ICNDT
INTERNATIONAL COMMITTEE FOR NON-DESTRUCTIVE TESTING
The World Organisation for NDT

45th MEETING (2nd General Assembly)

Thursday, 30th May 2024, 14h00 -18h00

Board Room – 305-307
Songdo Convensia, Incheon, Korea– 20th WCNDT

Attendees:

S K Babu	ICNDT Chair	Voting (proxy)
B Alves	FSEND/RELACRE (Portugal)	Voting
D Bajula	PANNDT	Voting
M Bakoura	CANDT (Cameroon)	Voting
K Balasubramanian	ISNT (India)/APFNDT	Voting
I Cooper	BINDT (United Kingdom)	Voting
N Couture	ASNT (USA)	Voting
L Dick	NZNDTA (New Zealand)	Voting
P Fisch	SSNT (Switzerland)	Voting
M Ganji	IRNDT (Iran)	Voting
A Garcia	AAENDE (Argentina)	Voting
F Gomez	EFNDT	Voting
E Gonzalez	AEND (Spain)	Voting
G Idinger	ÖGfZP (Austria)	Voting
I Ihara	JSNDI (Japan)	Voting
H Jansen	AFNDT	Voting
K-Y Jhang	KSNT (Korea)	Voting
J Jing Yuan	ChSNDT (China)	Voting
M Johannes	SAINT (South Africa)	Voting
J Kurz	DGZfP (Germany)	Voting
T Lutsenko	USNDT (Ukraine)	Voting
E Martin	COFREND (France)	Voting
I Mukriz	MSNT (Malaysia)	Voting
B Muthuramalingam	NDTSS (Singapore)	Voting
T Ogata	APFNDT	Voting
C Raspado	PSNT (Philippines)	Voting
R Raisutis	LNBD (Lithuania)	Voting
K Sahaimi	COMEND (Morocco)/AFNDT	Voting
A Tamburrino	AIPND (Italy)	Voting
P Trampus	MAROVISZ (Hungary)	Voting
E Tuberosa	EFNDT	Voting
G Tubrett	CINDE (Canada)/PANNDT	Voting

P Wadyalkar	AINDT (Australia)	Voting
C Wassink	KINT (Netherlands)	Voting
C-C Yin	SNTCT (China Taiwan)	Voting
J Conte	ABENDI (Brazil)	Voting

J Ansler	AAENDE (Argentina)	Non-voting
C Belinco	AAENDE (Argentina)	Non-voting
C Bird	ICEC	Non-voting
J Chen	ASNT (USA)	Non-voting
Y Cho	KSNT (Korea)	Non-voting
D Corcoran	ISO TC-135 SC7	Non-voting
L Costa	IIW	Non-voting
I Dickson	NDTT (Singapore)	Non-voting
S Egerland	IIW	Non-voting
M Farley	ICNDT Past Chair	Non-voting
D Gilbert	ICNDT (General Secretary/BINDT UK)	Non-voting
M Gomez	AEND (Spain)	Non-voting
S Infanzon	AENDUR (Uruguay)	Non-voting
D Marshall	CINDE (Canada)	Non-voting
K A Mohd Salleh	MSNT (Malaysia)	Non-voting
S Ooka	ISO TC-135 CM/ICNDT WG4	Non-voting
H Seo	KSNT (Korea)	Non-voting
T Wenzel	DGZfP (Germany)	Non-voting

Observers

C Almeida	RELACRE (Portugal)
D Aravindhan	Masterscan NDT (Singapore)
V K Babu	HKSNT (Hong Kong)
K Cambridge	BINDT (United Kingdom)
W T Chan	HKSNT (Hong Kong)
S Cunningham	BINDT (United Kingdom)
M Eyheralde	AENDUR (Uruguay)
B R Eshwar	NDTSS (Singapore)
C Finley	ASNT (USA)
L V Gomez	RELACRE (Portugal)
D Keck	ASNT (USA)
J Kinsey	ASNT (USA)
G Liming	ASNT (USA)
A Malcolm	NDTSS (Singapore)
S Mandayam	ISNT (India)
M Ochiai	JSNDI (Japan)
N Ooka	JSNDI (Japan)
V Prabu	NDTSS (Singapore)
P Gokulanandam	ASNT India
V Rajamani	ISNT (India)
K D Smith	ASNT (USA)
R Stocker	AINDT (Australia)
M Turnbow	ASME (USA)

Regional votes (2 per region)

Region	Voting members	
AFNDT	**K Sahaimi**	**H Jansen**
EFNDT	**F Gomez**	**E Tuberosa**
APFNDT	**T Ogata**	**K Balasubramanian**
PANNDT	**G Tubrett**	**D Bajula**

1. Welcome, voting procedures, appointment of tellers

S Babu welcomed all to the GA2 meeting and reminded attendees that the membership categories for voting would be the same as for the GA1 meeting. There were four regions present and two proxy votes had also been received. One of the proxy votes was not valid and the valid proxy vote from Poland was given to the Chair. Only Full Members of societies and Regional Federations would have voting privileges.

A quorum is 33% of members, i.e. 24 with a simple majority vote and one proxy vote per member. There would be elections taking place today so tellers would be appointed. Anyone with a vested interest would not be nominated as a teller. Tellers were nominated as S Ooka (APFNDT), D Marshall (CINDE) and B Alves (EFNDT).

2. Roll Call

The meeting was declared quorate with 31 voting members present plus 8 votes from the Regions, i.e. a total of 39 voting persons present, plus one proxy vote from Poland which had been given to the Chair.

3. Reports by National Societies

Brazil

Joao Conte reported – refer to the Strategic Plan.

S Babu was pleased to report that Antonio Aulicino was recovering well in hospital and would be discharged soon.

India

K Balasubraman reported that there are four bodies within ISNT. The International Certification Body looks after the certification process, the Training Management Body looks after accreditation and the QS Foundation looks after outreach.

ISNT is now accredited to ISO 9712 and a number of students graduated about four months ago. One of the ISNT chapters is accredited to ISO 9712 and many other chapters are gaining accreditation for the same.

The ISNT Annual Conference held in 2023 was well attended with over 1400 visitors, 850 registrations, 220 papers and posters presented and 120 exhibitors. There are two very important events coming up and information has been distributed to everyone.

The NDE 2024 Conference is being held on 12-14 December 2024 in Chennai and ISNT is also conducting an ICNDT/ISNT collaborative conference on NDE 4.0 which will be held in Bangalore on 3-6 March 2025. This is an international conference and on the last day there will be a visit to aerospace companies. There will also be an opportunity for people to enjoy the amazing places to visit.

DGZfP

T Wenzel presented the attached report.

Iran

M Ganji presented the attached report

Singapore

B Muthuramalingam presented the attached report.

United Kingdom

I Cooper presented the attached report.

USA

N Couture presented the attached report.

4. Regional Reports

4.1 Africa (AFNDT)

H Jansen presented the attached report.

4.2 Asia Pacific (APFNDT)

T Ogata presented the attached report.

4.3 Europe (EFNDT)

F Gomez presented a report which included a list of members of EFNDT, a summary of actions from WGs and Forums, some details of projects and other actions including NDE 4.0, Robotics. The next ECNDT will be held in Verona, Italy in 2026.

M Farley commented that, in the WG3 meeting earlier, there was good discussion about where we have groups in the regions and similar groups at an international level. Some of the subjects are genuinely international but there may be some specific other things that are specific to the region. We believe that the policy should be that where there is duplication, we try to support the international group first. If, for example, there are special reasons why there should be something regional, then the regions should take it on.

The main point of this is that the international committee communicates with the region and the region communicates with the international committee. Future international meetings of the SIGs, for example, SIG on Reliability, will ask for reports from any other groups on reliability in the other regions.

It will be the responsibility of WG3 to action this.

4.4 Pan-American Region (PANNDT)

G Tubrett gave the following verbal report:

PANNDT is looking at its terms of reference and strategy. When we looked at other Federations (EFNDT and APFNDT for example) we found that our markets are slightly different and that there are reasons for existing in the other Federations.

When we looked at our terms of reference and our strategy for why we exist, we looked at what we mean to developing countries in our region, how we want to develop those countries and

how we want to spread the good things that we are doing. We want to come up with a plan on how to do this.

We plan to have an engagement session at the PANNDT meeting in June 2025 where we can engage with non-members in South, North and Central America. We will hopefully have a refreshed strategy by the time of the next ICNDT meeting and there will be more to report.

The next four years for PANNDT will be very exciting. Canada is hosting the PANNDT in June 2025 in Niagara Falls and everyone was warmly invited to attend. This is ideally situated to be a great international event between the border of Canada and the USA at one of the top tourist destinations in the world. Societies, regions and ISO were encouraged to contact G Tubrett to arrange for their meetings to take place in Niagara Falls during the conference.

Our goal is to make this the biggest and best PANNDT regional conference. Our regional partners will be working with us to make this a truly successful event.

Argentina is hosting the 21st WCNDT in 2028. Our region is slowly growing and we are excited to be welcoming the world to our events over the next four years,

5. Reports by Liaison Organisations

5.1 ISO TC135: NDT

T Ogata presented the attached report.

5.2 ISO TC135: SC7

D Corcoran presented the attached report.

5.3 ISO TC 108: Condition Monitoring

There was no report.

5.4 IAEA

D Gilbert and R Van Sonsbeek presented the attached reports.

5.5 IIW

Dr Luca presented the attached report.

5.6 Academia NDT International

S Babu reported that Academia's biggest achievement recently was to be able to have a Nobel Prize Laureate present at this WCNDT.

The Research Day yesterday was dedicated to NDT Academia.

5.7 ASME

M Turnbow of ASME was invited to give a brief report.

In 1888, ASME was established to work with industry to solve the problem of fallen boilers exploding and today we have around 7000 certificate holders in 70 countries around the world and about half of these are countries outside of the USA.

ASME recently published the ASME NDT Personnel Qualification in Certification standard and appendix 3 of the standard is a path to the ISO 9712 standard. A workshop was held this morning on how to implement this.

ASME did have a liaison with ICNDT a few years ago but during the Covid period the ASME PCL organisation was established and the liaison was broken. Because of ASME's international footprint and the NDT involvement, particularly in the Codes, we should re-establish the liaison between ASME and ICNDT.

S Babu suggested that the European Conference next year would be a good opportunity to formally re-establish this liaison. In the meantime, we will look at the MoU documents.

6. Election of Officers and Committees 2024-2028

M Farley advised that the list of nominations for the IEC were presented at the GA1 meeting when it was noted that there would not need to be an election but we would need an acclamation of the candidates.

It was also reported at GA1 that we did not have a nomination for Treasurer and G Aufricht was keen to retire during 2024. M Farley was pleased to report that, thanks to the intervention of the EFNDT President (F Gomez) who did some canvassing, a candidate has been found.

Dr C Wassink of KINT (Netherlands) has agreed to take on the position of Treasurer for ICNDT, subject to a vote at GA2. Dr Wassink is a German speaker from The Netherlands and he is willing to be the ICNDT Treasurer. Although he could be elected Treasurer at this meeting, in practice, he will only become Treasurer as soon as we have the correct paperwork registered at the bank.

The list of nominations reported at GA1 will now include Dr C Wassink as ICNDT Treasurer.

We therefore have a Chair (S Babu), General Secretary (D Gilbert), Treasurer (C Wassink), WCNDT President (C Belinco), Past Chair (M Farley) and secretariat (BINDT) for the next four years.

By a show of hands, the above nominations were unanimously approved.

Nominations for the regions are:

AFNDT	Dr Sahaimi Kamal (Morocco)
APFNDT	Dr Tokamasa Ogata (Japan)
EFNDT	Mr Fermin Gomez (Spain)
PANNDT	Mr Glenn Tubrett (Canada)

There was no vote necessary and the above were applauded for their willingness to serve on behalf of their regions on the IEC.

Mr Douglas Marshall (Canada) and Dr Werner Schmid (Switzerland) were both willing to stand again as auditors and were unanimously approved by a show of hands.

WG Chairs nominated by the ICNDT IEC for approval at GA2 are:

Mr Harold Jansen	ICEC
Dr Bento Alves	WG1 (Qualification & Certification)
Mr David Bajula	WG2 (Membership)
Dr Thomas Wenzel/Dr Younho Cho	WG3 Co-chairs (Education & Research)
Mr Shohei Ooka	WG4 (Communications)
Mr David Gilbert	WG5 (Radiation Safety and Security)
Dr Cesar Belinco/Prof Len Gelman	WG6 Co-chairs (Condition Monitoring and Diagnostic Technologies)
Dr Mike Farley WG7	(Administration)

By a show of hands, the above people were unanimously approved.

The list of nominations for SIG chairs was presented and unanimously approved.

It was noted that we are very fortunate in that we have so many people willing to serve ICNDT and everyone was thanked for their past service and for their service going forward.

7. Strategic Plan 2024-2028

S Babu presented a snapshot of the changes to the Strategic Plan. There will be a draft Issue 12 of the Strategic Plan which will be circulated to the WG and SIG Chairs for comments by 31st July. The same document will also be circulated to all members and any additions or comments should be sent to the IEC so that consolidation can be done by the end of August. After that, the Strategic Plan Rev 12 will be an official document for all of the WG Chairs to follow. Another review of the Strategic Plan will be carried out mid-term.

M Farley asked if the intention was for all members of the GA to comment on the draft and S Babu confirmed that this is the plan. Responses should come back by 31st July. If there are cost implications, the WG Chairs will review with the IEC as to whether to take on these additional items or not. The final document will be published by 30th August. We will try to accommodate as much as possible as a working plan for the ICNDT.

The Action Plan issue 12 summarised the situation including how things changed because of Covid and how we managed to run our meetings. We also learnt some good things from Covid. The SWOT analysis was presented on various aspects. Where we see some opportunities we build on these and pass to the WG Chairs to look at. We are also increasing our Liaison Members and will establish formal liaisons in 2026. This will encourage more involvement between the societies and the regions who will also complement some of the specialist meetings at the WCNDTs.

Action areas for ICNDT:

- Support NDT societies – this will come from the Communications WG.
- Promotion of the importance of NDT – better links to external bodies.
- WG1 focuses on Qualification and Certification and WG3 focuses on NDT Education and Research.
- WG5 focuses on Radiation Safety and Security. Good meetings have been held with a lot of very insightful information, especially our cooperation with IAEA to provide a safer world.
- WG6 focuses on Condition Monitoring and Technical Diagnostics and WG7 focuses on Management and Administration and reviews some of the OPs as well as our Constitution.

Some of the changes from the last Strategic Plan were highlighted for ease of reference but these should be confirmed through each of the WG Chairs.

- Opportunities to engage with the Middle East region has been tasked to S Babu and D Gilbert to coordinate and improve. Currently the Middle East is part of the Asia Pacific Federation. The Task Group member for the Asia Pacific Federation is Kevin Smith so there could be good dialogue in expanding this region. During this WCNDT, S Babu met with M Abufour who was representing Saudi Aramco.

- Action Plan 2 – the promotion of the importance of NDT is basically built on communications. There has been good progress in the IAC and WG3 and we expect some reports which will be published on the website. We have also set some action dates for the last quarter of 2024.
- There will be a workshop for the WG Chairs to ensure the contents of the website are relevant and consistent. This will be done no later than next year and a couple of meetings will be held before the workshop.
- There are some other action items that may involve some costs but will also involve some volunteers. For example, we have been looking for a champion for a long time for Wikipedia. It was noted last time that P Wadyalkar was interested in this and this is something that we could look at to see if there are any additional volunteers.
- We are also seeking volunteers to champion the ICNDT Journal and priority should be given to this.
- Our strapline 'NDT and Diagnostic Technologies' has been confirmed as a template for our letterheads and we want to make sure that this is available for all officers and chairs so that they use the right template for publishing their documents.

- Action Plan 3 – Qualification and Certification - a good meeting was held and a new WG1 Chair was elected. Transition arrangements will be done through Zoom. Action items will be filled in after the WG1 meeting. The Terms of Reference for WG1 have been reviewed and all members of WG1 have been renewed for a further term.
- We are also seeking a CASCO WG30 representative to deal with ISO/IEC 17024 and several expressions of interest have been received. The position will be cast through WG1.
- The IAEA cooperation agreement will be executed within the next few months.
- Action item A8 is a big task to identify the possibility of creating a unified body of knowledge based on a gap analysis between ISO/TC 25107, CP106 and TecDoc 628. We have done this before and it is something to revisit because 25107 could also be revised and we may need to establish an ad hoc group to utilise the work that has already been done.
- The ICNDT Guide to Qualification & Certification has been updated and members received a copy at the GA1 meeting. This is part of the work done by WG1 and M Farley.
- As reported at GA1, the ICEC is participating in developing a plan in respect of our EQBs and this is work in progress.
- We are developing a new document in terms of harmonisation and recognition which is our risk and opportunity analysis. This has been completed, no comments have been received and this was recently approved by WG1 and will be published.
- Another important document being developed by WG1 is the development of Good Practice by Personnel Certification Bodies, including provision of impartiality to meet requirements to ISO/IEC 17024:2012 and ISO 9712:2021. This work item has been completed by WG1 and will be sent to the Editorial Committee for publishing.

- There are a series of recommendations on recognition of certificates under ISO/IEC 17024:2012 and ISO 9712:2021. The task is to review the text to be included in the documents being published and the new Chair will take over this task.
- Some actions have been removed from WG1.
- The ICEC Action Plan had also been presented at the GA1. It was noted that the template was very good and would be adopted for all of the other WGs if feasible.
- Education and Research – a meeting was held earlier today and updates will be provided by the co-chairs, T Wenzel and Y Cho.
- We also expect a report from the Radiation Safety and Protection WG and the Condition Monitoring WG. We are looking for chairs for WG6 as C Belinco will be very busy with the next WCNDT. Any expressions of interest for Chair of the CM group should be sent to S Babu for election at the next Annual Meeting.

- ICNDT Management & Administration – this is a group led by S Babu and M Farley supports this group. S Babu has also invited D Marshall to join the group. We have a review of our OPs as well as our Constitution which have been in place since 2018. It is good to look at these especially as we do have professional services currently for WG1. Perhaps this could be expanded to other WGs (e.g. WG3).
- We had difficulty in identifying a new Treasurer and how we would deal with the transition. Could we appoint an external company to take over the books and then the Treasurer can be a nominated position to just review the finances and sign off? This is something that we could investigate to see if there is a better way. We have been tasked to review this by September when the new Treasurer can utilise it.
- S Babu plans to have all of the documents ready for approval at the next GA which will take place during the 2026 ECNDT.
- We will also need to look into our OPs, keeping in mind succession planning which was one of the items raised during the IEC and IAC meetings. We should look into OP1, OP2, OP4 and OP14 but other OPs could also be affected.
- S Babu invited all members to download the documents from the website which are visible for all presidents of national societies. These are the ICNDT rules but, if anyone feels that anything needs to be changes or looked at, comments should be sent before the WG Chairs workshop is convened after August. We plan to have a work plan and any revisions completed by the end of this year. There will be some updates given at the Annual Meeting and there will be a second round of feedback with the final documents being ready for the 2026 ECNDT. Members will have two months to look at all of the OPs and provide input to make our administration more robust and successful.
- The Strategic Plan will be circulated as soon as we have the rest of the inputs from the WG Chairs.

8. World Conferences

8.1 20th WCNDT Report

Y Cho updated members on the plans for the Cultural Night.

People are still coming into the WCNDT even though it is getting close to the end. It is expected that the total number of registrations will be close to 3,000 which is comparable to the last WCNDT in Germany. The success of the event is all down to members and KSNT hopes to provide a good donation to ICNDT.

8.2 21st WCNDT (Buenos Aires, Argentina) Update

C Belinco advised that he would give a full presentation during the Closing Ceremony. The 21st WCNDT will be held between 15-19 May 2028 in Buenos Aires.

8.3 22nd WCNDT 2032 Election of host (secret ballot)

Three tellers had been appointed to count the votes who were independent from the countries that are bidding.

M Farley advised that the procedure was clear, i.e. the winner would be the first country to get more than 50% of the number of eligible votes. There were 31 countries present and 4 regions giving a total of 39 eligible votes plus one proxy given to the Chair, so 40 eligible votes. Therefore, the first country to receive 20 votes would be the winner and, after each ballot, the country with the lowest number of votes would be eliminated.

S Babu reminded members of the host city of the bidding countries as this was not included on the voting slips.

S Babu confirmed that, as we have 40 eligible votes, if a country receives 21 votes which was more than 50% there would not be a requirement for a second vote.

After the first round of votes there was no country with 20 votes so the country with the lowest votes (India) was eliminated.

After the second round of voting, the United Kingdom was eliminated and a third vote took place.

After the third round of voting, South Africa was eliminated and a fourth vote took place.

After the fourth vote, D Marshall announced that one country had received 20 votes out of 40 votes but our OP states that we need to have more than 50% so therefore another round of voting was required. The USA, receiving the lowest number of votes, was eliminated.

After the fifth and final round of voting, Y Cho was pleased to announce that the 22nd WCNDT would be held in Singapore. The team from Singapore gave a brief acceptance speech and expressed commiserations to the five other countries that had bid for the event. They thanked everyone for the confidence and trust that has been placed in Singapore by the GA today. They will put on a fantastic event and will bring the whole world of NDT to Singapore in 2032.

S Babu clarified that every country only has one proxy vote and there was only one country today that had given a proxy vote so there cannot be any influence. He asked all to send any comments by email after reviewing the OPs first.

D Marshall suggested that we may need to look at how we go about this process in the future and perhaps we should go for a majority vote rather than a minimum of 50%.

It was suggested that a small sub-committee is set up to discuss how to run the election process in future.

9. Future Meetings (to be confirmed)

9.1 ICNDT Annual Meeting, Internet 23 (or 30) January 2025. This will be held as a hybrid meeting in Glasgow, venue to be advised.

9.2 ICNDT WG1 Meeting, 09.06-12.12 2025, to coincide with 8th PANNDT Conference, Niagara Falls.

We are also planning to hold a WG3 meeting during the PANNDT Conference and members of these two groups are encouraged to be physically available where possible. Exact meeting dates to be confirmed by the WG Chairs.

9.3 IAC: Hawaii, to coincide with 17th APCNDT, 11-14 May 2026

The IAC meeting will be held on 12 May 2026.

9.4 46th ICNDT GA: Verona, Italy to coincide with 14th ECNDT, 15-19 June 2026

The 46th GA will be held on 16 June 2026 in Verona, Italy, exact time to be advised.

9.5 The 47th and 48th GAs will be held during the 21st WCNDT in Buenos Aries.

10. Instructions for Closing Ceremony

Y Cho advised of the plans for the Closing Ceremony which should take no longer than two hours with the aim being to finish by 14.00. KSNT would like to take people to visit the sites, particularly anyone who was staying an extra night. The details would be announced at the Closing Ceremony.

C Belinco would be introduced as the next WCNDT President and will give a presentation.

11. Vote of Thanks, Long Service Award to retiring ICNDT Executive

Liaison Certificates were presented to Dr T Ogata (ISO TC135), Darcy Corcoran (ISO TC135/SC7), Prof P Trampus (Academia NDT International) and IIW presented to the Italian Society on behalf of IIW.

S Babu advised of a special award given through the WCNDT WG4. A photographic competition was launched in 2024. A series of photographs were entered and following a vote the winner was announced as Mr Kyle Rhys Brealey from Australia. The President of AINDT was invited to collect the award on his behalf. The award is free registration at the next WCNDT.

S Babu thanked the retiring members, G Aufricht, J Conte and our retiring WCNDT President, Y Cho.

Thanks were extended to KSNT and the conference team for their wonderful support and for the excellent facilities.

12. Adjournment

Meeting closed.

ICNDT

The World Organisation for NDT

Regional Report from the African Federation of Non-Destructive Testing

AFRICAN FEDERATION OF NON DESTRUCTIVE TESTING

AFNDT

Compiled & presented by: Harold Jansen
AFNDT Executive Secretary

CONTENT

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MEMBERSHIP

- **President :** Dr Sahaimi Kamal — Morocco
  Centre National de l'Energie des Sciences & des Techniques Nucléaires
- **Secretariat:** Harold Jansen — South Africa
  SAIW
- **Founding Members**

  Algeria; Cameroon; Egypt; Ghana; Congo; Libya; Mauritius; South Africa; Tunisia; Tanzania; Zambia
- **Existing ICNDT Members (Listed):**

  Algeria; Egypt (2); Kenya; Morocco; Nigeria; **South Africa** (2); Sudan; Tunisia
- **New Constitution approved (17 May 2024):**

  Algeria; Cameroon; Kenya; Morocco; Nigeria; South Africa; Sudan; Tunisia; Zambia
- **Interest expressed for new ICNDT Membership**

  Angola; Cameroon; Ethiopia; Ghana; Malawi; Mauritius; Tanzania; Uganda; Zambia

ICNDT MEMBERSHIP

Full Members

Algeria	Centre de Recherche en Technologies Industrielles Route de Dely Ibrahim	**CRTI**
Egypt	Egyptian Society for NDT	**ESNT**
Kenya	Non-Destructive Testing Society of Kenya	**NDTSK**
Morocco	Confédération Marocaine pour les Essais No Destructifs	**COMEND**
Nigeria	Institute of Non-Destructive Testing	**INDT**
South Africa	South African Institute for Non-Destructive Testing	**SAINT**
Sudan	Sudanese Society for Non-Destructive Testing	**SSNDT**
Tunisia	Tunisian Committee for NDT c/o CETIME	**COTEND**

Associate Members

South Africa	Southern African Institute of Wedling	**SAIW**
Egypt	Egyptian Society for Industrial Inspection	**ESII**

ICNDT
The World Organisation for NDT

MEMBERSHIP

Current membership:

54 Countries All countries are included by default unless written confirmation of non-participation as a result of limited to no NDT activities within a country

(as per agreement during meeting dated 7 Dec 2021)

Sub-regions:

- **North Africa** **Tunisia**, Morocco, Algeria, Libya, Mauritania, Egypt
- **East Africa** **Sudan**, Burundi, Djibouti, Kenya, Rwanda, Ethiopia, Eritrea, Somalia, Uganda, South Sudan
- **Central Africa** **Cameroon**, the Central African Republic, Chad, Democratic Republic of the Congo, Equatorial Guinea, Sao Tomi and Principe, Gabon
- **West Africa** **Ghana**; Benin; Burkina Faso; Cape Verde; Gambia; Guinea; Guinea-Bissau; Ivory Coast; Liberia; Mali; Niger; Nigeria; Senegal; Sierra Leone, Togo
- **Southern Africa** **South Africa**; Angola; Botswana; Lesotho; Madagascar; Malawi; Mali, Mauritius; Mozambique; Namibia; Seychelles; Swaziland; Union of Comoros; Tanzania; Zambia, Zimbabwe

MEETINGS

Last Meeting

- **17 May 2024** AFNDT (27 Participants)

  Algeria; Cameroon; Kenya; Morocco; Nigeria; South Africa; Sudan; Tunisia; Zambia

Agenda Items

- AFNDT Membership
- AFNDT Constitution
- ICNDT Membership & Fees
  - ICNDT member; MRA 1 & MRA 2
- WCNDT Participation
- **Strategic Plan:** National Capacity Building on African Continent

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ACTIVITIES 2023 / 2024

- **Projects** — **IAEA Sponsored**
  - Nuclear School of Excellence — IAEA, NECSA, SAIW Collaboration
  - Expert Workshops / Training — UT-PA 1 & 2; UT-ToFD 1 & 2
  - Cameroon & Malawi Fellowships

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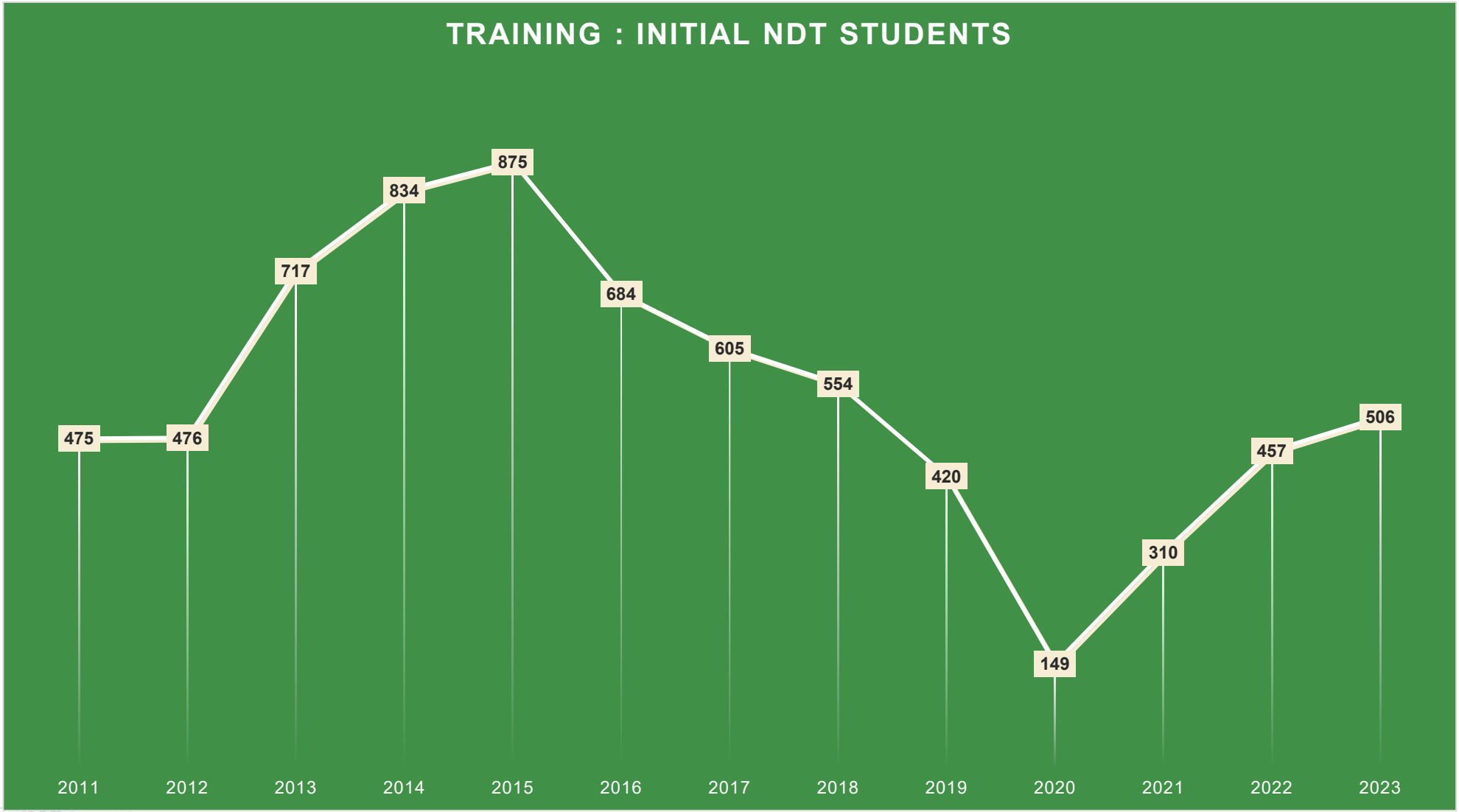
ACTIVITIES TRAINING

IAEA AFRA – NDT ANGLOPHONE (AFRICA)



ICNDT
The World Organisation for NDT

ACTIVITIES CERTIFICATION

IAEA AFRA – NDT ANGLOPHONE (AFRICA)

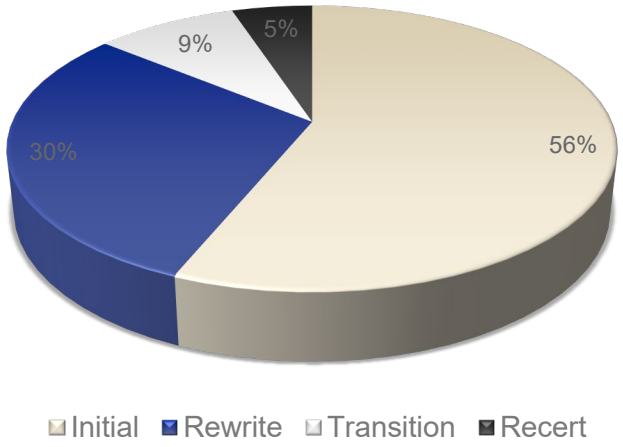
NDT Exams - Pass Rate

Initial	56%
Rewrite	61%
Transition	41%
Recertification	56%

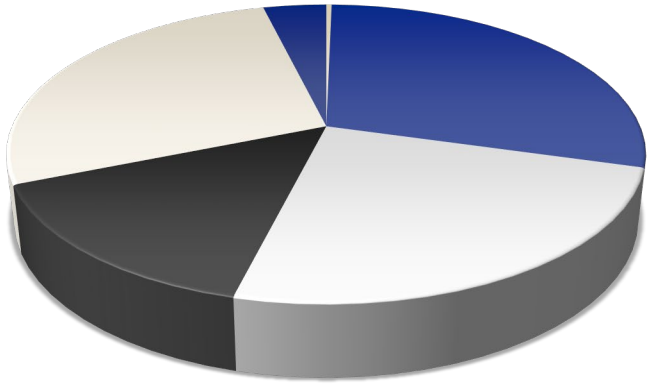
NDT Certification

Initial	414
Renewal	275
Recertification	34

Total NDT Exams : 1158



Total NDT Certs : 5277

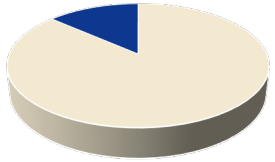


ICNDT
The World Organisation for NDT

ACTIVITIES United Nations Strategic Development Goals

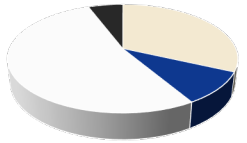
Occupation	Low Rate	High Rate
UT Level 1	R99,00	R132,00
UT Level 2	R145,80	R194,40
PAUT Level 1	R146,70	R195,60
PAUT Level 2	R181,80	R242,40
RT Level 1	R99,00	R132,00
RT Level 2	R145,80	R194,40
MT Level 1	R86,40	R115,20
MT Level 2	R95,40	R127,20
PT Level 1	R86,40	R115,20
PT Level 2	R95,40	R127,20
VT Level 2	R124,20	R165,60
NDT Co-ordinator	R144,00	R192,00
Project Manager	R169,20	R225,60
NDT Trainee	R62,10	R82,80
RT Safety	R36,00	R48,00

Gender Equality



Male ▪ Female

Ethnicity / Nationality



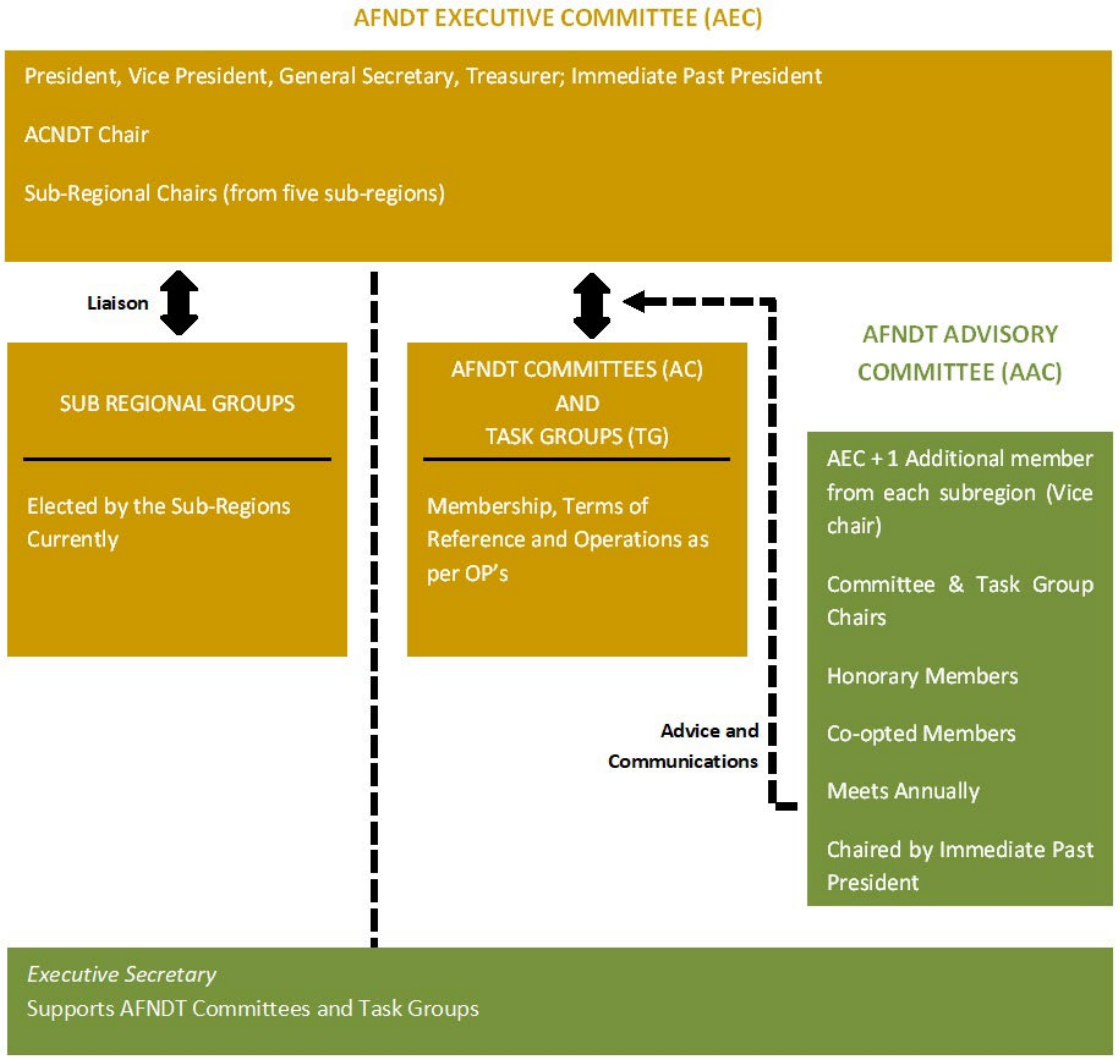
SA - Black ▪ SA - Coloured / Indian
SA - White ▪ Foreigner

ICNDT
The World Organisation for NDT

ACTION PLAN 2024 / 2025

- **General Assembly**
  - Election of Dignitaries
  - Operating procedures
  - Strategic Plan Design
- **Website & Digital platforms**
- **Communication**
- **Visits to**
  - Uganda
  - Zambia
  - Malawi
  - Ethiopia
  - Kenya

30 August 2024



ICNDT
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STRATEGIC OBJECTIVES 2025 / 2035

OBJECTIVE

National ATB + AQB + PCB (ICNDT Recognised) across African Continent

AFNDT / AFRA + SAIW + ICNDT

Examination (On-Line) assist in AQB establishment

(Initial SAIW & Hand-over to ICNDT once registered under MRA 2)

APPROACH

‘Low Hanging’ - 2024

Activate / Reactivate ATBs in Kenya; Cameroon & Sudan

Assist with PCB in Tunisia (Cetime)

ATBs in Morocco, Egypt; Malawi, Uganda, Ethiopia

Design project proposal via AFNDT

ICNDT
The World Organisation for NDT

STRATEGIC OBJECTIVES 2025 / 2035

2025 - 2027 Submit Triangular Projects targeting ‘subregional leaders’ – ATB, AQB & PCB

IAEA + SAIW + (Tunisia, Cameroon, Sudan & Ghana)

2028 – 2030 Submit Triangular Projects within ‘subregions’ – ATB, AQB & PCB

IAEA + Subregional Leader + Subregion country

2031 – 2033 Submit National Projects to strengthen national ATB, AQB & PCB

IAEA + Country

Established via IAEA; AFRA (NLO); African Regional Economic Communities; IIW-ATB and ICNDT network & cooperation

ICNDT
The World Organisation for NDT

THANK YOU – Any questions?

ICNDT
The World Organisation for NDT

APFNDT REPORT

Dr. Takamasa Ogata
APFNDT President

44th MEETING (2nd General Assembly)
30th May 2024, Incheon, Korea– 20th WCNDT

APFNDT
Asia Pacific Federation for Non Destructive Testing

Asia Pacific Federation
for Non Destructive Testing

MEMBERS OF APFNDT

- Members:

  Full Members : 16 Societies

  Potential Members: 8 Societies

  Total Mebers : 24 Societies

- Regional groups:

  Region One : Western Asia, Central Asia, South Asia

  Region Two : East Asia, South East Asia

  Region Three : Pacific, Oceania

FULL MEMBERS OF APFNDT (1)

AINDT - The Australian Institute for Non Destructive Testing

ASNT - The American Society for NDT

BSNDT - The Bangladesh Society for Non Destructive Testing

ChSNDT - The Chinese Society for Non Destructive Testing

CINDE - The Canadian Institute for Non-Destructive Evaluation

ISNT - The Indian Society for Non-Destructive Testing

JSNDI - The Japanese Society for Non-Destructive Inspection

KSNT - The Korean Society for Nondestructive Testing

MSNDT - The Mongolian Society for Non Destructive Testing

FULL MEMBERS OF APFNDT (2)

MSNT - The Malaysian Society of Non Destructive Testing

NDTSS - The Non-Destructive Testing Society (Singapore)

NZNDTA - the New Zealand Nondestructive Testing Association Inc.

PSNT - The Philippine Society for Nondestructive Testing, Inc.

IRNDT - The Iranian Society for Non-Destructive Testing

RSNTTD - The Russian Society for Non Destructive Testing and Technical Diagnostics

SNTCT - The Society for Nondestructive Testing and Certification of Taiwan

POTENTIAL MEMBERS OF APFNDT

AUTRI - The Indonesian Society for Non-Destructive Testing

SNDT - The Society for Non Destructive Testing, Sri Lanka

PASNT - The Pakistan Society for Non-Destructive Testing

TSNT - The Thai Society for Non-Destructive Testing

AZNDT – The Azerbaijan Society for Non-Destructive Testing

VANDT – The Vietnam Society for Non-Destructive Testing

KAOFD – Kazakhstan Association of Flaw Detection

Myanmar (Under Formation)

BOARD MEMBERS (AEC)

President
Dr. Takamasa Ogata

Vice President
Prof. Krishnan Balasubramaniam

Immediate Past President
Dr. Norikazu Ooka

General Secretary
Mr. Paulchamy Pugalendhi

Treasurer
Mr. Kevin Smith

APCNDT 2026 President
Mr. Danny Keck

Auditor
Dr. Sajeesh Kumar Babu

Secretariat Representative
Mr. Shohei Ooka

APFNDT
Asia Pacific Federation for Non Destructive Testing

BOARD MEMBERS (REGIONAL GROUPS)

Regional Representative Group 1

Mr. Diwakar D. Joshi (ISNT)

Mr. Alexander Mullin (RSNTTD)

Regional Representative Group 2

Dr. Ji Jingyuan (ChSNDT)

Prof. Ik-Keun Park (KSNT)

Dr. Ilham Mukriz Zainal Abidin (MSNT)

Dr. Chih-Hung Chiang (SNTCT)

Regional Representative Group 3

Mr. Pranay Wadyalkar (AINDT)

Mr. Neal Couture (ASNT)

APFNDT
Asia Pacific Federation for Non Destructive Testing

Asia Pacific Federation
for Non Destructive Testing

INTERNATIONAL COOPERATION

- **ISO/TC 135** : Standardization activities
- **IAEA** : NDT projects
- **AWF**, Asian Welding Federation : Mutual cooperation
- **Sprint Robotics collaborative** :
  Conference (Under Formation)
- **AITA**, Advanced Infrared Technology and Applications :
  Conference (Under Formation)

APFNDT
Asia Pacific Federation for Non Destructive Testing

TASK GROUPS

TG 1 Membership: Mr. Kevin Smith (ASNT)

TG 2 APFNDT Journal: Prof. Jung-Ryul Less (KSNT)

TG 3 Communications: Mr. Shohei Ooka (JSNDI)

TG 4 Education and Training: Dr. B. Venkatraman (ISNT)

TG 5 Certification: Mr. Paul Grosser (AINDT)

TG 6 Standards: Dr. Makoto Ochiai (JSNDI)

TG 7 NDE 4.0: Mr. Pranay Wadyalkar (AINDT)

SOME EXAMPLES OF TG ACTIVITIES

TG 1 Membership

- Continue to work recruitment of additional members and solicit support of Regional Board Members in this pursuit

TG 3 Communication

- Maintenance and updating of the website
- Regular distribution of the APFNDT Newsletter via the website
- Developing the APFNDT membership fee collecting system

TG 6 Standards

- Review of existing ISO standards
- Supporting of effective use and development of Key standards

TG 7 NDE 4.0

- Holding regularly scheduled online meetings
- Focused discussions on the ICNDT NDE 4.0 Roadmap

NEW STRATEGY

- ENHANCING THE SECRETARIAT FUNCTIONS IN NATIONAL SOCIETIES -

APCNDT (CONFERENCE)

1976: Japan

1978: Korea

1980: Japan

1983: Australia

1987: Canada

1990: New Zealand

1993: China

1995: Taiwan

1998: US

2001: Australia

2003: Korea

2006: New Zealand

2009: Japan

2013: India

2017: Singapore

2023: Australia

2026: US(Hawaii)

2029: Malaysia(Kuala Lumpur)

THE 16TH APCNDT, 2023

- Date : February 28th to March 3rd, 2023
- Location : Melbourne, Australia.
- APCNDT 2023 President : Mr. Paul Grosser
- Number of participants : **657** participants including 80 students and 151 from overseas, **47** countries attending, **47** exhibitors, **125** papers
- Number of technical sessions :

  40 sessions

THE 17TH APCNDT, 2026

- Date : May 11th to14th, 2026
- Location : Hilton Hawaiian Village, Honolulu Hawaii, USA
- APCNDT 2026, Conference Chair : Mr. Danny Keck

THE 18TH APCNDT, 2029

- Date : November 12th to 16th, 2029
- Location : Kuala Lumpur Convention Centre, Malaysia
- APCNDT 2029 Chairman : Dr Khairul Anuar Mohd Salleh

INTERNATIONAL NDT EVENTS IN APFNDT (2024-2025)

Year	Event	Date	Society
2024	7th MINDTCE – 7th Malaysia International NDT Conference and Exhibition	20-21 August Selangor, **Malaysia**	MSNT
	FCNDT 2024 - 1st Formosa Conference on Non-Destructive Testing	3-4 October Tainan, **Taiwan**	SNTCT
	ASNT 2024 - The Annual Conference	21-24 October Las Vegas, **US**	ASNT
2025	3rd International Conference on NDE 4.0	3-6 March, 2025 Bengaluru, **India**	ISNT
	AITA 2017- Advanced Infrared Technology and Applications	September 15 – 19 Kobe, **Japan**	JSNDI
	IIIAE 2025 - International Institute of Innovative Acoustic Emission	May 11-15 Nagoya, **Japan**	JSNDI

APFNDT

Asia Pacific Federation for Non Destructive Testing

Thank you for your kind attention.

International Organization for Standardization

Report of ISO/TC 135

- Non-destructive testing -

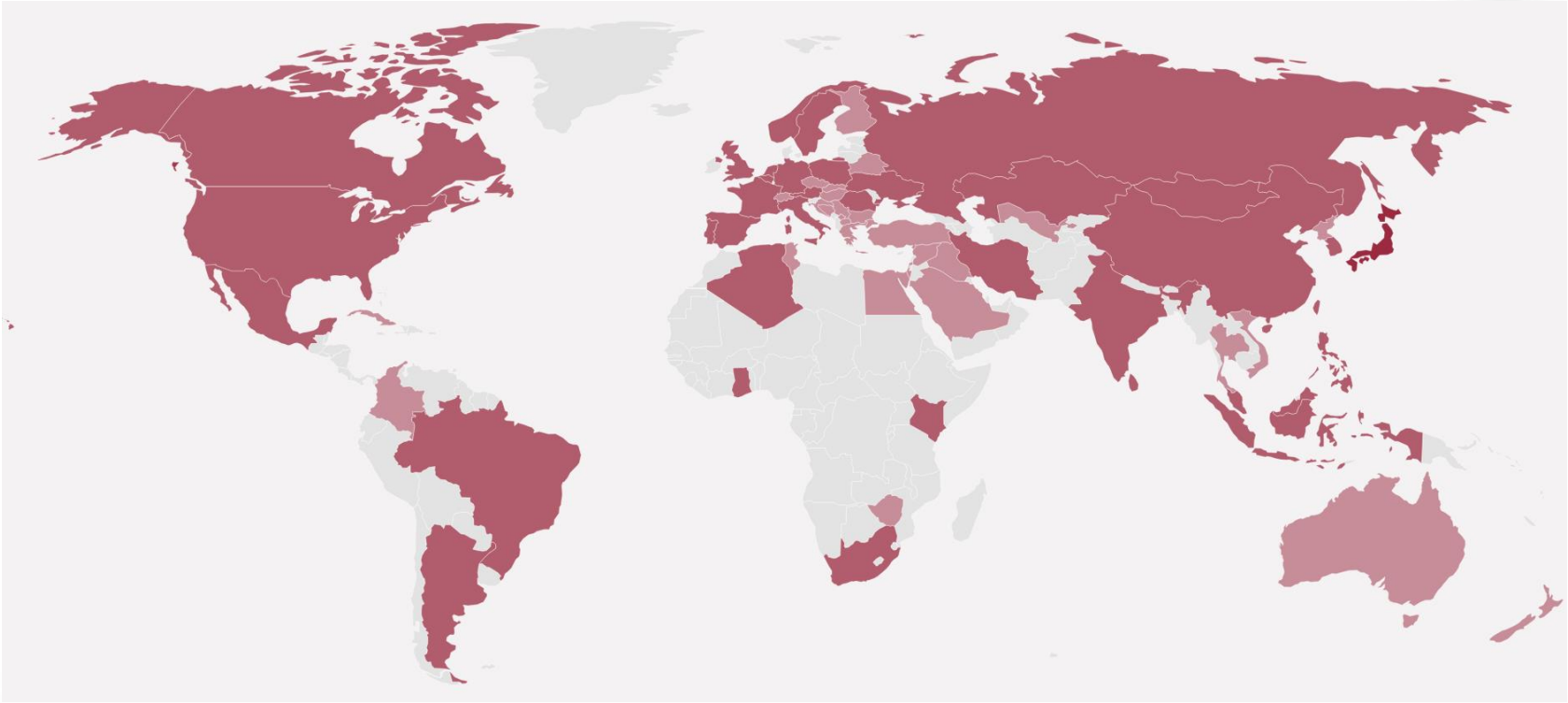
Chairperson: Dr. Takamasa Ogata

Committee Manager: Mr. Shohei Ooka

ICNDT General Assembly

May 2024

Members of ISO/TC 135



Participating Members (36)

Secretariat (JISC, Japan)

Observing Members (30)

From the ISO website

Liaisons of ISO/TC135

ICNDT: Category A Liaison

(1) Special liaison to comply with the Vienna agreement (1)
CEN/TC 138

(2) Liaisons Committees to ISO/TC 135 (13)

ISO/TCs (12): TC 11, TC 17, TC 20, TC 26, TC 44, TC 67, TC 79, TC 107, TC 112, TC 261

SCs (2): TC 85/SC 6, TC 108/SC 5

IEC/TC (1): IEC/TC 87

(3)Liaisons Committees from ISO/TC 135 (22)

(4) Liaisons with other organizations (8)

Liaisons A (5) : CEOC, ICNDT, IIW, INLAC, TIC Council

Liaisons B (3) : EC, IAEA, WCO

Sharing key perspectives in ISO

- ***Pursuit of SDGs, global warming countermeasures, DX utilization, and safe and secure society***

- ***Relationship between technology development for solving industrial challenges and standardization for trusted products and services***

Sharing key perspectives in ISO
- Resonating themes -

Pursuit of SDGs, global warming countermeasures, DX utilization, and safe and secure society

- ***Sustainable and inclusive growth***
- ***Responsible AI for all***
- ***Safe, reliable, and of high quality***

Sharing key perspectives in ISO
- Technology development & standardization -

Relationship between technology development for solving industrial challenges and standardization for trusted products and services

- ***ISO proposals through organization standards and national standards***
- ***A positive cycle of further development created by standardization***

Structure of ISO/TC 135/SCs

ISO/TC 135 ***Non-destructive testing, Japan (JISC)***

- **SC 2 Surface methods, *South Africa (SABS)***
- **SC 3 UT, *Germany (DIN)***
- **SC 4 ET, *France(AFNOR)***
- **SC 5 RT, *Germany (DIN)***
- **SC 6 LT, *Japan (JISC)***
- **SC 7 Personnel qualification, *Canada (SCC)***
- **SC 8 T*hermographic testing, Korea (KATS)***
- **SC 9 AE, *China (SAC)***

Structure of ISO/TC 135/WGs(1)

TC135/WG1 General terms and definitions

SC 2/WG 3 Magnetic Flux Leakage testing _ Corrosion

SC 3/WG 5 Ultrasonic test equipment

SC 3/WG 7 Basic principles

SC 4/WG 1 Equipment for eddy current examination

SC 5/SG 1 Gammatopography of shielding integrity

SC 5/SG 2 Sensitivity monitoring of CT systems

SC 6/WG 1 Leak testing in pressured vessels and underground pipelines using radioactive tracer methods

Structure of ISO/TC 135/WGs(2)

SC 7/AHG 1 Interpretations to standards under the purview of SC 7

SC 7/WG 10 Visual acuity

SC 8/WG 1 Terminology and vocabulary

SC 8/WG 2 NDT-IRT-General principles

SC 8/WG 3 NDT-IR-System and equipment

SC 8/WG 4 NDT-IR-Guidelines for examination of electrical installations

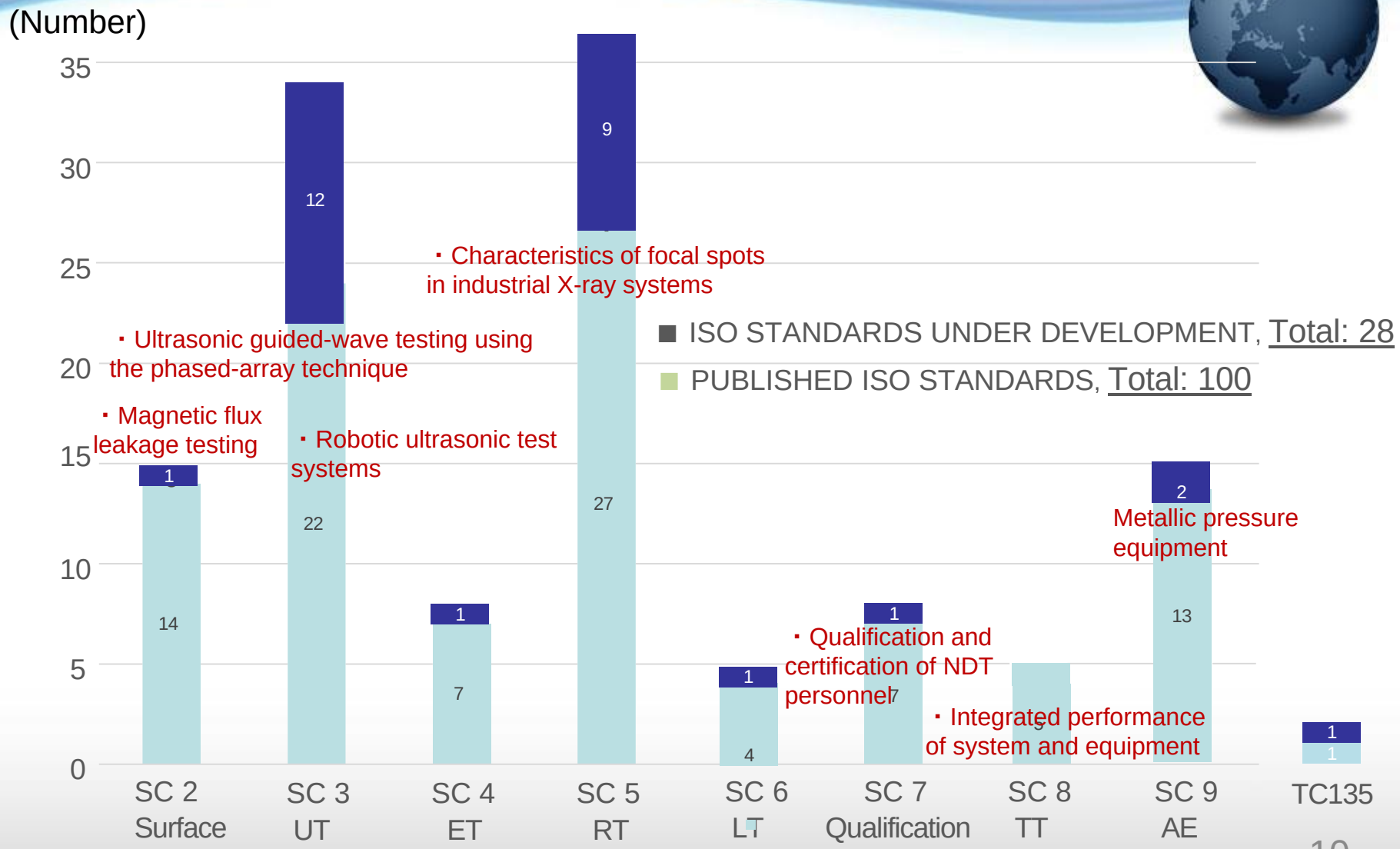
SC 9/WG 7 Revision of ISO 12716 (Vocabulary)

SC 9/WG 8 Acoustic emission testing of metallic structures

SC 9/WG 10 Acoustic emission testing of atmospheric pressure storage tank

SC 9/WG 11 Leak detection by acoustic emission…

Number of standards published



Next ISO/TC 135 Plenary

- Potential meeting venues -

- June 2025 PANNDT (Niagara Falls, Canada)

- May 2026 APFNDT (Hawaii, USA)

or

June 2026 EFNDT (Verona, Italy)

Scheduled for discussion at the ISO/TC135 Plenary Meeting, 1-3 June, 2024

Thank you for your attention.

ISO/TC 135/SC 7
NON-DESTRUCTIVE TESTING - PERSONNEL QUALIFICATION
CANADA (SCC)

ICNDT WG 1
Recent TC135 SC 7 Activities

Darcy Corcoran

May 2024

ISO TC 135 SC 7 Overview

1. ISO 18490 WG 10
   - Near, Far, Color vision.
2. Ad Hoc Group 1.
   - Responses to interpretations from any of our TC 135 SC 7 documents.
     - Terms of reference being finalized.
     - Presenting our roll out to the TC 135 group.
     - Next steps are developing a process for next meeting in the fall.
3. Revisit making TS 25107 and TS 25108 into ISO standards.
   - Revisit the documents for this change to ensure they are up to date.

ISO 18490
Committee

- WG 10
- 8 Meetings were held thus far. Ready to present CD draft to SC 7.
- Optometrist experts Dr. Brenna Fletcher (Canada) and Dr. Wolfgang Radner (Austria).
- Countries regularly attending, Argentina, Austria, Canada, China, France, Germany, Japan, UK, US

ISO 18490
Near Vision
Wolfgang and Breanna Recommendations

- Remove tumbling E use reading chart
- Use as an example the Radner Reading Chart
- 32 cm or 40 cm (with different requirements)
- References on the reading chart to:
  - Log RAD
  - M
  - Snellen
  - Decimal

ISO 18490
Near Vision
Committee Summary

- Summary
  - Acceptance criteria 20/30
  - Common distance 32 cm
  - Reading chart test to be used Radner Reading Chart
  - Optional requirements for 20/25 @ 40 cm

ISO 18490
Near Vision
Radner Reading Chart

RADNER - READING CHART 1

LogRAD 40cm/32cm		Visus 40cm/32cm	Snellen 40cm/32cm
0.9/1.0	The traders rested close to our settlement, in which we still hoarded essential goods	0.13/0.1	20/150 / 20/200
0.8/0.9	Our sister knows the famous old politician, who has many friends working for senators	0.16/0.13	20/125 / 20/150
0.7/0.8	Her brother sent presents to our department, that were not opened before anyone arrived	0.2/0.16	20/100 / 20/125
0.6/0.7	Our trainer never sold this old trampoline, on which we have learned exciting jumps	0.26/0.2	20/80 / 20/100
0.5/0.6	Now Marcus looks straight at his classmates, who hide in fright behind their principal	0.32/0.26	20/60 / 20/80
0.4/0.5	The driver then entered the new roundabout, which was put there after several accidents	0.4/0.32	20/50 / 20/60
0.3/0.4	Her waitress wanted to call the serviceman, who was seen with this beautiful actress	0.5/0.4	20/40 / 20/50
0.2/0.3	The teacher started to wrap his sandwiches, for which he bought waxed paper yesterday	0.64/0.5	20/30 / 20/40
0.1/0.2	For Michael they went around the waterfall, which is well marked for dangerous rapids	0.8/0.64	20/25 / 20/30
0.0/0.1	[illegible]	1.0/0.8	20/20 / 20/25
-0.1/0.0	[illegible]	1.25/1.0	20/16 / 20/20
-0.2/-0.1	[illegible]	1.6/1.25	20/12.5 / 20/16

Distance Correction:

Testing Distance (cm):	50	45	40	36	32	28	25	22	20	18	16	13	10	8	5
LogRAD-Correction:	-0.1	-0.05	0.0	0.05	0.1	0.15	0.2	0.25	0.3	0.35	0.4	0.5	0.6	0.7	0.8

ISO 18490
Far Vision
Summary

- 20/25
- Distance 4 meters
- Landolt Ring
- ISO 8596
- Table next slide

ISO 18490
Colour Vision Summary

- Ishihara Test
- 17 plates (17 out of 17)
- Failure requires an employer-based Trade Test
- Standardized form
- Documentation sent from Employer to CB
- Frequency every 5 years

ISO 18490
Shades of Grey
Discussion

- Type of test
  - Skerik grey scale
    - Contrast of 2% and above shall be clearly discriminated (BINDT)
  - Dr Kolbl ONE/TUV/BV Eye examination
    - 30- 50 cm distance
    - Correctly read 20 out of 25 boxes (BINDT)

ISO 18490
Grey Scale Perception
Summary

- Grey scale testing(not a requirement of this Standard) could be used in addition to the colour test requirements to further test a person's ability to differentiate between shades of grey for radiography and or time of flight diffraction.
  - Dr Kolbl ONE/TUV/BV Eye examination
  - Skerik grey scale

ISO 18490
Low Contrast Visual Acuity Summary

- Low contrast visual acuity testing (not a requirement of the Standard) could be used in addition to the colour test requirements to further test a radiographic interpreter.
- ASTM E3168 details the procedure for determining the low-contrast visual acuity of a radiographic interpreter by evaluating the ability of the individual to detect linear images of varying radiographic noise, contrast, and sharpness.

ISO 18490
Schedule moving ahead.

- WG 10 meeting (virtual and in person) afternoon July 5, 2023 in Lisbon, Portugal.
- Report to SC 7.
- Approval to move forward with CD.
- Move straight to DIS.

Ad Hoc Committee

- First AHG 1 meeting April 22, 2024.
- Group will help when there is need for interpretations within our SC 7 documents.
- Terms of reference were discussed, and draft was sent around for comments.
- Next step will be setting up an interpretation process.

TS 25107
TS 25108

- TS 25107 NDT Training Syllabuses 2019
- TS 25108 NDT Personnel Training Organizations 2018
- Move these to IS status as they have been in existence over 6 years.
- Normative or informative?
- WGs setup to start revising to make sure they are current and up to date before we make them normative??

TC135 SC 7
Schedule moving ahead.

- WG 10 ISO18490 meeting June 1, 2024.
- Ad Hoc Group meeting fall 2024.
- Main TC 135 SC 7 meeting June 3, 2024
- TC 135 meeting June 3, 2024.
  - Discussion on AGH 1 work.

TC135 SC 7 Summary

- WG 10 ISO 18490
- ADH 1 Interpretations
- TS 25107, 25108
- Upcoming activities

ISO 18490
Questions or Comments

darcy@qcccanada.com if you require any further information.

Report for the International Committee of Non-Destructive Testing (ICNDT), May 27, 2024

To be presented at the World Conference in Non-Destructive Testing, Korea, May 27-31, 2024

Affum, Hannah, Maghella Gerardo

Introduction

Non-destructive testing (NDT) plays a crucial role in ensuring the safety and reliability of a wide range of equipment and structures. NDT methods can detect defects or irregularities without causing any damage to the materials being tested, making it a valuable tool in many industries, including nuclear. Through its programmatic actions, the International Atomic Energy Agency (IAEA) promotes the use of NDT technology in member states recognizing the importance of maintaining high quality control standards for the safe operation of nuclear and other industrial installations. By providing training and necessary equipment to its Member States, the IAEA helps ensure that these standards are met globally. This report provides highlights of key activities undertaken by the Agency in NDT for industry and in the emerging area of civil engineering.

Key Activities

NDT for Civil Engineering and Cultural Heritage

1. A Third Consultancy Meeting on Preparation of Training materials and e-learning modules for Non-Destructive testing Applications in Civil Engineering was held at the IAEA headquarters in Vienna, Austria from May 13-17, 2024, to develop training materials (including e-learning) for Non-Destructive Testing techniques applicable in civil engineering. In a meeting last year, the expert group finalised the draft training syllabi for Non-Destructive Testing techniques applicable in civil engineering. The technical document on ‘Guidelines on Training Syllabuses in NDT for Civil Engineering (NDT-CE) is now in review for publication as an IAEA technical document. 15 experts from member states participated in this meeting.

2. A Consultancy Meeting on Development of Training materials and e-learning modules on Radiographic Testing for Non-Destructive testing (NDT) for Cultural Heritage Studies took place from 4-8 March 2024 at the IAEA headquarters in Vienna, Austria to prepare training materials in accordance with the developed syllabus for international capacity building in Radiographic Testing for Non-Destructive testing (NDT) for Cultural Heritage Studies. About 5 experts attended the meeting.

3. An NDT for civil engineering laboratory has been established at the IAEA laboratories in Seibersdorf to train and build capacity in member states to support NDT for disaster recovery and management efforts. The NDT lab collaborates with the IAEA collaborating centres in NDT and a network of NDT CE experts in member states. The laboratory is equipped with state-of -the-art NDT equipment including the rebound hammer, proformeter, infrared camera, ultrasonic pulse velocity tester, impact echo tester, digital radiography set up, ground penetrating radar for soil and concrete. Training programmes are scheduled to begin in 2025.

4. An Asian regional project on ‘Enhancing regional capabilities in Advanced Non-Destructive Testing Techniques for improved safety and improved performance in industries’ is ongoing. The aim of the project is to establish regional advancement in NDT to fulfil the requirements set by global standards for self-reliance and sustainable

NDT systems. 21 member states are participating in this project which started in 2023 and will end in 2026.

Standardisation of NDT for Civil engineering Applications

1. During the drafting of training syllabi for NDT CE, it was agreed among the experts that the content of the training syllabi and its format to be in accordance with ISO/TS 25107:2019. The decision was taken to enable the general acceptance by international standard bodies and organizations i.e., ICNDT, ISO, and IAEA, to align with existing format of international standards. Following the completion of the document, the Chairman of the Standards working group of the ICNDT is to provide guidance to the IAEA in moving this forward into the development of standards.

NDT and Artificial Intelligence for Civil Engineering in disaster recovery

NDT has the potential to make a key contribution to engineering risk assessments, improving the resilience of built infrastructure and supporting disaster recovery efforts. In recognition of this the Agency, in response to disasters in member states, has already implemented several regional and national projects related to building local capacity in using NDT for integrity assessment of civil structures. The Agency's NDTCE laboratory is a major resource centre for continuous training in this field. The Agency's capacity building effort has been supported through strategic partnerships with engineers and NDT specialists from international professional associations. Through international missions the IAEA has deployed experts to member states to support emergency response decisions by providing a rapid assessment of critical infrastructure. However, despite these valuable steps, currently there remain significant barriers to realising the full potential of using NDT in disaster recovery contexts.

1. A Technical Meeting on Artificial Intelligence (AI) Assisted Non-Destructive testing for post natural and non-natural disaster management was held at the IAEA headquarters in Vienna, Austria from Feb 20-24, 2023, to brainstorm and establish linkages between AI and Non-Destructive testing and propose a coordinated research project in this field. 10 experts from Member states attended the meeting.
2. A consultancy meeting on integrating Artificial Intelligence (AI), data science and related Computer tools with Non-Destructive Testing (NDT) for disaster management was held at the IAEA headquarters in Vienna, Austria from February 26 to March 1, 2024, to develop a coordinated multi-staged roadmap for the systematic integration of AI into Non-Destructive Testing (NDT) for disaster management. An output of this meeting is a proposed coordinated research project(CRP) on 'Improving disaster management capabilities and outcomes by augmenting Non-destructive Testing (NDT) with Artificial Intelligence (AI)-enhanced for engineering assessment methods' To enhance the value of the capacity-building projects already being undertaken by the Agency in Member States, this CRP will bring together those involved in DM and the related technical disciplines (including civil and structural engineers, NDT and AI technology specialists, and in AI and others relevant fields) to engage in collaboration, research and capability-building activities to better prepare for future disasters and improve disaster recovery outcomes.

3. The CRP will be launched in 2025 and is expected to attract proposals from research institutions, academia and industry from 15 member states.

Practical Arrangement (PA)

1. Recognising the ICNDT as a strategic partner in the achievement of the Agency's programmatic actions related to NDT, both entities have initiated efforts to formalise their engagement and collaboration through a practical arrangement which is anticipated to be signed Q4 of 2024. The scope of the PA will include:

   -Exchange and dissemination of unclassified information, including publications and sharing of experiences and best practices in the area of NDT, for example NDT for civil engineering structures and materials and cultural heritage.

   -Assistance in training and capacity building in NDT for civil engineering structures and materials and cultural heritage, including development of educational materials, training programmes.

   -Cooperation in training and capacity building in specific NDT methods for other application areas, including development of educational materials, training programmes, schemes for qualifications and input to relevant standards.

Other activities

The IAEA has representatives on the following:

1. The ICNDT Specialist International Group (SIG) WG 3
2. Sub-group 1 on NDT CE Standardization.
3. Sub-group 2 on NDT CE Applications.
4. Sub-group 3 on NDT CE Emerging technologies.

ICNDT-IAEA

- Through its programmatic actions, the International Atomic Energy Agency (IAEA) promotes the use of NDT technology in member states recognizing the importance of maintaining high quality control standards for the safe operation of nuclear and other industrial installations. By providing training and necessary equipment to its Member States, the IAEA helps ensure that these standards are met globally. This report provides highlights of key activities undertaken by the Agency in NDT for industry and in the emerging area of civil engineering.

ICNDT
The World Organisation for NDT

IAEA

NDT for Civil Engineering

- A Third Consultancy Meeting on Preparation of Training materials and e-learning modules for Non-Destructive testing Applications in Civil Engineering was held at the IAEA HQ in Vienna in May 2024, to develop training materials (including e-learning) for NDT techniques applicable in civil engineering.

- The technical document on ‘Guidelines on Training Syllabuses in NDT for Civil Engineering (NDT-CE) is now in review for publication as an IAEA technical document.

- An NDT for civil engineering laboratory has been established at the IAEA laboratories in Seibersdorf to train and build capacity in member states to support NDT for disaster recovery and management efforts
- The NDT lab works with the IAEA collaborating centres in NDT and a network of NDT CE experts in member states. The laboratory is equipped with state-of-the-art NDT equipment including the rebound hammer, profometer, infrared camera, ultrasonic pulse velocity tester, impact echo tester, digital radiography set up, ground penetrating radar for soil and concrete. Training programmes are scheduled to begin in 2025.

Standardisation of NDT for Civil engineering Applications

- During the drafting of training syllabi for NDT CE, it was agreed among the experts that the content of the training syllabi and its format to be in accordance with ISO/TS 25107:2019.
- The decision was taken to enable the general acceptance by international standard bodies and organizations i.e., ICNDT, ISO, and IAEA, to align with existing format of international standards.
- Following the completion of the document, the Chairman of the Standards working group of the ICNDT is to provide guidance to the IAEA in moving this forward into the development of standards.

ICNDT
The World Organisation for NDT

IAEA

NDT and Artificial Intelligence for Civil Engineering in disaster recovery

- A Technical Meeting on Artificial Intelligence (AI) Assisted Non-Destructive testing for post natural and non-natural disaster management was held in Vienna in Feb 2023, to brainstorm and establish linkages between AI and NDT and propose a coordinated research project in this field.
- A consultancy meeting on integrating Artificial Intelligence (AI), data science and related Computer tools with Non-Destructive Testing (NDT) for disaster management was held in Vienna in February 2024, to develop a coordinated multi-staged roadmap for the systematic integration of AI into NDT for disaster management. An output of this meeting is a proposed coordinated research project (CRP) on 'Improving disaster management capabilities and outcomes by augmenting Non-destructive Testing (NDT) with Artificial Intelligence (AI)-enhanced for engineering assessment methods'

ICNDT
The World Organisation for NDT

IAEA

NDT for Cultural Heritage

- A Consultancy Meeting on Development of Training materials and e-learning modules on Radiographic Testing for Non-Destructive testing (NDT) for Cultural Heritage Studies took place from 4-8 March 2024 at the IAEA headquarters in Vienna, Austria to prepare training materials in accordance with the developed syllabus for international capacity building in Radiographic Testing for NDT for Cultural Heritage Studies.

ICNDT
The World Organisation for NDT

IAEA

Advanced NDT Techniques

- An Asian regional project on ‘Enhancing regional capabilities in Advanced Non-Destructive Testing Techniques for improved safety and improved performance in industries’ is ongoing. The aim of the project is to establish regional advancement in NDT to fulfil the requirements set by global standards for self-reliance and sustainable NDT systems. 21 member states are participating in this project which started in 2023 and will end in 2026.

Practical Arrangement (PA)

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ICNDT
The World Organisation for NDT

IAEA

IAEA
International Atomic Energy Agency

ISEMIR

ISEMIR-IR –Information System on Occupational Exposure in Medicine, Industry and Research

Richard Van Sonsbeek

Richard.vansonsbeek.gmail.com

Contents:

- IAEA objectives
- ISEMIR (IR, IC, N)
- ISEMIR-IR aims and access
- ISEMI-IR system
- How does it work? Who can participate?
- ISEMIR-IR global surveys
- National Contact Persons

Objectives of IAEA effort

Keep radiation protection of workers optimized:

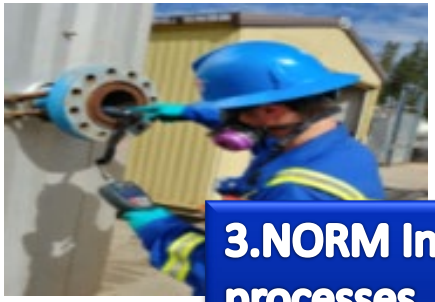
1. the dose due to normal exposure
   - if normal exposure is justified!
2. the risk of exposure due to accidents
   - (risk: combination of probability for and consequence of an accident)

ISEMIR - Information System on Occupational Exposure in Medicine, Industry and Research

- Tool for optimization of occupational radiation protection
- Online web-based information system
- 3 specific topical areas:

1.Industrial radiography ISEMIR IR

2.Interventional cardiology ISEMIR IC



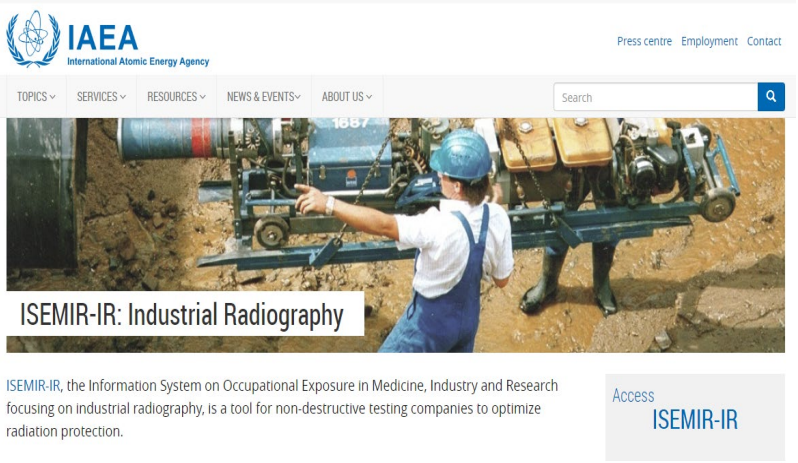
3.NORM Industrial processes ISEMIR N

https://nucleus.iaea.org/isemir/

Rationale for an International Database (iDB)

- The worldwide surveys of the IAEA showed
  - significant occupational doses do occur,
  - accidents do happen, and
  - the variation in occupational dose per radiographic exposure is considerable
- This in turn shows that there is a need for
  - considerable improvement in occupational radiation protection
  - implementation of optimization of protection

ISEMIR-IR aims and access



ISEMIR-IR aims at:

- facilitating the implementation of ALARA practices and effective exposure management;
- providing efficient collection and maintenance of data on occupational exposure, radiation practices and incidents;
- allowing non-destructive testing (NDT) companies to benchmark their own facility and individual radiographers' performances against global or regional data to define follow-up actions to address identified gaps and disseminate lessons learnt; and
- contributing to minimizing the likelihood of accidents, e.g. by identifying pre-cursors, user feedback and experience.

ISEMIR-IR is **free of charge** via a NUCLEUS account

What are the benefits of participation?

- To improve **occupational radiation protection** of workers
- To provide for efficient **data collection and maintenance** on occupational exposure and radiation practices
- To analyze the **trends of occupational doses** of individuals, companies against global or regional data
- To identify **good practices as well as gaps**
- To define follow-up actions to address identified gaps and disseminate **lessons learnt**

How does it work?

1 Registration

2 Data entry

Data submission

Verification of data by IAEA

Publishing of data

3 Benchmarking and analysis

Who can participate in ISEMIR-IR?

Primary for operators (facilities) from:

Non-destructive testing (NDT) companies carrying out industrial radiography

Participation is free

Current registry: 46 users from 29 countries

ISEMIR-IR: Data entry

- 6 UN languages
  - Arabic, Chinese, French, Russian, Spanish
- Reporting is done annually
- Data is confidential and anonymous
- 2 datasets:
  - Company/facility
  - Individual
- Flexible in terms of data collection
- Mandatory fields related to dose information

ISEMIR-IR Data entry

IR data entry – personnel and company:

- **Annual collective doses**, minimum detectable level
- Annual dose distribution
- Radiographic **workloads** - number of radiographic films exposed
- Radiation protection **training**
- Radiography **sources used**
- Compliance inspections of radiographers, preventive maintenance of devices
- Use of collimators, survey meters, reading dosimeters, etc.
- Number of **incidents**
- Professional roles in ISEMIR-IR: assistant to the radiographer, industrial radiographer, manager, RPO, source recovery, trainee

ISEMIR http://nucleus.iaea.org/isemir

Global Surveys on industrial radiography

- **1st Survey: 2012** — **Radiographers, NDT companies, Regulators (paper)**
- **2nd Survey: 2020** — **NDT companies , Regulators (paper)**
- **3rd Survey: 2022** — **NDT Companies, Regulators (paper & online)**
- **4th Survey: 2024 Q4** — **NDT Companies, Regulators (paper & online)**

General findings of the surveys conducted in 2012, 2020 and 2022

- Significant occupational doses do occur
- Radiation protection is not being effectively optimized
- Detailed information at the operational level is lacking – confirmed the need for an international database
- Results of 1st survey published in IAEA-TECDOC-1747
- Results of 2nd and 3rd surveys available at

https://www.iaea.org/topics/information-system-on-occupational-exposure-in-medicine-industry-and-research-industrial-radiography

National Contact Persons

- Nominated by National Liaison Officers and Regulatory Bodies
- Objective is to assist in ISEMIR-IR promotion in their country
- IAEA will organise webinars to explain the NCP role
- Total number of NCPs for ISEMIR-IR is 31
  - i.e. majority of member states still need to appoint an NCP
- Please help IAEA to appoint an NCP in your country

More Information

Please contact ISEMIR-IR through:

ISEMIR-IR.Contact-Point@iaea.org.

Thank You

IIW
The global Welding & Joining Organization

The International Institute of Welding

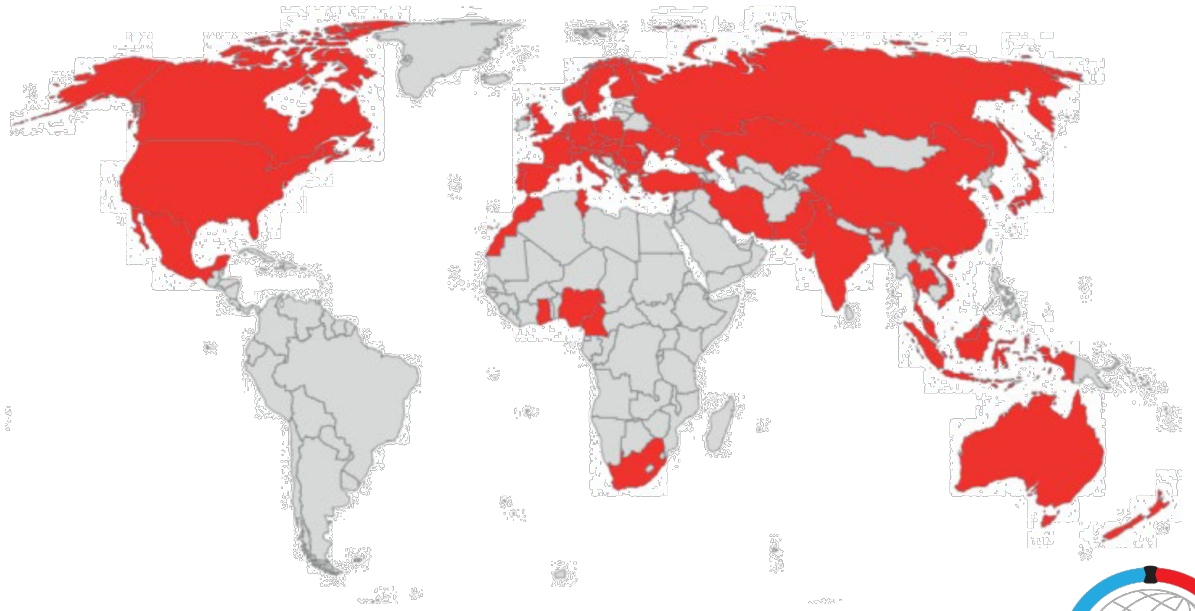
- In 1948 national welding organizations in 13 countries agreed to create the International Institute of Welding
- The objectives of the Association shall be to act as the world-wide network for knowledge exchange of joining technologies to improve the global quality of life.
- Currently 51 countries from all continents are represented by Responsible member societies:
  - Non-For-Profit organisations
  - Representing the sector of welding and allied processes in their countries

Vision

The leading global welding community linking industry, research and education

Mission

Advance welding and joining through a worldwide network



The IIW at a glance

- 22 Working Units (Groups and Commissions) meeting twice a year
- Every year the IIW Annual Assembly hosts 800 experts and delegates (the “who’s who” in welding and joining)
- IIW Knowledge Center
  - More than 5,000 registered users
  - About 20,000 downloadable documents (members restricted)

Standardisation
(recognised by ISO)

Publication of deliverables
(journal, Books, Software)

Meetings and Gatherings
(international/regional)

Qualification and certification of personnel and companies (global Network)

IIW Commissions (scientific activities)

C-I	Additive Manufacturing, Surfacing, and Thermal Cutting
C-II	Arc Welding and Filler Metals
C-III	Resistance Welding, Solid State Welding, and Allied Joining Process
C-IV	Power Beam Processes
C-V	NDT and Quality Assurance of Welded Products
C-VI	Terminology
C-VII	Micro joining and Nanojoining
C-VIII	Health, Safety, and Environment
C-IX	Behavior of Metals Subjected to Welding
C-X	Structural Performances of Welded Joints - Fracture Avoidance
C-XI	Pressure Vessels, Boilers and Pipelines
C-XII	Arc Welding Processes and Production Systems
C-XIII	Fatigue of Welded Components and Structures
C-XIV	Education and Training
C-XV	Design, Analysis, and Fabrication of Welded Structures
C-XVI	Polymer Joining and Adhesive Technology
C-XVII	Brazing, Soldering and Diffusion Bonding
C-XVIII	Quality Management in Welding and Allied Processes
C-XIX	Physics of Welding and joining

Technical Management Board

Industrial Support

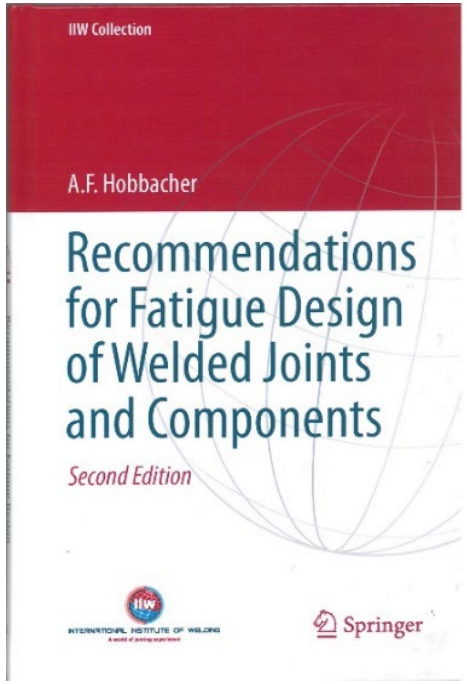
Structural Integrity

Processes

IIW Technical Production

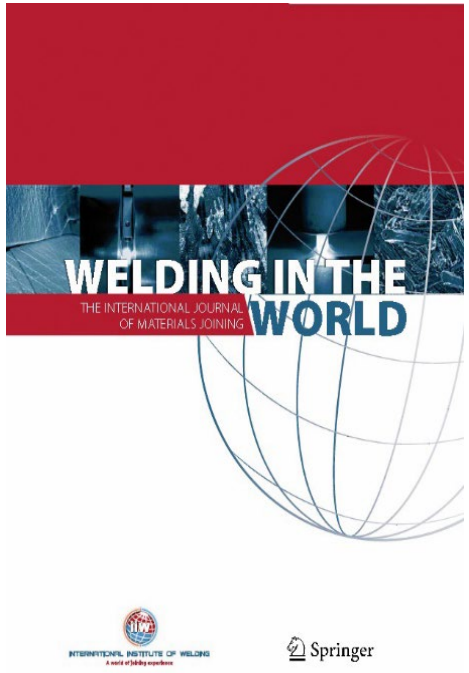
Standards

30 Published standards



Books

145 Books Published



WitW

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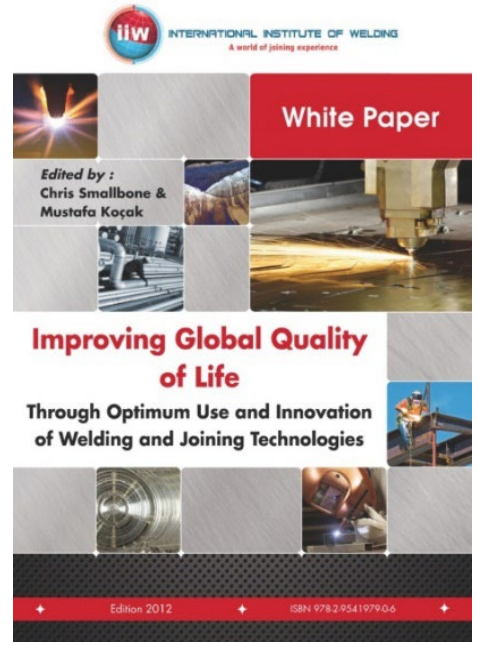
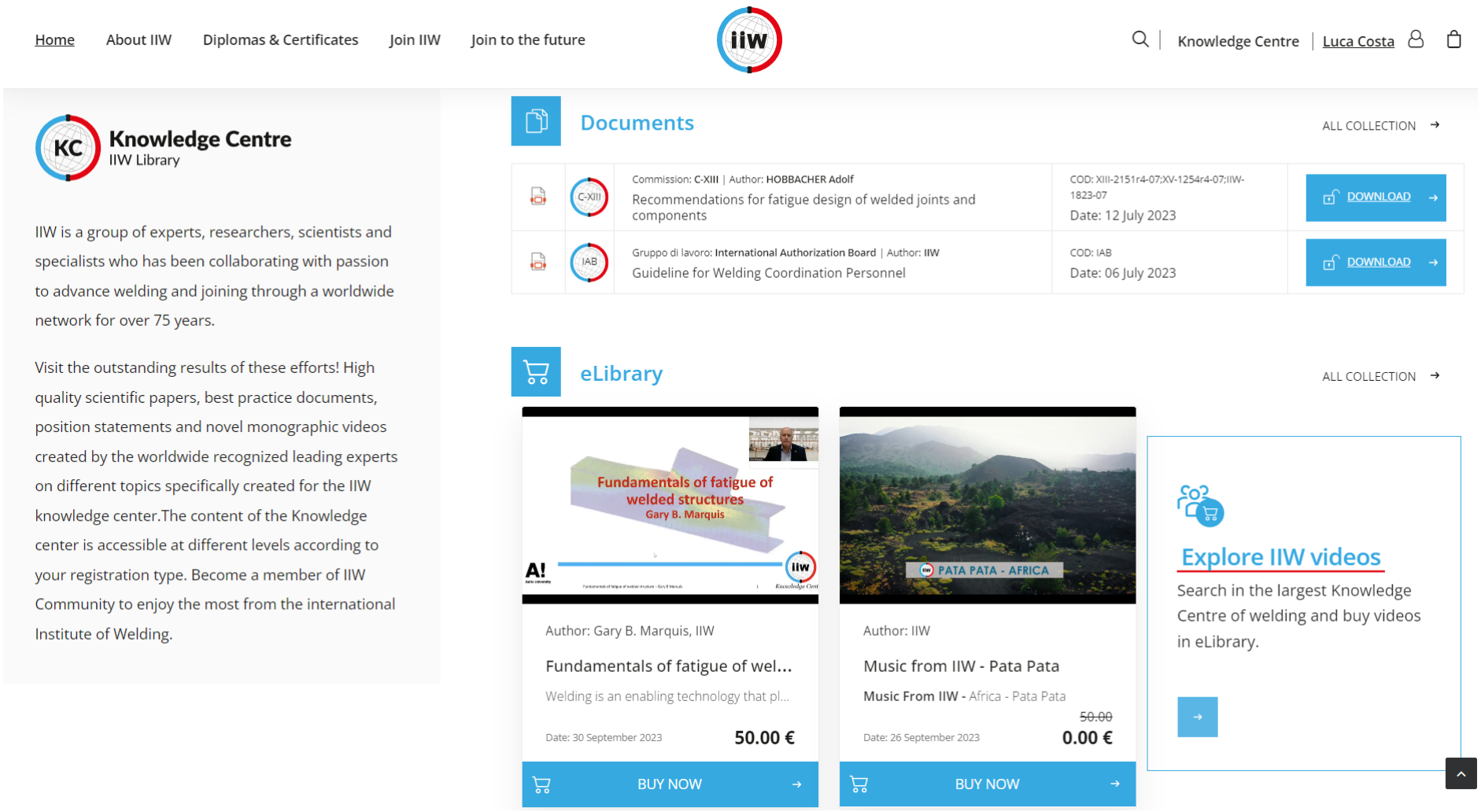


White Paper

and vision documents

IIW Knowldege Centre (www.iiwelding.org)



IIW International System of Qualification and Certification

- Worldwide recognized diplomas
- Centralized management of examinations, in the national language
- System working on continuously updated guidelines
- Periodical audit of ANBs and ATBs

International Additive Manufacturing Qualification System (IAMQS)

- The International Additive Manufacturing Qualification System (IAMQS) was created to ensure that companies and professionals are equipped with the right set of skills to implement AM at the industrial level.
- It currently covers Metal AM Qualifications for Operators, Designers, Supervisor, Inspector, Coordinator and Engineers.
- The International AM Qualification System is managed by EWF (European Welding Federation)

IAMQS

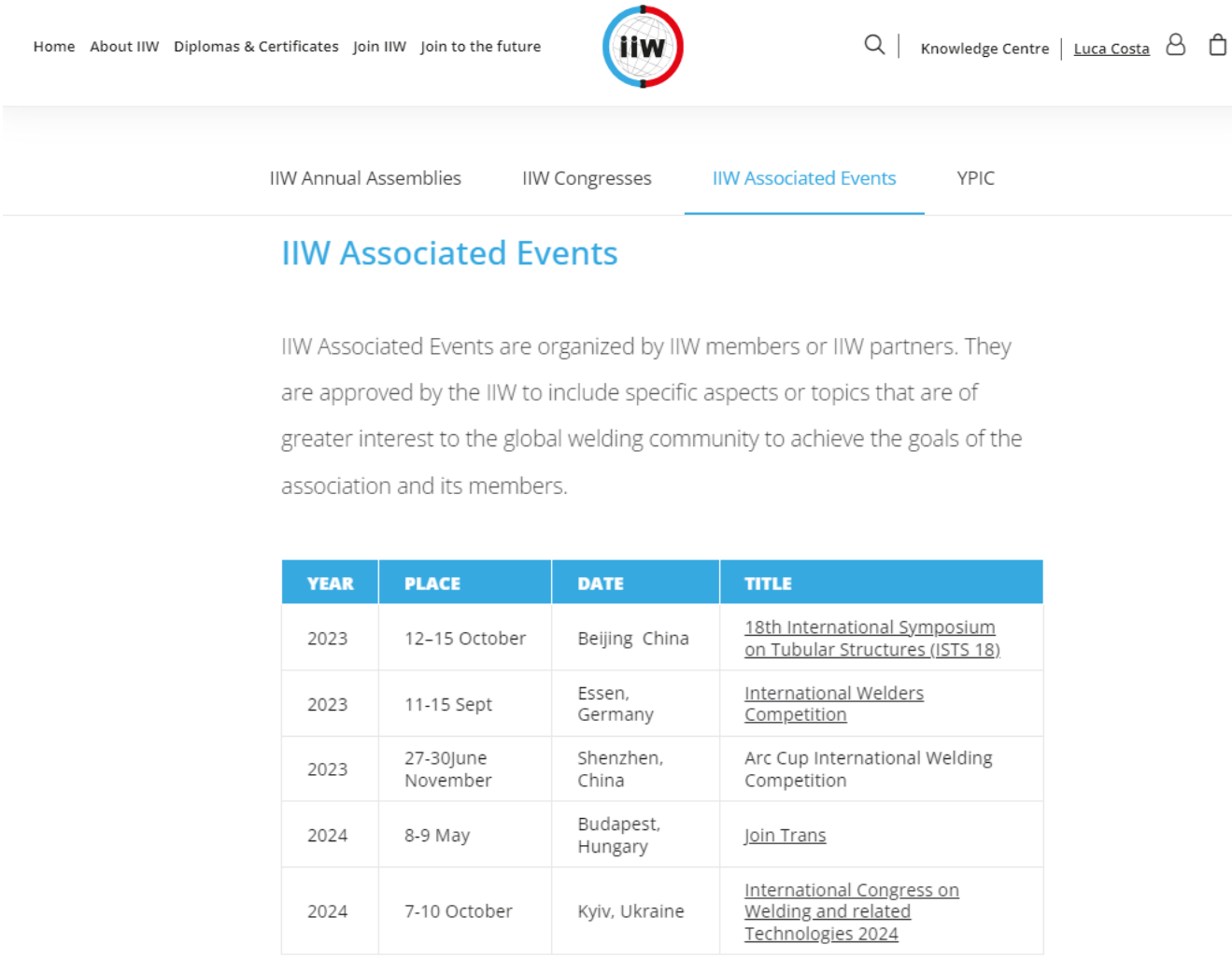
EWF

IIW legacy programs

- IIW Young Professional activities support the growth of future leaders in welding
  - Dedicated events and rates for IIW General Events (YPIC)
  - Mentorship
  - IIW Student Chapters
- David Landon IIW Future Leaders Project, Supports future leaders in attending the meetings of IIW Board of Directors
- IIW Welding Charity Fund Supports initiatives related to welding and allied activities in accordance with the objectives of the Association
- IIW New Welding Capabilities Project guides the growth of Welding Associations and their relationship with the UN Sustainable Development Goals (SDGs)

Weld Equality
Jackie Morris. IIW 2023 Digital Collection, Reference [113]

IIW events



YEAR	PLACE	DATE	TITLE
2023	12–15 October	Beijing China	18th International Symposium on Tubular Structures (ISTS 18)
2023	11-15 Sept	Essen, Germany	International Welders Competition
2023	27-30June November	Shenzhen, China	Arc Cup International Welding Competition
2024	8-9 May	Budapest, Hungary	Join Trans
2024	7-10 October	Kyiv, Ukraine	International Congress on Welding and related Technologies 2024

The IIW Annual Assembly

Sunday July 07, 2024

Exhibition	Site Registration	General Assembly	Opening Ceremony	WELCOME Reception/ Cocktail

Monday July 08, 2024

Exhibition	Commissions and IAB Meetings	National Evening

Tuesday July 09, 2024

Exhibition	Commissions and IAB Meetings	IIW BoD Dinner

Wednesday July 10, 2024

Exhibition	Commissions and IAB Meetings	Gala Banquet

Thursday July 11, 2024

Exhibition	Commissions and IAB Meetings	International Conference	Welding Show	Social Event

Friday July 12, 2024

Exhibition	Administrative Meetings	International Conference	Social Event

IIW Strategy 2023-2028

Vision

The leading global welding community linking industry, research and education

Mission

Advance welding and joining through a worldwide network

IIW Core Values

- ***Committed to the advancement of welding and joining for a safer and sustainable world***
- ***Operates based on mutual respect for diversity, culture and languages***

Objectives

1. ***Improve IIW visibility through communication and marketing***
2. ***Expand industrial relevance of IIW by sharing fundamental and applied research, best practices, and through standardization***
3. ***Increase the value of IIW to its community and all stakeholders***
4. ***Improve and expand our IAB system to meet the needs of industry and the global welding community***
5. ***Optimize organizational and management structure to ensure it meets IIW stakeholders expanding needs***

Many thanks for your attention

International Institute of Welding

Join to the Future

The best International provider of certification and best practices: ensuring the highest standards for all welding projects with global scope and impact

www.iiwelding.org