First mission in Slovenia –
Good Practices since the Beginning

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IAEA TM on Occupational Radiation Protection Appraisal Service (ORPAS)
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Virtual event
• Introduction
• First OPRAS mission – mission in Slovenia (2001)
• Good Practices
• Conclusions
Introduction

Why to invite the ORPAS experts?

- The goal: enhancement of implementation of the IAEA standards on occupational exposure in the state.
Introduction

Slovenia - Overview

- **Selected basic facts:**
  - Institute of Oncology (1938 -)
  - Westinghouse NPP (1983 -)
  - TRIGA MARK II research reactor at Jožef Stefan Institute (1966 -)
  - former uranium mine (1962 - 1990)...

A flight from Vienna takes less than an hour.
Introduction

Slovenia - Overview

The oldest man-made source used in Slovenia was $^{226}$Ra source of 0.15 MBq produced in 1902 and used in ophthalmology. Later it was lost for decades.

(In 2007 it was found in an abandoned storage during the SNSA inspection programme of finding non-registered sources in the state.)
First OPRAS mission – mission in Slovenia (2001)

ORPAS Mission Experts

- The very first ORPAS mission took place in Slovenia from 1 till 6 July 2001.
- The mission was led by A.P. Hudson (UK).
- Other members:
  - Z. Prouza
  - L. Dobis
  - J. van Dijk
  - R. Cruz-Suárez (IAEA).
First OPRAS mission – mission in Slovenia (2001)

Slovenian Counterparts

Slovenian Nuclear Safety Administration (SNSA)
Vojkova 59
1000 Ljubljana
Tel: 01 - 47 21 100
www.sigov.si/ursjv/uvod.html#language=iso2

Health Inspectorate of the Republic of Slovenia (HIRS)
Parnova 33
Ljubljana
Tel: 01 - 43 62 298
www.gov.si/mz/

Today:
• Slovenian Nuclear Safety Administration (1987 -)
• Slovenian Radiation Protection Administration
First OPRAS mission – mission in Slovenia (2001)

The Mission Visits

- The work done is impressive as experts visited:
  - both regulatory authorities
  - TSOs (service providers)
    1. Institute Jožef Stefan
    2. Institute of Occupational Health
    3. Nuclear Medicine Department at UCCL
    4. NPP Krško
  - operators
    1. Institute of Oncology
    2. Nuclear Medicine Department at UCCL
    3. Clinical Institute for Radiology and Cardiology Department at UCCL
    4. Slovenian National Building and Civil Engineering Institute
    5. NPP Krško.
First OPRAS mission – mission in Slovenia (2001)

Slovenia - Final Results

- The report addresses findings and grades them in three levels, i.e. recommendations might be essential, important or advised.

<table>
<thead>
<tr>
<th>Priority</th>
<th>Timing of Implementation</th>
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</thead>
<tbody>
<tr>
<td>Essential</td>
<td>Should be immediate, certainly without undue delay.</td>
</tr>
<tr>
<td>Important</td>
<td>Should be as soon as can be reasonably achieved.</td>
</tr>
<tr>
<td>Advised</td>
<td>Implementation enhances effectiveness but may be delayed.</td>
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- Today:

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RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES
First OPRAS mission – mission in Slovenia (2001)

Slovenia - Final Results

- From the IAEA:

  The number of recommendations, suggestions and good practices is in no way a measure of the occupational radiation protection status and arrangements of participating organisations in the host country.

Selected findings and recommendations
First OPRAS mission – mission in Slovenia (2001)

Selected Recommendation to the RB

• „The Republic of Slovenia urgently needs new legislation to reflect both the requirements of the BSS and the requirements of the current, relevant EU Directives (although the latter are not strictly the focus of this mission). The appraisal team wishes to emphasize, again, that current occupational radiation protection practice in Slovenia is rather better than the current legislation. [Essential]“
First OPRAS mission – mission in Slovenia (2001)

Selected Recommendation to Institute Jožef Stefan - Service Provider

• „The entire irradiation and radiation standards system at IJS should be converted to the current ICRU operational quantities and irradiation conditions should comply to ISO 4037-1, -2 and -3. This includes radiation qualities or sources, geometry, use of build-up sheets and conversion coefficients. [Essential]“
Recommendation to the operator - Clinical Institute for Radiology and Cardiology Department at UCCL

• „Consideration should be given to the current practice of designating the whole of both departments as controlled areas. It may be that this devalues the concept of such designations, and that a suitable combination of controlled and supervised areas could be more appropriate. [Advised]“
First OPRAS mission – mission in Slovenia (2001)

Slovenia – Final Results

- The report is open to the public.
- ORPAS mission was one of the basic milestones in upgrading radiation safety in the state.
  In 2002 a new law on nuclear and radiation safety has been published replacing two other laws, namely from 1980 and 1984.
- The cooperation of regulatory staff and experts from TSO’s (service providers) with international community started or was enhanced.
  Strong cooperation with IAEA, OECD/NEA and EURADROS started.
- The ORPAS recommendations were a huge support to the RB when addressing shortcomings.
Good Practices

From Recommendations and Suggestions to Good Practices

• The ORPAS report did not identify “good practices” but the report is positively oriented to areas showing good safety culture.
• Recent ORPAS missions follow the systematic approach to “good practices”.

ORPAS mission Sri Lanka – 2019

<table>
<thead>
<tr>
<th>GP1:</th>
<th>Good Practice: The movement of every of mobile X-ray unit is recorded in a logbook.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GP2:</td>
<td>Good Practice: Protective aprons are checked every year using fluoroscopy and findings, including images, are recorded.</td>
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</tbody>
</table>

• Several good practices are noted during ORPAS missions, e.g.
  - Bosnia and Herzegovina - 2018
  - UAE - 2015.
Conclusions

• The very first ORPAS mission was challenging.
• It was an excellent opportunity to take lessons learned from international experts, e.g. to learn about good practices.
• Involvement of RB staff, TSO experts and operators provided opportunity to establish a radiation protection community.
• Involvement of young professionals was very beneficial.