



# National experience of TSO involvement in oversight activity

Workshop  
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Mazurenka**

***Head of the Division for  
organizing of oversight over  
nuclear installations***

**within GAN: from 01-2016**

1<sup>st</sup> Education: ***International State Environmental University (2002 e.)***

Diploma specialty: *«Radiobiology and radiation medicine»*

2<sup>nd</sup> Education: ***Command Engineering Institute of the Ministry of emergency Situations (2010 e.)***

Diploma specialty: *«Emergency preparedness and response»*

Advanced training: *17 certificates from the IAEA, European and Russian educational institutions on nuclear and radiation safety; numerous internships and scientific visits to the regulatory bodies of Russia, Slovakia, Hungary, Finland, Ukraine.*

Total experience in the field of nuclear and radiation safety: over 15 years

- **organization of the supervisory activities** – has developed different publications, legal acts, methodologies for the implementation of supervisory activities regarding 2 state supervision type (*state supervision on protection of the population and territories; state nuclear and radiation safety supervision*). Total experience –16 years;
- **emergency preparedness and response** – has developed several regulations and methodologies; contribute on: equipping of Minsk recycling centers with radiation monitoring devices; establishing system of the radiation monitoring at the Ice Hockey World Championship 2014; participated in the response on emergencies with the radioactive substances; former member of the certified for international response USAR Belarusian team (under UN umbrella); experience in the field - more than 7 years.



# Interactions with TSO



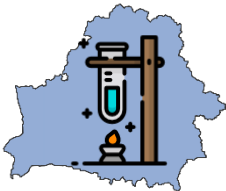
Early stages of implementing 1<sup>st</sup> nuclear program – involvement of TSO of vendor country



High qualified support  
Brings competencies to RB staff



Difficult and complex procurement process  
Takes a lot of time  
Not many possibilities for instrument assessments



Since 2016 – involvement of Belarusian TSO



Cheaper  
Takes less time for expert response onsite  
Involvement brings competencies both to TSO and RB staff  
Possibility for instrumental assessments (in laboratories of TSO) in fast manner



Lack of practical experience in the sphere of nuclear safety (due to “newcomer” sphere)



# Vendor country TSO involvement («VO Safety»)

2018

Consulting services

Consulting support during commissioning of unit 1 at stage «A» (pre-commissioning)

- Inspection on readiness for 1<sup>st</sup> fuel delivery and its storage
- Testing of systems, important for safety (inlc. main pump, emergency core cooling system)
- Hydraulic tests and circulation flushing of the main circulation circuit
- Containment tests
- Individual tests of equipment of NPP Automated control system
- Hot tests

Consulting on methodology of equipment and pipelines registration regarding new norms and rules in vendor country

Reviewing of docs and calculations justifies safety on changes of the Design





# Vendor country TSO involvement («VO Safety»)

2019

Consulting services

Issues of Permits for personnel of NPP to conduct work in the field of the use of atomic energy

Preparing draft inspection programs

BelNPP operational personnel training systems

Activity of NPP on stage B "Physical start-up of the reactor" of the unit 1

selection of inspection questions, graded approach during inspections

Participation in:

Inspection of BelNPP operational personnel training systems

Various inspections on commissioning activity of the BelNPP

Support for controlling The Commission of the BelNPP for registering equipment significant for safety





# The benefits of interacting with vendor country TSO

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Significant and rapid growth of RB staff competencies

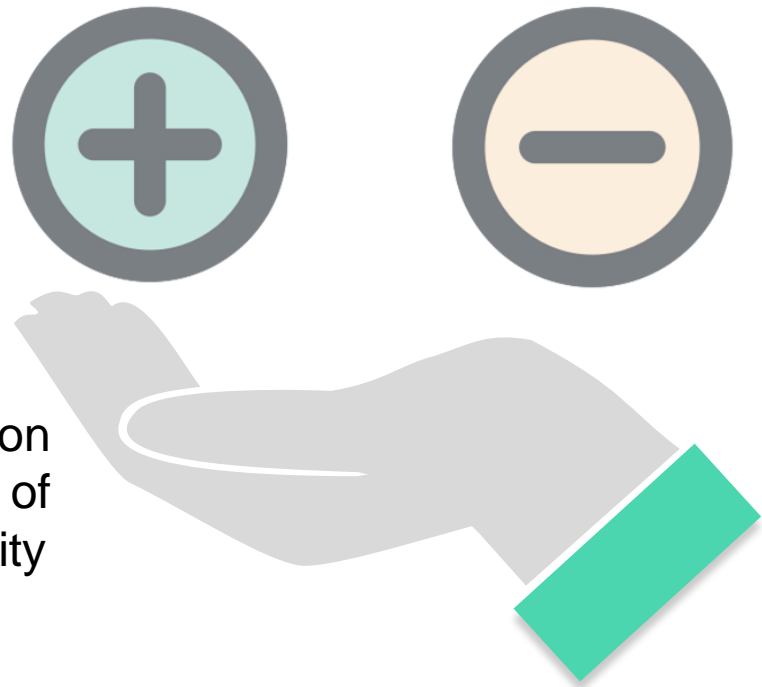
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High level competencies of the experts

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More deep outlook on inspection issues and more confidence of inspectorate at early stage of activity

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However:

Invitation onsite of international experts takes time

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Expectations from national TSO experts significantly overestimated after an experience of interaction with vendor country TSO

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# Main national TSO counterparts regarding inspection activity

Center for Nuclear  
and Radiation  
Safety of MES

The Belarusian-  
Russian  
University

Institute for  
Nuclear  
Problems of BSU





# Interaction with CNRS

Development:



Policy and methodology of graded approach implementation in inspection activity regarding oversight onsite

Software  
(multifunctional environment for managing data base of safety performance indicators)

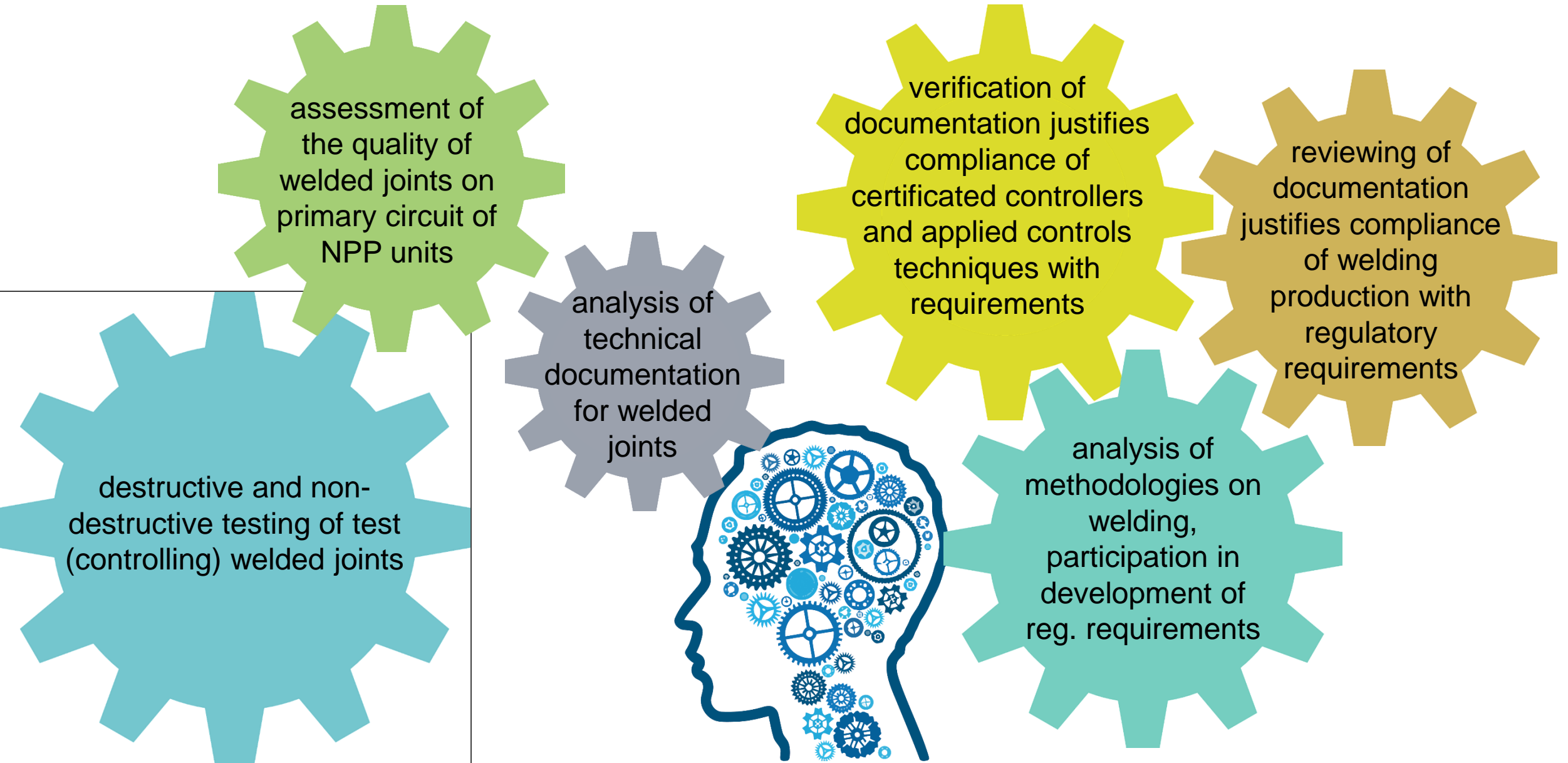
routine and targeted inspections;  
assessment of the Engineering solutions developed by operating organization (regarding safety significant equipment);  
other regulatory activity

Participation:





# Interaction with BRU





# Interaction with INP BSU

Intellectual information system for GAN staff for supporting the performance of state supervision of nuclear and radiation safety

Module No. 1 "Control (supervision) over ensuring safety during the construction and commissioning of the BelNPP, including control (supervision) over equipment, systems and elements of BelNPP power units"

- ▷ planning of inspections
- ▷ organizing of inspections
- ▷ registration of inspection results
- ▷ database of detected violations
- ▷ database of sanctions and fines
- ▷ database of inspected organizations





# The benefits of interacting with national TSO

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Efficiency (fast  
respond on  
inspection requests)

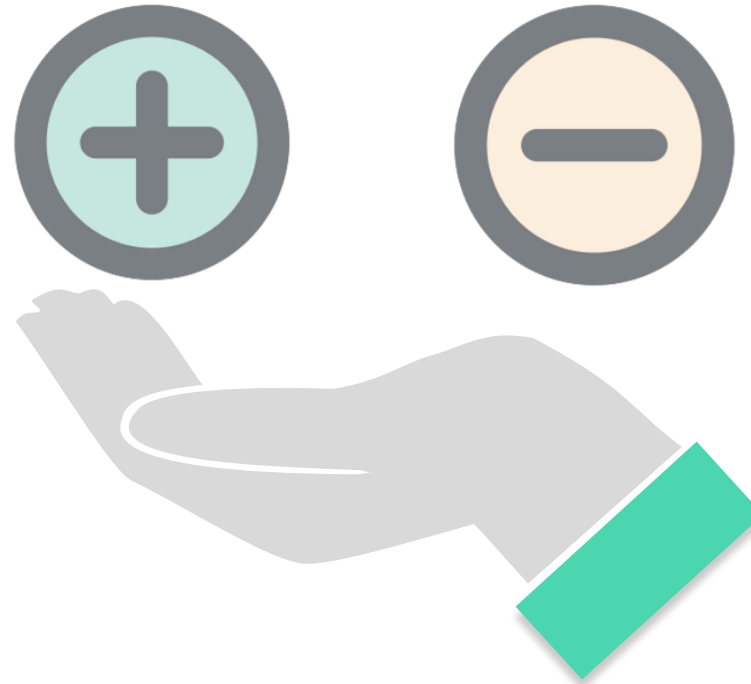
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Possibility for  
performing certified  
instrumental tests

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Very effective if engaged in  
process of requirement  
development

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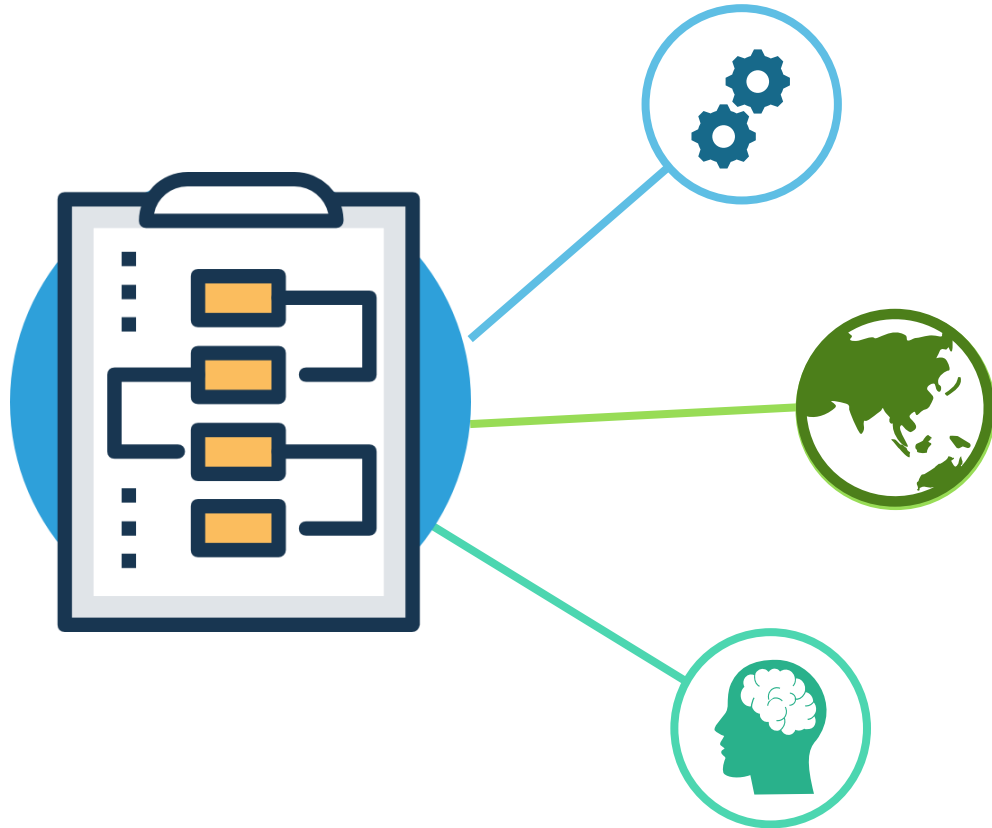
Essential “however”  
only 1:

High theoretical, but  
less practical  
experience

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# Some conclusions



System TSO sufficiently helps  
RB inspections

On early stages of implementing nuclear program  
is vitally to use experience of vendor`s country RB  
TSO

National TSO organization should be engaged  
parallel to vendor country TSO for better exchange  
of experience

Inspectorate of RB should engage national TSO in  
inspection not only for help, but also for growing  
TSO`s staff practical experience

It is reasonable to have TSO`s coordinator as soon  
as possible for more effective and fast engaging  
of exact TSO



# Thanks for attention!

*Comments and adds from TSO mentioned on slides are highly welcomed :)*



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