



ORIGINAL RESEARCH ARTICLE

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## BUILDING AND OPERATION RADIOACTIVE WASTE MANAGEMENT DATA BASE

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### ABSTRACT

In the purpose of good recording and data reporting for all the necessary actions with radioactive waste saved and proceeds by the radioactive waste treatment and management directorate (RWTMD); database builds. The database is covering the processing steps of radioactive waste started with a reception and identification ending with disposing of management data per each package (container). Through the database the user can look for identical or package of radioactive waste with their characterization and current status. For future plans, new demands include more functionalities and faster use in the application.

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## INTRODUCTION

Radioactive waste Treatment and management directorate (RWTMD) is one of institutions of ministry of science and technology; responsible for safe and secure management of radioactive waste for the whole life cycle until the institutional control period. The (RWTMD) leading the management, research, and development role in radioactive waste such as, nuclear occurring radioactive waste and decommissioning or decontamination activities and other type of radioactive waste. The RWTMD is in charge of RW management, i.e., receipt, segregation, minimization, storage, transport, treatment, conditioned, disposed of, clearance, exempt, recycle, reuse and release. For radiological safety, economic, statistics, inspections of authorities, radioactive projects, infrastructure, planning and developments; radioactive waste inventory is very important and necessary to establish any such activities. It's very important to have good documents and electronic evidence of radioactive waste both in real time and also to the history of the waste.

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The historical documentation of radioactive waste processing is important for tracking of radioactive movements, clearance and other processing techniques used to transport to a disposal site or other stage of radioactive waste management. The radioactive waste information system (RWIS) was developed in accordance with current activities in RWTMD and with IAEA (and national regulators') guidance. The RWIS was developed since 2003 and the database system was built and operate in 2017.

### General Description of the Application

Radioactive waste information system is based upon the Access data system. The application is standard and MS windows application with very intuitive control. Figure (1) indicate the radioactive data base cycle during management steps (1-6). The (RWTMD) offers to its customers full services in the area of radioactive waste management, i.e. advisory services for storage and sorting at the customers site, characterization, taking over and transport the RW from the customer to processing facility, i.e., storage of unconditioned RW, storage for decay with further release into the environment (clearance), processing and conditioning.

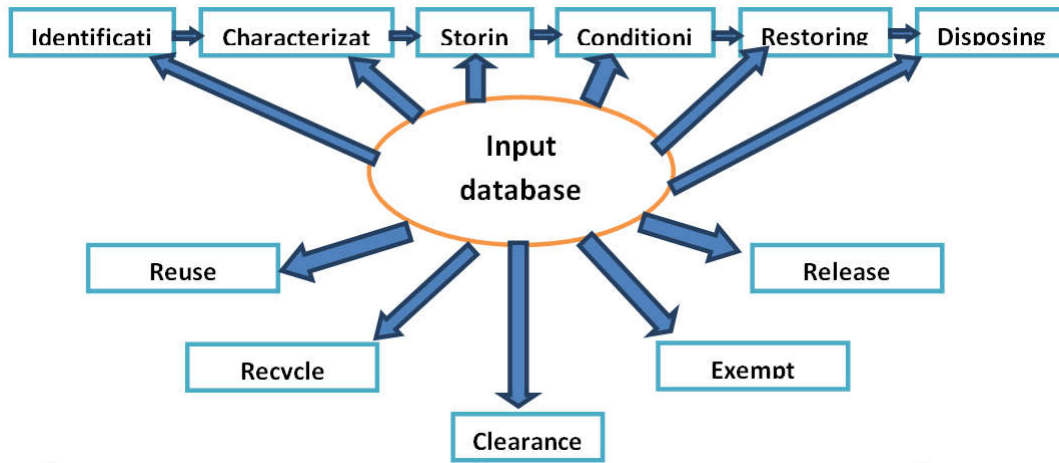


Fig. 1. Radioactive Waste Information System Database of RW

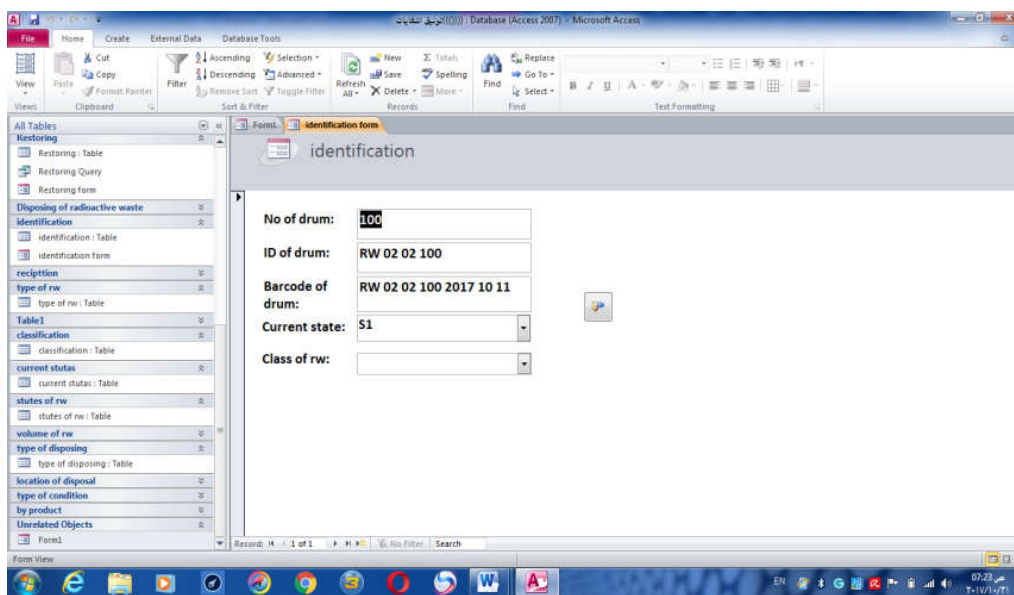
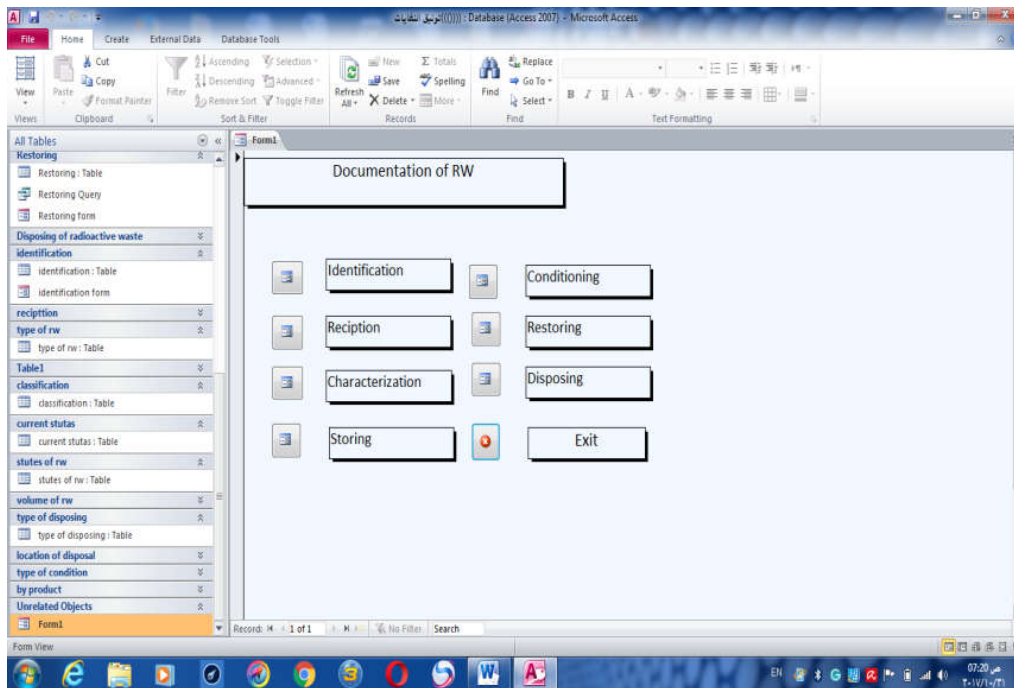


Fig. 2. Main Application Window

transport of conditioned RW to disposal site .Figure (2) shows the main data base windows present each stage of RW management processing.

### Receiving-Disposing of RW

All the radioactive producers are register in the RWDB such as responsible person, origin, date of reception, scanning of documents, waste acceptancecriteriaformula. The details are further used for scanning or printing of several documents, e.g. standard documents for radioactive waste information system (photos, movies, films or videos) are recorded.

### Among the record features belong

Detailed information about the radioactive waste, i.e., number, type, volume, weight, origin, physical and chemical properties, classification of radioactive waste and current states. Radiological information about Radioactive waste such as radionuclides, surface container dose rate, one meter distance from container dose rate, activityconcentration, totalactivity, heatgeneration, ID of drum, Barcode, current states, storagefacility labell, radioactive waste conditioning facility, date, type of conditioning and other.

ALL actions that RW is undergoing at the RWTMD are recorded in the database. These actions comprise:

- Change of the storage place
- Processing type
- Treatment
- Conditioning
- Disposing of

### Other functions of (RWTMD)

- Saving the history of RW
- Saving the history user actions in the database
- Printing of different types of document
- files of RW acceptance receptors,reports, other
- Calculations of (total activity, totalactivity,total RW drums)
- Export of detailed information about particular RW into (MS Excel)

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