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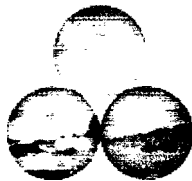
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**UNITED NATIONS
INDUSTRIAL
DEVELOPMENT
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Ministry of Planning
and Economic Affairs
and Environment (PME)

**CONTRACT No. 16001729
PROJECT No. MP/SAU/07/002**

**SUPPLY AND SERVICES FOR BUILDING UP A DATABASE FOR
MONITORING THE EFFECTIVENESS OF THE IMPLEMENTATION OF
THE CFC NATIONAL PHASE OUT PLAN (NPP) RELATED
ACTIVITIES IN SAUDI ARABIA AND ITS ACHIEVEMENT OF THE
AGREED TARGETS**

FINAL REPORT

AUGUST 2009

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EXECUTIVE SUMMARY

This report is the final report according to the article of 2.10.c) of the contract. The report summarises the implementation of the project, i.e. the development of the database covering the Ozone Depleting Substances (ODS) in Saudi Arabia.

The project was initiated in January 2009 and finalised in August 2009. The consultant visited the project beneficiary, the Presidency of Meteorology and Environment (PME) three times, collected background information, developed the database concept and structure and the actual database, which is run on a standard Microsoft Access programme package. The consultant has earlier submitted two progress reports; in February 2009 the report describing the database concept and structure and in May 2009 describing the operational solution, i.e. the Access programme modified for the ODS database needs.

According to the Terms of Reference the purpose of the required database is to monitor and verify the Article 7 (of the Montreal Protocol) consumption data of ODSs in Saudi Arabia and progress in the implementation of the NPP (National Phase-out Plan) related activities and facilitate the production of annual reports on the outcomes and deliverables of the National Phase-Out Plan (NPP).

The database includes the following basic components: All current ODS (as defined in the Montreal protocol, and optionally R134a and space for any new substances to be introduced; current uses as required by the Multilateral Fund. Possible exports and destruction of the substance (not relevant currently) can be recorded; substance volumes (imported) by importer and volumes used by workshops participating in the forthcoming CFC recovery and recycling programme.

When finalising the project in August 2009 the database is being updated and actual information collected by the PME

The consultant has procured a portable laptop computer (Toshiba 2.0DC/2GB/250GB/13.3. U400-15P) with the necessary accessories as well as a digital scanner (including fax and copy functions) for the easy storage and retrieval of the data.

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1. STRUCTURE OF THE DATABASE

1.1. Basic data tables

In it's current shape the following substances can/will be recorded in the database basic tables

CFC-11
CFC-12
CFC-13
CFC-113
CFC-114
CFC-115
Halon
Halon
Halon
Carbon tetrachloride
Methylchloroform
Methylbromide
HCFC-22
HCFC-123
HCFC-141b
HCFC-142b
R134a*)

*) in not a controlled substance in the MP but vital to follow-up in respect of refrigeration technology.

The commercial/industrial operation can be classified as follows:

Import
Export (not relevant currently in Saudi Arabia)
End use consumption
Production (not relevant currently in Saudi Arabia)
Destruction (not relevant currently in Saudi Arabia)

The use/application sector can be classified as follows:

Aerosol
Foam
Firefighting
Refrigeration - manufacturing
Refrigeration – servicing
Solvent
Process agent
MDI
Laboratory use
QPS (methylbromide)
Non-QPS (methylbromide)
Tobacco fluffing
Other

The data is recorded by calendar years.

The (commercial) operators can be classified as follows:

Importer
Exporter (not currently relevant in Saudi Arabia)
Refrigeration workshop
End user

The specific purpose of the database is to monitor the CFC recovery and recycling. Therefore the database has a loop to register/classify the workshop uses as follows:

Workshops servicing:

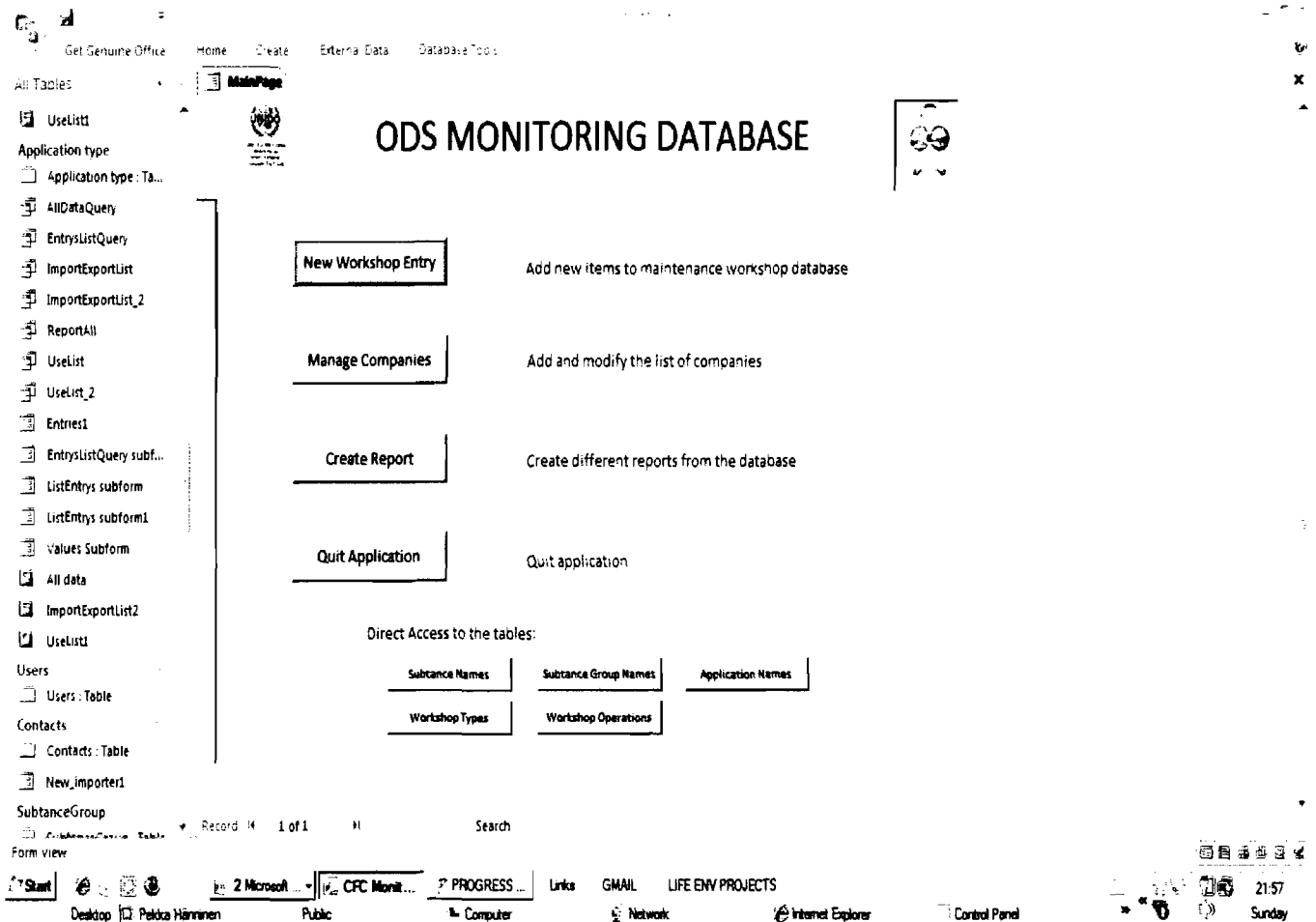
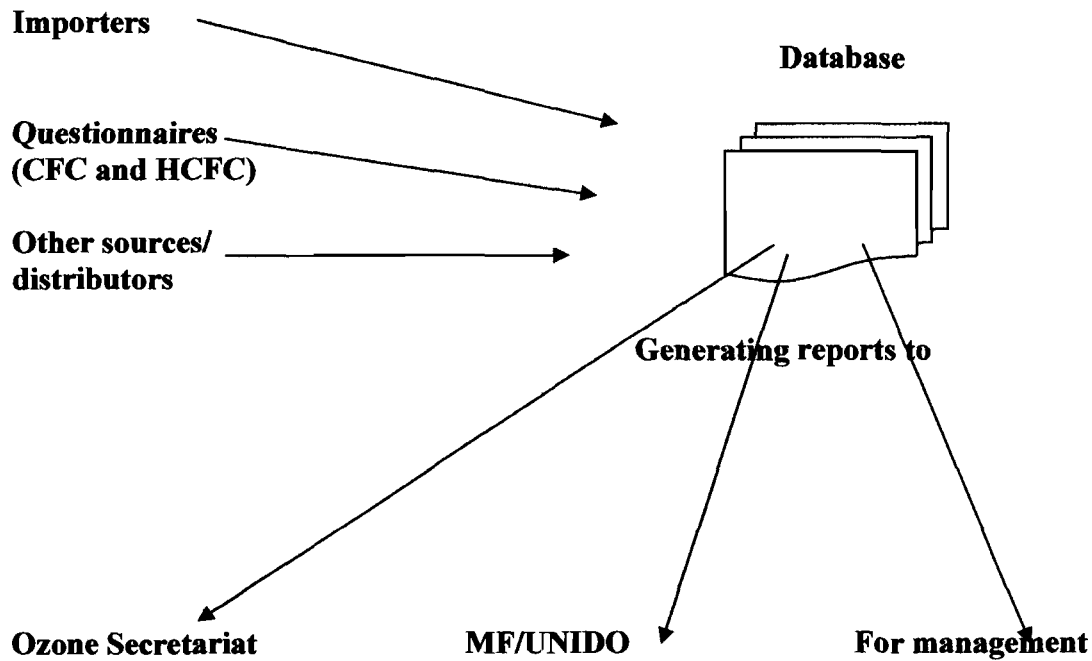
- *Mobile (car) A/C units using CFC 12
- *Domestic refrigerators and freezers using CFC 12
- *Small commercial units and freezers using CFC 12
- *Large commercial/industrial units and chillers using CFC11/12
- *Refrigeration and air-conditioning units using HCFC 22 or R502

The workshop/maintenance services can be operationally classified as follows:

- *number of units serviced
- *number of units serviced but deemed as non-serviceable
- *amount evacuated (kg)
- *amount recycled, kg
- *amount stored, kg
- *amount virgin CFC used, kg
- *purchase price of virgin CFC/kg

The operational information can be recorded quarterly.

The following figures attempt to visualise the database structure and its functioning.



The screenshot above indicates the operational programme structure.

1.2. Reports

At the current shape the following reports are pre-programmed in the programme:

- *substances by application and year
- *import, export (and production) by year/substance
- *Use of substances (CFC 12) by workshop type
- *Use of substances by workshop type/operation/quarter

The NOU is obliged to report the ODS consumption to the Ozone Secretariat (as a party of the Montreal Protocol) and to the Multilateral Fund (as a beneficiary of the finding when implementing the National Phase-out Plan. The reporting instructions of both of these organisation have been reviewed to make sure that the database is able to produce the same information as required in this mandatory reporting.

The Access programme makes possible to generate several reports/views from the data.

The screenshot displays the Microsoft Access interface for the 'ODS MONITORING DATABASE'. The title bar shows 'Microsoft Access - ODS MONITORING DATABASE'. The menu bar includes 'Get Genuine Office', 'Home', 'Create', 'External Data', and 'Database Tools'. The left-hand pane lists various tables and queries, including 'UseList1', 'Application type', 'AllDataQuery', 'EntriesListQuery', 'ImportExportList', 'ImportExportList_2', 'ReportAll', 'UseList', 'UseList_2', 'Entries1', 'EntriesListQuery subf...', 'ListEntries subform', 'ListEntries subform1', 'Values Subform', 'All data', 'ImportExportList2', 'UseList1', 'Users', 'Users : Table', 'Contacts', 'Contacts : Table', 'New_importer1', and 'SubstanceGroup'. The main window area is titled 'ODS MONITORING DATABASE' and contains a 'Reports' section. A 'Year: 2008' dropdown menu is visible. Under 'Report type', there are four radio button options: 'Substances by use for all the years', 'Import, Export and Productions for all the years' (which is selected), 'Workshop summary by use', and 'Workshop summary all!'. A 'Preview and print Report' button is located below these options. To the right, under 'Graph Reports:', there is a 'Used Substances per Year' button. A 'Return to main page' button is positioned at the bottom of the report selection area. The bottom status bar shows 'Record 1 of 1' and a search field. The Windows taskbar at the bottom includes the Start button, several open applications (Microsoft Office, CFC Monitor, PROGRESS, Links, GMAIL, LIFE ENV PROJECTS), and system tray icons for Desktop, Pekka Hänninen, Public, Computer, Network, Internet Explorer, and Control Panel. The system clock shows 22:00 on Sunday.

Print Preview Get Genuine Office

All Tables: MainPage, CreateReportPage, UseList1

UseList1

Application type: Application type: Ta...

AllDataQuery

EntryListQuery

ImportExportList

ImportExportList_2

ReportAll

UseList

UseList_2

Entries1

EntryListQuery subf...

ListEntry subform

ListEntry subform1

Values Subform

All data

ImportExportList2

UseList1

Users: Users: Table

Contacts: Contacts Table

New_importer1

SubstanceGroup

ODS MONITORING DATABASE

Substance by application

Substance	Year	Prod. Value	Prod. Volume	Prod. Weight	Subst. Code	Subst. Name	Subst. Group	Subst. Type	Subst. Status	Subst. Category	Subst. Subcategory
2005	2005	100	0	0	0	0	0	0	0	0	0
	2006	100	0	0	0	0	0	0	0	0	0
2006	2006	100	0	0	0	0	0	0	0	0	0
	2007	100	0	0	0	0	0	0	0	0	0
2007	2007	100	0	0	0	0	0	0	0	0	0
	2008	100	0	0	0	0	0	0	0	0	0
	2009	100	0	0	0	0	0	0	0	0	0
	2010	100	0	0	0	0	0	0	0	0	0
2010	2010	100	0	0	0	0	0	0	0	0	0
	2011	100	0	0	0	0	0	0	0	0	0
	2012	100	0	0	0	0	0	0	0	0	0
	2013	100	0	0	0	0	0	0	0	0	0

Ready

Start Desktop Pekka Härninen Public Computer Network Internet Explorer Control Panel

2 Microsoft... CFC Monit... PROGRESS... Links GMAIL LIFE ENV PROJECTS

68% 22:01 Sunday

(please note that the data in the screenshot above is mock data only, i.e. not real/realistic)

Print Preview Get Genuine Office

All Tables: MainPage, CreateReportPage, ImportExportList2

WSEntryValues: Table

EntriesWorkshopQu...

EntryWorkshopSubf...

WSSummaryByUseQu...

WSSummaryQuery

EntriesWS

EntryWorkshopSubf...

WSSummary

WSSummaryByUse

WSSummaryQuery

WSSummaryQuery1

Category: Category Table

EntryListQuery

ImportExportList_2

ImportExportSum

UseList_2

Entries1

EntryListQuery subf...

ImportExportList2

ImportExportSum

Unrelated Objects

AddNewEntryQuery

AddNewItemQuery

ODS MONITORING DATABASE

Imports, Exports an

Year	Subst. Code	Subst. Name	Subst. Group	Subst. Type	Subst. Status	Subst. Category	Subst. Subcategory
2005	2005	100	0	0	0	0	0
	2006	100	0	0	0	0	0
	2007	100	0	0	0	0	0
	2008	100	0	0	0	0	0
2006	2006	100	0	0	0	0	0
	2007	100	0	0	0	0	0
	2008	100	0	0	0	0	0
	2009	100	0	0	0	0	0
2007	2007	100	0	0	0	0	0
	2008	100	0	0	0	0	0
	2009	100	0	0	0	0	0
	2010	100	0	0	0	0	0
2008	2008	100	0	0	0	0	0
	2009	100	0	0	0	0	0
	2010	100	0	0	0	0	0
	2011	100	0	0	0	0	0
2009	2009	100	0	0	0	0	0
	2010	100	0	0	0	0	0
	2011	100	0	0	0	0	0
	2012	100	0	0	0	0	0

Ready

Start Desktop Pekka Härninen Public Computer Network Internet Explorer Control Panel

2 Microsoft... CFC Monit... PROGRESS... Links GMAIL LIFE ENV PROJECTS

48% 22:06 Sunday

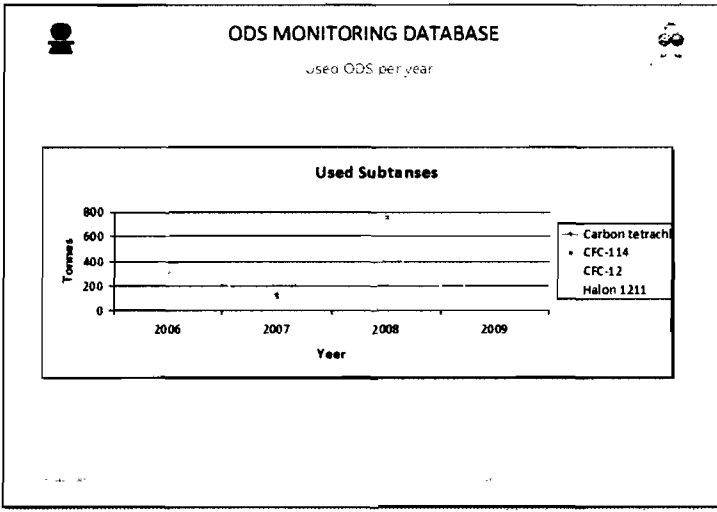
MainPage CreateReportPage ImportExportList2 Used ODS per Year

ASEntryValues Table
 Entries:WorkshopQu...
 Entries:WorkshopSubf...
 ASSummaryByUseQu...
 ASSummaryQuery;
 Entries:AS
 Entry:WorkshopSubf...
 ASSummary;
 ASSummaryByUse
 ASSummaryQuery;
 ASSummaryQuery;1
 Category
 Category Table
 EntriesListQuery;
 ImportExportList_2
 ImportExportSum
 UseList_2
 Entries1
 EntriesListQuery subf...
 ImportExportList2
 ImportExportSum
 Unrelated Objects
 AddNewEntryQuery;
 AddNewItemQuery;

Page 1

Reso...

Start Desktop Pekka Hanninen Public CFC Moni... PROGRESS Links GMAIL LIFE ENV PROJECTS Internet Explorer Control Panel 22:07 Sunday



(please note that the data in the screenshot above is mock data only, i.e. not real/realistic)

2. UPDATING THE DATABASE

At the current shape (August 2009) the database does not contain any actual data except some occasional entries.

The NOU monitors the imports (and basically exports and production as well as possible destruction; however, these operations are not relevant for the time being nor in the near future) through the licensing system and is able to record the volumes actually imported as well as the licensed ones per year. Further, the NOU's monitoring system enables the recording the use (directly or through the function of the distributor).

The customs statistics should be used as a cross-checker of the data recorded by the licensed importers. Basically, the records should match, but due to a wide variety of ODS trade names vs. The Harmonised System Codes the recording will obviously require careful attention. The fact that the imports of CFCs and Carbontetrachloride will officially stop from 1 January 2010 makes the updating easier but will shift the monitoring tasks towards the distributors, whose data is retrieved from their suppliers, i.e. importers.

The most demanding task is the follow-up and recording of the forthcoming CFC-12 volumes to be used (recovered, recycled and stored) for the service/maintenance of the refrigeration and air-conditioning equipment. The consultants have created a questionnaire to be used in the collection of the workshops data (annex 1).

**The KINGDOM OF SAUDI ARABIA
Protection the Ozone Layer
CFC recovery and recycling project**

QUESTIONNAIRE for the SERVICE WORKSHOPS

DRAFT



**UNITED NATIONS
INDUSTRIAL
DEVELOPMENT
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**Ministry of Planning
and Economic Development (MPE)**

Maintenance workshop					
Name:					
Address:					
Contact person:					
Phone e-mail:					
No. of employees:					
No. of refrigeration technicians:					
Main field of operation:					
If a branch of a (larger) company, which:					
	Start date xx/xx/xxxx				
	months	months	months	months	Total
	1-3	4-6	7-9	10-12	12
					mnths
Mobile (car) A/C units with CFC 12					
*No. of units serviced					
*No of units inspected but deemed non-serviceable					
*Amount of CFC 12 evacuated, kg					
*Amount of CFC 12 recycled/re-used, kg					
*Amount of CFC 12 stored, kg					
*Amount of virgin CFC 12 used, kg					
*Average service price/unit using recycled CFC					
*Average service price/unit using virgin CFC					
*Purchase price of virgin CFC/kg					
Domestic refrigerators and freezers with CFC 12					
*No. of units serviced					
*No of units inspected but deemed non-serviceable					
*Amount of CFC 12 evacuated, kg					
*Amount of CFC 12 recycled/reused, kg					
*Amount of CFC 12 stored, kg					
*Amount of virgin CFC 12 used, kg					
*Average service price/unit using recycled CFC					
*Average service price/unit using virgin CFC					
*Purchase price of virgin CFC/kg					
Small commercial units and freezers with CFC 12					
*No. of units serviced					
*Amount of CFC 12 evacuated, kg					
*Amount of CFC 12 recycled/reused, kg					
*Amount of CFC 12 stored, kg					
*Amount of virgin CFC 12 used, kg					
*Average service price/unit using recycled CFC					
*Average service price/unit using virgin CFC					
*Purchase price of virgin CFC/kg					

Large commercial and industrial units chillers with CFC 11/12					
*No. of units serviced					
*Amount of CFC 12 evacuated, kg (large units are usually not evacuated, but the leaked refrigerant is replenished)					
*Amount of CFC 12 recycled/reused, kg					
*Amount of CFC 12 stored, kg					
*Amount of virgin CFC 12/11 used, kg					
*Purchase price of virgin CFC/kg					
Air-conditioning and refrigeration units using HCFC-22 or R502 as refrigerant					
*No. of units serviced					
*Amount of HCFC-22 or R502 evacuated, kg					
*Amount of HCFC-22 or R502 recycled/reused, kg					
*Amount of HCFC-22 or R502 stored, kg					
*Amount of virgin HCFC-22 or R502 used, kg					
*Average service price/unit without refrigerant					
*Purchase price of virgin HCFC-22/kg					

Please return this sheet by 15th day of the next quarter

*in paper format till address xxxxxx

*by telefax till no. xxxx

*by e-mail (as attachment) till address xxxxx@xxx.xx