

How to motivate people to take up a career in the nuclear field: a major mission of Women in Nuclear (WiN) Europe

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1. Introduction

Nuclear energy production is facing a very difficult period.

Only a few weeks ago, many countries had accepted that nuclear energy would have to be an important part of their energy mix. The world had been talking about the nuclear renaissance. All over the world, the nuclear industry was recruiting new employees and young professionals, more than any other energy industry. New contracts were being signed, partnerships were forming, new power plants were starting to be built. And then, Fukushima happened...almost 25 years day to day after another major nuclear accident, Chernobyl. Even if it is far too early to draw all the lessons from the Japanese nuclear crisis, we already know that this event is going to reshape the nuclear industry and its development for the years to come.

Before Fukushima, the nuclear industry was already focusing on human resources development and renewal to prevent a shortage of employees in the years to come. However, discussions with young people about their motivation to take up nuclear careers showed a general lack of knowledge about nuclear technologies and little interest in studying sciences. Now, the context has changed and is more difficult.

The nuclear industry needs to rethink its approach. The fear of nuclear activities was already present but now it will be a major issue for recruitment. For many years the professional experts of the WiN network, around the world, have been focusing on improving the knowledge and understanding of nuclear technologies and applications particularly addressing women and young people. Through varied type of actions, our aim was to demystify nuclear energy and attract talents to a field that is often unknown and misunderstood.

The newly created WiN Europe is committed to enhancing and improving these efforts at the European level in order to take into account the consequences of the Japanese disaster on public acceptance, and human resources. The major issue that we need to focus on is the safety of Nuclear Power plants today and tomorrow.

The aim of this paper is first to rapidly present examples of the various actions that WiN Europe chapters have undertaken in their own countries. It will then explain how the newly created WiN Europe will build on this collective experience and exchange of best practices to forge a new communication strategy. Our objective is to respond efficiently to the concerns and questions raised by Fukushima.

2. Presentation of WiN Europe

The association and legal entity Women in Nuclear (WiN) Europe was founded in Budapest on October 2, 2010. It is composed of 12 European WiN Chapters: IAEA, Finland, France, Germany, Hungary, Romania, Slovenia, Sweden, Switzerland, Bulgaria and Spain representing a total of 1200 members. The association is eager to welcome new members.

WiN Europe is an association founded under French law, with its headquarters in Paris. It brings together female professionals working in the many applications of nuclear sciences and technologies such as energy, medicine, biology, agriculture, hydrology, environment, physics and chemistry research.

Benefiting from the cultural and geographical proximity of its members, WiN Europe aims to exchange experiences, ideas and best practices, in order to play an active role at the European level.

The principal objectives of WIN Europe are as follows:

- Communicating and increasing the awareness of the public, in particular of women and the young generation, of the benefits of nuclear technologies
- Encouraging scholarships in nuclear science, technologies and applications;
- Fostering education and training in engineering and nuclear fields;
- Facilitating access to the first job in these fields for young high school and university graduates, particularly women;
- Serving as mentors to new recruits in the nuclear sector;
- Increasing diversity and gender equality in the nuclear sector;

The members of WiN Europe have individually and collectively engaged in various initiatives to fulfil these objectives.

WiN Europe is a part of the international network of WiN Global, which has some 3,100 members from 80 countries.

3. Example of local actions

3.1 Awards

Many different types of awards are proposed. They aim to give the opportunity to children, students or young professional to show their interest in nuclear activities and to encourage them to further their studies in this field.

For example:

- For the young generation, WiN Romania holds two annual contests (a drawing and an essay contest) for young children with the collaboration of their teachers.
- In France, EDF and WiN France collaborate in the Fem'Energia award:

The goal of these awards is to encourage young women embracing scientific and technical careers in the nuclear industry to persevere in their choice and to realize their ambitions. The competition is open to students in different level of diploma and to young professionals. In 2011, this award is opened to all European professionals¹.

Whereas the first years of the awards attracted many candidates, this year the number of applicants is very low. It makes us wonder if we are already seeing the effects of the Fukushima disaster on the interest that young women are giving to the nuclear sector. We need to rethink our tools, our actions and our messages to the young people to take this into account.



Figure 1: 2010 Fem' Energia ceremony

During the annual “Workshop on Preserving Competence in Nuclear Technology”, organized by WiN Germany, the opportunity is given to upcoming young professionals to present their work to a professional audience. An award sponsored by Siempelkamp Nukleartechnik GmbH is given to the winner of the most outstanding presentation.

3.2 Events

WiN members regularly reach out to young people, students, parents and teachers.

In Germany: During the Nuclear Energy Campus, students are introduced to the world of nuclear technology. They are given information about relevant university programs as well as about work opportunities in the nuclear sector and tips for a successful job application.

¹ http://www.win-france.fr/images/stories/3-Carrieres/7_-_prix_femenergia/femenergia2011/20110221_-_dc_women_working_-_eng.pdf.zip

In Romania, female students from the Faculty of Journalism in Constanta are invited to participate in a seminar about nuclear power and energy mix alongside more than 200 pupils and teachers.

3.3 Communication to Teachers

The German Atomic Forum organizes every two years a meeting for university teachers. Invited are professors working in the area of nuclear technology at universities and advanced technical colleges as well as the suitable contacts of occupational academies. The aim of the event is *preserving competence in the nuclear technology* and the problems linked with it in the colleges as well as acquiring young students.

3.4 Outreach to children: Daughters' day In IAEA



Figure 2: IAEA Daughters' day

Since 2009, the WiN IAEA Chapter has participated in the organization of Daughters' Day. The main objective is to awaken young girls' interest in scientific subjects in general and to encourage them to seek non-traditional professions in any of the areas of in which the IAEA is active (the peaceful application of nuclear science and technology, nuclear safety and security and nuclear safeguards and verification).

3.5 Mentorship

Mentorship is an excellent way of encouraging and supporting young fellows, men and women, who are either starting a professional life in the nuclear field or studying to obtain the necessary academic degree. The role of the mentor, who could be a professional or a retired person from the nuclear sector is to advise on career development, on training options, on personal life organization and to transfer knowledge and experience.

WiN Europe offers a unique community of professionals all over Europe covering a wide range of expertise and careers and aims to set up an intra-European mentorship program. More information will be available on WiN Europe website.

Three mentorship programs are already running very successfully at a national level:

- In Germany, some "WiNners" are members of **CyberMentor** which is a Mentoring Programme for girls and women who are interested in MINT - mathematics, informatics, natural sciences and technology.
- WiN Sweden provides mentors for students studying nuclear engineering at Uppsala University. Mentors and mentees meet six times over the course year.
- For many years, WiN France members have mentored female students from the INSA engineering school in an initiative called "Marrainage".

And then Fukushima happened.

4. Fukushima Consequences

Even if it is too soon to identify the consequences of this event on recruitment and on the number of people attracted to our industry, the first signs show that the impact on the young generation and on the people that where considering to join the nuclear industry are substantial.

"I had a job interview 4 days after the Fukushima disaster to participate in the new projects of EPR NPP" told a young engineer to a French newspaper in April "while the nuclear industry exciting seemed to me, today I no longer consider that it has a future and I decided to turn down the job proposal"

Before Fukushima, the nuclear industry was quite attractive for young graduates in a difficult job market. The nuclear industry had launched a vast recruitment campaign: salaries and careers prospects were appealing. Today, the fear associated with nuclear power and environmental concerns will prevail over these benefits... It is this fear and these concerns that we need to address with new tools and messages.

First of all, we have to convey that instead of informing the public about nuclear power, we have to inform about radioactivity, the units of measure, half-life... This return to the basics of nuclear science is necessary to rebuild trust with the public. Indeed, from the moment we get up until we go to sleep we benefit, often unknowingly, from the many ingenious applications of radioisotope and radiations: in food and agriculture, in the detection and control of water supply, in medical science (Radioisotopes and radiation are widely used in medicine for the diagnosis and therapy of various medical conditions), in smoke detectors, in industry, in science. The nuclear industry does not only include power plants but also mining, enrichment, recycling or clean-up. All of these operations need qualify workers. We must explain and promote these fields that are often not very well known.

The future workers of the nuclear field are primary targets because it is necessary to have a good understanding of the basics of nuclear science to have confidence in this field. They will be able to make their decisions based on facts that they understand and that they will be able to explain to their friends, family and relations when they will be asked about their career choices.

Secondly, we must prove that our concern for exemplarity will be strengthened by this accident. People and especially students and young professionals need to believe that this accident will ultimately serve to reinforce the safety and security requirements of the nuclear power plants. This is a challenging and motivating task for all of us that are engaged in the nuclear industry and will increase even more our needs for skilled human resources.

Finally, the emphasis must be put on safety. Our industry must regain the trust of the public. We must explain that the new reactors built today possess passive systems that prevent accident like the one in Fukushima. The safety of older plants is being very regularly controlled and upgraded. What happened in Japan is going to reinforce the way operators work by highlighting the importance to put safety first and foremost. We need to constantly improve safety and we cannot reason only with regard to existing international standards: We must constantly search for better safety and for lessons learned from operating experiences. That is the challenge and motivation for today's and tomorrow's nuclear industry.

The members of WiN Europe can make a difference by explaining the safety measures taken in all nuclear applications and encouraging people to take up a career in the nuclear field. Through our actions like mentoring, participating in university and job forums, conferences, partnership with other institutions, we will convey our knowledge directly to the people we want to reach, by creating an exchange and relationship that is necessary to make our message heard and understood.

We will now present 3 actions that WiN Europe is developing.

5. WiN Europe Actions

5.1 Catalogue

In order to implement its objectives, WiN Europe is currently compiling a complete catalogue of the expertise of its members. It will be available to our partners, companies and institutions, organizers of conferences or anyone seeking expertise in a particular topic. Thank to this tool, WiN Europe will be able to quickly provide the requested expertise.

5.2 Partnerships

The objectives of WiN Europe (the promotion of nuclear energy, gender equality, reaching the younger generations,...) are also important concerns for nuclear companies, international

organizations, NGOs and Europeans governmental bodies like the European Commission. It is in collaborating with the other organisations, in exchanging ideas and best practices that the entire European community will succeed in developing an effective and credible communication strategy and will reach the widest population possible.

WiN Europe has been recognized as a NGO by the European Nuclear Energy Forum (ENEF) and is invited to participate in its workshops. An application to become an affiliate NGO of the IAEA has also been filed while contacts with the WNA are being looked at. A Memorandum of understanding has already been finalized with the European Nuclear Society. We are developing collaboration agreement with several companies like GDF-SUEZ, EDF or ANDRA (the French Radioactive Waste Management Agency).

In practical terms, what does this mean for WiN Europe? These agreements will give us credibility and visibility with the general public and the young generation in particular. Our members will contribute our expertise, know-how and competencies to finding solutions to diverse challenges and issues. The goals are to encourage a knowledge transfer to the young generation. WiN Europe has very strong links with young generation associations at local or European level. In France for example, WiN France and the French Nuclear Society-YG mutually invite each other to conferences and technical visits. WiN Europe is also affiliated with other female associations which aim to promote careers in the scientific world as the launching of WiN Europe in Brussels demonstrated.

We will be able to participate in events organized by these organisations and be proactive with the ability to initiate projects. We will have the opportunity to present ourselves and talk about the nuclear world in conferences for new employees for several companies. Lastly, we can provide our expertise to companies in term of gender action in their own firm.

5.3 Mentorship

This initiative is even more important today. We need to educate people by explaining to them. WiN mentors are experts that are able to explain to students what happened, why and what we can do about it. Part of their mission is to educate them about the accident and reassure them by giving them facts that are not biased by the media and supported by scientific knowledge. A key to prevent misunderstanding between the young generation and the nuclear industry is active communication. A lot of questions can be answered by the mentors thanks to this program.

WiN Europe will present a poster on this topic during the ENYGF later this week.

6. Conclusion

WiN Europe strives to share, to exchange and to build on the experience and best practices of all its members in order to improve its action. WiN Europe intervenes at very early levels, from school until university and beyond, providing information and life experience to young people, especially girls, encouraging them to consider nuclear activities as a possible sector for their future professional life and comforting them in their choices.

WiN Europe is conscious of the changes that the Fukushima accident will bring to the nuclear industry and that it will definitely impact how we can motivate people to take up a career in the nuclear field. This is why we are working to adapt our message and actions. Thanks to the support of major organisations which are partners to us, we have gained more credibility enabling us to reach out more easily. We are capitalizing on all our collaboration agreements to transfer the knowledge of our members to a wide range of people, one of our main targets being young professionals who are interested in joining our industry.

The nuclear industry is still a high tech industry with a promising future. Tightening the safety of this industry presents a wonderful challenge to be tackled by all of its workers. This is the message that we need to transmit to the young generation. Through its expertise, experience and collective tools, WiN Europe can provide an effective contribution in motivating people to take up a career in the nuclear field.