for Master studies from 2012

- Norwegian institution: NPD
- Sudanese institution: MoP
- Budget 2011: 0.1 mill NOK
- Activity description: Planning Master studies from 2012
- Activity status: Under planning
- Progress plan: To be agreed

10 **MOU REGARDING COOPERATION WITHIN THE PETROLEUM SECTOR**

**Memorandum of Understanding
between
the Norwegian Ministry of Foreign Affairs
and
the Sudanese Ministry of Energy and Mining
regarding cooperation within the Petroleum Sector**

WHEREAS the Government of Norway is committed to support the implementation of the Comprehensive Peace Agreement (CPA) signed 9 January 2005, and

WHEREAS the Sudanese Ministry of Energy and Mining (MEM) has requested Norway for support within the Petroleum Sector, and

WHEREAS the Norwegian Ministry of Foreign Affairs (MFA) has decided to comply with these requests,

WHEREAS through section 3.2 et seq. of Chapter III (Wealth Sharing Agreement) of the CPA and also through both Interim Constitutions the National Petroleum Commission has been set up based on balanced representation and consensus decision making; charged inter alia according to section 3.4 of Chapter III of the CPA to formulate public policies for the sustainable development and management of the petroleum sector,

WHEREAS according to section 2.5.6 of Chapter II of the CPA the Government of National Unity shall be responsible for the administration and functioning of the State and the formulation and implementation of national policies in accordance with the Interim National Constitution, 2005,

NOW THEREFORE the Participants have reached the following understanding:

Paragraph I Scope and objectives

The objective of the cooperation is to support the efficient and environmentally sustainable development of petroleum resources in Sudan on the basis of good governance, transparency and respect for human rights and with the aim of avoiding corruption. Norwegian assistance will take place on the national level as well as towards the Government of Southern Sudan in conformity with the objectives of the CPA.

MFA plans to make available Norwegian experts as required in order to conduct the projects accepted under this Memorandum (ref. list of potential project areas listed below).

MEM will ensure that all accepted projects under this Memorandum can be carried out in an efficient manner and will issue necessary approvals and make all relevant information available to the project teams.

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Joint project teams will be established for all projects accepted under this Memorandum. MEM and MFA will make available competent personnel for active participation in these projects as required.

The focus of the cooperation will be on making the Sudanese petroleum administration, including institutions such as the Sudanese Petroleum Corporation, more efficient and thereby achieve a more efficient and environmentally sustainable petroleum industry. The work should include evaluations of existing frame conditions for the petroleum sector including policies, laws, rules and regulations.

Examples of areas to be covered are:

- Resource management
- Financial Management
- Safety and Environment Management
- Support to the National Petroleum Commission
- Gas development
- Offshore developments
- Capacity building and technology transfer
- Advisory services

Paragraph II Cooperation

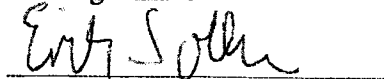
The Participants shall communicate and cooperate fully with the aim to ensure that the objectives of this Memorandum are successfully achieved.

Paragraph III Duration and termination

This Memorandum will come into effect on the 15th October and will remain in operation for a period of five years. Either Participant may however at any time terminate the Memorandum upon three months written notice.

Oslo, 15 10 08 2008.

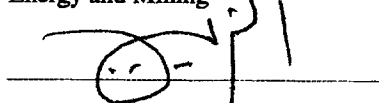
For the Norwegian Ministry
of Foreign Affairs



Erik Solheim

Minister of the Environment
and International Development

For the Sudanese Ministry of
Energy and Mining



Al-Zubayr Ahmed Hassan

Minister of Energy and Mining

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