EMERGING WATER LEADERS FORUM | 14 AUGUST 2024

OUTCOMES REPORT

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Content

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About this Outcomes Report

This report presents proceedings from the presentations and discussions from the 6th Emerging Water Leaders Forum. The report includes summaries of the sessions. The information and views set out in this report do not necessarily reflect the official opinion of the International Water Association (IWA) and its Young Water Professionals (YWPs) community.

About the Emerging Water Leaders Forum (EWLF)

The Emerging Water Leaders (EWL) Forum (hereinafter stated as EWLF or "Forum") is organised by the IWA Secretariat in collaboration with the IWA YWPs Steering Committee and a specific programme committee selected among the IWA YWPs members (the "Programme Committee"). The Forum is an open platform for young and emerging water leaders, IWA members and non-IWA members, to collaboratively explore and contribute to discussions about the water and sanitation sector and its future. The Forum sets an open platform for young people to connect with their peers from all around the world, share professional experiences and highlight the critical responsibility of YWPs working on solutions for the challenges within the water sector.

6th EWLF Rationale and Structure

The 2024 edition of the EWLF took place during the IWA World Water Congress & Exhibition in Toronto, Canada, on Wednesday, 14 August 2024. This year's theme, **"Harnessing Data and AI to Address and Solve Global Water Challenges,"** was at the forefront of discussions, highlighting the critical role of digital tools, such as Artificial Intelligence (AI), in revolutionizing water management and governance. As the global community continues to grapple with the multifaceted challenges of climate change, population growth, increasing resource demands, and economic pressures, the integration of AI and data-driven solutions has proven to be indispensable for

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optimizing water processes, ensuring sustainability, and enhancing management efficiency.

In a rapidly evolving landscape where digital divide concerns, data misinterpretation, and ethical considerations pose significant hurdles, the EWLF underscored the essential contributions of both young and seasoned professionals in navigating these complexities. The forum facilitated in-depth discussions on effectively integrating AI and digital solutions into traditional water management practices to meet current and future water challenges, while spotlighting the significant role that YWPs play in driving this digital transformation. The forum revolved around pivotal sub-themes:

- **Leadership Development:** The Forum empowered YWPs to assume leadership roles in the water sector by leveraging AI and data-driven insights. Participants explored strategies for fostering collaboration, sharing knowledge, and advocating for safe water practices, thereby showcasing their leadership potential.
- **Sustainability and Resilience:** Discussions focused on the development and implementation of innovative, climate-resilient solutions that ensure equitable access to water for all communities, with a particular emphasis on mitigating potential biases in AI and data management.
- **Innovation in Water Technologies:** The Forum delved into the latest advancements in water technologies, including AI, IoT, and blockchain, while addressing the skill gaps and career opportunities for YWPs in the burgeoning field of AI and digital solutions.

In terms of format and structure, the EWLF featured a series of engaging sessions, including panel discussions led by thought leaders from academia, industry,

and government. These sessions explored critical themes and provided key insights into the future of water management in the digital era. Interactive workshops offered participants the opportunity to develop practical skills relevant to the digital transformation of the water sector. Additionally, the Forum facilitated valuable networking opportunities, enabling participants to connect with mentors and peers, exchange innovative ideas, and build collaborative relationships.

The Forum successfully empowered the next generation of water leaders by equipping them with the knowledge and skills necessary to tackle global water challenges through the integration of AI and digital solutions. Participants left the Forum with a deeper understanding of the critical role of data and AI in water management and a renewed commitment to driving innovation and sustainability within the sector.

Programme Committee

The Forum was shaped and steered by a Programme Committee, composed of members of the IWA YWPs Community. The complete list of Programme Committee members is available below:

Name	Affiliation	Country
Jacob Amengor (Chair)	IWA YWPs Steering Committee 2022-2024/IWA YWPs Ghana Chapter	Ghana
Cynthia Odili	IWA YWPs Nigeria Chapter	Nigeria
Fahrudin Sidik	Chung Yuan Christian University	Chinese Taipei
Frances Amoye	IWA YWPs Canada Chapter	Canada
Francisca Braga	IWA YWPs Denmark Chapter	Denmark
Hayat Raza	IWA YWPs Canada Chapter	Canada
Irene Mas Martin	IWA YWPs USA Chapter/Grundfos	United States
Leo Huang	IWA YWPs USA Chapter/Xylem	Canada
Mahmudul Hasan	IWA YWPs USA Chapter	United States
Mendy Zibuyile Shozi	IWA YWPs South Africa Chapter	South Africa
Rita Nishimwe	IWA YWPs Rwanda Chapter	Rwanda
Ximena Quiroz	SUNASS/ADERASA	Peru

Additionally, support from the IWA Secretariat was provided by Daniela Bemfica (Director of Strategic Programmes and Membership Engagement), Dr Samuela Guida (Manager of Strategic Programmes and Membership Engagement), Dr Isabela Espindola (Membership Engagement Senior Officer), and the members of the IWA YWP Steering Committee. Alyina Hashmi (Pakistan), Xorse Doe-Bansah (Ghana) and Frances Amoye (Canada) were the YWPs rapporteurs during the event.

Attendance and participation

Attendance at the Forum was open to all participants of the IWA World Water Congress and Exhibition. However, the event targeted YWPs as its main audience. Over 83 delegates attended the Forum; 51.8% of participants identified themselves as females, and 48.2% as male.

In terms of regional distribution, 43% of the participants were from North America, 24% from Europe, 12% from Asia, 8% from Latin America and the Caribbean, 7% from Africa, 2% from Oceania and 2% delegates did not inform their region. The complete list of the delegates' regions is available below (Figure 1):

Figure 1 – Percentage of participants per region

- North America — 43%
- Europe — 24%
- Asia — 12%
- Latin America and the Caribbean — 8%
- Africa — 7%
- Oceania — 2%
- Not informed — 2%
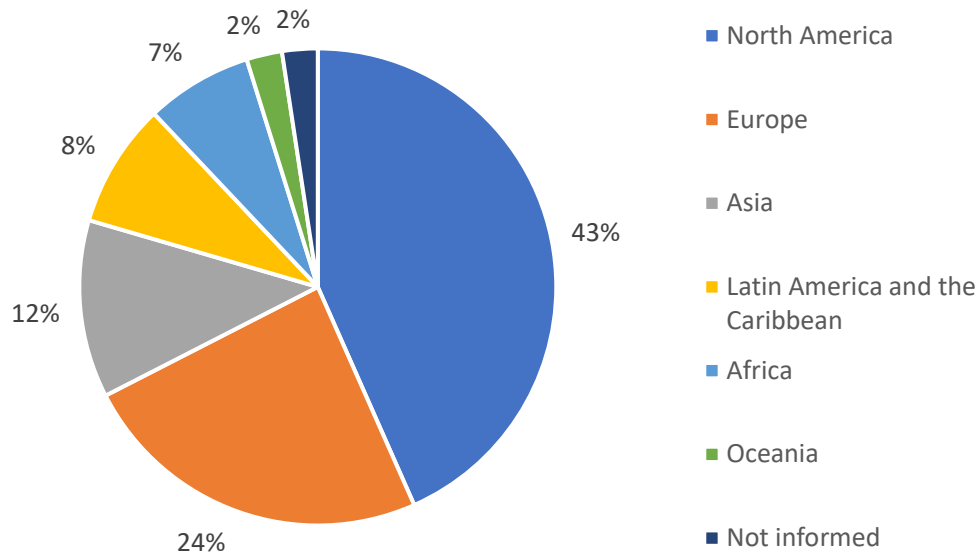
The participants represented a diverse array of organisations within the water sector. Figure 2 presents the types of organisations from which the delegates informed that they were from.

Figure 2 - Percentage of participants per type of organisation
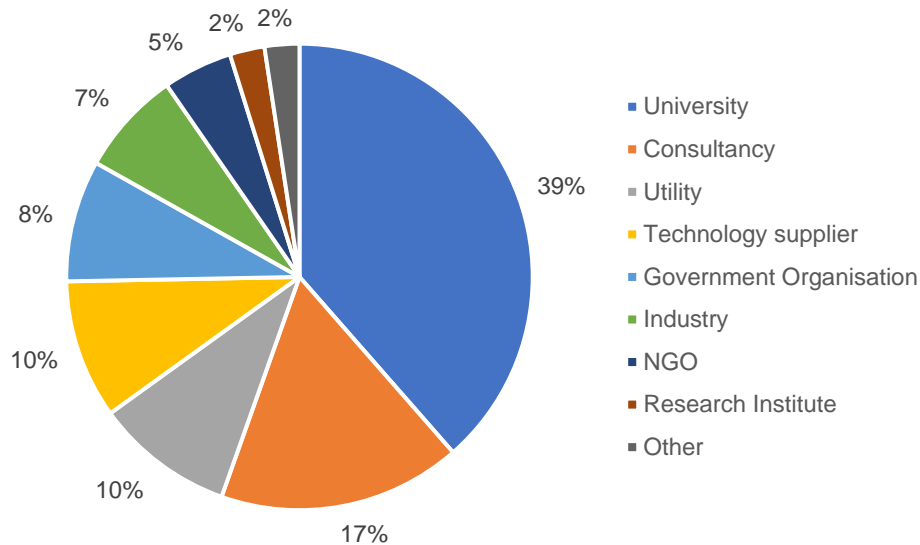

The largest group of respondents (39%) were from universities, reflecting the significant presence of students and researchers. Consultancy firms were the next most represented category, with 17% of the participants; 10% of the participants informed that they were connected to utility companies. Similarly, 10% of the delegates replied that they work for technology suppliers. Government organisations were represented by 8% of the participants.

The industry sector contributed with 7% of the participants to the event. Meanwhile, 5% of the participants are affiliated with non-governmental organisations (NGOs); 2% of the participants work for research institutes. Additionally, 2% of the respondents indicated that they worked for other types of organisations not specifically listed, reflecting the broad and diverse nature of the water sector.

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Overall Programme

09:45 - 10:30 Registration, Informal Networking & Challenge

10:30 - 10:50 Opening and Welcome Remarks

- Jacob Amengor, IWA YWPs Steering Committee Chair, Ghana
- Tom Mollenkopf, IWA President, Australia

10:50 - 11:00 Chapter of the Year Initiative

- Jacob Amengor, IWA YWPs Steering Committee Chair, Ghana
- Isabela Espindola, IWA Secretariat, Brazil

11:00 - 11:35 Updates from the IWA YWP Chapters

11:35 - 12:00 Keynote Plenary

- Wim Audenaert, AM-Team, Belgium

12:00 - 13:30 Lunch Break

13:30 - 15:00 Panel Discussion "Is digitalisation creating career opportunities for YWP? if so, how?"

- Clifford Braimah, Ghana Water Limited, Ghana
- Jackie Fortin Flefil, Xylem, United States
- Krisztian Mark Balla, Grundfos/IWA & Grundfos Youth Fellow, Denmark
- Marina Batalini de Macedo, IWA Digital Water Steering Committee/IWA & Grundfos Youth Fellow, Brazil
- Paul Chuo, Stantec, Chinese Taipei

15:00 - 15:30 Break

15:30 - 16:50 Workshop "Empowering Young Water Professionals for a Sustainable Digital Future"

- Preparing for the Digital Age: Essential Skills and Experiences
- Integrating Data and AI in the Water Sector: Identifying Disruptions and Innovations
- Bridging Generational Gaps: Leveraging AI and Data for Collaborative Solutions
- Evaluating AI and Data: Pros and Cons from a Young Professional's Perspective
- Fostering Equity: Using AI and Data to Reduce Disparities Among Water Sector Stakeholders

16:50 - 17:00 Final Remarks

Chelsea Hayward, IWA YWPs Steering Committee Chair, Australia

Session reports

This section encapsulates the rapporteurs overarching perspectives on the Forum. It serves as a concise summary of the discussions conducted during the event by the participants. It is important to note that these perspectives are personal and do not reflect the official institutional stance of IWA. Furthermore, they do not constitute a formal call to action but rather aim to provide insights and reflections based on the Forum's deliberations.

- *Welcome remarks, IWA YWP Chapter updated and Chapter of the Year*

The EWL Forum started with welcome remarks from the IWA President and the IWA YWP Steering Committee Chair. Tom Mollenkopf, IWA President, began by setting the tone for the event, highlighting the crucial role YWPs play in the water sector, particularly in the context of advancing technology and artificial intelligence (AI). He noted that YWPs have a unique opportunity to influence and manage the integration of AI within the industry. However, he cautioned against losing the human element amidst technological advancement by referencing a well-known Marvel character, suggesting that AI's potential could be harnessed for good instead of evil. He further emphasised the need to embrace technological advancements without

losing touch with our humanity. Mollenkopf effectively set the stage for the first part of the Forum, aligning the theme of the session with the broader context of technology and AI. His remarks underscored the increasing importance of young water professionals in shaping the future of the water industry, particularly in an era where digital transformation is becoming ever more critical.

- *Keynote Session - "What it Means Using Data and AI to Solve Today's Water Challenges" by Wim Audenaert, Belgium*

The keynote session focused on the potential of digital tools and AI to address contemporary water challenges, questioning whether AI is merely a hype or holds substantial promise. It also explored the nature of digital transformation and how it differs from past technological shifts in our society. Wim Audenaert's presentation examined the evolving landscape of human competence alongside advancements in computing capabilities. He argued that while computing power is projected to surpass human capabilities in many areas, this evolution should not be viewed in a one-dimensional way. Human capabilities are also evolving, especially when technology is leveraged to empower individuals. Audenaert emphasised the solid business case for digitalisation, asserting that it is more than just hype and will inevitably succeed.

He highlighted the shift in AI application, noting that where data was once collected merely to run a plant, AI now adds a "computer brain" that uses this data to optimise plant operations. Audenaert also distinguished between knowledge-driven models, which require human expertise, and data-driven models, which do not. He advocated for the complementary use of both, particularly in asset management where knowledge-driven approaches have proven successful, such as in the mature market of leak detection. The session acknowledged significant challenges facing the water industry, which are being felt by consumers more acutely than ever. These challenges include a workforce leaving the industry, new working methods, stringent regulations, changing influent loads, and increasingly rapid changes.

Audenaert recommended that the industry prepare for change by improving communication and training to enhance technology and market readiness. He also stressed the need for more published case studies demonstrating the tangible benefits of AI in the water sector. Audenaert remarked that the discourse around AI often misses the point of empowering people, noting that human capabilities will rise alongside technological advancements. He firmly stated, "Digitalisation will eventually work, it is not just hype." He also encouraged young water professionals to embrace innovation and take risks, stressing the importance of understanding AI's potential even without being a coder.

Questions from the audience touched on topics such as the necessary skillset for hiring in the water sector, dealing with water use for cooling data centres, the affordability of digital tools for the developing world, and the potential vulnerabilities posed by over-reliance on digital tools. Audenaert suggested criteria for distinguishing between valuable AI and mere hype, advising that data quality should be scrutinised before application and that a clear business case should underpin AI initiatives.

Audenaert delivered a compelling keynote address, peeling back the layers of hype surrounding AI to focus on its realistic implications for the water industry. His insights provided a clear roadmap for young water professionals to navigate the complexities of AI, reinforcing the importance of staying informed and embracing digitalisation while maintaining a human-centred approach.

- *Panel "Is Digitalisation Creating Career Opportunities for YWP? If So, How?"*

The panel discussion aimed to explore the ways in which digitalisation is creating career opportunities for YWPs and the skills required to harness these opportunities effectively. The session began with an introduction by Hayat Raza, who highlighted the rapid pace of technological development and the improvements in processing power that can be harnessed for the water sector.

The panellists discussed various aspects of digitalisation, including its benefits and potential drawbacks. Clifford shared examples of how technology can be beneficial, such as in real-time monitoring for water management. He emphasised the need to study the on-ground situation and engage users to find opportunities for technological interventions. Marina argued that while there may be potential negative impacts of digitalisation, these can be mitigated if YWPs are well-prepared and understand the limitations, biases, and uncertainties involved. She also highlighted the availability of vast amounts of data that can be used to develop and calibrate models, particularly in low-income countries where sensor data is scarce. Jackie stressed the importance of data collection skills, particularly in understanding the technology available and how to manage large quantities of data effectively. She also noted the rising importance of programming skills, including machine learning and GIS for data visualisation. Krizstian added that while digital tools are valuable, creative and hands-on skills should not be neglected.

The discussion identified several challenges, including resistance to change from senior professionals and certain utility companies, the ethics of AI, and the need for skill development among YWPs with regard to AI. Paul suggested that training and development programmes for YWPs should focus on relevant skills such as coding over traditional tools like AUTOCAD. He encouraged YWPs to seek out opportunities for hands-on experience, both within their companies and through external courses. Krizstian emphasised the importance of fostering a culture of innovation within organisations, sharing an anecdote about how he created a culture of acceptance through lunch lectures on new tools and techniques.

Clifford underscored the importance of understanding the relationship between technology and operations in water management. Jackie highlighted the value of data visualisation, stating, "putting data on a map is very valuable and unlocks insights into the system that can be very actionable." Paul reminded the audience that innovation

often requires risk-taking, and Krizstian encouraged YWPs to embrace new technologies.

The panel discussion offered a rich exploration of the career opportunities emerging from digitalisation in the water sector. The panellists provided a balanced view of both the potential benefits and the challenges associated with adopting new technologies. The emphasis on practical skills, innovation, and ethical considerations was particularly relevant for YWPs aiming to position themselves as leaders in a rapidly evolving industry.

- *Discussion & Workshop - "Empowering Young Water Professionals for a Sustainable Digital Future"*

The workshop aimed to empower YWPs by exploring the integration of AI and digitalisation into water management, focusing on the skills needed for a sustainable future. The workshop employed a World Café format, with participants rotating among different tables to discuss various themes related to AI and digitalisation in the water sector. This format encouraged a collaborative atmosphere, allowing participants to delve into complex issues in depth. Table 1 discussed how AI is currently being integrated into water sector innovations, noting the ability of AI to enhance traditional water quality models, making them more robust. Table 2 examined the digital skills YWPs need to develop to thrive in the industry, emphasising stakeholder engagement and continuous learning. Table 3 explored how AI and data can help reduce disparities among stakeholders, stressing the importance of local-level initiatives and the slow pace of legislative development. Table 4 addressed the generational gap in AI adoption, highlighting the importance of collaboration between younger and older professionals. Finally, Table 5 analysed the pros and cons of AI from a YWP perspective, recognising its efficiency but also acknowledging the risks associated with data vulnerability and disparities in technology access.

The discussions underscored the global nature of these challenges and the need for tailored solutions that consider local contexts. The insights gained from this workshop will be invaluable for YWPs as they navigate the digital transformation of the water sector.

Post-event survey

The Programme Committee of the Forum and the IWA Secretariat conducted a survey from 28 August 2024 to 5 September 2024 to understand how the participants experienced the content and activities at the Forum. The survey addressed the following key areas: (a) the participant's experiences pre-event, (b) the participant's onsite experiences, and (c) the ideas for similar events in the future. 10% of the participants replies to the survey. Although only a small percentage of the participants responded to the survey, we were able to draw valuable conclusions by analysing the key highlights and lowlights of the event, which will help inform potential future topics and improvements.

- **Highlights of the event**

Respondents provided a range of feedback on the highlights they experienced during the forum. The respondents referenced the keynote speeches, particularly by Wim Audenaert and Marina Batalini de Macedo, as standout moments. Audenaert's keynote was praised for addressing the balance between digitalisation and the core value of mechanistic models, discussing how hybrid models combining data-driven approaches with mechanistic ones can offer a robust solution for digital transformation in the water sector. This reflects growing interest in the role of digital technology and AI in the future of water management and innovation. Marina's encouragement to adopt new technologies to enhance professional work was also appreciated, as it resonated with the theme of embracing innovation within the water industry.

The workshop sessions held in the afternoon received positive feedback, with respondents praising the interactive nature of the activities. Group discussions, particularly table-separated discussions, were noted for encouraging dialogue and fostering meaningful engagement among participants. Meeting new people and building connections was mentioned as one of the highlights, showcasing the value placed on professional networking during the Forum. This aligns with the respondents' earlier feedback on the significance of networking opportunities as a key factor for attending the event. One respondent expressed their gratitude to Isabela Espindola and the whole IWA team for organising an impactful event. This suggests that the overall coordination and execution of the Forum were recognised and appreciated by participants.

- **Lowlights of the event**

While many respondents had no significant criticisms, a few key areas for improvement were mentioned. One participant felt that some events seemed rushed, indicating that there may have been time constraints or a packed agenda that limited the depth of certain sessions. This suggests that future events could benefit from more carefully balanced scheduling to ensure that all segments receive adequate time for discussion and interaction. One feedback suggested that the roundtable discussions could have included more time for questions from the audience. These points to a potential need for greater interactivity and audience participation during specific segments of the event.

Another respondent noted that there were not a lot of non-YWP participants. This may reflect a desire for a more diverse audience, including senior professionals or stakeholders outside the YWP community, which could enhance the exchange of ideas and perspectives. However, the EWL Forum is an event shaped by and for YWPs. Expanding the audience would mean losing the scope and objective.

- **What kind of speakers would you like to see at future Forums?**

Participants shared insights into the types of speakers they would like to see at future EWLF. The feedback indicates a strong preference for a mix of young professionals and senior leaders, with an emphasis on relatable and diverse perspectives. There is a notable interest in hearing from young professionals who are just transitioning out of the 'Young Professional' (YP) stage (around 35 years old). These speakers would be relatable to the audience, sharing recent experiences and offering mentorship. Their proximity to the YP experience can provide valuable guidance to current YWPs navigating similar challenges.

Respondents expressed a desire for speakers from both industry and academia, ensuring a balance of practical and theoretical insights. This would include YWPs working in diverse roles, as well as senior professionals who can provide broader perspectives and strategic insights. One participant specifically mentioned an interest in hearing from regulators in Latin America, highlighting the importance of regional diversity in speaker representation. This points to the need for speakers who can offer insights into different regulatory environments and water challenges around the world.

There is also interest in hearing from C-level executives and utility managers, indicating that participants value strategic leadership insights and operational perspectives from the highest levels of organisations. This suggests that future forums should aim to bring in senior decision-makers who can speak to large-scale transformation in the water sector. One participant suggested having more speakers from IWA Specialist Groups (SGs), who can share their expertise and encourage YWPs to engage in their work. This underscores the potential to bridge the gap between the wider IWA community and the younger professionals through increased interaction and involvement.

Another theme was the desire for speakers from a variety of roles (engineering, business management, utility leadership) and levels of seniority, including YWPs in high-level jobs. This variety would allow attendees to gain insights into different career paths and organisational roles, while also receiving advice from more seasoned professionals.

- **What topics/themes would you like to see more of?**

Respondents provided suggestions on topics and themes they would like to see more of in future EWLF. The responses demonstrate a diverse set of interests, with a focus on innovative solutions, climate resilience, digitalisation, and mentorship opportunities.

The responses highlighted the need for more content focused on climate resilience and nature-based solutions in the water sector. These themes are particularly relevant as the global water sector adapts to the impacts of climate change. Respondents are interested in exploring how water professionals can implement sustainable, adaptive approaches to managing water resources in the face of climate uncertainty.

The theme of innovation is important to many respondents. Topics such as new research, groundbreaking innovations in the water and sanitation sector, and emerging issues like PFAs (per- and polyfluoroalkyl substances) were mentioned. This reflects an interest in learning about cutting-edge developments and the latest technological advancements shaping the future of water management.

Integrated Water Resource Management (IWRM) is another key topic of interest, particularly in the context of climate resilience. IWRM involves managing water resources in a coordinated and sustainable way, considering environmental, social, and economic factors. Attendees are keen to learn more about how this framework can be applied to enhance resilience and adaptability in water management.

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Respondents are interested in learning more about the opportunities available for YWPs within IWA and the broader water sector. This includes exploring "entry points" for YWPs participation in IWA bodies such as Specialist Groups. Additionally, the desire to see more discussions on how YWPs can drive innovation within their organisations indicates a need for content that empowers young professionals and facilitates their career development.

There is interest in hearing about the mentorship programs available to YWPs, as well as real-life examples of success stories from YWPs who have made a significant impact in their workspaces. This suggests that mentorship is seen as a valuable tool for professional growth, and attendees would like to see more structured programs and discussions on its benefits.

Additional information

- Event Webpage: https://iwa-network.org/events/6th-iwa-emerging-water-leaders-forum/
- Related content: https://iwa-network.org/young-water-professionals/