

**VIRTUAL TECHNICAL MEETING ON THE ASSESSMENT AND
EVALUATION OF THE OCCUPATIONAL RADIATION PROTECTION
APPRAISAL SERVICE (ORPAS)**

Organized by IAEA, 13-17 September 2021

***Panel on Regional Assessment of ORPAS Missions
Results Achieved, and Lessons Learned***

**African Region
ORPAS to Tanzania & Morocco
Lessons Learned**

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INTRODUCTION

The Occupational Radiation Protection Appraisals Service (ORPAS) mission is an appraisal service offered by IAEA to Member States in the field of radiation protection of workers.

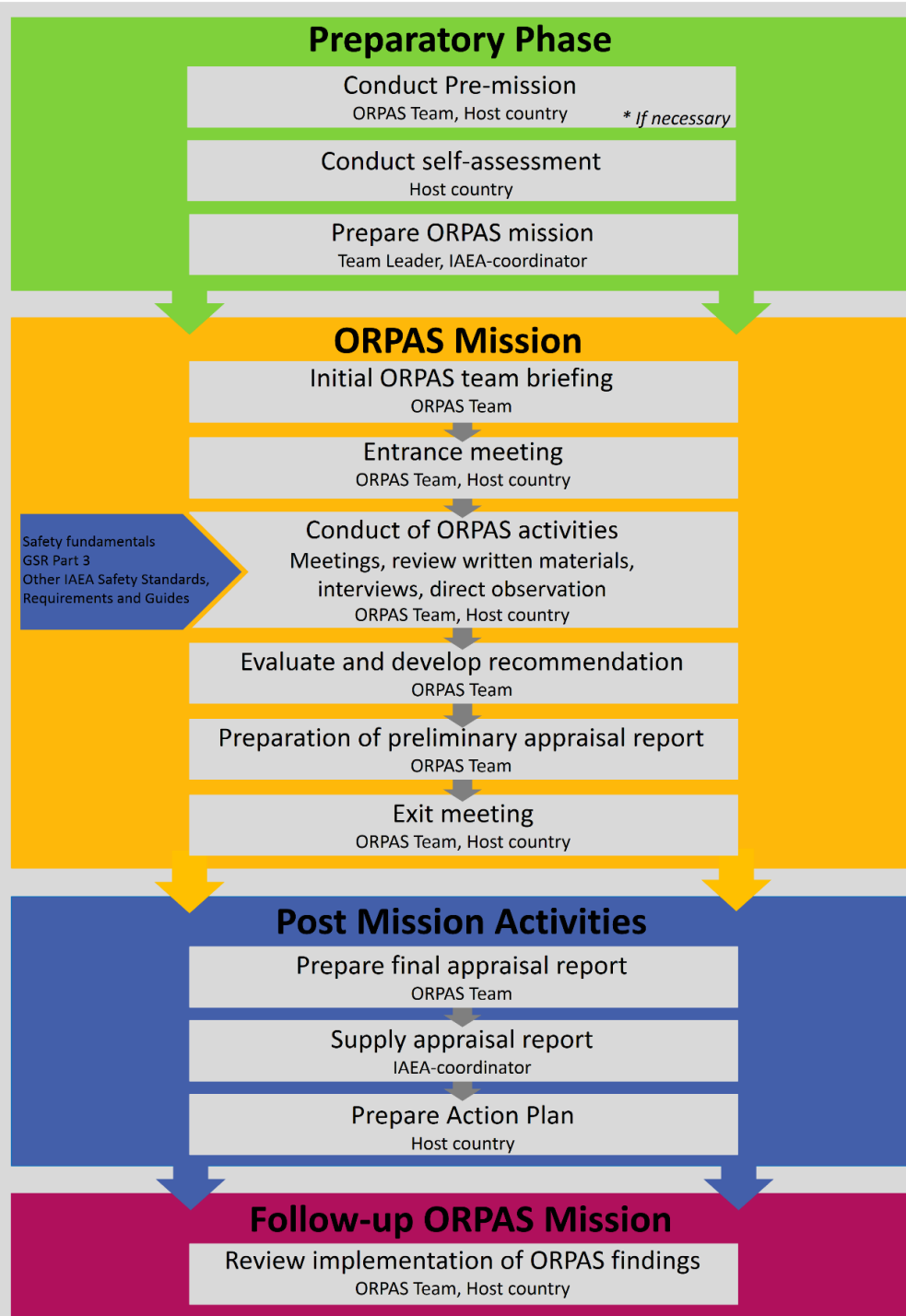
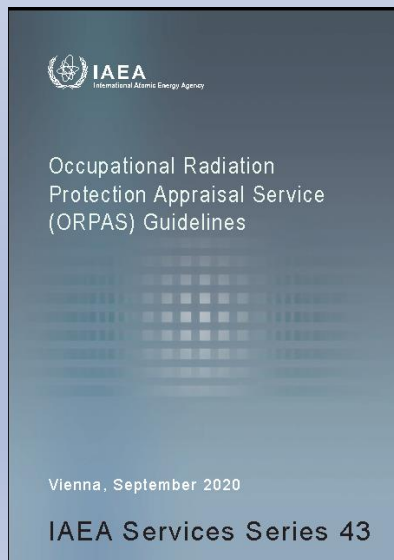
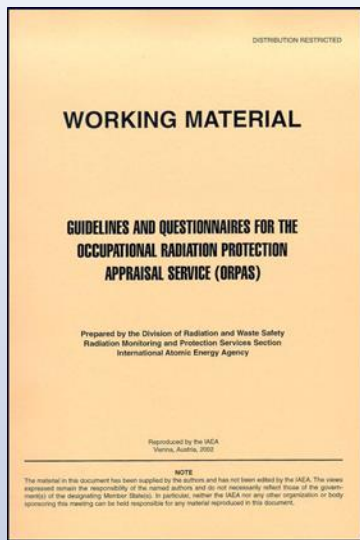
Such an appraisal is an opportunity for a Member State to have all or some aspects of its occupational radiation protection programme independently assessed and evaluated against the IAEA standards.

Key Objectives of ORPAS

To provide the host country with an **objective assessment** of the provisions for occupational radiation protection

To assess the real **implementation** of the ORP programme, for the Regulatory body, the End User and the Technical Supporting Organizations (TSOs)

PROCESS



ORPAS MISSIONS IN AFRICA

22 ORPAS missions were carried out Since 2001.

The first ORPAS mission in African region was conducted in 2013 (pre mission) for Tanzania

Tanzania, Ghana, Morocco, Nigeria and Kenya

The Results achieved and lessons learned based on experience gained from the completed ORPAS missions in the region.



ORPAS MISSION TO

**UNITED REPUBLIC OF
TANZANIA**

THE FIRST MISSION IN AFRICA

ORPAS TANZANIA

Official request from the Member State/Tanzanian Atomic Energy Commission (TAEC) – Regulatory Body & TSO

Pre-ORPAS mission

- 16-18 December 2013
- Team Leader & IAEA Coordinator

Full mission

- 11-15 August 2014
- Team Leader, Team members & IAEA Coordinator
- 5 days

Follow up mission:

- 19-23 November 2018
- Team Leader & IAEA Coordinator

ORPAS TANZANIA

ORPAS Team

- Team Leader : Latifa Ben Omrane - National Centre of Radiation Protection/ Tunisia
- IAEA Coordinator: Jizeng MA
- Reviewer : Abdelkader Benider (IRRS expert) – National Centre of Radiation Protection/ Morocco
- National counterpart : Wilbroad Muhogora - TAEC



PARTICIPATING INSTITUTIONS

End users (Dar Essalem, Arusha)

- **4 medical facilities**

- Ocean Road Cancer Institute (Radiotherapy, Nuclear Medicine)
- Muhimbili National Hospital (Diagnostic Radiology, Interventional Cardiology)
- Arusha Lutheran Medical Centre (Diagnostic Radiology)
- Mount Meru Regional Hospital (Diagnostic Radiology)

- **1 industrial facility**

- Tanzania Steel Pipes (NDT)

Service providers (TAEC, Arusha)

- National Calibration Laboratory (NCL), SSDL
- Radiation Protection Services–Dosimetry Section (Personal External Dosimetry)
- Instrumentation Section (Nuclear Instrumentation and Maintenance)
- Training Committee (Radiation Protection Training)



ORPAS MISSION TO

MOROCCO



ORPAS MOROCCO

Official request from the Member State/National Centre of Radiation Protection – Regulatory Body (former) & TSO

The mission was carried out during the **transitional period** for the entry into force of the new law related to the creation of the new RB.

Pre-ORPAS mission:

- 16-18 December 2016
- Team Leader & IAEA Coordinator

Full mission:

- 13-17 November 2017
- Team Leader, Team members & IAEA Coordinator
- 5 days

Follow up mission:

- Postponed due to covid-19 pandemic

ORPAS MOROCCO

ORPAS Team

- Team Leader : Latifa Ben Omrane - National Centre of Radiation Protection/ Tunisia
- IAEA Coordinator: Jizeng MA
- Reviewer : Pascal DEBOODT – consultant (IRRS)/ Belgium
- Reviewer : Joseph AMOAKO- Ghana Atomic Energy Commission / Ghana
- Reviewer : Faradally Abdoulla OLLITE, Radiation Protection Authority/Mauritius
- National counterpart : Hassan Chamlal - National Centre of Radiation Protection/ Morocco

PARTICIPATING INSTITUTIONS

Regulatory authority

Moroccan Agency for Nuclear and Radiological Safety and Security (AMSSNuR)

End users

- **2 medical facilities**

- Institut National d'Oncologie, Ibn Sina Hospital, Rabat
- Cheikh Khalifa Ibn Zaid hospital, Casablanca

- **2 industrial facilities**

- TEST NDT, Mohammedia
- RIM (Radio Isotope Méditerranée)- Cyclotron, Bouznika

Service providers

- Personnel Dosimetry Laboratory, CNRP
- Secondary Standard Dosimetry Laboratory, CNRP
- Calibration and dosimetry laboratory, CNSTEN

LESSONS LEARNED - 1

- **The first ORPAS mission in AFRICA was conducted in TANZANIA.**
- **The success of this mission was very important for:**
 - ✓ The Region: opportunity to have an assessment against the international standards ensuring a high level of safety.
 - ✓ IAEA: to have a more homogenous distribution of this appraisal missions among the different regions with an overview on the real implementation of the occupational radiation protection programme in the member states
- **Other Member States in the region have been encouraged to request an ORPAS mission**

LESSONS LEARNED - 2

- **The ORPAS of TANZANIA was a very challenging mission. A “core” of reviewers was developed in the region**
- **The ORPAS mission of Morocco was carried with the gained experience from the first one**
- **Best practices were highlighted to be shared by the other MSs**
- **Gaps and weakness were identified and Recommendations on actions to be taken were made to improve the ORP infrastructure**
- **Extensive exchange of experience between the team members and national counterparts**
- **The ORPAS mission provided an opportunity to the ORP actors from the RB, TSOs and End users facilities to exchange discussions during the entrance and the exit meetings**

LESSONS LEARNED - 3

- **Improvement of the ORP arrangements in the host country has been observed during the follow up ORPAS mission after the completion of the action plan**
- **Generally, improvements of the ORP arrangements are also observed during the full ORPAS mission after the pre mission and the completion of the questionnaires**
- **The Follow up mission was very motivating for the participating organizations**

LESSONS LEARNED - 4

- **Significant improvement in the ORP infrastructure has been observed after the ORPAS missions of Tanzania & Morocco (ongoing accreditation of dosimetry services, New equipment for SSDLs, safety culture implementation by some End Users,)**
- **Important improvement in the situation of the TSA2 profile**

GENERAL OBSERVATIONS -1

- ORPAS should be conducted in English and the final report should be drafted in English. However, it **is strongly recommended to consider in the selection criteria of the ORPAS team reviewers, at least one of them speaking the commonly spoken official language.**

GENERAL OBSERVATIONS - 2

- The success of the full mission depend strongly on the **success of the pre-mission** and the **good preparation** made by the local counterpart
- The host country staff participating in the appraisal, especially those from the end users and from the TSOs are not familiar with such assessments. **Thus, the visits which are organized during the preparatory mission will strongly engage them in the appraisal. The role of the team leader during this pre-mission is important**

GENERAL OBSERVATIONS - 3

- SARIS is not adapted to all TSOs, like calibration, maintenance and training
- The questionnaires were not ready for more than 80% of the facilities and for some of them they were not realistic
- **It is highly recommended to organize a national training course for the host country with the selected facilities on the SARIS self assessment tool**

GENERAL OBSERVATIONS - 4

- **A template for the individual report was developed by the team leader to assist the reviewers to assess the TSOs (dosimetry, calibration) and the end users. It is highly recommended:**
 - ✓ to prepare a template to assist the reviewers in the assessment of the different TSOs
 - ✓ To harmonize the content of the reports which should be addressed to the RB, TSOs and End users, according to the IAEA standards
 - ✓ To prepare also a template for the follow-up mission

GENERAL OBSERVATIONS - 5

- **The role of the deputy team leader is important to assist the team leader especially for the very small size teams**
- **RASIMS is very useful for the preparation of the mission. However, it is sometimes not updated**
- **Some “specific” main findings should be discussed with the team members, as: the conflict of interest situation, the independency of the TSO from the RB, ..)**

GENERAL OBSERVATIONS - 6

- **It is strongly recommended to organize workshops to train the ORPAS experts, to harmonize the criteria to be adopted for the recommendations**
- **The good practices should be kept to encourage the host country to share experience and to improve its radiation safety system. However, these observations are subjective**

CONCLUSIONS

- **The ORPAS missions to TANZANIA and MOROCCO were very well organized by the local counterparts and the IAEA**
- **Strong commitment of the governments to the occupational radiation safety**
- **ORPAS mission is a valuable appraisal service for the MSs & IAEA**

***THANK YOU FOR YOUR
ATTENTION***