

**IAEA**

## *TSO Forum*

*The Technical and Scientific support Organization*

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# TSO Forum

**2007** 1st TSO Conf.: TSOs from different countries joint effort to develop a common understanding.

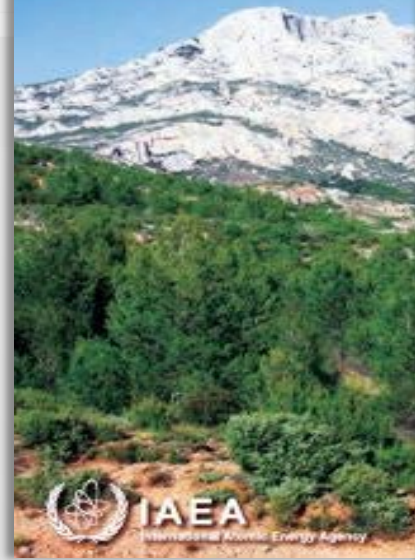
➤ **2010**: 2nd TSO Conf.: Regulatory functions need to be science based. **Creation of TSO Forum (TSOF) as a platform for networking between support organizations.**

➤ **2011**: Fukushima Daiichi accident: the “need for appropriate technical and scientific support” is one of the area of improvement for strengthening the effectiveness of national regulatory bodies.

**2014**: 3rd TSO Conference, about 250 participants from 42 Member States and 5 organizations: Lessons from Fukushima Daiichi accident, Acknowledge the role of TSO on research and development (R&D), TSOs to support building nuclear safety and security capacity in embarking countries.

## Challenges Faced by Technical and Scientific Support Organizations in Enhancing Nuclear Safety

Proceedings of an International Conference  
Aix-en-Provence, 23–27 April 2007



2007

## Challenges Faced by Technical and Scientific Support Organizations in Enhancing Nuclear Safety and Security

Proceedings of an International Conference  
Tokyo, 25–29 October 2010



2010

## International Conference on Challenges Faced by Technical and Scientific Support Organizations (TSOs) in Enhancing Nuclear Safety and Security

*Strengthening Cooperation and Improving Capabilities*

27–31 October 2014  
Beijing, China



2014

# TSO FORUM activities

- ▶ **TECDOC** *Technical and Scientific Support Organizations (TSOs) and Their Services Provided in Support of Regulatory Functions* :
  - ▶ Finalized in August 2016,
  - ▶ First Review by IAEA Publication Committee in December 2016,
  - ▶ Clearance by NS sections in April 2017,
  - ▶ **Expected publication for 2017.**

- ▶ **Support of the Technical and Scientific Capacity of TSOs of Regulatory Bodies in embarking countries:**
  - ▶ Based on the recommendations of the TSO Forum Conference 2014 in Beijing.
  - ▶ *"TSO initiative"*: to support technical and scientific capabilities in embarking countries or in countries which are in the process of developing their TSOs
    - ▶ Experience feedback on embarking countries (consultancy meeting July 4-6, 2016)
    - ▶ Gap analysis and what the TECDOC can bring to help the Member States during INIR and IRRS missions. **DONE** (consultancy meeting April 3-6, 2017) **DONE**
    - ▶ Draft of Terms of Reference of the *"TSO initiative"*: for a national workshop to support the development of Technical and Scientific capabilities. **STARTED** (consultancy meeting April 3-6, 2017 in Vienna )
      - ▶ Targeted countries, Overall process, TSO workforce and Tools
    - ▶ **Continuation with a next consultancy meeting (DTC)** to define the profiles of the TSO workforce (IRRS, training), to prepare cases-studies => pilot for 2018
    - ▶ **Preparation of the Workshop on TSOs supporting Regulatory Functions in November 11-15, 2017 in Vienna. STARTED** (consultancy meeting April 3-6, 2017 in Vienna )

# TSO Forum Activities:

## ▶ Safety related R&D:

- ▶ Based on the recommendations of the TSOF Conference 2014.
- ▶ Developed website page to promote relevant safety related R&D events and projects.
- ▶ Cooperation with EC for a dedicated safety related R&D group: ToR draft sent to EC for review.
- ▶ MoU with EC to be revised including R&D and E&T.

## ▶ IAEA – ETSON Practical Arrangement :

- ▶ ToR draft sent to ETSON and commented, signature expected during General Conference GC61 in Vienna 2017.



# TSO Forum Activities:

## ▶ 4<sup>th</sup> TSO Conference 15-19 October, 2018 in Brussels

- ▶ 1<sup>st</sup> Programme committee: TSOs + JRC + RB (FANC, CSN, US-NRC, NRPA) invited April 10-11 in Vienna

### ▶ PC Objectives

1. Promote the roles, functions and value of TSOs in enhancing nuclear and radiation safety and security and addressing challenges of countries launching or expanding their nuclear power programmes including a sustainable capacity building;
2. Evaluate actions regarding the recommendations of previous TSO Conferences;
3. Reflect the achievements of the TSO Forum and to address the key components of the TECDOC on *TSOs supporting Regulatory Functions*
4. Update on the revision safety standards taking into account lessons learnt from the Fukushima Daiichi accident;
5. Foster self-assessment within the TSOs to maintain and enhance their technical and scientific capability to support their Regulatory Bodies in decision making process (session 6);
6. Address the TSO role in enhancing the radiation safety in non-power application;
7. Address the key components to support the expertise including Research and Development;
8. Facilitate exchange of experience and good practices in planning and implementing cooperative activities for capacity building and in identifying needs for assistance activities from the stand point of recipients countries;
9. Increase the networking and to enhance the international cooperation through existing IAEA safety networks, bilateral cooperation and centres of excellence (TSO Club);
10. *Specific recommendations addressing security, interfaces outcome from previous Security conference addressing the TSOs*

- ▶ *Proposals for the title: Developing and maintaining effective and sustainable TSOs' capability, Initiative for effective and sustainable TSOs' capabilities, Ensuring effective and sustainable expertise, Towards sustainable expertise, Developing and sustaining expertise*

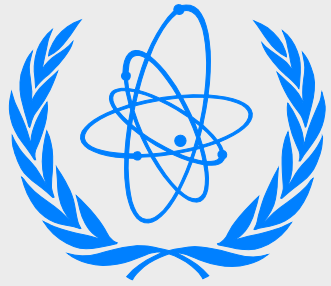
- ▶ Preliminary agenda

- ▶ Distribution among RB, TSOs, embarking/expanding countries, region etc...

- ▶ 2<sup>nd</sup> PC 17-18 April, 2017

Thank you for your attention....





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**FNRBA**

*The Forum of Nuclear Regulatory Bodies in Africa*

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DEPARTMENT OF NUCLEAR SAFETY AND SECURITY





# Main features of FNRBA

## Since 2009, Forum of Nuclear Regulatory Bodies in Africa

- 33 IAEA Member States

Angola, Botswana, Burkina Faso, Cameroon, Chad, Côte d'Ivoire, Democratic Republic of Congo, Egypt, Ethiopia, Gabon, Ghana, Kenya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Namibia, Niger, Nigeria, Senegal, Seychelles, Sierra Leone, South Africa, Sudan, Tunisia; Uganda, United Republic of Tanzania, Zambia and Zimbabwe

- 9 countries considering Nuclear Power Programmes
- 10 Thematic Working Groups
- <http://gnssn.iaea.org/main/fnrba>



## The priorities of FNRBA are (from Strategic Action Plan 2016-2021):

**Priority 1:** Create awareness of, and coordinate activities, amongst political and policy makers and other regional forums and organizations.

**Priority 2:** Establish an efficient and effective network of human resources supported by an IT platform to ensure sustainable regional strategies for capacity building with IAEA methodologies.

**Priority 3:** Ensure understanding, develop, promote and implement high standards of radiation protection, nuclear safety and security Member State.

**Priority 4:** Implement capacity building activities at the national and regional level in radiation protection, nuclear safety and security regulatory infrastructure and framework and promoting sustainable regional cooperation in developing needed human resources.

**Priority 5:** Harmonize of national plans for emergency preparedness and response, transport safety and security in line with international requirements to facilitate exchange of information and sharing of experiences.

# FNRBA Activities: *Synergy, maturity and activity*

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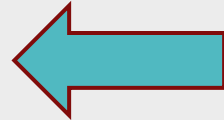
- ▶ **New FNRBA website:** News, FNRBA Scientific Publications, Upcoming events
- ▶ **Published 5 technical reports** on the FNRBA public website
  - ▶ Survey on status of legal framework, regulatory standards and safety goals (2011);
  - ▶ Survey on the Status of Regulatory Standards relating to Siting on NPP's (2012);
  - ▶ Survey of status of International Conventions in TWG3 Participating Countries (2011);
  - ▶ Survey of the Status of National Nuclear Infrastructure Development (2014);
  - ▶ Survey on basic EPR infrastructures.
- ▶ **Coordination meeting** of August 15-19, 2016 on ***Needs and Services to be provided by FNRBA***
  - ▶ “*First meeting of that kind*” with 40 participants from 17 Member States: Steering Committee, TWG leaders, local experts, IAEA TO and donors US-NRC, KINS;
  - ▶ Governance level: **review of the Charter**, communication protocol, publication process and fostering sub-regional exchange, foster the cooperation with AU, WENRA, FORO, TSO Forum;
  - ▶ 50 Proposed activities: 50% development of skills and knowledge, 10% development of regulatory support documentation such as model regulations and guides, the rest related to experience sharing and development of a regional database and peer review services.



# Assessing the needs

## The objectives of the CS meeting:

- To propose ideas to **improve the governance** of FNRBA
- To propose **relevant products and services** that support the nuclear safety and security
- To propose **relevant activity plan with requirements for workshops** that fit to the needs in Africa (for each TWG)
- To ease the **consultation and the coordination with donors and internally at the Agency**
- To propose **tools to monitor the achievements** and the regular implementation of such assessment

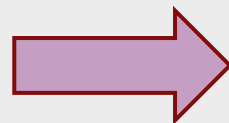


## The team:

- **Steering Committee** members,
- **Leaders of the 10 thematic working groups (TWGs)**,
- **Local experts from 17 African Member States**,
- **9 Technical Officers of the IAEA**,
- **3 delegates of donors:** from the United States of America **US NRC** and the Republic of Korea **KINS**
- in total, about 40 experts from Botswana, Cameroon, the Democratic Republic of the Congo, Egypt, Ethiopia, Ghana, Kenya, Madagascar, Mali, Mauritius, Nigeria, Senegal, South Africa, the Sudan, Tunisia, Uganda and Zimbabwe

## Roadmap for each **technical working group:**

- Key messages
- Assessment of needs related to the TWG topic
- Assessment of needs related to the improvement of the impact of FNRBA on radiation and nuclear safety (including ideas for developing a generic survey to prepare yearly activity plan)
- Suggestions of services to be provided by FNRBA
- Proposal of activity plan 2017
- Activity report 2016 and publications for the website (before GC60)



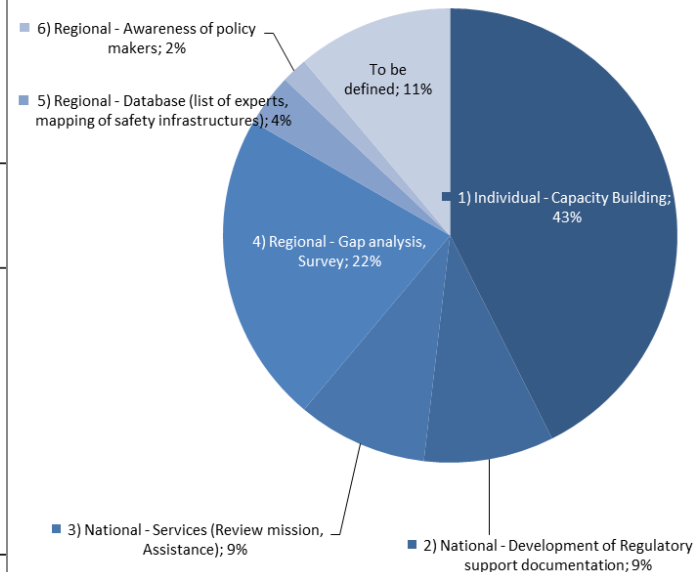
## Main proposals and achievements:

- Assessment per TWG and key messages
- 50 Actions to support the FNRBA (policy makers, communication protocol, Charter, publication procedures)
- Activity plan per TWG and direct target impact
- Website requests for TWG EPR and Transport safety + 5 survey reports to be published on the website (EPR and Licensing)

# Assessing the needs: Activities vs Challenges

| A- Challenges / Activities |   |  |                                   | B- Direct Impact Target                                       |   | D- Support and donors |                                  |      |      | C- Interest of Member States                   |                                 |                             |
|----------------------------|---|--|-----------------------------------|---|---|-----------------------|----------------------------------|------|------|--|---------------------------------|-----------------------------|
| TWG                        | Challenges<br>(justification of the needs through gap analysis)   | Proposed activities  | Linked activities                 | Impact target   | Type of deliverable<br>R: Report<br>D: Database<br>P: Publication for public website of FNRBA | FNRBA                 | US NRC                           | KINS | IAEA | Priority as given in the Strategic Action Plan | Priority proposed by CS15-19/08 | Time proposed by CS15-19/08 |
| <b>TWG1</b>                | <b>Legislative and Regulatory Infrastructure</b>  |  |                                   |   |   |                       |                                  |      |      |  |                                 |                             |
| <b>TWG1</b>                | 1.1 To raise awareness at regional and international level, on the importance and needs to strengthen the regulatory infrastructure in the region.  | 1.1.1 Regional Meeting for high level decision makers on the importance for their support to regulatory bodies.  |                                   | 6) Regional - Awareness of policy makers                      | R   |                       | possible support to be confirmed |      |      |  | 3                               |                             |
| <b>TWG1</b>                | 1.2 To provide guidance to national regulatory bodies on its functions to regulate complex radiation practices.   | 1.2.1 Development of a <b>Guide for Regulatory Bodies on Licensing of Radiotherapy Facilities</b> (Activity to be implemented together with the experts in TWG2) | <b>TWG2</b>                       | 2) National - Development of Regulatory support documentation | P   |                       | possible support to be confirmed |      |      |  | 1                               |                             |
| <b>TWG1</b>                | 1.3 To have training courses, workshops and meetings to discuss issues and challenges related to strengthening of the regulatory infrastructure.  | 1.3.1 Regional Workshop for Heads of regulatory bodies in Africa to discuss the issue of sustainability of the regulatory infrastructure in the region.          |                                   | 4) Regional - Gap analysis, Survey                            |   |                       |                                  |      |      |  |                                 |                             |
| <b>TWG1</b>                | 1.4 Enhance the capacity of regulators in MS in the field of Regulatory Control of Radiation Sources  | 1.4.1 Advanced TC on Effective and Sustainable Regulatory Control of Radiation Sources   | <b>Activity proposed via TWG6</b> |   |   |                       |                                  |      |      |  |                                 |                             |
| <b>TWG2</b>                | <b>Radiotherapy</b>   |  |                                   |   |   |                       |                                  |      |      |  |                                 |                             |
| <b>TWG2</b>                | 2.1 A training course be developed that will be used to train the members of the regulatory bodies that will be tasked with developing or drafting the model regulation. Those who have been trained in drafting regulations, will therefore be used to draft the model regulations that are needed to regulated radiotherapy activities in Africa.   | 2.1.1 Training program to Increase technical capability and develop model regulation   |                                   |   |   |                       |                                  |      |      |  |                                 |                             |
| <b>TWG2</b>                | 2.2 These experiences will range from conceptualising and developing radiotherapy facilities to inspection and enforcement activities that are carried out in radiotherapy.   | 2.2.1 Arrangement of two regional workshops to share experience among the member states  |                                   |   |   |                       |                                  |      |      |  |                                 |                             |
| <b>TWG2</b>                | 2.3 Such lack of regulatory competence in radiotherapy has resulted in poor inception and implementation of radiotherapy facilities. It is evident in many countries that new facilities are coming up but assessment of such facilities from design and shielding to quality control and assurance and finally to inspection and enforcement remains a nightmare to both the regulators and the regulated. It is not easy to be regulated by people who are incompetent. It is with this that it is strongly proposed that the curriculum be enhanced to include | 2.3.1 Explore the possibility to designate the Regional training center for Regulatory Body on RT  |                                   |   |   |                       |                                  |      |      |  |                                 |                             |
|                            | 2.4 Various member states have peculiar requirements when developing radiotherapy facilities. It is therefore proposed that expert mission  | Expert mission based on the specific need of member states   |                                   |   |   |                       |                                  |      |      |  |                                 |                             |

Distribution of type of activities

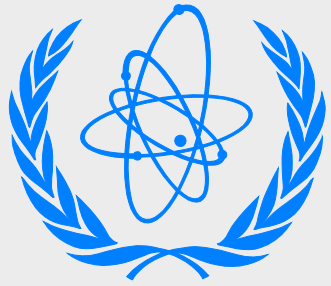


- 1) Individual - Capacity Building
- 2) National - Development of Regulatory support documentation
- 3) National - Services (Review mission, Assistance)
- 4) Regional - Gap analysis, Survey
- 5) Regional - Database (list of experts, mapping of safety infrastructures)
- 6) Regional - Awareness of policy makers
- To be defined

# Progress of FNRBA

- ▶ Meeting in Cape Town (5 representatives of Steering Committee)
  - ▶ Drafting Terms of Reference for the development of an Assistance platform between Regulatory Bodies;
  - ▶ Revision of the Charter of FNRBA **for signature during Plenary 2017**;
  - ▶ Revision of the Terms of Reference of the working groups;
- ▶ **Second coordination meeting of FNRBA July 3-7, 2017 in Vienna with Donor Countries, representatives of other regional networks will be invited + other experts to be invited soon.**
- ▶ Strengthening of the cooperation with AFRA and African Union;
- ▶ 1 Member State requests the IAEA assistance for the development of a national capacity building programme (Government, Regulatory authorities, Authorized Parties, National E&T institutions)
- ▶ Joint activities with **ANNuR** for the safe management of Research Reactors project.
- ▶ 2 workshops proposed by ENSTTI supported by ECin Pretoria: Regulatory Control of Nuclear Sites
- ▶ 1 Practical Arrangements with NNR (South Africa), regional capacity building center





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***EuCAS***

*The Network of European and Central Asia Safety network*

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- ▶ Establishment of the European and Central Asian Safety network (EuCAS Network) on September 28, 2017
- ▶ EuCAS Network gathers 22 regulatory bodies and TSOs from 20 MS: Armenia, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, the Czech Republic, France, Georgia, Germany, Greece, Kazakhstan, Lithuania, Malta, Moldova, Norway, Romania, the Russian Federation, Serbia, Slovakia and Tajikistan.
- ▶ 7-9 December 2016, Vienna: First EuCAS Steering Committee Meeting
- ▶ 12-14 June 2017, Sofia: Workshop and radioactive waste classification (sharing experience feedback)
- ▶ 15-16 June 2017, Sofia: Second EuCAS Steering Committee Meeting
- ▶ 21-23 November 2017, Norway: Workshop "Regulatory Supervision of Legacy Sites: the Process from Recognition to Resolution"

Thank you for your attention....

