

12th Steering Committee (SC) meeting of the TSO Forum (TSOF)

IAEA Headquarter, Vienna, Austria
19-20 October 2017

Final Summary



The 12th meeting of the Steering Committee (SC) of the Technical and Scientific Organizations' Forum (TSOF) was held in the IAEA from 19 to 20 October 2017 and gathered 16 participants from 14 Member States (MS) and from the European Commission. In addition, 5 experts from the IAEA attended and provided presentations to the Steering Committee Members.

Session 1: Opening Session

Mr G. Caruso (Director of NSOC, IAEA) opened the session by welcoming the participants and highlighting the achievements of the TSOF, particularly the TECDOC on TSOs, the TSO self-assessment and a first case-study. The TSO self-assessment will help the MS to assess their own technical and scientific capacity and support organization, while the case studies will support the MS in developing their strategy to develop or to strengthen the technical and scientific capacity. In addition, he highlighted the implementation of a first national workshop

and the 2018 TSO Conference, which will take place in October in Brussels, and where the TSO initiative will be presented. Finally, Mr Caruso welcomed the new representatives from Pakistan, South Africa and Ukraine to the TSO Forum.

Mr B. De Boeck (Bel V, Belgium), Vice-Chairman of TSO, welcomed the participants and the new members of the TSO.

Mr L. Guo (Section Head of NS/NSOC-NMPS, IAEA) invited Ms. C. Eibl-Schwaeger (GRS, Germany) to Chair the meeting. He then presented the main developments of the GNSSN Plenary during the IAEA 61st General Conference, including the signature of practical arrangements between the IAEA and the ETSON, the announcement of the Pilot International School of Nuclear and Radiological Leadership for Safety, and the presentations on the work carried out in capacity building, Peer Reviews and knowledge networks.

Mr L. Guo raised the issue of the chair of the TSO Forum as Terry Jamieson has already retired and Benoit De Boeck will retire next year. It was proposed the following distribution:

- Mr Brain Thomas (US-NRC, USA) as Chair,
- Ms C. Eibl-Schwaeger (GRS, Germany) as Vice-chair.

The IAEA Secretariat will send this request for nomination via official channels.

Ms C. Eibl-Schwaeger (Germany) thanked the IAEA Secretariat SC and accepted to chair the 12th SC meeting. She reminded the need to get the official nomination. She invited the new countries' representatives to introduce themselves.

The proposed agenda was presented and adopted.

Mr S. Mallick (Section Head of PSCS, IAEA) provided an update on the current review of the services offered by the IAEA.

Mr G. Caruso emphasized the undergoing efforts to improve the IAEA review services and strengthen the capacity building activities. He highlighted the importance of the harmonization of activities and of the Pilot International School of Nuclear and Radiological Leadership for Safety for preparing young professionals through *real* cases.

Mr K. Ben Ouaghrem (NSOC-NMPS) briefed the Steering Committee (SC) on the progress and actions resulting from the previous TSO SC meeting, in April 2017. Firstly, the TECDOC is undergoing the integration of comments from NSRW; its finalization is estimated for November and it will then be re-submitted to the Publication Committee. The TECDOC will be shared with participants before the workshop to be held in April 2018. In addition, he informed the SC on the drafting of cases studies and TSO self-assessment that took place in July 2017. Two Consultancy Meetings will be held in December 2017 to finalize the TSO self-assessment and case study. Finally, Mr Ben Ouaghrem briefed the SC on the workshop on TSO supporting regulatory functions to be postponed in April 9-13, 2018 in Vienna for better preparation and on the preparation of the TSO Conference 2018.

The TSO Factsheet was discussed and it was agreed to update the list of members in particular several existing or new members are missing (Lithuania, South Africa, Ukraine) and ETSON should appear as the practical arrangements between IAEA and ETSON were signed during the General Conference GC61.

Session 2: TSO initiative to support technical and scientific capacity in Regulatory functions

2.1 Overview of the TSO initiative

Mr K. Ben Ouaghrem briefed the SC on the developments of the *TSO initiative*, which will support Member States in developing and strengthening their technical and scientific capacities of TSOs. The TSO initiative comprised a set of tools that will be presented during the workshop in April 9-13, 2018 in Vienna:

1. The TECDOC on TSOs, which provides an overview of well-established TSOs mainly already involved in existing nuclear programmes. The TECDOC was finalized in August 2016, submitted to the Publication Committee (PC) and has been updated according to the PC recommendations, in particular on radiation safety. The TECDOC will be re-submitted to the PC before end of 2017;
2. The contribution of the TECDOC for the preparation of the Member States to IRRS and INIR missions was evaluated during a consultancy meeting in April 2017.
3. The feedback experience of regulatory bodies and TSOs in support of their counterparts in embarking countries (especially in Vietnam) was collected during a consultancy meeting in July 2016.
4. The development of library of case studies (story telling based on real experiences), the development of a TSO self-assessment methodology as well as the implementation of national workshops will support the Member States in building their strategies related to TSO.

The TSO conference 2018 in Brussels will be a great opportunity to present and to promote the *TSO initiative*. Further work needs to be done, in particular to better advice regulatory bodies and TSOs of embarking countries on the relevant research and development topics.

2.2 Case study

Ms M. Mkhosi (South Africa) presented the TSO Case study development. TSO case studies serve to illustrate how scientific and technical actions can enhance regulatory missions and provide links to ensure sustainability. She discussed the four pillars of regulatory sustainability, namely institutional strength, people, technical resources, and stakeholder and public confidence. Ms Mkhosi discussed also the concept of “linkage”, feedback or forward mechanisms linking different types of regulatory related activities, to ensure permanent improvement and natural adaptation to changing environments. She stressed that there is no single model for TSO, but they vary from country to country. Therefore, the case studies do not provide a model but organizational examples; a case study “tells a story” of what happened in a real situation.

Ms Mkhosi presented the case of South Africa, where in 2009 the Regulator was challenged by a national strike, and the role of the Operator was in question. The main public concern was related to human resources, particularly the training of staff. Since then, there have been substantial changes in the Regulator, including the expansion of the country’s nuclear energy generation, peer review missions, and increased number of entities evaluated by the regulator. This led to the development of a technical support structure and the creation of a pipeline of human resource and skills to ensure the regulator has the capacity at all times. The project to establish the TSO was implemented with an internal team to encourage ownership of projects inputs, processes and outcomes by staff. The TSO was established with the vision of being a

world-class centre for Nuclear Safety and Security and the mission to establish capabilities and pursue excellence in offering E&T, RRD and TSS.

2.3 TSO self-assessment

Mr M.G. Albert (France) presented on the development of a self-assessment methodology of the effectiveness of TSOs supporting regulatory functions. He recalled the Consultancy Meeting held in July 2017, which served to develop the self-assessment methodology with the objective to assess the S&T capabilities of the TSO. Some key considerations in the development of the questionnaire were: to limit the number of open questions; to base it on the experience from peer review missions from the SARIS questionnaire and the draft TECDOC; and to place emphasis on the evaluation of how the TSO is performing its duties. Mr Albert informed that the outcome of the meeting was questionnaire of 28 major questions (including background and specific questions), following the structure of the TECDOC. The topics covered by the questionnaire were presented. He stressed that further work needs to be done, in particular to develop modularity. Also, the TSO self-assessment could be tested by embarking/developing countries for/during the workshop in April 2018 and its use in connection with peer review missions should be defined.

Mr Maqbul (Pakistan) stressed the importance of the modularity of such a self-assessment taking into account the grading capacity of the regulatory body and the TSOs.

Mr F. Wastin (JRC) recommended evaluating the possibility to include some questions of the TSO self-assessment in the SARIS questionnaire of the IRRS.

Q NSNI Mamoru: references included to make the linkage with existing requirements of SSG-16.

B. Okyar (NSRW, IAEA) reminded the existing Occupational Radiation Protection Appraisal Service (ORPAS) self-assessment questionnaire that could be used for operating TSOs which provide radiation protection services in respect of assessment of occupational exposure from external sources of radiation and due to intakes of radionuclides, workplace monitoring, recording of occupational exposure, and advisory services.

Mr M. Albert recommended enriching the TSO self-assessment with further experience to address user friendliness and effectiveness of the questions.

Mr L. Guo considered this TSO self-assessment could become a tailored tool.

2.4 Preparation of the workshop for embarking countries and of the Technical Meeting on Services provided by TSOs to Regulatory Bodies (all)

Mr K. Ben Ouaghrem presented the draft agenda of the workshop to be held in April 9-13, 2018. 2 days will be dedicated at the end of the two consultancy meetings to better prepare the workshop.

B. Lepouze (NE-NIDS, IAEA) recommended considering the IAEA list of embarking countries.

SC agreed to invite representatives from regulatory bodies and TOSs of embarking countries under phase 2 and 3.

Session 3: Preparation of TSO Conference 2018 in Brussels

3.1 Results of the 2nd Programme Committee

Mr B. de Boeck (Bel V, Belgium) presented the objectives of the 2018 TSO Conference, including: the evaluation of actions following previous TSO Conferences' recommendations; the promotion of the roles, functions and value of TSOs; presenting the benefits of self-assessment for TSOs; addressing the TSO role in applications other than nuclear power; highlight the main methods to support expertise, including research and development; and discussing ways to enhance international cooperation through IAEA safety and security networks. He discussed the programme of the 2018 TSO Conference and informed the SC of deadlines for the submission of papers.

3.2 Comments from Steering Committee members

Mr F. Wastin (EC) recommended that the session dealing with decommissioning should include remediation.

Mr A. Madonna (Italy) highlights the importance of the first session, regarding the feedback from the regulator and stresses the importance of addressing what regulators consider as relevant support from TSOs.

Upon the SC request, L. Mr Guo clarified that the IAEA will announce the TSO conference 2018 on the website specifying the registration process, as well as the papers submission procedure. Requests for financial support should be through official channels and in advance.

Session 4: Security

4.1 Update on Activities with Nuclear Security Support Centres (NSSC)

Mr J. Conner (NSNS, IAEA) provided an overview of the IAEA activities with NSSCs, which are established to develop human resources and to provide technical and scientific support for lifecycle equipment management and the prevention, detection and response to nuclear security events. The IAEA supports and cooperates with NSSCs; the IAEA is currently implementing two bilateral projects to support the enhancement of Member State national NSSCs in Malaysia and Egypt. Mr J. Conner presented also the NSSC Network, which has the mission of contributing to the global efforts to enhance nuclear security capacity building through an effective and collaborative network of nuclear security training and support centers. He highlighted the main activities for 2017-2018, which include the review of the NSSC Network TOR for possible revision, the enhancement of information management tools on NSSC capabilities and needs, and improving guidance on establishment and operation of NSSCs (revision of TECDOC1734).

In addition, Mr J. Conner provided some highlights of NSSC regional activities, which included an IAEA pilot training programme for Front Line Officers' Instructors on Nuclear Security Detection in Malaysia. Also, the "ARN + 1" Meeting of the Asia Regional Network (ARN) of Nuclear Security Support Centres (NSSC) and Centres of Excellence (COE) took place to facilitate enhanced coordination between the ARN and the IAEA on planning and implementation of regional and international activities for nuclear security.

Session 5: Radiation safety

5.1 Update on radiation safety related activities

Mr B. Okyar (NSRW, IAEA) presented on the IAEA maintenance and strengthening of TSO capabilities for radiation measurement, calibration and monitoring. He provided the definition

and an introduction to TSOs as defined in the International Basic Safety Standards (GSR Part 3), published in 2014. He addressed the categories for TSOs, namely calibration and testing/assay services and consultancy and maintenance. He also discussed the actors in radiation safety i.e. regulator, end-users, and technical services, as well as their relationship. Mr B. Okyar addressed the role of TSOs in radiation protection; the support TSOs provide to the regulatory body and operators in radiation measurement, calibration and monitoring.

Mr B. Okyar presented on the IAEA Testing Laboratory for Radiation Measurement, Monitoring and Protection, which is operated by NSRW and certified as an authorized laboratory. In this regard, the Laboratory is comparable to a TSO in a MS and its Quality Management System can serve as a model for MS. He informed participants about ORPAS peer view and its role in verifying the TSO capabilities in radiation safety. With regards to self-assessment, the ORPAS questionnaires were presented. The ORPNET, promoting optimization of the occupational radiation protection, was also discussed. Finally, the lessons learned from the 2014 International Conference on occupational radiation protection were presented.

Session 6: Research and Development

6.1 IAEA Topical Issues Conference: Insights and Recommendations

Ms C. Spitzer (Section Head of NSNI/SAS, IAEA) presented the outcomes of the International Conference on Topical Issues in Nuclear Installation Safety, which took place in June 2017 focusing on safety demonstration of advanced water cooled Nuclear Power Plants (NPPs). It was a joint Conference by the Department of Nuclear Safety and Security and Department of Nuclear Energy with a specialized Scientific Organizing Committee. It had 27 technical sessions organized in 3 parallel tracks; 48 participating countries and 5 international organizations; and 100 papers were presented, including from young professionals. The Vienna Declaration on Nuclear Safety (VDNS) was discussed in the first session and consensus was reached that the IAEA Safety Standards cover the objectives of the VDNS. Ms Spitzer explained that a bottom-up approach was requested by MS for sharing experiences and practical approaches regarding safety improvements for existing NPPs. She informed the SC on the second session of the Conference, focused on insights gained from the design, construction and commissioning of advanced water cooled reactors, as well as the side events.

Ms C. Spitzer explained that the key outputs of the Conference with regards to safety assessment of advanced reactor designs; the design of safety principles; licensing of advanced reactor designs; and safety reinforcement of existing installations. To conclude, she presented the Conference's recommendations: Member States should share experiences and practical approaches, while the IAEA should provide fora, facilitate the application of new design safety principles, collect regulatory and industry experience and lessons, and support harmonisation, verification and validation.

6.2 Follow-up of the TM on In-Vessel Melt Retention and Ex-Vessel Corium Cooling

Mr A. Amri (NSNI/SAS, IAEA) informed the SC about the Technical Meeting (TM) on "Phenomenology and Technologies Relevant to In-Vessel Melt Retention and Ex-Vessel Corium Cooling", organized by the Department of Nuclear Safety and Security and the Department of Nuclear Energy and hosted by the government of China. The purpose of the

TM was to provide a platform for detailed presentations and technical discussions on recent progress in R&D activities on IVMR and EVCC. It was attended by 63 experts from 18 MS. A draft TECDOC has been completed and includes highlights of current status and challenges of IVMR and EVCC strategies.

6.3 Update on NUGENIA activities

Ms E. K. Puska (Finland) provided an introduction to NUGENIA, discussed the NUGENIA-SNETP relationship and informed the SC on recent developments. These include the update of the NUGENIA 2013 Roadmap, the General Assembly and Forum to be held in April 2018, and the participation in the fourth International Conference on NPP Life Management.

Ms C. Eibl Schwaeger (Germany) acknowledged the speakers and recommended that some of the main outcomes of the International Conference on Topical Issues in Nuclear Installation Safety could be addressed during the TSO Conference 2018.

Session 7: Closing session

7.1 Website

It was suggested to link ETSON website to the TSO Forum website.

7.3 Promotion of the TSO forum and overview of Upcoming Events for TSOs

Mr S. Defour (France) presented on the Eurosafe Forum 2017, which will take place 6-7 November in Paris. The Eurosafe Forum is an international conference on nuclear safety and security, radioactive waste management and radiological protection. He presented the Forum agenda, which includes discussions on the harmonization of initiatives at EU level and of nuclear safety in Europe, the upcoming challenges in nuclear safety in France, the Ebola health crisis management in Guinea, and the ETSON Award for junior experts for their work in recent scientific projects in nuclear safety and security. In addition he informed the SC on the seminars that will take place to compare experiences and learning about recent activities of ETSON members and their international partners. To conclude, Mr Defour provided information on the registration for participation and invited the SC to participate.

7.4 Next TSOF Steering Committee Meeting in 2018

Mr K. Ben Ouaghrem (NSOC-NMPS) announced that the 13th Steering Committee of the TSOF Forum will be held in April 18-19, 2018 in Vienna.

The Programme Committee will be held in April 15-17, 2018 in Vienna.

7.5 Update of the Action plan

See the Appendix 1.

7.6 Closing remarks by the Chair of TSOF

Mr L. Guo (Section Head of NS/NSOC-NMPS, IAEA) acknowledged the work of the SC and highlighted the progress made with respect to the workplan of the TSO Forum.

Ms C. Eibl-Schwaeger (GRS, Germany) thanked the participants for the work carried out.

Appendix 1 – List of actions decided by the 12th Steering Committee

No	Action	Details
1	<u>Meetings for 2017-2018</u>	
	1 st Programme Committee Meeting for TSO Conference	10 th - 11 th April 2017, VIC Room <i>DONE</i>
	11 th TSO Steering Committee meeting	12 th – 13 th April 2017, VIC Room <i>DONE</i>
	2 nd Programme Committee Meeting for the preparation TSO Conference	17 th - 18 th October 2017, in Vienna <i>DONE</i>
	12 th TSO Steering Committee meeting	19 th – 20 th October 2017, in Vienna <i>DONE</i>
	3 rd Programme Committee Meeting for the preparation TSO Conference	16th - 17th April 2018, in VIC Room M4
	13 th TSO Steering Committee meeting	18th – 19th April 2018, in Vienna
	2 Consultancy meetings	December 12-15, 2017, in VIC M0E79 <ul style="list-style-type: none"> • CS5 Development of case-studies based on the experience of PNRA (Pakistan) • CS6 Development of TSO self-assessment with a module on radiation safety • Preparation of the workshop 2018
	Workshop developing and sustaining TSOs	Workshop 9-13 April in Board room A then PC3 16-17 April and SC 18-19 April in M4 in Vienna <ul style="list-style-type: none"> • List of embarking phase 2-3 (see list of NE) for the invitation
	CS R&D and TSO experts	January-February 2018 TBC
	3 rd Programme Committee Meeting for the preparation TSO Conference	16 th – 17 th April 2018, in Vienna
	13 th TSO Steering Committee meeting	18 th – 19 th April 2018, in Vienna
2	<u>TECDOC of TSOs</u>	Integration of NSRW’s comments <i>DONE</i> <ul style="list-style-type: none"> • Link to the TECDOC to be send to members (IAEA)
3	<u>TSO initiative: Development of Technical and Scientific Capability to support Regulatory Functions</u>	2 Consultancy meetings (TSO self-assessment and cases study) July 17-21, 2017. The contributions of previous CS meetings have been integrated in one document. <i>DONE</i> <ul style="list-style-type: none"> • 2 Consultancy meetings (TSO self-assessment and cases study) Dec 12-15,

		<p>2017, in VIC M0E79</p> <ul style="list-style-type: none"> • Workshop postponed to April 9-12, 2018, VIC Board Room A.
4	<u>List of experts</u>	<p>January-February 2018 TBC</p> <ul style="list-style-type: none"> • Definition of list of domains of expertise among TSO Forum (Jointly with NSNS)
5	<u>R&D activities of TSOs</u> <u>Preparation of a survey and mapping (research projects and infrastructures, codes)</u>	<p>Merged with action 4 in January-February 2018 TBC</p> <ul style="list-style-type: none"> • Preparation of the presentation on R&D for the workshop of April 2017 and a questionnaire of R&D topical interest
6	<u>TSO conference 2018</u>	<p>3rd PC meeting April 16-17, 2018 in VIC M4</p> <ul style="list-style-type: none"> • ETSON side event to be defined • Rules and requirements for the Paper award to be defined • Agenda of the TSO Conference will be circulated among TSO Forum members (link to the previous conference of June 2017) to be finalised during PC3
7	<u>Communication & promotion</u>	<p>Before General Conference GC62</p> <ul style="list-style-type: none"> • TSO Forum factsheet has to be revised (Lithuania, South Africa, Ukraine, ETSON are missing) • Brochure on the TSO Forum (including TSO initiative) to be developed before GC62 • Side event ETSON-TSO Forum during the GC62 in September 2018

Appendix 2 - List of participants

Title	Last Name	First Name	Country	Organization	
Mr	Elder	Peter	Canada	CNSC - Canadian Nuclear Safety Commission	Excused
Mr	De Boeck	Benoit	Belgium	Bel V	Attended
Mr	Xiong	Xiaowei	China	NSC - Nuclear and Radiation Safety Center	Excused
Mr	Wastin	Franck	EC (European Union)	JRC - Joint Research Centre	Excused
Ms	Puska	Eija-Karita	Finland	VTT - Technical Research Centre of Finland	Attended
Mr	Autrusson	Bruno	France	IRSN - Institut de Radioprotection et de Sûreté Nucléaire	Excused
Mr	Albert	Marc-Gerard	France		Attended
Mr	Defour	Stephane	France	IRSN - Institut de Radiation et de la Sûreté Nucléaire	Attended
Mr	Louvat	Didier	France	ENSTTI – European Nuclear Safety Training and Tutoring Institute	Excused
Ms	Carla	Eibl-Schwaeger	Germany	GRS - Gesellschaft für Anlagen- und Reaktorsicherheit	Attended
Mr	Madonna	Antonio	Italy	ITER-Consult	Attended
Mr	Rocchi	Federico	Italy	FSN-SICNUC-PSSN	Excused
Mr	Negrenti	Emmanuele	Italy	FSN-SICNUC-PSSN	Attended
Mr	Tomita	Kazuhide	Japan	NRA - Nuclear Regulation Authority	Attended
Mr	Jo Jung	Myung	Korea, Republic of	KINS - Korea Institute of Nuclear Safety	Attended
Mr	Uspuras	Eugenijus	Lithuania	LEI – Lithuanian Energy Institute	Attended
Mr	Maqbul	Naveed	Pakistan	PNRA – Pakistan Nuclear Regulatory Body	Attended
Mr	Jackowski	Tomasz	Poland	NCNR - National Centre for Nuclear Research	Attended
Mr	Khamaza	Alexander	Russian Federation	SEC NRS - Scientific and Engineering Centre for Nuclear and Radiation Safety	Excused
Mr	Mistryugov	Denis	Russian Federation	SEC NRS - Scientific and Engineering Centre for Nuclear and Radiation Safety	Excused
Ms	Fedotova	Nataliya	Russian Federation	SEC NRS - Scientific and Engineering Centre for Nuclear and Radiation Safety	Attended
Mr	Klepac	Juraj	Slovakia	VUJE - Engineering, Design and Research Co.	Excused
Ms	Mkhosi	Margaret	South Africa	NNR – National Nuclear Regulator	Attended
Mr	Pecherytsia	Oleksandr	Ukraine	SSTC NRS - State Scientific and Technical Center for Nuclear and Radiation Safety	Attended
Mr	Thomas	Brian	United States of America	US NRC – Nuclear Regulatory Commission - Office of Nuclear Regulatory Research	Excused

IAEA staff:

Title	Last Name	First Name	Organization
Mr	Caruso	Gustavo	NSOC
Mr	Guo	Lingquan	NSOC-NMPS
Mr	Ben Ouaghrem	Karim	NSOC-NMPS
Mr	Maeoka	Mamoru	NSNI-RAS
Ms	Spitzer	Cornelia	NSNI-SAS
Mr	Amri	Abdallah	NSNI-SAS
Mr	James	Conner	NSNS-PDICS
Mr	Okyar	Burcin	NSRW-RSM
Ms	Zsuzsanna	Zohori	NSOC-NMPS
Ms	Giorgina	Alfonso	NSOC-NMPS