

REPORT

ICNDT

Specialist International Group

NDT Civil Engineering

July 13, 2024

Chairs, ICNDT SIG NDT in Civil Engineering
César Belinco-Sebastián Laprida
AAENDE – Argentina



INTRODUCTION

This ICNDT Specialist International Group (SIG) was created at ICNDT (International Committee for NDT) during the ECNDT (European Conference on NDT) in Portugal, July 2023). At the end of the ICNDT WG 3 meeting, it was agreed that this ICNDT SIG would go ahead with the full scope NDT in Civil Engineering (NDT-CE), it would possibly have a sub-group focused on pre- and post- disaster NDT and Ceaser Belinco from AAENDE (Argentina) will lead the group.

*Reference from Note of the ICNDT WG 3 meeting in Lisbon (Thursday 6th July 2023).

The present members of this group are: Abel Domato (Spain), Danilo Ranalli (Italy), Dario Fóppoli (Italy), Eduardo Robles (México), Ernst Niederleithinger (Germany), Gerardo Maghella Seminario (IAEA), Hannah Affum (IAEA), Hernán Xargay (Argentina), Ikhsan Bin Mohamed (Malaysia), Ilham Mukriz (Malaysia), John Weig Ong (Singapore), Leslie Dick (New Zealand), Mario Barrera (Chile), Roberto Felicetti (Italy), Rufino Teles (Brazil), Sascha Feistkorn (Germany), Sebastián Laprida (Argentina), César Belinco (Argentina).

MEETINGS

AAENDE have chaired three virtual meetings of the ICNDT SIG on NDT Civil Engineering (NDT-CE): 28th September, 21th December, 2023 and 26th March, 2024. A hybrid meeting was also held on 28th May, 2024, during the 20th World Conference on Non-Destructive Testing (WCNDT) 2024 in Korea.

During December 21 meeting 3 sub-groups were created:

The sub-group 1: NDT CE Standardization

That include standards for each known method, new technologies, etc. and standards for training people and certification as Level 1, 2 or 3 for every method, also the documentation related with training for each method.

The sub-group 2: NDT CE Applications

That include application in: new construction – How can we use the NDTs in new construction. Types of application for each method; investigation & maintenance of structures – How can we use the NDTs in structure maintenance and investigation; Damage situation – Application of NDTs in damage situation; heritage conservation & investigation – Application of different techniques for the preservation and investigation of heritage structures.

The sub-group 3: NDT CE Emerging technologies

That include development of new technologies or landing of NDTs for other areas to CE sector; AI in CE; etc.

Main conclusions of the March 26 meeting:

1. The Chairs of the 3 Sub-Groups were agreed:
 - ◆ Sub-Group 1: D. Ranalli (Italy)- L. Dick (New Zealand)
 - ◆ Sub-Group 2: A. Domato (Spain) - S. Laprida (Argentina)
 - ◆ Sub-Group 3: E. Niederleithinger (Germany) - R. Felicetti (Italy)
2. The liaison officer of IAEA, H. Affum, mentioned that analyzing the three subgroups created, it was confirmed that the IAEA's activities align with all three.

PLANS, DEFINITIONS AND MISSION STATEMENT

Since March 26 meeting, the Chairs of the 3 Sub-Groups have worked, designing preliminary Work Plans for its Sub-Group, for to be discussed during WCNDT 2024. That was done during the meeting on May 28th and are the following:

SG 1 “NDT CE Standardization”

Has worked between meetings and reported at the meeting of May 28th 2024 on their plans, definitions and mission statement:

-
- Personnel training and certification in diagnostics of civil structures and infrastructures has no international reference standards. Only a few countries have introduced specific standards for NDT methods to meet their own requirements.
 - SG 1 intends to promote knowledge exchange between specialists on emerging NDT-CE Standardization, to build an international basic model for training and certification standards on the main NDT methods in the in civil engineering.
 - SG 1 will produce and edit leaflets on emerging NDT-CE Standardization, written by appointed experts, approved by at least two thirds of the SG members and the SIG and with the edition of ICNDT.
 - SG 1 wants to involve experts from NDT companies from all countries in the world who apply NDT techniques and train NDT staff in their own nationalities and abroad. We will make an open call.

SG 2 “NDT-CE Applications”

Has worked between meetings on its topics, and reported at the meeting of May 28th on their plans, definition and mission statements.

- To know, gather, and analyze all possible applications of NDT methods in civil structures. Put the group at the service of the sector for the correct application of testing methods, emphasizing what is right and wrong in the application of each method. Propose actions in different construction phases: project, quality control, research, maintenance, analysis of pathological behavior, and others.
- Plans: The group is discussing how to organize and actuate. The purpose of actuation is divided in 4 areas of application:
 1. Maintenance & Safety assessment (including interventions pre and post disasters)

-
2. Quality Control for new construction or refurbishment projects
 3. Analysis of pathological behavior
 4. Cultural Heritage
- Those areas of applications, in a wide conception, need to be extended in Concrete Constructions (plain or reinforced), but in Masonry, Wood, Steel and Aluminum constructions. In a first stage, Concrete constructions will be treated.
 - Many of the participants of the group have enough skill in national and international activities related with the topic of the group.

SG 3 “Emerging Technique”

Has worked between meetings and reported at the meeting of May 28th 2024 on their plans, definitions and mission statement:

- NDT-CE techniques are considered as “emerging”, when they are not yet included in international standards, regulations, and recommendations, but at least validated under laboratory conditions (TRL 4).
- SG 3 intends to promote knowledge exchange between specialists on emerging NDT-CE technologies, to foster international collaboration for improvement towards practical application and to provide objective information about potential and limitations to the NDT community and potential users.
- SG 3 will produce and edit leaflets on emerging NDT-CE techniques, written by appointed experts, approved by at least two thirds of the SG members and the SIG and with the edition of ICNDT.
- SG 3 wants to attract the most competent and experienced experts from inside and outside the NDT societies for developing the leaflets. Membership to SG3 would be based on experience and expertise as well. We will make an open call.



Group photo after the meeting at WCNDT 2024 in Incheon, Korea

REFERENCE

- Note of the ICNDT WG 3 Meeting in Lisbon