

Exhibit 91



Shell Confidential
SIEP 2000-0850

Economics, Planning and Portfolio Analysis (EPPA) Review - SNEPCo

Custodian : SIEP-EPB-P
Date of issue : November 2000
Keywords : EPPA Review, SNEPCo

Review Team : Remco Aalbers SIEP EPB-P (team leader)
Ken Blott SPDC BVL-PEC
Rotimi Ajayi SPDC CAE-RES

ECCN Number: Not subject to EAR-No US content

This document is Confidential. Distribution is restricted to the named individuals and organisations contained in the distribution list maintained by the copyright owners. Further distribution may only be made with the consent of the copyright owners and must be logged and recorded in the distribution list for this document. Neither the whole nor any part of this document may be disclosed to any third party without the prior written consent of the copyright owners.
Copyright 2000 SIEP B.V.

SHELL INTERNATIONAL EXPLORATION AND PRODUCTION B.V., THE HAGUE

Further copies can be obtained from the Global EP Library, The Hague with permission from the author.

RJW00930168

SNEPCo EPPA Review (FINAL DRAFT)

Shell Confidential

This page has intentionally been left blank.

CONTENTS

1. <u>Review Summary</u>	5
2. <u>Introduction</u>	6
3. <u>Review Findings and Recommendations</u>	7
<u>Economics</u>	7
<u>Portfolio Management</u>	8
<u>Planning</u>	8
<u>Group Budget Proposals and Value Tracking</u>	9
<u>Hydrocarbon Resource Management</u>	9
<u>Data Management</u>	11
<u>Tools & Systems</u>	12
<u>Organisation</u>	14
<u>Resourcing</u>	14
<u>Interface SDS / SNEPCo</u>	15
<u>Appendix I ToR</u>	16
<u>Appendix II Organigram SNEPCo</u>	18
<u>Appendix III Summary Of Recommendations</u>	19
<u>Appendix IV Viewgraphs Management Presentation</u>	21

SNEPCo EPPA Review (FINAL DRAFT)

Shell Confidential

This page has intentionally been left blank.

SNEPCo EPPA Review (FINAL DRAFT)

Shell Confidential

1. REVIEW SUMMARY

Country	Nigeria	Opco	SNEPCo	Audit No.
Location	Lagos	Auditee	SNCP	Activity code

Process	Economics, Planning and Portfolio Analysis
Subject	Economics, Planning and Portfolio Analysis (EPPA) Review
Scope	Provide independent quality assessment of economics, planning and portfolio management processes, methodologies, systems, tools and organisation. Identify any weaknesses and recommend actions for improvement.

Main findings and recommendations

The **Economics** in SNEPCo are complex due to the PSC terms under which it operates. The current incumbents in the SNCP team appear to have developed the required skills and knowledge of the PSC. Succession planning should ensure that this knowledge is retained. The in-house developed economic and financial model COFINEC covers all aspects of the PSC. Further integration of Economic and Financial planning is recommended. Incorporation of the hydrocarbon maturation data with the model is recommended.

There is extensive and active **Portfolio Management** ongoing in SNEPCo, the process is well established and controlled. There are a number of dilutions, divestments, farm-ins and new acreage activities ongoing.

The overall **Planning** process in SNEPCo is well established with an extensive opportunity portfolio in place. The Capital Allocation and BP'00 documentation and submissions are of very high quality. It is recommended to review impact of limited capital funds on SNEPCo portfolio value.

The current **Data Management** in SNEPCo is fragmented, static and often doubled. Though working at present, it leads to inefficiencies and possible errors. It is recommended to pursue a single database solution with direct access for contributors so ensuring the data is kept live at all times. Re-evaluation of the Merak-Peep modeling environment, which includes a proper datastore, is under consideration. There are benefits through alignment with the SPDC tools as well as Group direction. **Data Security** needs to be reviewed, encryption and/or dedicated server should be considered.

It is recommended to review SNCP team **IT infrastructure** and upgrade to dedicated state of the art where appropriate to maximise team effectiveness. Additional **Bandwidth** needs to be established soonest to support dual location set-up Lagos/Houston, increasing efficiency and reducing travel burden on staff.

Resourcing is an issue in Nigeria, the vacancy for a economist in the SNCP team is proving difficult to fill via Open Resourcing (as are a number of other key vacancies in other departments). Support needs to be sought from the Center and HR department(s) to complement OR efforts.

The new **Organisational** dual location set-up Lagos/Houston is still new although it provides access to deepwater expertise it puts a heavy travel burden on the organisation. The current CTR system lack flexibility which will be reviewed in January 2001.

Conclusion

The EPPA activities in SNEPCo are generally well executed, improvements have been identified and mostly in hand.

Follow-up	The findings and recommendations have been agreed with SNEPCo management, with identified parties responsible for follow-up.
------------------	--

Lateral application**Comments**

Report title	Economics, Planning and Portfolio Analysis (EPPA) Review	No.	2000-0850
	SNEPCo	Date	Nov-2000
Issued by	SIEP	Available from	SIEP

Team leader	Remco D. Aalbers	Ref. ind.	SIEP EPB-P
Members	Ken Blott SPDC BVL-PEC Rotimi Ajayi SPDC CAE-RES		
Start	14-Nov-2000	Effort	15 Mandays
Finish	17-Nov-2000	Total SIEP	7 Mandays

This report was completed by	R.D. Aalbers	Ref. ind.	EPB-P	Date	Nov-2000
-------------------------------------	--------------	------------------	-------	-------------	----------

SNEPCo EPPA Review (FINAL DRAFT)

Shell Confidential

This page has intentionally been left blank.

2. INTRODUCTION

The SIEP-led Review of SNEPCo's Economics, Planning and Portfolio Analysis (EPPA) process was carried out from 14th November 2000 till 17th November. The key objectives were to assess the quality of the EPPA process, systems, tools and organisation in SNEPCo and the interfaces with SPDC through Shell Companies in Nigeria (SCiN) and Shell Deepwater services (SDS) in Houston and SIEP and to identify any weaknesses, which may lead to unacceptable risks, lost opportunities or waste of resources and to recommend possible improvements. The ToR is given in Appendix I. This is the first EPPA Review carried out in SNEPCo. The review was conducted by a team consisting of one member from SIEP and two from SPDC.

The review was based on interviews with key people in the different departments involved in the EPPA activities in SNEPCo and SPDC. The SNEPCo organigram is shown in Appendix II. In addition, a number of key documents were reviewed.

The main findings and recommendations are discussed in Chapter 3. A summary list of findings, recommendations and actions are given in Appendix III

At the end of the Review the main findings, conclusions and recommendations were presented to SNEPCo management and selected staff. The viewgraphs are included in Appendix IV. This report takes account of the feedback received during this presentation.

The review team appreciates the assistance of all people interviewed.

3. REVIEW FINDINGS AND RECOMMENDATIONS

The SNEPCo company and organisation has changed significantly over the last year. Following the Bonga FID end 1999 the company has moved from an exploration company to exploration and development company setting up for production by 2003. Furthermore the organisational set-up has changed early 2000 with the implementation of Shell Deepwater Services providing the technical expertise for a lean SNEPCo organisation.

Economics

In general it is recognized that the Production Sharing Contracts (PSC) economics are rather complex and require special skills and knowledge which appear to be complete within the current incumbents of the SNCP team.

Economic evaluations are done by the Corporate Planning and Economics Group, except for the Bonga Main project and Bonga infield opportunities, which are being handled directly by 2 engineers in the Bonga project team who have economic training. Having dedicated economic support in the project team makes good sense as it allows the project team to quickly evaluate sensitivities and project optimisation options during the (initial) development phase, and retains their overall responsibility for value tracking against their Group Budget Proposal (GBP). At present there seems to be good cooperation between the project team economists and the Corporate Planning Group with the project team providing economic support during peak-load periods. Longer term, as the major Bonga contracts are put into place, and the Bonga economics and planning become more stable, then the level of dedicated economic support within the Bonga team should be re-assessed.

The Bonga project team still uses MERAK-PEEP as their primary economic tool whereas the Corporate Economics Group have moved to COFINEC (Corporate Financial & Economic model), an in-house developed, SSI assisted EXCEL based economics and financial evaluation package.

The development, upgrading and testing of the economic modeling tool COFINEC has and will continue to take up significant manpower effort of the Corporate Planning team. The model has been extensively tested within the Planning team as well as benchmarked against the PEEP model. A number of upgrades are planned for the next release of the model. The benefit of an Excel based model is the inherent flexibility to incorporate new or changed PSC terms. This on the other hand is also the drawback as it is difficult to ensure model integrity. The complete set of input data,

SNEPCo EPPA Review (FINAL DRAFT)Shell Confidential

COFINEC model and output data are zipped and stored as audit trail and future reference. Additional back-up on writable CD ROM could be considered.

A much increased understanding of the PSC terms and impact on project (incremental) economics through cost oil recovery, investment tax credits, project ring-fences and first oil has been achieved by the Corporate Planning Team. The construction, testing and running of COFINEC has made a significant contribution to the increased understanding of the PSC workings. **It is important that this knowledge continues to be implemented in business decisions and strategy updates and is also retained in the team when staff are changed out.** The latter should be ensured through putting in place a succession plan.

It is noted that both economic models and methodologies are reviewed prior to any major investment milestone, for example, the Bonga model was externally audited prior to FID, and a VAR review was conducted prior to the Ultra Deep bidding. Such reviews should be encouraged for future major investment decisions.

Portfolio Management

There is extensive and active portfolio management carried out by SNEPCo with preemption of Amoco's acreage holdings in 1999, pursuit of divestment of SNEPCo's share in the AGIP blocks during 2000, other possible swaps, farm-in opportunities in existing deepwater blocks as well as the Ultra Deep water licence round during 2000 in which SNEPCo bid on two of the high potential blocks.

The portfolio management process seems well established and controlled within SNEPCo but it is acknowledged that it puts a heavy burden on the organisation as timelines are invariably very tight. There is a major concern versus the current lack of short term flexibility of the SDS technical support in Houston to react to changing priorities as and when opportunities come up, numerous iterations increasing the workload and reducing the efficiency. All SDS technical support work is and needs to be covered by agreed CTR sheets limiting flexibility, especially since the SDS organisation appears to be short of staff to cover ad-hoc urgent requirements. The SNEPCo-SDS organisational set-up is still very new, effective as of January 2000, which might have caused some teething problems. **This flexibility issue should be addressed by SNEPCo management with SDS management, as part of the 1st year CTR performance review planned for January 2001.**

There appears to be good liaison at working level between the SNEPCo planning team and their SCIN colleagues on Portfolio issues including ongoing discussions and learning points.

Planning

The overall planning process in SNEPCo is well established. Based on the Group Premises an extensive opportunity portfolio is evaluated and screened. Projects that meet the screening hurdles are then put forward to capital allocation and on the basis of the awarded project the final Business Plan is prepared. Value based management is in place, IBVc is included on the SNEPCo scorecard. It was noted that the Capital Allocation data set as submitted to the Center on the "NIEP"-sheets (PMaster) has become the economic and financial project reference of the Business Plan 2000.

Despite being put together under extreme work pressure, coming as it did in the middle of the Ultra Deep bidding round and the Group's deepwater portfolio initiative work, the business plan 2000 documentation and the data submissions are of very high quality and are very much in line with Group requirements. It is noted that there is a separate "volume 3" covering potential and executed A&D activity. The hard work put in by the team during this period has been duly recognized by management.

As part of the planning process not only Group but also Partner approval and thereafter NAPIMS approval needs to be obtained for the plans and budgets. There are some timing issues in getting all the approvals but this is managed by SNEPCo through a notional activity Plan issued to NAPIMS.

The integration of the Non-operated parts of the SNEPCo venture into the Planning process is well managed. The major concern is the misalignment of ExxonMobil's exploration plans before expiry

SNEPCo EPPA Review (FINAL DRAFT)Shell Confidential

of the exploration licence in 2003 and the limited activity supported by the Group. Exxon are expected to force the issue if it comes to the crunch through 'sole risk' threat. This is likely to negatively impact Group Expex ceilings.

The implementation of capital rationing, especially the tight expex ceilings particularly given the tax cover provided in a unit such as SNEPCo could have led to lost opportunities and value erosion. **At some point consideration should be given to quantifying this loss through a PIR type exercise.** SNEPCo are likely to remain under pressure from partners to step up exploration drilling in the coming 2-3 years, not only for acreage protection beyond the expiry of the exploration period in 2003, but also because of the favourable tax treatment enjoyed for exploration wells drilled in the OPL 212/219 ring fence before first oil. This is likely to bring significant pressure at time of Group capital allocation.

There is a concern on the burden the Group data request put on the organisation which is stretched as it is. A noted example is the Deepwater basin evaluation requested as part of the GDPI just ahead of the Capital Allocation Process. For next planning cycle these Group request should be more aligned.

Although the COFINEC tool provides integration between economics and financials this alignment has not been exploited through full implemented in the organisation. The financials for the planning period (5 Years) for Capital Allocation and the Business Plan are prepared separately by the finance department using their own local spreadsheet models. Long term financials forecasts are sourced from COFINEC.

Group Budget Proposals and Value Tracking

The Group Budget Proposals (502F) are prepared by the Corporate Planning Group, with expenditure levels against the agreed budget levels carefully monitored by the finance department. There is a concern that the current 502F requirements by the Group for exploration activities in the capital constrained world is putting a heavy burden on the organisation. Individual 502Fs are requested for small parts of the exploration programme in each OPL. **The incremental 502F requirements should be reviewed with the Regional Business Advisor in EPG.**

The Bonga project passed FID end 1999 and is the first development to be undertaken by SNEPCo. **Value tracking of the Bonga project and understanding of the reasons for changes from the original 502F will be very important and will greatly facilitate the PIR after completion of the project.** SNEPCo intent to update the Bonga valuation once the major contract awards are completed and impact on both cost and time schedule are clear. It is noted that there have been problems, i.e. time delays in getting NAPIMS approval for contract awards.

Value based management is well established both at a project and a portfolio level and IBV tracking of company value is in place.

Hydrocarbon Resource Management

Resource management is critical for any EP Company as it is the basis of any projects. **The current tools do not fully integrate the hydrocarbon resource maturation planning with the economic and financial planning. This has been identified by SNEPCo and they are working at full integration for the next Planning Cycle.**

The SNCP team are fully involved in the preparation of the ARPR with all projects being re-evaluated reflecting the latest status. This is critical in any PSC environment to correctly reflect Group entitlement volumes and appears to be well embedded in the planning process.

Understanding of Resource classification and the impact of reserves on the Group financials throughout the organisation needs to be improved. SNEPCo reflects at different places reserves at 100% level, at Shell Working Interest Share (SWIS) or as PSC entitlement. It is important that the right reserves are quoted and used for each specific purpose. Just this week it became clear that depreciation in the financials were calculated on incorrect reserves numbers. Depreciation should be calculated in line with GFAP on proved developed reserves (PSC entitlement share). **It is**

SNEPCo EPPA Review (FINAL DRAFT)

Shell Confidential

recommended to set up a procedure for supplying Finance with a proper proved reserves forecast by field to ensure correct forecasting of depreciation charges.

In line with the GFAP policy on depreciation for major (offshore) projects it is suggested to seek approval from the Group through EPG-RFA to depreciate Bonga capital on total proved rather than on proved developed as the major infrastructure and FPSO investment is made to produce all proved reserves.

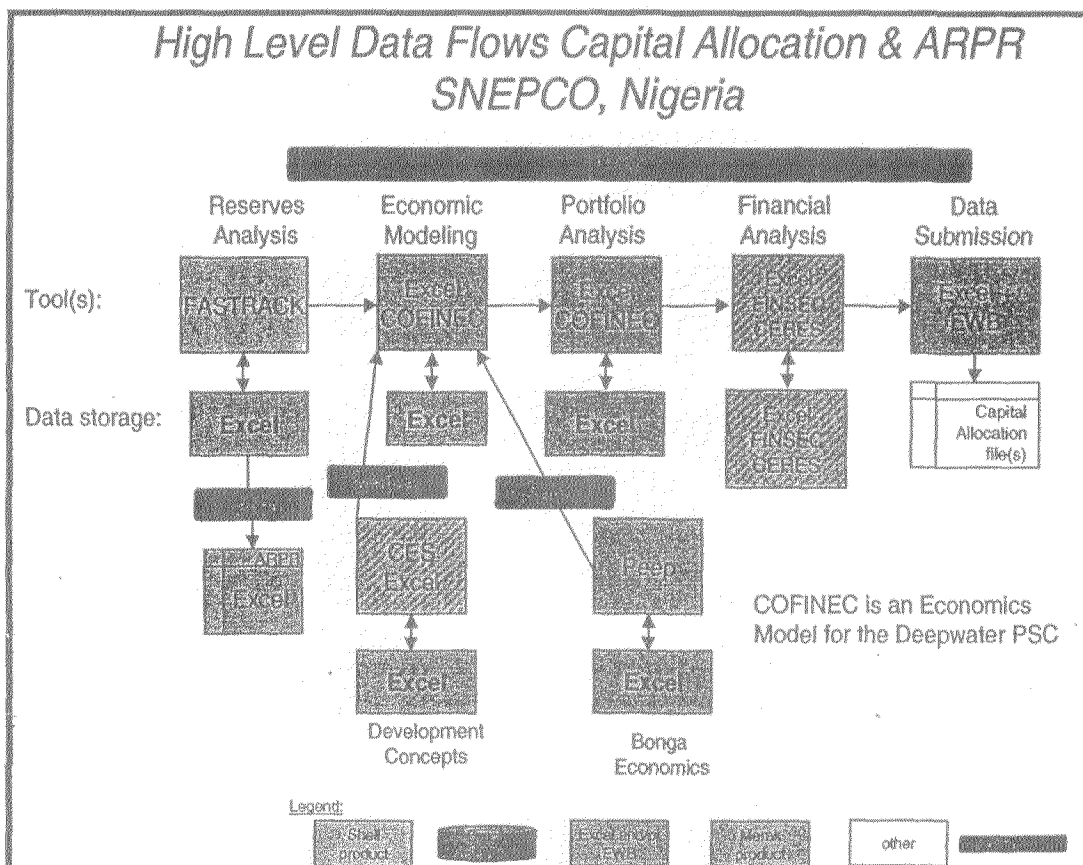
All planned developments are currently covered by FDPs which receive regular updates as necessary.

SNEPCo EPPA Review (FINAL DRAFT)

Shell Confidential

Data Management

Most of the high level corporate data typically flows through an OU's economics and planning team, and SNEPCo is no different in this respect. Strong data management is therefore an essential feature of any quality robust planning process. The figure below, indicates the typical data flows coming from a large variety of sources.



In this process there are many data stores and much interface transfer of data. All of this data transfer is currently done manually, via spreadsheets and email often with much recycling required. The data is completely static: if root data changes, that change remains static and does not cascade through to other users of the data, unless an update is made manually. Moreover, there is much double entry of data required in the overall planning system (separate data inputs for value planning and financial planning for example). The situation is exacerbated by the dual location (Lagos/Houston) of SNEPCo's operations: Custodianship of data typically resides in Lagos, but data generation and true ownership is typically with SDS in Houston.

The SNSM team run their own data collection exercises to support their own data requirements for budget and financial planning. This, in general is a repeat of the data supplied to the SNCP team for value and portfolio management. Resultant outputs between the two systems are checked manually for consistency. **In general, a separate review of SNEPCo's entire data management structure and procedures may be beneficial.**

The Bonga team take total responsibility within their team for data generation, management and custodianship, and generate their own project economics for project optimisation and for value tracking. Complete data sets are handed over at certain freeze points to the Portfolio Planning team for inclusion in the overall portfolio economics. Results are checked back against Bonga team generated economics.

SNEPCo EPPA Review (FINAL DRAFT)Shell Confidential

Despite the fragmentation of data sources and stores, the overall process works reasonably well, although it is fairly manpower intensive. The process is currently manageable, mainly due to the small scale of the current requirements. The Bonga development project is effectively self contained, and requires little external economic support. This essentially leaves only the concession assets and agreements group requiring direct economic support from the SNCP team for exploration economics, A&D work as well as assessments for non operated ventures. However, as the Company matures towards development and production, this workload is expected to increase and the current manual and static data management structure may prove insufficient and certainly inefficient.

Completed data sets ultimately reside on shared servers within the overall SNEPCo network.

The current fragmented nature of the data structure, with manpower intensive transfer loading checking, recycling and often double entry, although working at the moment, should be upgraded to a proper single datastore solution, where contributors could write directly to, either through periodic milestone type updates, or "live" or via web interfaces as the state of the IT infrastructure dictates (see further recommendations below). Data currency, and security could thus be assured, and only a single source of data would ensure consistency across its various planning uses (volumes, values, financials, budgets) with only single data entry by the data owner. It is understood that consideration is being given to returning to a Merak "PEEP" modeling environment (See Tools and Systems below) which would be inherently suitable for a proper datastore environment.

These data management issues have been largely recognized by the team and SNCP is leading an effort to resolve this issue and are currently investigating systems from both GEOquest and Landmark. It is understood that GEOquest/Merak recently conducted a site assessment of data management in SNEPCo and is proposing a solution using a customized "Petrodesk" platform.

There appears to be much business urgency for an upgrade of available bandwidth to support the business modus operandi of operating in dual locations. Sufficient bandwidth would enable uses of single data stores with write, read and editing capabilities at either location, thus providing much higher data integrity and significant efficiencies in the planning process going forward. Such an upgrade should be accompanied by a review and update of virtual team working procedures and training if necessary. Equally, enabling widely available technologies such as NetMeeting and video conferencing, would not only make the planning job easier and more efficient, but would potentially also cut down on travel frequencies and therefore answer one of the major gripes about the dual location. It is understood that implementation of bandwidth upgrade is currently ongoing, and significant performance increases can be expected from the end of Q1 2001.

It is understood that the planning, economic and financial data ultimately resides on a shared server. Although this data is usually password protected, it is in non-encrypted form. This makes it potentially accessible by any staff or contractors with network administrator privileges (typically limited to IT staff). Consideration should be given to an increase in data security by implementing either strong encryption of files and/or using a stand alone server completely outside of the corporate IT infrastructure which is then fully managed by the SNCP team themselves.

Tools & Systems

There are currently three different tool sets used within SNEPCo to manage the economics and planning process:

- The Bonga team use Merak "PEEP" for project economics, optimisations and value tracking. This tool works off an underlying database (most standard formats supported: Oracle, Access etc), and was the original system used by SNEPCo. It is also the system used universally by SPDC including the gas planning group, and is currently being adopted by SIEP for management of their capital allocation process.

SNEPCo EPPA Review (FINAL DRAFT)Shell Confidential

- The SNCP team found some difficulties with PEEP in been able to correctly model ring fences. They therefore abandoned PEEP in favour of an in-house developed tool with assistance from SSI. COFINEC is a spreadsheet based tool which provides project and portfolio economics as well as accompanying financials. However, the financial functionality is not used for planning submissions.
- Finally, for budget and financial planning, FINSEC, another spreadsheet based tool is used.

Missing from the above suites is reserve maturation forecasting which is currently completed manually.

The SNCP team are in the process of re-evaluating PEEP as the ring fencing issue seems to have been solved in the 2000 release of PEEP. This evaluation will be completed before year end.

The plethora of different tools does lead to some inefficiencies, which, due to the current scale of the process can be currently managed. Particularly there are versioning issues surrounding the data used in each of the three models, efforts required to maintain three separate systems, inefficiencies in having to cross check and calibrate between the systems, double or triple entry and maintenance of data etc etc etc.

The advantage of COFINEC over PEEP is that it is spreadsheet based, and can therefore be easily modified by users. Whilst this makes it eminently suitable for modeling where terms are still fluid, where stable terms exist it could be a disadvantage as it could be inadvertently changed by the user which could lead to errors.

Subject to satisfactory resolution of the ring fencing issue, serious consideration should be given to returning to a PEEP environment for portfolio economics for stable established fiscal regimes. For negotiating, or where deals and/or fiscal regimes remain fluid, then COFINEC could continue to be used to harness its flexibility if necessary. This would offer the team a number of advantages:

1. Would provide a solid, secure database environment which would lend itself easily to the concept of a single data store (server implementation of Oracle is probably the most suitable).
2. Improved model robustness, as a single model could be used corporately and could be locked from change.
3. A single model and data source could be used by the Bonga Team, the SNCP team and the SNSM team, which would reduce data flows and interfaces.
4. SNEPCo would be able to piggyback on tool development work with SPDC, particularly integration of financials, integrated decision tree and risk analysis, Monte Carlo, integrated reserves maturation accounting, capital planning and portfolio optimization tools, change tracking and auditing etc.
5. Data exchange with SPDC for integrated economics for NLNG trains would be much improved.
6. Improved alignment with the Group as they move towards a PEEP environment with direct data submissions PEEP to PEEP.

It is also worth noting that large efficiency gains can be achieved in any planning group by ensuring they have available to them state of the art computing equipment (fast processors, printers etc.) as well as sufficient supplies (transparencies, paper, cartridges etc.). Dedicated printer facilities (laser and colour) should be available to the planning team in view of the confidential nature of many documents and viewgraphs being prepared. It was noted that a dedicated colour printer was finally going to be installed. **It is recommended to review infrastructure and upgrade to dedicated state of the art. where appropriate to maximise team effectiveness.**

R

2

Organisation

The SNEPCo Organisation has a total staff strength of 104, with 92 people on ground, and majority of these are located in Nigeria (see Appendix II). Early 2000, the manpower projection was revised to be in line with the Shell Group strategy to have a Deepwater Centre of Excellence in Houston, USA. The Exploration and Subsurface teams in SNEPCo were essentially moved to Houston to be part of the Shell Global team for deepwater services, (SDS). The large presence of staff in Nigeria was attributed to the need to see SNEPCo as a Nigerian company.

Resourcing

Resourcing the required number of staff has become more manageable with SPDC releasing a sizeable number of staff to SNEPCo. However, a number of shortfalls still exist throughout the organisation, with several positions now open in excess of 6 months. Difficulties were expressed at resourcing the vacant slots within SNEPCo, both in number and quality. There are particular problems in attracting expatriate staff to Nigeria.

The SNCP team appears to be understaffed and is currently carrying a staff vacancy (also open in excess of 6 months). Some of the recommendations made throughout this document, if adopted, will go a long way towards improving efficiencies and making the job of the current incumbents somewhat easier. Nevertheless, there is an urgency to bring the strength of the team up to full establishment, well before the commencement of the next business planning cycle. Support should be sought from the Team Leader Economics (SIEP EPB-P) to assist in resourcing the vacancy in the SNCP team.

As mentioned elsewhere in this document, there are two engineers working in the SNIM group of the Bonga team, who have economic skills and who are responsible for running the Bonga project economics. Under the current set-up the Bonga economics are correctly owned by the Bonga asset manager, SCNP should provide functional support and quality assurance when required. In times of high load for the SNCP team the Bonga team economic resources often provide much needed support. This flexibility should be encouraged to continue, although the advantages of having devolved economics within the Bonga team is clearly recognized and no recommendation is made to change the organisational status quo in this respect at the moment, although post Bonga major contract award and once the economics and planning efforts in the Bonga team have stabilized, a review of this resource level should be considered.

The existing three staff within SNCP have expertise in Economics and Planning. Staff members run the economics on a regular basis and are familiar with the tools. The head SNCP currently does not run the economics at the moment, but is familiar with similar tools, having also used such in the past. It is recommended that the SNCP team leader increases his familiarity with the tools and systems (particularly if PEEP is re-adopted) so that he can provide additional cover in times of high workload and staff absence, and can be completely comfortable with the overall data management environment. To this end, the entire SNCP team (including team leader) and the two engineers in the Bonga team are scheduled for 3 days of "PEEP" training at the end of November. Independent opinion shows that the quality of deliverables from SNCP team is good, and that the timeliness seems adequate.

Resource shortfalls also exist in other areas of expertise, e.g. Identification and Evaluation Unit (SNEV), Petroleum Engineering support (SNPE), etc that may impact on the overall planning process. Particular concerns are manpower to properly evaluate the various opportunities / portfolios that serve as input into the programme, with the consequence that sub-optimum decisions may be taken.

The travel frequency of SNEPCo staff in general exacerbates the resourcing problem, not only directly within the SNCP team, but also indirectly as Lagos based SNEPCo staff are often not available for data contributions, checking queries etc.

If a decision is made to integrate economic, financial and value planning into a single data store and model, then considerations should be given to integrating the responsible staff resources into the same team (by for example, moving the finance planner into the SNCP team) as is

SNEPCo EPPA Review (FINAL DRAFT)

Shell Confidential

often the case in other Operating Units (SPDC is an obvious example). Such a move may also help the current resource level difficulties within the SNCP team. Governance issues within SCIN would need to be addressed.

Consideration could also be given to further integration of planning resources within Lagos into a single Group. There are currently 3 incumbents in the SNEPCo team, 3 in the SPDC team (including dedicated IT and modeling support) and 2 integrated gas planners. Integrating these into a single unit could provide the critical mass needed to spread the workload, would improve integration areas (such as gas) and could be then of sufficient strength to be able to support development positions for staff to grow the in house expertise within SCIN companies.

Interface SDS / SNEPCo

At this stage of the project, the main key technical activities take place in SDS with quality assurance being carried out in Nigeria. The ability to communicate effectively in a global environment remains crucial for SNEPCo to operate successfully in Nigeria. Poor communication facilities between Nigeria and Houston is a major problem. This limitation is attributed to the capacity of bandwidth available, which also hampers data transfer between these two locations. This has resulted in frequent travels for some of key SNEPCo staff, (based in Nigeria), with some up to 2/3 times in 1 month, a round trip from Nigeria to Houston will take up to 2/3 days traveling time, this coupled with the time lag could mean sub-optimal usage of manhours. There is also a high incremental cost element to the frequent international travel requirement. The detrimental impact of such travel on both the individual and the company is clear. The "lean" nature of the SNEPCo Lagos operation generally means that back-up staff are not available whilst incumbents are traveling. An improvement on the IT / communication facilities between SNEPCo Nigeria and SDS will tremendously improve the interface between these two locations and reduce the need for these frequent travels to the essential ones. Facilities like NetMeeting (a system of simultaneous file viewing on remote screens), video conferencing, etc will enhance communications, and quality data transfer capabilities. An action plan has been developed to improve this situation, but has been slow in taking off. It is mentioned the existing communication bandwidth limitations will be resolved in two stages; enlargement of bandwidth to allow faster web access for knowledge sharing and information access from desktops through a temporary dedicated link (128kbs) to be implemented in Q4 2000, and a more permanent and structured solution to be implemented in 2001 by SSI Nigeria for SCIN. There is a need to aggressively pursue and accelerate the implementation of this plan.

Questions were raised as to whether there is sufficient opportunity and thinking time for internal challenge of data and options, particularly in view of the dual location, prior to finalizing the economic results for decision making. This should be reviewed by management and actions taken where necessary.

SDS concept is relatively new, about 1 year old, and SNEPCo is still going through a learning process which will take quite some time. It is expected that this learning process will be useful in the management of the operations contract during the production phase.

There are different views in the SNEPCo organisation of the effectiveness of the dual location set-up and if the "cut" was made at the right point in the organisation. Though the Houston/Lagos set-up was not specifically part of this EPPA review it does impact on the overall EPPA process. It seems opportune to review the new organisational set-up in the near future after sufficient experience with the new set-up and identify improvements (if any) that are required.

APPENDIX I ToR

Review of the Business Planning Process - Terms of Reference

Background

Nigeria saw a first round of frontier acreage awards in 1993 that included deep water offshore and the unexplored onshore Gongola basin. SNEPCo was established on the 24th February, 1993 as a 100% Shell subsidiary company to participate in the bidding process and was one of the most successful - being awarded two blocks in the deep offshore (OPLs 212 and 219) in April 1993. The PSCs were signed on 19 April, 1993. Subsequent cross-assignments and portfolio actions resulted in SNEPCo retaining 55% interest and operatorship in these blocks (with ExxonMobil, Elf and Agip as partners) and acquiring 43.75% interest in ExxonMobil operated OPL 209 and 49.8% interest in Agip operated OPLs 211 and 316. SNEPCo is also bidding for 2 ultra-deepwater blocks (OPL 250 and OPL 322) in the ongoing Nigeria 2000 Licence Round.

The first exploration well Bonga-1 (OPL 212) in early 1996 was a spectacular success, which led to FID for development in December 1999 with first oil expected in 2003. Another huge success was the Erha discovery in the ExxonMobil operated OPL 209 in 1999 for which FID is expected in 2001. With these successes, SNEPCo has evolved in the past few years from a green-field exploration organisation into a more integrated E&P company.


The company has a challenge to retain its leading position in the highly competitive Nigeria deepwater and to expand and diversify its portfolio in one of the two deepwater provinces where the Group has a clear competitive lead. The Corporate Planning and Portfolio Department (SNCP) has a major role in meeting this challenge. Formed in August 1997, with three staff positions (now increased to 5 including one support staff on contract), the role and focus of the department have evolved with the evolution of the company itself. The department is responsible for Business Planning, Corporate and Exploration Economics and Portfolio Development. It also co-ordinates SNEPCo's Strategy and Planning Board meetings. Partner / Government liaison and Project Development Planning which used to be its responsibilities now belong to new departments (SNRA and SNDV) recently created within the Exploration function (SNAM).

Objective of The Review

1. To review the processes related to:
 - SNEPCo's short and long terms corporate plans, including operated and non operated licences.
 - The integration of Shareholder, Corporation (NNPC as PSC licence holder) and Partner planning processes.
2. To develop an assessment of the relevant business controls, including:
 - the structure of the Corporate Planning Process
 - the effectiveness of the SNCP organisation within the overall SNEPCo organisation.
 - the effectiveness of relevant business controls
 - adequacy of the Planning/Economics team (number, competency, development training, etc)
3. To identify any weakness that may lead to unacceptable risk, lost opportunities or waste of resources and to recommend possible improvement.

The audit scope will inevitably address interfaces with other processes such as shareholder governance/ group guidelines, governance of NOV, budgeting, liaison, portfolio management, asset management and strategic planning.

Scope

 The audit will verify and check against best practices, the current activities and practices, as executed in SNCP. Elements to be addressed will include:

- management of the planning process

SNEPCo EPPA Review (FINAL DRAFT)

Shell Confidential

- strategy development
- the process of identification, development and ranking of planning options
- information for the planning process, including financial and asset reference data
- the role of strategy review and strategic direction in the planning process
- planning support systems and software
- economics evaluation process and software
- key deliverables such as Business plans, ASR reports, IBV and key financial deliverables
- process management to ensure alignment with SCIN, Partners, NNPC planning processes

Auditee

Head Corporate Planning and Portfolio Management - SNCP.

Schedule

The audit is to take place on November 14-17.

Audit Team

Remco D. Aalbers SIEP EPB-P – Team Leader
Ken Blott SPDC BVL- ? PEC
Rotimi Ajayi SPDC CAE-RES

Deliverables

- ✓ Presentation to SNEPCo management on audit findings/recommendations
- ✓ Draft report will be made available after the presentation
- ✓ Final report.

Follow-up

Follow-up will be through RUFUS.

Reference Information

SNEPCo Policies

SNEPCo Corporate Management Manual

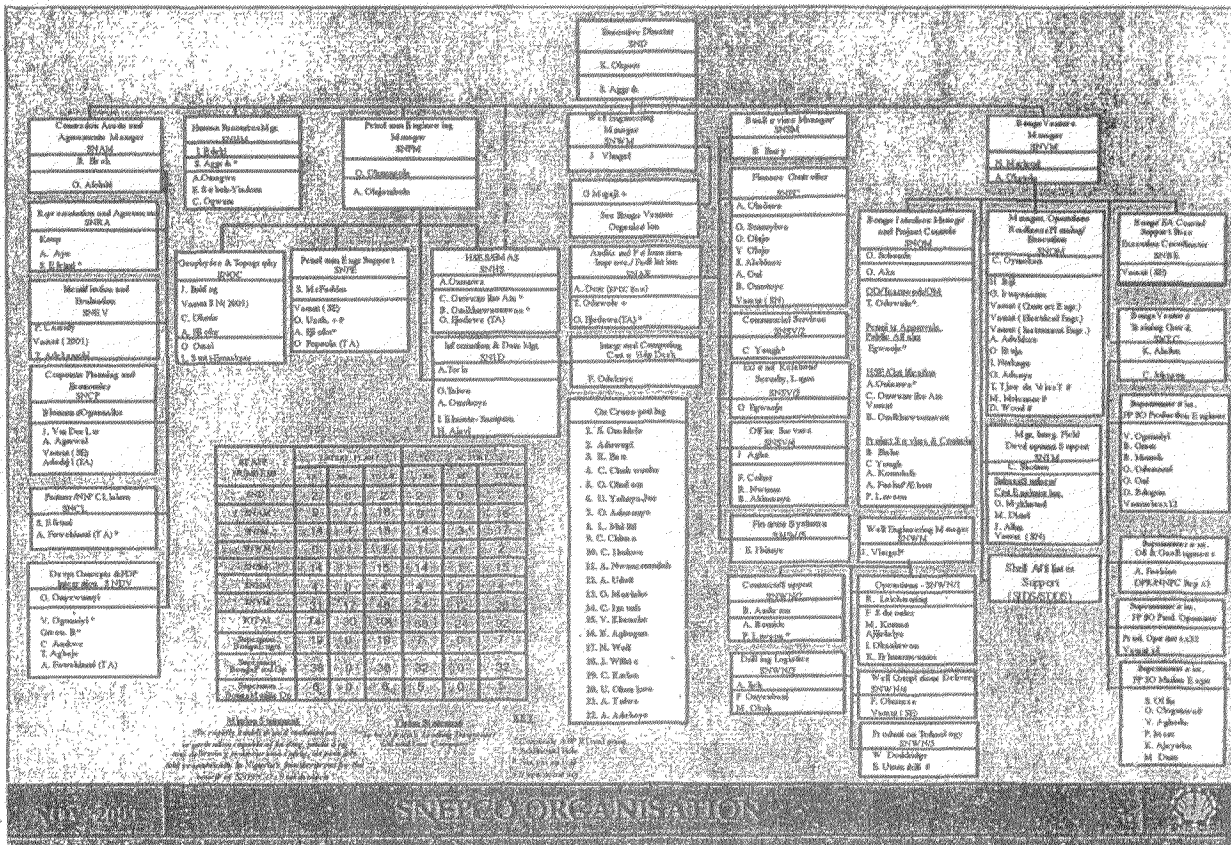
SNEPCo's Organisation Chart and Role and Responsibilities Document

ASR and Business Plan (volumes 1,2 &3) reports (will be available in SNEPCo)

Draft Planning Cycle Guide

~~Shell Confidential~~

November 2000



APPENDIX III SUMMARY OF RECOMMENDATIONS

Economics

1. Ensure that the acquired knowledge and understanding of fiscal terms is both implemented in future business decisions and strategy updates and is also retained in the team when staff are changed out.

Action: ????

Portfolio Management

2. Consider solutions to the issues surrounding lack of flexibility of the CTR system in place with SDS with respect to ad-hoc data requests on support of the portfolio planning process.

Action: ????

Planning

3. Consider carrying out a PIR type exercise to establish the impact of the constrained Group imposed expex ceilings in terms of value erosion.

Action: ????

Group Budget Proposals and Value Tracking

4. The incremental 502F requirements should be reviewed with the Regional Business Advisor in EPG.

Action: ????

5. Value tracking of the Bonga project and understanding of the reasons for changes from the original 502F will be very important and will greatly facilitate the PIR after completion of the project.

Action: ????

Resource Management

6. The current tools do not fully integrate the hydrocarbon resource maturation planning with the economic and financial planning. This has been identified by SNEPCo and they are working at full integration for the next Planning Cycle.

Action: ????

7. Set up a procedure for supplying finance with proper proved reserves forecasts by field to ensure correct forecasting of depreciation charges.

Action: ????

8. Seek approval from the Group through EPG-RFA to depreciate Bonga capital on total proved reserves rather than developed proved reserves, as the majority of the investment is made to produce all proved reserves.

Action: ????

Data Management

9. The current fragmented nature of the data structure, with manpower intensive transfer loading checking, recycling and often double entry, although working at the moment, should be upgraded to a proper single datastore solution, where contributors could write directly to, either through periodic milestone type updates, or "live" or via web interfaces as the state of the IT infrastructure dictates (see further recommendations below).

Action: ????

10. There appears to be much business urgency for an upgrade of available bandwidth to support the business modus operandi of operating in dual locations. Sufficient bandwidth would enable uses of single data stores with write, read and editing capabilities at either location, thus providing much higher data integrity and significant efficiencies in the planning process going forward.

Action: ????

11. Consideration should be given to an increase in data security by implementing either strong encryption of files and/or using a stand alone server completely outside of the corporate IT infrastructure which is then fully managed by the SNCP team themselves.

Action: ????

Tools & Systems

12. Subject to satisfactory resolution of the ringfencing issue, serious consideration should be given to returning to a PEEP environment for portfolio economics for stable established fiscal regimes. For negotiating, or where deals and/or fiscal regimes remain fluid, then COFINEC's could continue to be used to harness its flexibility if necessary.

Action: ????

13. It is recommended to review SNCP team IT infrastructure and upgrade to dedicated state of the art where appropriate to maximise team effectiveness.

Action: ????

Resourcing

14. Some of the recommendations made throughout this document, if adopted, will go a long way towards improving efficiencies and making the job of the current incumbents somewhat easier. Nevertheless, there is an urgency to bring the strength of the team up to full establishment, well before the commencement of the next business planning cycle.

Action: ????

15. The current flexible practice of supplementing the planning teams' resources on an ad-hoc basis with engineers skilled in economics from the Bonga team should be encouraged to continue, although the advantages of having devolved economics within the Bonga team is clearly recognized and no recommendation is made to change the organisational status quo in this respect.

Action: ????

16. It is recommended that the SNCP team leader increases his familiarity with the tools and systems (particularly if PEEP is re-adopted) so that he can provide additional cover in times of high workload and staff absence, and can be completely comfortable with the overall data management environment.

Action: ????

17. Consideration should be given to integrating the responsible staff resources for financial & value planning into the same team as is often the case in other Operating Units (SPDC is an obvious example). Such a move may also help the current resource level difficulties within the SNCP team. ~~Governance issues within SNCP would need to be addressed.~~

Action: ????

Interface SDS/SNEPCo


18. Questions were raised as to whether there is sufficient opportunity for internal challenge of data and options, particularly in view of the dual location, prior to finalizing the economic results for decision making. This should be reviewed by management and actions taken where necessary.

Action: ????

SNEPCo EPPA Review (FINAL DRAFT)

Shell Confidential


APPENDIX IV VIEWGRAPHS MANAGEMENT PRESENTATION



SNEPCO EPPA REVIEW

14-17 November 2000
Lagos

Remco Aalbers
Ken Blott
Rotimi Ajayi



Overview

- Objective
- Economics
- Portfolio Management
- Planning
- HC Resource Management
- GBP and Value tracking
- Data Management
- Tools and Systems
- Organisation & Resourcing
- SDS/SNEPCo Interface

28-11-2000 SNEPCO EPPA REVIEW 2



Objective

- Review of the Economic, Planning and Portfolio Analysis Process (EPPA) in SNEPCO Review of Corporate Economics and Planning group (SNCP)
 - Assess quality of process, systems, tools and organisation
 - Identify weaknesses, lost opportunities or waste of resources
 - Recommend possible improvements

28-11-2000

SNEPCO EPPA REVIEW

3



Economics

- PSC economics are complex
- Increased understanding of PSC terms and conditions and impact on project economics
 - Should be implemented in business decisions and strategy updates
 - Retained/transferred when staff are changed out
- Inhouse development integrated economic and financial model COFINEC
 - SSI assisted development
 - Tested and checked against PEEP model
 - Further upgrades planned
 - Flexible for evaluating new deals

28-11-2000

SNEPCO EPPA REVIEW

4

SNEPCo EPPA Review (FINAL DRAFT)

Shell Confidential

Portfolio Management

- Extensive and active Portfolio Management in SNEPCO
 - Dilutions, swaps, divestments and farm-ins
 - New UDW licence round 2000
- Process seems well established and controlled
- Heavy burden on the organisation
- Insufficient flexibility in SDS to support A&D evaluations
 - Limited by CTR but possibly impacted by new organisation and staff shortage in SDS
 - needs to be reviewed with SDS

28-11-2000

SNEPCO EPPA REVIEW

5

Planning-1

- Planning process well established and fully aligned with Group requirements
 - includes Partner and NAPIMS approvals
 - timing mis-alignments effectively managed
 - NOV asset well integrated, although load may increase in future
- Full Opportunity Inventory screened
- CA/BP'00, GDPI & UDW bid-round considered
 - Stretched planning team, duly recognised by Management
 - CA submission & BP'00 documentation high quality

28-11-2000

SNEPCO EPPA REVIEW

6

Planning-2

- Misalignment: Group supported exploration plans versus Operator plans i.e. Exxon
 - Sole risk likely to force issue
 - Threat to Group Expex ceiling
- Quantify impact CA Expex ceilings versus lost opportunities and possible value erosion
 - PIR, ...by ASR?
 - Favourable tax for Exploration pre-first oil
 - Likely to be issue in next years CA excercise

28-11-2000

SNEPCO EPPA REVIEW

7

HC Resource Management-1

- HC Resource Management critical as basis for any project
- Hydrocarbon maturation to be integrated in planning process
 - Full integration planned for BP'01
- Full involvement of SNCP in the ARPR process
 - Including latest agreed status for all projects
 - Critical to establish PSC entitlement volumes
- FDPs basis of major developments
 - 'Live' with regular update process in place

28-11-2000

SNEPCO EPPA REVIEW

8

SNEPCo EPPA Review (FINAL DRAFT)

Shell Confidential

HC Resource Management-2

- Need for improved understanding of resource classification through the organisation.
 - 100% volumes, SWIS or PSC entitlement
 - proved or expectation
- Depreciation incorrectly calculated for BP'00, impact on NIAT
 - Should be based on proved developed reserves
 - Seek Group approval to use total proved for large (offshore) projects in line with GFAP
 - Implement procedure to supply proved reserves forecast for depreciation calculation

28-11-2000

SNEPCO EPPA REVIEW

9

GBP (502F) and Value Tracking

- Well established process for GBP
 - Careful monitoring against agreed budgets
- Concern on increasing number of small incremental exploration 502Fs
 - Significant burden on Planning Group
 - To be reviewed with EPG-RBA
- Value tracking of Bonga 502F critical
 - Bonga team will monitor project value
 - Next update once major contract awards complete
 - cost and time schedule
 - Input for PIR once project completed and on stream

28-11-2000

SNEPCO EPPA REVIEW

10

SNEPCo EPPA Review (FINAL DRAFT)

Shell Confidential

Data Management-1

- SNCP consolidates corporate data
- Current data structure sub-optimal
 - fragmented, double, manual links, static
 - manpower intensive, check for consistency
- Need for proper single data store
 - Recognised being pursued
 - direct updates by contributors
 - possibly 'live' though web-interfaces pending IT
 - Data management review in SNEPCO

28-11-2000

SNEPCO EPPA REVIEW

11

Data Management-2

- Increase Bandwidth critical
 - Needs systems and training
 - Allow NetMeeting and Video conference
 - Phased upgrade of bandwidth planned
 - Rerouting data traffic
- Data Security
 - Separate server and/or encryption

28-11-2000

SNEPCO EPPA REVIEW

12

Tools and Systems

- Re-evaluate Merak-PEEP
 - Resolution ring-fence issue
 - Solid data base environment
 - Improved model robustness
 - Benefit of alignment with SPDC
 - Aligned with Group
- Ensure IT systems are state of the art and infrastructure is in place
 - Increased processor speed
 - Dedicated fast colour printer
 - Basic supplies

28-11-2000

SNEPCO EPPA REVIEW

13

Organisation & Resourcing-1

- Problem to resource vacancy via OR
 - World wide shortage of specific skills
 - Attractiveness issue versus Nigeria (HR?)
 - Urgency to resource before next Planning Cycle
 - Improved data management should improve efficiency reduce stretch of organisation
- Efficient use of all economics skills
 - Bonga Team economist used to peak-shave
 - Economics in Bonga team supported, but long term need to re-evaluate economics skill distribution
 - SNCP teamleader could provide cover during peak periods and staff absence

28-11-2000

SNEPCO EPPA REVIEW

14

Organisation & Resourcing-2

- PEEP-training planned
- Consider full integration of economics, financial and value planning
 - Improve quality and efficiency
 - Done in other OUs as well as EPB-P
 - May reduce resource problem
- Possible full integrated planning team for SCIN (SPDC, SNEPCO and Gas) could have large benefits
 - Larger critical mass
 - Better integration, especially for gas
 - Support development positions

28-11-2000

SNEPCO EPPA REVIEW

15

SDS Interface

- New Organisational Set-up
 - Heavy on travel requirements
 - Many staff away at critical periods
 - Flexibility issues (vs CTR's)
- Bandwidth critical to make the dual location set-up Lagos/Houston work efficiently
- Review effectiveness of economic challenge process in view of the dual locations

28-11-2000

SNEPCO EPPA REVIEW

16

Draft Recommendations (1)

- **Economics**
 - Ensure that the acquired knowledge and understanding of fiscal terms is both implemented in future business decisions and strategy updates and is also retained in the team when staff are changed out.
- **Portfolio Management**
 - Consider solutions to the issues surrounding lack of flexibility of the CTR system in place with SDS with respect to ad-hoc data requests on support of the portfolio planning process.
- **Planning**
 - Consider carrying out a PIR type exercise to establish the impact of the constrained Group imposed expex ceilings in terms of value erosion.

28-11-2000

SNEPCO EPPA REVIEW

17

Draft Recommendations (2)

- **Resource Management**
 - Set up a procedure for supplying finance with proper proved reserves forecasts by field to ensure correct forecasting of depreciation charges.
 - Seek approval from the Group through EPG-RFA to depreciate Bonga capital on total proved reserves rather than developed proved reserves, as the majority of the investment is made to produce all proved reserves.
- **Data Management**
 - The current fragmented nature of the data structure, with manpower intensive transfer loading checking, recycling and often double entry, although working at the moment, should be upgraded to a proper single datastore solution, where contributors could write directly to, either through periodic milestone type updates, or "live" or via web interfaces as the state of the IT infrastructure dictates (see further recommendations below).

28-11-2000

SNEPCO EPPA REVIEW

18

SNEPCo EPPA Review (FINAL DRAFT)

Shell Confidential

Draft Recommendations (3)

- There appears to be much business urgency for an upgrade of available bandwidth to support the business modus operandi of operating in dual locations. Sufficient bandwidth would enable uses of single data stores with write, read and editing capabilities at either location, thus providing much higher data integrity and significant efficiencies in the planning process going forward.
- Consideration should be given to an increase in data security by implementing either *strong encryption of files* and/or using a stand alone server completely outside of the corporate IT infrastructure which is then fully managed by the SNSCP team themselves.
- **Tools & Systems**
- Subject to satisfactory resolution of the ringfencing issue, serious consideration should be given to returning to a PEEP environment for portfolio economics for stable established fiscal regimes. For negotiating, or where deals and/or fiscal regimes remain fluid, then COFINEC's could continue to be used to harness its flexibility if necessary.

28-11-2000

SNEPCO EPPA REVIEW

19

Draft Recommendations (4)

- **Resourcing**
- Some of the recommendations made throughout this document, if adopted, will go a long way towards improving efficiencies and making the job of the current incumbents somewhat easier. Nevertheless, there is an urgency to bring the strength of the team up to full establishment, well before the commencement of the next business planning cycle.
- The current flexible practice of supplementing the planning teams' resources on an ad-hoc basis with engineers skilled in economics from the Bonga team should be encouraged to continue, although the advantages of having devolved economics within the Bonga team is clearly recognized and no recommendation is made to change the organisational status quo in this respect.

28-11-2000

SNEPCO EPPA REVIEW

20

SNEPCo EPPA Review (FINAL DRAFT)

Shell Confidential

Draft Recommendations (5)

- It is recommended that the SNCP team leader increases his familiarity with the tools and systems (particularly if PEEP is re-adopted) so that he can provide additional cover in times of high workload and staff absence, and can be completely comfortable with the overall data management environment.
- Consideration should be given to integrating the responsible staff resources for financial & value planning into the same team as is often the case in other Operating Units (SPDC is an obvious example). Such a move may also help the current resource level difficulties within the SNCP team.
- **Interface SDS/SNEPCo**
- Questions were raised as to whether there is sufficient opportunity for internal challenge of data and options, particularly in view of the dual location, prior to finalizing the economic results for decision making. This should be reviewed by management and actions taken where necessary.

29-11-2000

SNEPCO EPPA REVIEW

21