



Water
Resources
Programme

IAEA/UNDP/GEF Nubian Sandstone Aquifer System Medium Sized Project

Inception Meeting Report

Nov. 9, 2006

Introduction

The Inception Meeting for the IAEA/UNDP/GEF Nubian Sandstone Aquifer System (NSAS) project was held from July 16- 20, 2006 in Tripoli, Libya. The meeting agenda and Participants List are attached (in Annexes 1 and 2 respectively.)

The objectives of the meeting were to:

1. officially launch the IAEA/ UNDP/ GEF Nubian Sandstone Aquifer System (NSAS) project and to assure a common understanding of the issues to be addressed during the project from 2006 to 2009,
2. review with key stakeholders (government representatives) the organizational arrangements, as well as managerial and technical aspects of the project,
3. prepare a project implementation plan (PIP) for the duration of the project (30- 36 months)

The desired result of the meeting was to:

1. reach a common agreement and understanding on project implementation (i.e. scope of the project, components, activities, expected results, roles and responsibilities, time frame etc. as a basis for project implementation)

The expected outputs of the meeting were:

1. Project Implementation Plan including time frame
2. Project Steering Committee established
3. Meeting report

All of the objectives of the meeting were met with the desired result and expected outputs achieved. This document represents the Meeting report. The first day, mostly introductory presentations, as well as all other presentations are highlighted and provided in an accompanying CD Rom. A summary of discussions is provided for Days 2 through 4 in Annex 3. Day 5 of the meeting was focussed on developing the Project Implementation Plan (PIP) the principle output of the meeting.

The draft PIP is attached as Annex 4. Finally, significant time was devoted during the Inception Meeting to discussing project implementation structures, including the establishment of the Project Steering Committee (PSC) as well as the roles and responsibilities of the respective National Project Coordinators (NPCs.) Draft terms of reference for the PSC and the NPCs are annexes to the Project Implementation Plan.

The IAEA would like to thank the government of Libyan Arab Jamahiriya for its kind and generous efforts in hosting the Inception Meeting in Tripoli.

Annex 1

Meeting Agenda

- TDA/SAP training

16:30

Close for the Day

July 17

Session 2: *SADA (continued)*

- 8:30- 9:00 National Workplans for SADA
- 9:00- 10:30 (Group work on national implementation)
- 10:30- 11:00 Coffee Break
- 11:00- 12:00 Report on Group Work
- 12:00- 12:30 Next steps, roles and responsibilities and time frame
- 12:30- 13:30 Lunch Break

Session 3: *Component 1 (continued) Information Management*

- 13:30- 14: 30 Country experiences on information management, data, GIS
- Managing information, data bases and NARIS
 - Experience with current systems
- 14:30- 15:00 Planning next steps, time frame and roles and responsibilities

Session 4: *Component 2 NSAS Strategic Action Programme*

- 15:00- 15:30 What is a SAP for the NSAS? M. Atallah, UNDP/GEF, A. Garner IAEA
- SAP development process in steps
- 15:30- 16:30 Group work on how to implement at the national level, next steps, roles and responsibilities and time frame for implementation
- 16:30 Close for the Day

July 18

Session 5: *Component 3: Institutional and Legal Framework*

8:30- 8:45	Introduction to the Component - Brief review of the component	A. Garner, IAEA
8:45- 9:15	Development of legal frameworks in GEF IW projects	M. Atallah, UNDP/GEF
9:15- 9:45	Current status of groundwater legal framework at intl level	R. Stephan, UNESCO
9:45- 10:30	Country Presentations-Current status of NSAS Institutional and Legal Framework and considerations for further enhancement	
10:30- 11:00	Coffee Break	
11:00- 12:00	Country Presentations (continued) and discussion	
12:00- 12:30	Group work on how to implement at the national level,	
12:30 – 13:30	Lunch	
13:30- 14:30	Group work	
14:30- 15:00	Next steps, roles and responsibilities and time frame for implementation and other (linkages with other projects and initiatives)	related issues

Session 6: *Project Management, Monitoring and Evaluation (project components 4 and 5*

15:00- 15:30	Component 4 Project Management, - Implementation- Roles and Responsibilities within the project - Regional Project Steering Committee, Joint Authority etc. - Involvement and Contribution of Partners - Project Coordination-PIU - Project administration - Monitoring and Evaluation - National Inter-ministerial Committees -	A. Garner, IAEA
15:30- 16:30	Country presentations “National implementation structures & stakeholders involved”	
16:30	Close of day	

July 19th

Session 7: *Advanced preparations for sampling campaigns*

8:30- 10:30 Sampling Campaign preparations 2006-07 and Individual National Consultations

10:30- 11:00 Coffee Break

Session 8: *Preparing the NSAS Project Implementation Plan (PIP)*

11:00- 12:30 Defining elements of the PIP

12:30- 13:30 Lunch

13:30- 15:30 Defining Elements of the PIP

15:30- 16:00 Progress in developing the PIP

Close of day

July 20

Session 9 *Report on the PIP*

8:30- 10:30 Report and Discussion

10:30- 11:00 Coffee Break

Session 10: *Synthesis of Next Steps in Project Mobilization*

11:00-12:00 Next Steps

- Country support in start-up at IAEA HQ and in-country
- First sampling campaigns
- Confirmation of national implementation structures
- TDA-SAP training
- Project Coordination
- Other GEF related initiatives and partnerships
- Next project meeting

Session 11: *Closing (12:00)*

Meeting Completed by 12:30

Objectives:

- to officially launch the IAEA/UNDP/ GEF Nubian Sandstone Aquifer System (NSAS) project and to assure a common understanding of the issues to be addressed during this project from 2006 to 2008;
- to review with key stakeholders the organizational arrangements, as well as managerial and technical aspects of the project; and
- to prepare a project implementation plan for the duration of the project (30 months.)

Desired Outcome:

- common agreement and understanding on the scope of the project, components, activities, expected results, roles and responsibilities, time frame etc. as a basis for project implementation

Expected Outputs:

- Meeting Report
- Project Implementation Plan including time frame
- Project Steering Committee established

Annex 2

Participants List

RAF8036/9004/01
Inception Meeting for the UNDP/GEF/IAEA Medium Sized Project (MSP)
Libyan Arab Jamahiriya, Tajoura
2006-07-16 - 2006-07-20

List of Participants

1	IAEA	Mr Pradeep Kumar Aggarwal- IAEA, NAPC
2	IAEA	Mr Ali Boussaha- IAEA, TCAF
3	IAEA	Mr William Andrew Garner- IAEA, NAPC
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Annex 3

Summary of Discussions

IAEA / UNDP / GEF Nubian Sandstone Aquifer System (NSAS)

Inception Meeting

July 16th-20th; Tripoli, Libya

Date: July 16th, 2006

Chairperson: Omar Salem

Rapporteur: Sameh Afifi

ACRONYMS

CEDARE	Center for Environmental and Development for the Arab Region and Europe
CBD	Convention on Biological Diversity
EcoQOs	Ecosystem Quality Objectives
FAO	Food and Agriculture Organization of the United Nations
GEF	Global Environment Facility
IAEA	International Atomic Energy Agency
IBWC	International Boundary Water Commission
IFAD	International Fund for Agriculture Development
ISARM	Internationally Shared (Transboundary) Aquifer Resources Management
MSP	GEF Medium-Sized Project
NARIS	Nubian Sandstone Aquifer Regional Information System
NEPAD	New Partnership for Africa's Development
NSAS	Nubian Sandstone Aquifer System
OSS	Sahara and Sahel Observatory
SADA	Shared Aquifer Diagnostic Analysis
SAP	Strategic Action Programme
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization

1.0 Attendees

IAEA, NAPC

- William Andrew Garner – Austria
- Pradeep Kumar Aggarwal – Austria

UNDP/GEF

- Mirey Atallah – Lebanon

UNESCO

- Raya Estephan – IHP, France

Chad

- Ismail Mosa – NIEE/DH
- Mahamat Kher Salah – SGA/MEE
- Reoueb Mel Noe – DEP/DH/MEE

Egypt

- Ahmed Khater – MWRI/RIGW
- Sameh Afifi – MWRI/RIGW
- Ahmed Abdel Maksoud – MWRI/GWS
- Ekhlal Gamal EIDin – EEAA
- Mostaf A. Sadek – EAEA

Libya

- Omar Salem
- Mohamed M. Amer – GEF/EGA
- Mehdi A. Mejrhi – GWA
- Mohamed Baegi – RE & WD Center
- Lotfi Ali Madi – GWA
- Salah EDDin EIMesallati – Foreign Liaison Sector
- Salem Ghurbal – REWDRC
- Mohamed Busitta – REWDRC
- Hamza B. Hamza – REWDRC
- El-Hadi S. Henshir – GWA
- Taher Abofila – GWA
- Mohamed Bakhbakhi – AlFateh University
- MufTah Fellah - GWA

Sudan

- El Khitma El Awad – HCENR
- Abdalla Mhoamed Kheir – Groundwater Directorate, MOIWR
- Mohamed Bahar Eldien – Ministry of Irrigation
- Mohamed Elhassan Ibrahim – Ministry of Irrigation

2.0 Opening Session

- Mr. Omar Salem (Libya) welcomed all participants and emphasized the importance of the meeting. Recognition is given to previous efforts and attempts for coordination and cooperation on the NSAS.

- After welcoming the participants, Mr. Aggarwal (IAEA) welcomed the participants and emphasized the importance of understanding the technical aspects of the project. In addition, he assured the commitment of the IAEA for guiding and executing this project.
- Mr. Ali Gashut (Libya) emphasized the importance of conducted research and previous experience as vital elements for the success of this project.

3.0 Overview of the IAEA/UNDP/GEF NSAS Project

3.1 IAEA perspective – Mr. Garner

Mr. Garner presented the Overall objective: Rational and equitable management of the NSAS towards Sustainable Socio-economic Development and the Protection of Biodiversity and land resources.

The immediate Objectives were:

- Prepare and agree on a SADA
- Fill key methodological, data and capacity gaps
- Undertake a Strategic Action Programme (SAP)
- Framework for developing an agreed legal and institutional mechanism towards a convention.

3.2 UNDP/GEF prospective – Ms. Attalah

- Ms. Atallah mentioned that TDA is a cornerstone of GEF IW projects. The TDA/SAP approach has been systematized and institutionalized through the IW Learn project in the form of a training course.
- The NSAS countries have agreed to call this a Shared Aquifer Diagnostic Analysis (SADA), ...
- It includes stock-taking exercises addressing the different physical, political and sectoral issues affecting transboundary issues
- This diagnosis should not just be undertaken by experts and oriented towards science – but also should include real stakeholder involvement, looking into livelihoods and collaboration/cooperation across sectors. (e.g. water quality, foreign affairs, water resources, environment, atomic energy etc.)
- This baseline information and knowledge represented should help:
 - Lead to SAP
 - Develop sound policies
 - Support science based decision making
 - Identify key gaps – not only data gaps (*not just information, but also legislative among other issues*)
 - Highlight the need for coordination and cooperation
 - Set a solid basis for the identification of the appropriate legal and institutional framework
- Monitoring and evaluation – should be agreed upon at the onset including GEF indicators:

- Process
- Stress reduction
- Environmental and social status indicators
- Monitoring contribution to the achievement of MDG supporting the achievement of commitments to the WSSD

4.0 The SADA development process in specific steps - Mr. Garner, IAEA

4.1 Main Presentation

Mr. Garner presented the following:

Outline of Presentation

- Why a SADA
- What does it achieve
- How do you do it
- The steps

What is a SADA

A scientific and technical fact-finding analysis used to scale the relative importance of sources, causes and impacts of transboundary “shared” water problems, risks, threats or issues.

Mr. Garner showed a layout of the NSAS, and indicated that we will focus on the transboundary issues of the aquifer

Key Principles of a SADA

- An objective assessment and not a negotiated document
- The analysis is in a cross-sectoral manner, focusing on transboundary issues without ignoring national concerns and priorities. Includes a focus on environmental issues such as land degradation, biodiversity and climate change adaptation.
- Includes a detailed “governance analysis” preceded by a full stakeholder consultation.

A Brief Comparison Between the SADA and the SAP

- SADA identifies the priority problems, threats, risks and the underlying sectoral causes as well as the root causes of the problems
- The Strategic Action Programme (SAP) is the response(s) – a negotiated policy document, establishing clear priorities for action to resolve priority transboundary issues.

Common Principles

- SADA/SAP must develop a shared vision between Stakeholders
- Based on adaptive management – “learning by doing” a process by which long term environmental goals are achieved in a series of pragmatic action-based steps.
- SADA-looks intensively at cause and effect relationships and assesses the relative importance of issues and threats to international waters and their causes as the basis for identifying measures
- Ideally, the sequence of causes should be identified in a hierarchical manner from technical perspectives, through management and socio-economic perspectives to the policy (political) level

Mr. Garner discussed the SADA Approach including determining the technical baseline, filling in data gaps, forming national teams and SADA training, prioritization of issues as well as a risk/problem analysis

Strategic fact Finding: The centerpiece of the GEF SADA/SAP approach an conducted via national technical teams

Approach for working

Mr. Garner presented the way forward – Road Map – for the SADA

- Finalize the technical baseline update
- Begin filling in gaps
- Set-up national implementation structures (focal points, inter-ministerial committees, et c.)
- Identification of stakeholders
- Technical task teams (based on profile of needed experts)
- Review of important tools (e.g. modelling)
- TDA/SAP training

Challenges for the SADA: The Uniqueness of Groundwater

- TDA/SAP has been mainly used in surface water
- Groundwater has unique properties
- Therefore the need to focus on risks, pressures
- The importance of modeling: Assessing potential risks, and testing the feasibility of possible responses/ solutions.

4.2 Comments

- Mr. Abd Alla (Sudan) expressed his concern about where we start? We have had the Joint Authority for several years, receiving assistance from partners on how to go forward. The way he sees it:
 - 1- Agree on a strategy paper for certain number of years with certain activities. The mission has to be clear and how to approach the further development (beginning and end).
 - 2- He asked if the Analysis starts after or before we formulate the project
 - 3- There is still not enough information on how to implement SADA.
 - 4- This project was developed to see the regional implementation of the project and to see the win-win activities, to view how to implement the programme
 - 5- Who is preparing the terms of reference for the SADA programme. He encourages that the national teams should be involved in the preparation phase.
- Mr. Garner acknowledged the raised comments. He replied that the SADA component is as important as the other components. The other component related to the SAP starts with the Nubian vision, goals and how to get there. Also discusses the benefits of cooperation. The term “strategic paper” will come through these components. Although SADA may be the end product, the SAP will highlight and underline the vision of sharing, protecting, monitoring and managing the NSAS.

5.0 Country Presentations

5.1 Egypt

The formulation of an Action Programme for the Integrated Management of the Shared Nubian Aquifer was presented. The surface water has been the focus of most of the efforts in the cooperation for management of shared water resources. This has been unfair to the groundwater resources such that there is not enough done for shared aquifer systems. On the other hand, the amount of work done specifically on the NSAS is a model for cooperation on shared aquifers.

Management of Aquifer Systems

- Management of aquifer systems essentially aims at achieving certain goals through a set of decisions related to the operation of the system
- In order to solve the management problem we must be able to predict the response of the aquifer system to any proposed operation policy/ action, and obtain the modified states of the system

The Nubian Sandstone Aquifer System: During the past three decades, respective initiatives have made effort to evaluate the aquifer

Sharing these experiences within a cooperation framework is of vital importance for the sustainable development of the aquifer.

The Nubian Sandstone Aquifer system

Evolution of Regional Cooperation was presented as:

- 1972-1974 (UNESCO-UNDP)
- 1978-1988 (UNDTCE, UNEP, UNDP)
- 1992 Egypt and Libya established the Joint Authority for the Development of the NSAS
- 1994-2001 Regional Programme for the Development of the Nubian Sandstone Aquifer System (CEDARE, IFAD)

The Nubian Sandstone Aquifer Systems

The Regional Cooperation Program (1994-2001)

The mathematical model has been applied to predict the regional behavior of the aquifer using the software (Aqua3D)

Local Groundwater Modeling

Local groundwater modeling is done for individual development areas to assess aquifer potential and response to proposed developed scenarios.

Aqua3d has not been used to develop local sub-models and Modflow has continued to be the most popular software used for local modeling.

Future Needs were expressed as:

- Revising and updating of the regional conceptual and mathematical models and the modeling scenarios adopted in the previous work.
- Enhancing the modeling process
- Uncertainty, scarcity of data and cross-border impacts are major issues
- Acquiring licensed modeling packages and other relevant software
- Capacity building and hands-on training.

5.2 Sudan

Status of Groundwater Modelling in the NSAS and Future Needs in Sudan

E. Klitzsch, Rushdi Said & Echart Schrank
Manfred Heintz & Paul J. Brinkmann 1989
Cedare 2002
Lahmeyer International 2006

E. Klitzsch, Rushdi Said & Echart Schrank 1984
Manfred Heintz & Paul Brinkmann 1989
(finite element model)
Hypothesis: During humid period (2000 years ago) the aquifer was filled completely

Recharge:

Natural groundwater discharge: Springs in the oases and lakes. Overflow in the River Nile (Dakka area = Lake Nasser)

*Cedare 2002, Regional Strategy for the Utilization of the Nubian Sandstone Aquifer System, Volume III

Sudan did not benefit a lot from the project because the southern part did not have data. Most of the data came from the northern part of Sudan.

* Lahmeyer International, 2006

This is a local model in Sudan. Most of the data (discharges, wells) were available. The groundwater flow was towards the Nile.

Findings: Recharge of the NSAS from the Nile is confirmed by both: Isotope and mathematical modeling

This recharge is limited to less than 35 km

All recharged water from the Nile is either abstracted for irrigation or evaporated.

Future Needs were expressed as:

- Improve reliability of the model
- Fill data gaps
- Condense monitoring and sampling
- Use isotopes techniques, geophysics, remote sensing and drilling
- Involve southern part of the aquifer in the regional model.

Comments

- Mr. Bakhbakhi replied that the lack of data was the main reason that the southern part was not emphasized especially that there were no activities for the southern part, and thus, no change on initial heads has been done.

- Mr. Abdul-Hakim ElWaer asked about the drilling activities and indicated that gathering the data is very expensive without the assistance of the oil industry. The oil industry has tremendous amount of information on the groundwater in the remote areas. In addition they are heavy users of water. The oil industry is a potential stakeholder in this project. The national owner of the concession, the national petroleum institute, among others, may be a good source of data.
- Mr. Salem indicated that the oil sector has never been ignored in previous projects. However, hydrogeological information may not be available from this sector but geological structure and geophysical investigations might be. Also, the problem of obtaining data from the oil sector is that it is usually not very easy.
- Mr. Aggarwal, IAEA. Water is common part of all UN activities. There are numerous programmes and projects where the UN supports water projects. And thus, the need for a single Water Agency by UN may not be feasible at the current time. Regarding the oil industry, what is shallow for them is deep for us (groundwater experts).
- Mr. Khater indicated that there was not enough data to calibrate the southern part of the model. Concerning stakeholders, historically, institutes from the oil industry often did not think they were among the stakeholders because the Nubian aquifer is too shallow for them.
- Mr. Abd Alla indicated that we need to move together on future modeling.
- Mr. Garner mentioned that Ms. Atallah gave a good example of the Oil sector as a stakeholder. The comment highlights the importance of including various stakeholders that may assist the dialogue with water experts and other stakeholders.

5.3 Libya

The regional model carried out by CEDARE was presented. Part of the data was taken from the exploratory model. He showed the simulated drawdown resulting from the highest development scenario of the NSAS. The recommendations include the modelling and monitoring. The horizontal and vertical distribution of the aquifer properties are critical to know. Most of the calibration of the models has been done in very limited locations (e.g kufra, Siwa, Dakhla and Kharga). Thus, more calibration needs to be implemented.

There are wells from Kufra and areas of wheat production in the south. The model has been verified lately in various locations and the report will be prepared within the coming month.

He raised up the point of not being able to use the Aqua3d from CEDARE because it does not go function with the current operating system. When Libya requested an upgrade, it could not get it because of the embargo. Thus, they are back to ModFlow in their current modeling efforts.

5.4 Chad

The problem with the language barrier (i.e. Arabic and then English) was raised.

Status of groundwater in the NSAS:

The contact has begun with the countries since 1991.

The Chad Foreign Ministry reacted to the appeal sending a letter on 1998 confirming the engagement of the Chad government to join the Commission and to designate a National Coordination.

All the existing information are acquired form the regional model. The hardware and software to install the model didn't arrive to Chad. Field equipment are not available. The Nubian area in Chad is remote without sufficient infrastructure

Future needs:

- Training (intensive training in modeling)
- Equipment
- Financial means for the study

IAEA / UNDP / GEF Nubian Sandstone Aquifer System (NSAS)

Inception Meeting

July 16th-20th; Tripoli, Libya

Date: July 17th, 2006

Chairperson: Mohamed Bahar Eldin Abdalla

Rapporteur: Mahdi Megrbi & Sameh Afifi

1.0 Attendees

IAEA, NAPC

- William Andrew Garner – Austria
- Pradeep Kumar Aggarwal – Austria

UNDP/GEF

- Mirey Atallah – Lebanon

UNESCO

- Raya Stephan – IHP, France

Chad

- Ismail Mosa – NIEE/DH
- Mahamat Kher Salah – SGA/MEE
- Reoueb Mel Noe – DEP/DH/MEE

Egypt

- Ahmed Khater – MWRI/RIGW
- Sameh Afifi – MWRI/RIGW
- Ahmed Abdel Maksoud – MWRI/GWS
- Ekhlas Gamal ElDin – EEAA
- Mostaf A. Sadek – EAEA

Libya

- Omar Salem, GWA
- Mohamed M. Amer – GEF/EGA
- Mehdi A. Mejrhi – GWA
- Mohamed Baegi – RE & WD Center
- Lotfi Ali Madi – GWA
- Salah EDDin ElMesallati – Foreign Liaison Sector
- Salem Ghurbal – REWDRC
- Mohamed Busitta – REWDRC
- Hamza B. Hamza – REWDRC
- El-Hadi S. Henshir – GWA
- Taher Abofila – GWA
- Mohamed Bakhbakhi – AlFateh University
- MufTah Fellah - GWA

Sudan

- El Khitma El Awad – HCENR
- Abdalla Mhoamed Kheir – Groundwater Directorate, MOIWR
- Mohamed Bahar Eldien – Ministry of Irrigation
- Mohamed Elhassan Ibrahim – Ministry of Irrigation

2.0 Morning Discussion

- Mr. Abd Aalla (Sudan) inquired about the methodology for the steering committee nomination. He also showed concern that the steering committee and the regional project coordinator (project manager) have not yet been appointed and this may affect the future implementation of the project.
- Mr. Garner (IAEA) responded that we are meeting the regional commitments set from the baseline meeting. One of the expected outputs of this meeting (inception meeting) is to formulate the steering committee. The participants will decide on the appropriate level of each country representative to be on the steering committee. This is in addition to IAEA, UNDP/GEF and UNESCO members. Such decisions will be discussed later in this meeting. Accordingly, the steering committee will be the guiding force.

On the other hand, the process of assigning the project coordinator has been delayed because of the delay in signing the project document. Now that the project document is signed, the GEF funding will be used to hire the project coordinator. It is anticipated to take 4-6 month to hire the coordinator among the candidates. According to IAEA's regulation, the project coordinator could not have been hired until the GEF funding is accessible.

Mr. Garner also clarified that the terminology of project coordinator corresponds to project manager. Chief Technical Advisor is a term often used in GEF International Waters projects. He also added that the regional activities on SADA training is expected to happen in January/February. The project is operational as of this meeting (i.e. now). The cost of the current meeting normally would be paid by GEF funding, however, it is paid by IAEA because the GEF money was not available in time, as the pro doc was just signed in June 2006.

Between now and January (expected time for hiring the project manager), we will look at the model and get resources for this activity.

3.0 Adding Environmental Considerations, Ms. Attalah

3.1 Main Presentation

The main outline of Ms. Atallah's (UNDP/GEF) presentation included:

- Environmental Policies do not work properly in several cases, mainly because of undermining factors such as: top-down approach, sectoral approach etc.
- Strategic priorities include: land (Land Degradation, dryland, .. etc), water (IWRM), and adaptation to climate change.
- Existing frameworks include NBSAPs for biodiversity, NAPs for desertification and land degradation, NCs for climate change and NSSDs for socio economic development, gender mainstreaming, access to water resources, environmental sustainability
- Most of the countries have produced a MDG report. These reports can be used to link the objectives of this project.
- Adaptation is looking at the long-term effect of climate change. Thus our planning should ensure the compliance with ecosystem and climate resilient development. For example agriculture and food security, we should ensure that this should not be affected by climate changes. The same concept applies for water resources management, public health, disaster risk management and coastal development.
- Impacts of climate change on water on increased/decreased/or more variable precipitation.

- Affecting the development sectors in Agriculture, Energy, Tourism. Water dependent industry and inability to sustain domestic freshwater demand should be considered.
- Examples of possible responses include strengthening CC, improving water use efficiency, improved groundwater management and rainwater harvesting.
- Challenges for the NSAS include:
 - o Establishing proper linkages with relevant sectors
 - o Looking at biodiversity as an objective
 - o Energy perspective
 - o Accounting for environmental flows
 - o Looking at the bigger picture
 - o National/Shared interface (national activities and their impact on water resources).
- Possible responses include the identification of key issues, introduction of climatic variability and keeping in mind a holistic view of development through the prism of long term sustainability.

3.2 Comments

- Mr. Garner highlighted the importance of linking the factors that were presented, and identified the type of required expertise for developing the SADA.
- Dr. Bakhbakhti indicated that the utilization of the NSAS for the last 40 years has led to the extraction of 45 billion cubic meters that have destroyed some of the flowing wells. Thus, something has to be done to take care of existing oases otherwise they are going to disappear.
- Dr. Khater indicated that management involves several aspects including the technical aspects related to hydrology. In addition, the environmental and socio-economic aspects are also parts of management challenges. The past attempts in NSAS focused on the hydrology of the system without much emphasis on the other two aspects. The NSAS is a non-renewable system, and by taking water, there will be a drop in the water level and this can't be avoided.
- Mr Abd Alla predicted that the environmental impact can not be avoided. However, he questioned to which extent we shall look at the environmental risk.
- Mr. Garner mentioned that in the SADA, there would be environmental risk assessment. The question is how to look at the mitigation level: would it be through policies or other means?
- There are opportunities that there will be follow-up project that will emphasize Nubian SAP implementation. At this time, we are establishing a process in this project for the coming 3 more years (July 2009). Based on interim results, a larger project, for GEF funding could be submitted sometime in 2008 to carry on after the completion of the MSP.
- Ms El Khitma (Sudan) recommended that the SADA should be comprehensive by including the various environmental dimensions in order to maintain sustainable development.
- Mr. Ismail (Chad), questioned whether we have prepared an environmental impact assessment at the proposal level or not.
- Ms. Atallah (UNDP/GEF) commented that we might look at land degradation for example. This may not be much of a concern, and after initial assessment we may not look at it at much later. However, the idea of EIA is really important and may be included in the SADA program.
- Mr. Chairman inquired if we have an environmental baseline. Also, he commented that the mitigation would be looked at in the long run. But he inquired about how we can consider climate change adaptation at this time (at the start of the project).
- Ms. Atallah (UNDP/GEF) commented that we will be reporting against the MDGs in the overall sense, not for every country (e.g. safe access to water resources). Mitigating the impacts of the project may be looked at during the SADA. There are always trade-offs, e.g. do you just conserve the water in the aquifer or would you do that at a different compromise while minimizing the impacts. We can link the SADA with the hydrological model to assist in formulating the SAP.

4.0 Next Steps, Mr. Garner

4.1 Main Presentation

Mr. Garner (IAEA) presented the following:

- SADA approach includes: technical baseline, filling in Data Gaps, forming national teams and SADA training, prioritization of issues, etc.
- The way forward includes: Begin filling in data gaps; Setup national implementation structures (water sector is the lead, however other sectors should be included); Identify its own stakeholders and the timing of the steering group meetings; Identify stakeholders (i.e. who needs to be involved including industrial sectors); Consider regional technical team (need to identify how to choose the expertise); setup national technical task teams (what is the profile, TOR of the suitable candidates, what budget, etc); Review of important tools (e.g. modeling and peer review); and SADA training.
- Implementation Preparation at National level includes: 1) Confirm National Project Coordinators; 2) Define Inter Ministerial committees; 3) Plan and begin implementing next sampling campaigns; 4) Capacity building; and 5) Feasibility to conduct stakeholder analysis and identify the needed stakeholders. This needs to be done during the period of Sept-Dec 2006
- The SADA National Level should: consider national SADA teams based on TORs; Prepare for SADA/SAP training. This is expected to be done in Jan/ Feb. 2007.
- NSAS modeling should: Consider status of NSAS model and potential enhancements through peer review of the existing model and relation to other potentially useful models.
- SADA Steps to be defined are:
 - o Analysis at National Level (review of current status, risk analysis, casual chain analysis, analysis of options, governance assessment and draft national SADA report)
 - o National consultation meeting(s)
 - o National SADA report
 - o Regional Analysis
 - o Regional SADA meeting
 - o Regional SADA report

4.2 Comments

- Mr. Abd Alla (Sudan) inquired if the training happening after the processes and plans for SADA have started would affect the outcome.
- Mr. Garner clarified that the plans for the SADA should not affect the training process. The process should not be changed by the training. The training may affect the choice of expertise rather than modifying the process. By the end of the week, we should have an implementation plan. If deemed necessary, this plan may be changed later after training or responding to other factors.
- Mr. Chairman (Sudan) recommended that we need to focus on the regional level activities. Collecting the national reviews and raise them to the steering committee and request a plan for implementation.
- Mr. Megrbi (Libya) asked if there is a schedule for the national plans.
- Mr. Garner responded by saying that we can look at this again after tomorrow (after deciding who would be in the steering committee). The first project steering committee can take place during the same period of the SADA training. Accordingly the steering committee can approve the suggested plans by looking at the output of the current meeting and outcome of training. Let's focus now on what things we can get done before the training. If we look at how much time we need to look at the analysis at National level according to the SADA steps to be defined. We should have 4 different reports (from each country) and accordingly we can meet and discuss the next steps.
- Mr. Abd Alla (Sudan) inquired if the embargo may hinder the technical exchange and training programs.
- Mr. Aggarwal (IAEA) ensured that Sudan shall be considered and alternatives for training shall be provided.

5.0 Group Discussion

1. Confirm National Focal Point Institutions and National Project Coordinators

Country	Decision	Additional Comment
Chad	Ministry of Environment and Water	
Egypt	Research Institute of Groundwater, Ministry of Water Resources & Irrigation (Mr. Khater)	
Libya	General Water Authority (Mr. Madi)	
Sudan	Directorate of Groundwater, Ministry of Irrigation & Water Resources (Mr. Abd Alla)	

The IAEA will communicate with each country to receive official confirmation of the National Project Coordinators.

2. Inter-Ministerial Committees

Country	Decision	Additional Comment
Chad	Ministry of Environment & Water, Ministry of Agriculture, Ministry of Health, Ministry of Tourism, Ministry of Planning and	
Egypt	Ministry of Water Resources & Irrigation, Ministry of Environment, Ministry of Agriculture, Local Gernerates (Nile Valley & Matrooh)	
Libya	GWA, EGA, GMMRA, GHHRUA, REDWRC, Ministry of Agriculture, Ministry of industry, Utilities, Housing Authority, Ministry of Planning, Ministry of Foreign Affairs	
Sudan	Ministry of Agriculture, Ministry of Interior, others?	

Each National Project Coordinator will be asked to further develop, at the respective national levels, the national Inter-ministerial Committees.

3. Plan and begin implementing next sampling

Country	Decision	Additional Comment
Chad		<i>To be discussed in following sessions</i>
Egypt		<i>To be discussed in following sessions</i>
Libya		<i>To be discussed in following sessions</i>
Sudan		<i>To be discussed in following sessions</i>

4. Capacity Building

Country	Decision	Additional Comment
Chad		Based on previous agreement in Baseline Meeting (May 2006)
Egypt		
Libya		
Sudan		

5. Stakeholder Analysis

Country	Decision	Additional Comment
Chad		<i>Will be filled later at National level</i>
Egypt	Ministry of Water Resources & Irrigation (Groundwater Sector, Research Institute of Groundwater, Central labs), Egypt Atomic Energy Authority, Groundwater Users Association, other users including investors, tourism	
Libya	GWA, EGA, GMMRA, GHRUA, REDWRC, Ministry of Agriculture, Ministry of industry, Utilities, Housing Authority, Ministry of Planning, Ministry of Foreign Affairs	
Sudan	Ministry of Irrigation & Water Resources, Ministry of Environment, Ministry of Livestock, Ministry of Interior, Wildlife Department, University of Khartoum,	

Additional Comments:

- Socio-economic expertise would be required for the SADA team
- Pre-training would be required prior to the SADA/SAP training
- Nominate experts where appropriate to work with the regional water expert to refine the model
- Identify the time required at the National level from the time of training till the preparation of Regional SADA report (6-8 month).

6.0 Country Presentations on National Data Management

6.1 Sudan

The Sudanese representative presented the existing data base and monitoring systems using data loggers. He expressed his difficulties with renewing the license for Oracle system. He recommended the revision and training on Oracle, training on GIS, and training on GIS with link to modeling.

6.2 Libya

The Libyan representative presented the available software for database, including archmap, archview, and NARIS. He indicated that they have been trying to install the database for the last year (mainly because of Oracle related problems and operating systems). These problems are finally solved and they will start collecting new data to feed the NARIS. He gave a presentation illustrating the entering of data into NARIS.

6.3 Chad

The representative from Chad reported that there are 2 databases for hydrological data. He indicated that they need training in monitoring, GIS and modeling

6.4 Egypt

The representative from Egypt presented the available databases including ACCESS based database (in Arabic interface). Most existing wells in the NSAS in Egypt are registered in the database which has queries and reporting capabilities. He also presented the NARIS program. He expressed that NARIS was not maintained because of several factors including lack of monitoring funding and renewing the Oracle license.

6.5 General Discussion

- The Oracle license is a hindrance for further utilization of NARIS
- The existing budget does not support software purchases
- Online data base management may become a feasible alternative
- UNDP/GEF encourages regional data base management. National level should be discussed by each country.
- Funding may be required on licensing fees.
- For isotope analysis data will be fed to an existing program provided by IAEA.
- An agreement on using NARIS as the database needs to be identified. If so, related problems should be solved.
- The conclusion is to review the project document and how to enhance the data management while considering the licensing issue at a later stage.

7.0 Transboundary Diagnostic Analysis and SAP, Ms. Atallah & Mr. Garner

7.1 Main Presentations

Ms. Atallah (UNDP/GEF) presented the following main points:

- Background to the international waters TDA/SAP
- We need international water diagnostic analysis
- What is meant by international waters (large marine ecosystems, estuaries, river basins, .. etc.)
- The scientific and technical fact finding analysis. It should be an objective assessment and not a negotiated document. It acts as both a planning a diagnostic tool for measuring the effectiveness of SAP.
- The SAP is a negotiated policy document. It establishes clear priorities for regional and national actions to resolve the priority transboundary waters problems. It identifies policy, legal and institutional reforms and investments needed to address the priority transboundary water problems. The preparation of a SAP is a cooperative process among key stakeholders in the countries of the region.
- The TDA identifies: the priority environmental/water resources problems, environmental and socio-economic impacts, underlying sectoral and root causes, and analysis of governance. The TDA is based on a reasoned and multi-sectoral consideration of the problems.
- The SAP outlines the policy, legal and institutional reforms and investments needed to resolve the priority TB problems. It must be agreed before technical assistance, capacity building or investment projects.

Mr. Garner (IAEA) presented the following main points

- Why a SAP
- Explained the inter-relation between component 3 and other components
- SAP is a negotiated policy document which should identify policy, legal and institutional reforms and investments.
- Key principles of a SAP should be based on feasible options. It should be endorsed at the highest level and established clear priorities. In addition, it should be based on a vision statement and long-term environmental quality objectives.
- There are 6 main steps required to develop the SAP:
 - o Bridging the SADA and SAP development (Regional)
 - o Brainstorming ways to attain the Eco/WR QCs (Regional)
 - o Examination of alternatives (National)
 - o Development of short-term and M& E Indicators (Regional)
 - o Drafting the SAP (Regional/National)
 - o Ministerial Development (Regional/National)
- Planning the remaining steps of the SAP
- The flow of activities

7.2 Comments

- Ms. Atallah (UNDP/GEF): This project is unique. It has a scientific component and diagnostic component to reach a SAP which should lead to an agreement on sustainable development.

- Mr. Garner (IAEA): The technical part is supportive to the legal and institutional component of the project.
- Ms. ElKhitma (Sudan): The project emphasizes the sustainable and environmental development that should affect the policy formulation.
- Mr. Chairperson (Sudan) suggests to have an overall strategy before thinking about the specific SAP of this project (this project may become a part of the overall strategy).
- One of the components is formulating the SAP. The SAP is one of the outputs of the project but it is still a negotiated document.
- Mr. Garner (IAEA): The project will establish the SAP process. It will up to the countries to adopt the SAP and sustain it. This may involve negotiations (e.g. how do we define rational and equitable? What time period? Who will use it?). SADA will suggest the kind of transboundary issues (if any).

IAEA / UNDP / GEF Nubian Sandstone Aquifer System (NSAS)

Inception Meeting

July 16th-20th; Tripoli, Libya

Date: July 18th, 2006

Chairperson: Ahmed Rashad Khater

Rapporteur: Sameh Afifi & Mohamed ElHassan Ibrahim

1.0 Attendees

IAEA, NAPC

- Ali Boussaha – Austria
- William Andrew Garner – Austria
- Pradeep Kumar Aggarwal – Austria

UNDP/GEF

- Mirey Atallah – Lebanon

UNESCO

- Raya Stephan – IHP, France

Chad

- Ismail Mosa – NIEE/DH
- Mahamat Kher Salah – SGA/MEE
- Reoueb Mel Noe – DEP/DH/MEE

Egypt

- Ahmed Khater – MWRI/RIGW
- Sameh Afifi – MWRI/RIGW
- Ahmed Abdel Maksoud – MWRI/GWS
- Ekhlal Gamal EIDin – EEAA
- Mostaf A. Sadek – EAEA

Libya

- AbdulHakim El Waer – EGA
- Ali Gashut – NBRD
- Mohamed M. Amer – GEF/EGA
- Mehdi A. Mejrhi – GWA
- Mohamed Baegi – RE & WD Center
- Lotfi Ali Madi – GWA
- Salah EDDin EIMesallati – Foreign Liaison Sector
- Salem Ghurbal – REWDRC
- Mohamed Busitta – REWDRC
- Hamza B. Hamza – REWDRC
- El-Hadi S. Henshir – GWA
- Taher Abofila – GWA
- Mohamed Bakhbakhi – AlFateh University
- MufTah Fellah - GWA

Sudan

- El Khitma El Awad – HCENR
- Abdalla Mhoamed Khen – HCENR
- Mohamed Bahar Eldien – Ministry of Irrigation
- Mohamed Elhassan Ibrahim – Ministry of Irrigation

2.0 Morning Discussion

- Mr. Chairman (Egypt) inquired about yesterday's task for preparing an estimate on the time required to prepare the regional SAP report.
- Mr. Garner stated the steps to be defined for SAP as follows:
 - Preparation and initiation (regional) – [by bridging the SADA and SAP, Developing Long-term Eco QOs, and planning remaining steps of the SAP]
 - Suggesting Options (regional) – [Brainstorming ways to attain the EcoQOs]
 - Preparing National SAP Reports (regional) – Examination of alternatives, developing targets, set measurable indicators, developing short-term and priority actions, agreement on the institutional framework, and drafting the National Action Programmes]
 - Preparing the Regional SAP report (regional) [drafting the regional SAP, and adoption of the SAP]
- Egypt suggested 8-12 month, Libya suggested 12 month, Sudan suggested 12 month, and Chad did not suggest a specific duration but mentioned that it would take 4 months to finish the national report.
- Ms. Attalah indicated that the SADA training will address the threats and risks associated with the shared aquifer. There would be some overlap between SADA and the initial step for the SAP.
- Mr. Garner (IAEA) commented that 2 years from now, we know that we will get the clear objectives/goals set and how the cooperation on the NSAS should lead to. It is not just water management, but also socio-economic and environmental management. The final agreement may be achieved after most of the work has been done and that this process of finalizing the SAP and reaching agreement might spill over into the follow-up GEF project.
- Mr. Abdallah (Sudan) mentioned that the understanding of SADA is not satisfactory. Even, if we are late to start the project, we still need to have ample time for the preparing course; this could include online courses or sending out background material to countries in advance of the training.
- Mr. Garner (IAEA) stated that there will be training in January 2007. Before the training, there will be published training material to explain the process. It is also planned that there will be a meeting after the training to discuss the output and methods of application in term of steps and time frame. Furthermore, as this approach is relatively new to groundwater management, we will apply adaptive management, i.e. learn as we go and adapt as necessary.
- Mr. Bahr Eldin (Sudan) suggested that the joint authority, in its current situation, doe not have the capacity to do the action programme. We, first need to study and learn more about the aquifer in order to better understand how to appropriately develop and manage the aquifer. A small committee should be established in the first part of the project to start formulating the whole vision for setting a SAP.

3.0 Introduction to Component 3 of Institutional framework, Mr. Garner

3.1 Main Presentation

The main outline of Mr. Garner (IAEA) presentation includes:

- Overall Objectives
- Project Components
- Component 3 chart
- The context of Component 3 (establish a framework for an agreed legal and institutional mechanism towards a NSAS convention for joint 4 party-management.)
- Suggested activities (inform relevant decision-makers, mobilize national and regional expertise, review national groundwater legislation/policy documents, and looking at bilateral agreements, preparation of background document on legal requirements, meeting of legal experts, formulation of options regarding nature/structure and mandate of NSAS arrangement,

drafting regional text and convening national legal work, convening inter-governmental negotiation sessions, and drafting of a legal framework with agreement on process and content for a legal mechanism)

4.0 Overview of Legal Frameworks in UNDP/GEF Water Projects, Ms. Attalah

The presentation included:

- Examples of UNDP-GEF IW projects supporting existing transboundary waters legal and institutional frameworks (e.g. Niger River basin, .etc)
- Examples of UNDP-GEF IW projects supporting development and adoption of new TBW legal and institutional mechanisms (e.g. Caspian Sea, Lake Tanganyika, Nile Rive Basin, Legal agreement to be developed for the Joint Authority of the Nubian Shared Aquifer System, Benguela Current LME, Western Pacific)
- Examples of project activities of Legal frameworks (Development of new legal agreements, preparation and adoption of protocols to existing & emerging legal agreements, SAP formulation and SAP implementation).
- UNDP does not expect to have full agreement in this project, but may reach that in a following project (e.g. during implementation)
- This project is one of the first UNDP-GEF international waters project for a transboundary aquifer. Thus, we will all be learning by doing.
- The project will provide linkages to emerging global processes in strengthening groundwater management and governance including efforts to develop a global groundwater legal framework.
- The important component of GEF International Waters overall strategy is to address gaps in groundwater programming and strengthening linkages to surface water management
- The strategic importance of NSAS to economic development in the four countries was underlined.
- Examples of challenges for this project include: accelerated and ambitious time frame of 30 months; GEF TDA should be a consensus agreed by all parties; budgetary constraints of MSP make national, IAEA, UNDP, other donor co-financing vital etc. Other challenging aspects include: cross-sectoral nature of groundwater utilization, unique nature of NSAS resource in term of being large and non-renewable, and limited global experience/models for multinational transboundary groundwater legal frameworks;
- Example of assets that we have include UNDP country offices in each NSAS country, other transboundary groundwater projects in the region (NW Sahara project etc.) , IAEA involved as a valuable technical partner, solid cooperation basis, strong country commitment, and solid in-country expertise and possibilities of sharing experiences.

5.0 Current Status of Shared Aquifers in International Law, Ms. Stephan

Ms. Stephan (UNESCO-IHP) presented the following:

- Current state of international law has limited consideration of transboundary aquifers in international law in term of
 - o Subsidiary to surface water - UN Watercourse Convention (1997); and state practice (river basins agreements). The later convention considers groundwater when there is an interaction/related to surface water. However, there are few exceptions.
-
- Codification at the International Law Commission (ILC) included the following phases: 1) In 2002, the ILC included in its programme of work the topic of shared natural resources; 2) The

first report in 2003 discussed the background of the topic; 3) the second report in 2004 introduced the term “aquifer” and submitted seven draft articles; and 4) the third report in 2005 introduced a full set of draft articles on the law of transboundary aquifers.

- UNESCO-IHP has been active within the framework of the ISARM project to provide scientific assistance to the Special Rapporteur of the UNILC in the preparation of the draft articles on transboundary aquifers, and has since the beginning coordinated a multi-disciplinary ad-hoc task force of groundwater experts who has met regularly with the Special Rapporteur..
- The UN GA 6th Committee expressed a global support to the project and global support to the approach adopted in the reports and to the scientific consultation with GW experts.
- In 2006, the ILC adopted the draft articles (19) at first reading. There are five parts: introduction, general principles, protection, activities, and miscellaneous provisions.
- ,

6.0 Country Presentation on Institutional and Legal Framework

6.1 Libya

- Mr. Lotfi presented the mandate of the joint authority for the study and development of the NSAS
- Discussed the establishment, rules (in Arabic, English and French), location, objectives, function of the authority (collection of all information, preparation and execution of all complementary studies, develop programmes and plans for the utilization of water, water management of the NSAS, etc)
- The Management of the Authority is composed of board of directors consisting of three part time members from each country. The board has had 8 meetings to date.
- The budget and financial resources is generated by each year. Last budget was \$400,000.
- The website is www.jasad-nsas.org, email: infor@jasad-nsas.org
- The layout of the signed protocol was shown.

6.2 Sudan

- Mr. Abdallah, (Sudan): In Sudan, there is a federal type of government composed of central government and 26 states. There is a Water Resources Act which distinguishes two types of water bodies: 1) transient waters (those which cross the boundaries of two states or international boundary) and 2) non-transient water (water within one state). Thus, the situation in Sudan is unique to other NSAS countries. Sudan and Egypt have an agreement that defines the share of each country for the River Nile. As for Groundwater, the only cooperation is through the Joint Authority for the Study and Development of the NSAS.

6.3 Chad

- Mr. Ismail (Chad): In Chad, there is the Directorate of Water which assures the sound application and utilization of water resources. When there is no on-going projects, the directorate is active in studies, but not much work has been done.

6.4 Egypt

- Mr. Khater (Egypt): Joint Management of Shared Aquifer Systems. Groundwater aquifers can span international boundaries may be part of a greater hydrologic system linked with the surface or groundwater of the respective neighboring states.
- Socio-Economic Aspects that are applicable to the management of shared aquifer systems are similar to national aquifers and driven by national priorities. In the absence of joint management there is a risk of imposing high social and economic costs and of incurring losses of resources and benefits.
- Environmental aspects are dependent on patterns of natural flows in related aquifers. It requires the establishment of regional agreements and frameworks as well as for providing for institutional mechanisms, ensuring continuity and stability of cooperation in the shared aquifers.
- There is very limited experience worldwide regarding the international legal and institutional regime regulating the use of shared aquifer systems.
- Frameworks can be derived from international treaties and agreement.
- Procedures for protection and monitoring shared aquifers would minimize the environmental risks.

6.5 Comments

- Ms. Ikhlas (Egypt) emphasized the importance of applying EIA in the area of the aquifer
- Ms. Raya (UNESCO) emphasized the importance of the national framework in each country. It is the national framework authority in each country that will implement regulations.
- Mr. Boussaha (IAEA) suggested that it would be important to have an inventory of the institutional tools in the countries and to determine how to share the resources and information. As part of this program, it is important to promote the harmonization of the regional framework.
- Mr. Aggarwal (IAEA):asked the countries to give their views on the JA.
- Egypt suggests that the regulation for the existing authority may be modified to reflect the joining of Sudan and Chad.
- Sudan: Sudan joined the authority after it has been initiated between Egypt and Libya. The authority is not able to take its commitments because several countries are supposed to contribute its input.
- Chad: The Joint Authority was viewed only as a project. Our country did not give it a specific status. In such a meeting, the JA should have been represented..
- Mr. Bahr Eldin (Sudan): we are facing two alternatives: 1) we introduce a new body to manage the NSAS; or 2) Continue with the existing joint authority. We need to re-visit the constitution of the Joint Authority. It is preferable to enhance the JA. He calls for a meeting of the JA.
- Mr. Lotfi (Libya) mentioned that he made his presentation as an Acting Executive Director of the Joint Authority and not just as the Libyan delegate. He also mentioned that all the funding for the Joint Authority came from the Libyan side without any contribution of the other countries and thus, only limited activities were accomplished. Also, not much regional work has been accomplished.
- Mr. Boussaha emphasized that this Inception meeting is not a meeting of the Joint Authority. Mr. Boussaha indicated that we are not questioning the Joint Authority which is a political body. However, we are here to develop and promote the goals of the NSAS countries. We have a cooperative programme and the question is how the activities of this project can be linked with the existing activities of the NSAS governments (i.e. through Joint Authority or other). This is a technical and management issue but not political including how this project can establish a management mechanism to benefit the on-going framework of the countries. There is already a cooperative framework between the NSAS countries and we should think of how to enhance this cooperation.

- Ms. Atallah (UNDP/GEF): this project was encouraged by UNDP/GEF because of the existing cooperation agreement between the NSAS 4 countries. There is a component of this project that will focus on legal framework in terms of water resources by starting the agreement of several subjects such as sharing of water resources, economic and environmental arrangement, etc.
- Egypt: Mr Boussaha has raised a positive point : looking at different ways from the four countries how to enhance the JA.
- Sudan suggests a small committee of persons which can make the link between the project and the JA.
- Mr. Aggarwal (IAEA): this is a very good opportunity to build on the existing cooperation between the NSAS countries.
- Ms. Ikhlas (Egypt): there should be a continuous sustainability of the cooperation (maybe through a selected committee) to carry the required activities during and after the project is completed.
- Ms. Attalah (UNDP/GEF): Ministries of finance should be involved and committed to this project and future activities.
- Mr. Boussaha (IAEA): how can we convey the output of this meeting to the Joint Authority. This could be through the meeting report or other means.
- Mr. Garner (IAEA) suggests that in component 3, the terminology could be revised from “establish” to “enhance” the legal framework. This afternoon we can look at the appropriate reporting mechanism for all the components and indicators.
- Ms. Stephan (UNESCO) suggested that we should focus on implementation on a regional level as well as the national level.

7.0 Welcoming Remarks, Mr. Boussaha

Mr. Boussaha (IAEA) emphasized that it is very important to have this inception meeting. He indicated that this is a highly important activity. On behalf of the agency, Mr. Boussaha expressed his appreciation to the member states for the cooperation on this project. He ensured that IAEA would like to promote the cooperation as an example project for Africa and other regions. Finally, Mr. Boussaha expressed his pleasure to be here.

8.0 Group Discussion on Component 3

- Mr. Bahr Eldin (Sudan): the listed activities under component 3 would take 2 years to get completed.
- Ms. Stephan (UNESCO) raised the issue of working on parallel between components. For example, the national legal experts working under component 3, could work in the same time frame as the national experts working on the national SADA reports (Component 1.)
- Mr. Garner (IAEA) supported the above suggestion.
- Ms. Attalah (UNDP/GEF): at UNDP, there is a strong emphasis on this institutional and legal component (component 3).
- Mr. Salem (Libya) intervened by mentioning that it is pre-mature to discuss component 3 because it needs further discussions and consultations in the country. He suggested to organize another meeting, perhaps around the end of the year to give more time. Thus, this component can be discussed later after each country reviews it on the national level; thereafter there could be a clearer vision for implementation. In the previous project a mechanism was established, two agreements were signed, one of the considerations could be to make them effective. He also

expressed the view that the project should be hosted under the JA. The JA should be more incorporated to the project.

- Ms. Attalah (UNDP/GEF) emphasized that this component is a vital and essential part of the project for the involvement of UNDP-GEF and UNESCO. Thus, what we are looking for right now is an indication about the implementation of the component. Details what be discussed and determined later once the project component gets started, on a consensus basis.
- Mr. Garner (IAEA) explained that this current Inception meeting is a first step for planning this component with more details to be determined in a coming meeting (i.e. could be organized to coincide with the SADA training, for example, or could be a bit later) to enhance the on-going legislative and institutional framework for cooperation between the countries.
- Mr. Aggarwal (IAEA) emphasized that Component 3, as of now, does not impose a law, or any changes to the existing framework without the consensus of all 4 countries.
- Mr. Boussaha mentioned that including this item in this discussion was based on the project document. The discussion would give a feel for the activities rather than a commitment. Mr. Boussaha referred to page 44 of the project report where national reforms to support regional cooperation can be seen as a cooperative action. In some countries, governments give attention to national regulations, the question is: would this be considered as part of the regional cooperation??
- Mr. Afifi (Egypt): The activities stated in component 3 would be executed in parallel. The tasks can be accomplished in a period 6 to 30 month.
- Mr. Ismail (Chad) expected 24 month to get the activities done.

9.0 Roles & Responsibilities, Mr. Garner

Mr. Garner (IAEA) presented the following

- Four NSAS Countries (National Focal Institutions, national Project coordinators)
- Joint Authority
- Implementing Agency
- Executing Agency
- Cooperating Organizations
- Regional Project Steering Committee (PSC)
- The Implementing Agency, UNDP, is responsible for overall project delivery and reporting directly to GEF,
- The Executing Agency, the IAEA, is responsible for assuring that the project is conducted according to the project document and delivers the expected results; this includes responsibility for overall project management, working directly with 4 countries, and steering technical components of the project
- UNESCO, as a Cooperating Organization, is guiding the implementation of legal component (Component 3) of the project, providing guidance and support overall activities
- The 4 NSAS countries are both responsible for implementing activities at the national level as well as are the beneficiaries of the project. They are responsible for actively contributing to the project, providing institutional and financial support (according to the already agreed amount of co-funding,) and for providing representation. The respective countries will indicate the National Focal institutions, national project coordinators (NPCs), establish and coordinate national inter-ministerial committees (as per GEF requirement) and coordinate the necessary national expert teams.
- The NSAS Joint Authority provides the legal framework at the regional level, and has an important role in project implementation, providing guidance via the PSC etc.
- The project steering committee (PSC) should steer/ provide guidance for project implementation (should meet once a year). The constitution of the PSC was agreed and will be conducted via a terms of reference.

- The project manager is to be recruited by IAEA and initially supported administratively by IAEA HQ. The project manager is to be based initially in Vienna (in a follow-up GEF project, the project manager and any other project staff should be moved to an agreed site in the region) with significant travel in each country. It will be an open process according to IAEA regulations. The position will be announced online. There is a TOR already prepared and available, and the candidate should be Arabic, English and French speaking/writing.
- Mr. Khater (Egypt): the focal points may not be a member of the Joint Authority.
- Mr. Bahr Eldin (Sudan): We have to differentiate between national coordinator and focal point. The suggestion is to have 2 people from each country on the steering committee (one is the national coordinator and the other one can be suggested by the country who is not a member of the Joint Authority).
- Mr. Salem (Libya): 2 delegates + focal coordinator from each country should be present on the steering committee.
- Mr. Afifi (Egypt): the steering committee may have additional members from other agencies including CEDARE, universities, others.
- Ms. El Khitma (Sudan): As the project is concerning environment, thus, the GEF focal point has be involved in the project steering committee at the regional level.
- Mr. Hamza (Libya): for framing the legal aspects of this project by the team, a legal adviser should be provided and linked directly to the team.
- Ms. Stephan (UNESCO): it is a good idea. I suggest you could include a legal expert in the national SADA team with other experts (agriculture, environmental, .. etc.)
- Mr. Garner, (IAEA), the PSC could have 2 members from each country, with at least one a national board member of the Joint Authority, a representative of the Joint Authority (Executive Secretary) UNDP/GEF, IAEA and UNESCO should be represented as members. Other organizations might be invited on a case by case basis to discuss specific issues related to project implementation.

IAEA / UNDP / GEF Nubian Sandstone Aquifer System (NSAS)

Inception Meeting

July 16th-20th; Tripoli, Libya

Date: July 19th, 2006

Chairperson: Salah Idjemi Mahamat

Rapporteur: Sameh Afifi

1.0 Attendees

IAEA, NAPC

- Ali Boussaha – Austria
- William Andrew Garner – Austria
- Pradeep Kumar Aggarwal – Austria

UNDP/GEF

- Mirey Atallah – Lebanon

UNESCO

- Raya Estephan – IHP, France

Chad

- Ismail Mosa – NIEE/DH
- Mahamat Kher Salah – SGA/MEE
- Reoueb Mel Noe – DEP/DH/MEE

Egypt

- Ahmed Khater – MWRI/RIGW
- Sameh Afifi – MWRI/RIGW
- Ahmed Abdel Maksoud – MWRI/GWS
- Ekhlal Gamal ElDin – EEAA
- Mostaf A. Sadek – EAEA

Libya

- AbdulHakim El Waer – EGA
- Ali Gashut – NBRD
- Mohamed M. Amer – GEF/EGA
- Mehdi A. Mejrhi – GWA
- Mohamed Baegi – RE & WD Center
- Lotfi Ali Madi – GWA
- Salah EDDin ElMesallati – Foreign Liaison Sector
- Salem Ghurbal – REWDRC
- Mohamed Busitta – REWDRC
- Hamza B. Hamza – REWDRC
- El-Hadi S. Henshir – GWA
- Taher Abofila – GWA
- Mohamed Bakhbakhi – AlFateh University
- MufTah Fellah - GWA

Sudan

- El Khitma El Awad – HCENR
- Abdalla Mhoamed Khen – HCENR
- Mohamed Bahar Eldien – Ministry of Irrigation
- Mohamed Elhassan Ibrahim – Ministry of Irrigation

2.0 Project Management Component 5, Mr. Garner

2.1 Main Presentation

Mr. Garner (IAEA) presented the following:

- For the IAEA/UNDP/GEF NSAS project there are 2 types of M&E: 1) M&E of project implementation, 2) M&E of status of the NSAS based on GEF IW.
- Thus, there are two type of indicators: 1) Project Implementation indicators and 2) Project Impact indicators.
- M&E of project implementation: progress reporting (to PSC), annual reporting (to UNDP/GEF), and project evaluation (to UNDP/GEF)
- M&E of status of the NSAS based on GEF IW indicators: I) process, II) stress reduction and III) environmental indicators.
- I) Process indicators include: 1) SADA agreed and completed, 2) Inter- ministerial committees formed and working, and 3) Legal & institutional framework enhanced.
- II) Stress Reduction indicators include: 1) Pollution source reduced or eliminated, 2) non-point source pollution programme implemented, and 3) specific to groundwater (e.g. groundwater protection zones, amount of oases protected, etc.)
- III) Environmental Status Indicators include for example: 1) improvements in water quality (e.g. saltwater intrusion, etc.), and 2) increase in certain species i.e. signs that an ecosystem is actually improving. What has not been identified yet is how this is related to groundwater (e.g. reductions in risks/threats).
- NSAS countries should support annual reporting activities by providing inputs for the respective reporting requirements e.g. annual reports etc. as required.

2.2 Comments

- Ms. Atallah (UNDP/GEF): based on previous UNDP/GEF project experience, because the project period is limited (30 months), there may not be clear environmental indicators within this period. In the mean time, Ms. Attalah encouraged that all participants should start thinking about the type of indicators that can be applied.
- Mr. Bahr Eldin (Sudan): Some of the indicators are measurable, but others are descriptive. He questioned if we have a baseline to measure such indicators or do we have to develop a baseline
- Mr. Garner (IAEA): We may be able to develop some of the baseline now, however, the SADA could provide such a baseline in the near future after it is completed.
- Mr. Amer (Libya UNDP/GEF): each country should develop its own indicators because they may differ from one country to the other.
- Mr. Khater (Egypt): we have to distinguish between the M&E for the project and M&E for the NSAS. He asked that everyone has to distinguish between the 2 things.
- Mr. Afifi (Egypt): follow up on Mr. Amer's point, for example, each country should set a different screening level in terms of water quality. The screening level should be adjusted to the acceptable water quality standard that each country is looking to achieve.
- Mr. Ismail (Chad): How can we put a M&E system for cases like in Chad where there is no use of NSAS as of now?
- Mr. Aggarwal (IAEA): We have to monitor something that exists or occurs. Thus, if there is a slightly increase in utilization of NSAS in a certain country, this is a progress to be monitored.

- Ms. Atallah (UNDP/GEF): The GEF is also interested in monitoring to see how the funding has been effectively implemented. When we talk about an aquifer system, GEF is interested in the M&E of the impact of the project in term of water, institutional, environmental, ecosystems etc.
- Mr. Garner (IAEA) brought up the idea of publishing a project brochure in Egypt, Arabic and French.

3.0 Advanced Preparation for Sampling Campaigns

- Mr. Aggarwal: At the baseline meeting countries provided sampling plans. Each country should highlight again the main points of their sampling plan.

3.1 Libya

- There are 29 sites to sample for various isotopes.
- The pre-project data, reports, papers and open files (since 1970s) are currently available
- Garyounis University (in Benghazi) jointly with German expertise have conducted some sampling activities and studies on lithology, aquifer parameters, and water quality.
- Many of the previous sampling was based on studying the properties of the aquifer.
- The gaps are identified and various locations that require sampling were presented.
- The sampling is recommended to start in October because of the good weather. Two cars will be needed for this activity.
- Stratification among other factors will be a main objective in the upcoming sampling activities.

3.2 Egypt

- Showed the existing monitoring network for the NSAS in Egypt
- Sampling campaigns included several issues:
 - o Transboundary issues for the 3rd sampling campaign to be conducting in Nov 2006. The sampling includes 100 samples for O18, H2 and 50 samples for C13&C14, and 10 samples for H3. The sampling will be conducted by RIGW and EAIA. International consultants and air compressor is required for this campaign.
 - o Discharge/abstraction issue for the 4th Sampling Campaign to be conducted in Feb 2007. It includes 50 samples for Cl profiles, H3, CFC and Nobel Gassess from south Egypt, Kharga, Dakhla, Farafra, Bahariya, Siwa and N Western Desert. The sampling will be conducted by RIGW,EAIA and IAEA.

3.3 Sudan

- According to the prepared workplan in December 2005 and modified in baseline meeting, Sudan is ready to conduct the sampling campaign if:
 - o The requested equipment (geo-electric logger, air compressor, submersible pump, video camera) are available in Sudan
- Sampling campaign may be modified in the future according to conditions. There will be three sampling campaigns (September 2006, December 2006, and March 2007).

3.4 Chad

- Presented the outline for national work plan than mainly depends on:
 - o Availability of water sampling points
 - o Capacity building, and
 - o Characterization of aquifer.
- Emphasized the need for equipment, training that would proceed any sampling campaign.
- Some of the existing wells inside Chad are out of the NSAS boundaries.
- There are six monitoring wells that could be used for sampling as of now.

3.5 Comments

- Mr. Aggarwal (IAEA) wanted Chad to confirm that 4 of the existing 10 wells in Chad are out of the NSAS boundary (i.e. only 6 are available)
- Mr. Ismail (Chad) confirmed the above fact. He also indicated that some of the wells in Chad are more easily accessible from Libya rather than inside Chad.
- Mr. Boussaha (IAEA) inquired about the previous sampling and analysis conducted in Egypt during the previous project(s), and whether Egypt has considered that in the new sampling plan and if not, what would be done.
- Mr. Khater (Egypt): in the previous projects have not been in depth. We are looking forward to this application and the majority of the previous work was done in the institute and nothing would prevent us from going on. We seek the assistance with guiding the isotopes because we do not understand how to integrate these assessment into conventional analysis. We have questions raised before on various issues such as the objectives of samples and what is the need for isotope analysis as well as the basis upon which one decides the spatial distribution. May be we need to review the proposed sampling plan.
- Mr. Boussaha (IAEA): I recommend that you have a 1-day seminar to make an inventory of what has been done in terms of isotope hydrology analysis. We want to make sure that we are not starting from scratch. It is our policy that we encourage that each country should use its local expertise. However, the project shall not pay for local isotopic analysis services.
- Mr. Mostafa (Egypt): this has to be agreed with Dr. Ali Islam in Egypt.
- Ms. Attalah (UNDP/GEF): the terminology “establishment of institutional” should remain as is in the project document, however, with the understanding that establishment involves the enhancement of the existing system(s)/ arrangements.

Annex 4

Project Implementation Plan