

WOMEN & GIRLS IN SCIENCE: WORKING TOGETHER TO FIX THE LEAKY PIPELINE

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Women in Science Switzerland Committee Member

On February 11, the world commemorated **International Day of Women and Girls in Science** – an occasion on which we are called together to recognise that future progress and sustainable development depends on unlocking the full potential, capabilities and ideas of women and girls in science. However, we are far off from reaching equality and parity. Women currently represent less than 30% of the research and development (R&D) workforce worldwide. In Switzerland, we barely surpass the average, with only 32% of R&D roles held by women (1). While the number of female students in the sciences is rising, only a small percentage of these women make it into academic careers, especially at the highest levels.

Currently, the biggest challenge facing women in science in Switzerland is the striking gender imbalance that exists at the highest rungs of the academic ladder: women only occupy 19% of all full professorships, and only 8% of academic institutions are led by women (2). A survey from the University of Lausanne (UNIL) found that the gender ratio of principal investigators was 75% male to 25% female - a shocking difference given that the ratio of postdoctoral researchers is equal (3). Where is the leak in the women in science pipeline?

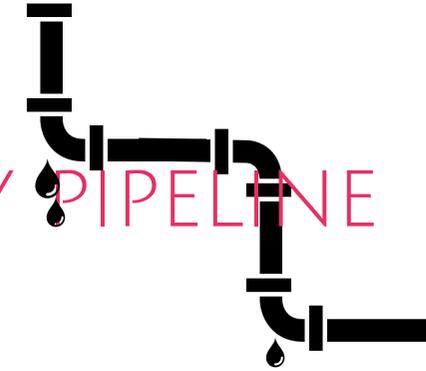
From the bench to the boardroom, women in science face pervasive discrimination. Despite advancements in recent decades, female researchers are still paid less, promoted less frequently, receive fewer grants and are more likely to abandon their careers when compared to men with similar qualifications (2). Gender bias, whether conscious or unconscious, is observed at many different levels, and can unfortunately break academic careers. Imagine, up to 67% - two of every three Europeans – believe that women do not possess the necessary capabilities to succeed in scientific positions (4). Not to mention a study from Yale that showed scientists rating job applications perceived candidates to be less competent when they had female names. Applicants with male names were not only more likely to be selected, but also to be offered higher starting salaries and more career mentoring (5).

As if gender bias was not enough, the National Academies' Committee on Women in Science, Engineering and Medicine, recently concluded that "somewhere in the range of 40 to 70 percent of women have experienced sexual harassment during their careers or as students", and that "this range of prevalence was strikingly consistent across different studies" (6). In a recent article in *Science*, sexual harassment is aptly defined as a "productivity tax," for female scientists, taking up unnecessary time and energy, and leading to the avoidance of co-authored manuscripts or joint grant applications with male colleagues (7). It also marks a major push factor for women to leave academia, ultimately amounting to a lost potential not only for the academic institution and the advancement of science itself, but also for the progression of women in science now and in the future.

Other studies have pointed out that the time when female researchers move from postgraduate training to higher level positions often coincides with the time for family planning decisions. This poses difficult career questions, made more challenging by the fact that scientific research is dominated by short-term contracts with poor job security. Indeed, children have significant impacts on career trajectories for women. Specifically, women with children are 35% less likely than men with children to attain tenure-track positions (8). Further, mothers in academia often face a "baby penalty," incurring losses to their salary, contributing to the gender wage gap (9).

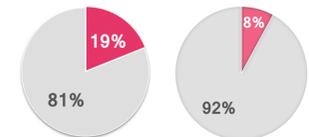
MOVING FORWARD: HOW DO WE FIX THE LEAK?

During my PhD and postgraduate studies in life sciences, the insidious nature of gender bias, discrimination and harassment was shocking, and unfortunately, all too nonchalant. Based on many discussions over the years with fellow female colleagues, I can say first hand that yes - the institutional and personal productivity tax is, lamentably, still being paid in Switzerland.

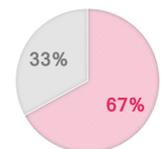


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But, there is hope!

THERE IS LIGHT AT THE END OF THE LEAKY PIPELINE




UNIL | Université de Lausanne
FREG – Fund for Research and Education in Genetics



More and more female researchers are coming forward and creating an essential dialogue about their challenges. In response, institutions must commit to creating safe spaces and mechanisms to incubate potential solutions that arise from this dialogue. To combat conscious and unconscious bias, discrimination and harassment, institutions should implement comprehensive training to students and staff at all levels. Institutions should also provide transparent criteria for the promotion of researchers and actively encourage more women to take on leadership and management roles. Finally, initiatives to support work-family balance can alleviate the toll on lost productivity for young parents – both male and female scientists alike.

However, institutions alone are not enough to catalyze effective change. We need wider and more diverse networks, working in collaboration to effectively dismantle the barriers facing girls and women in science. This requires an attitude change to challenge traditional and harmful stereotypes - not only at the institutional level, but crosscutting all domains from the classroom, to the laboratory, the boardroom, and importantly - in the home.

When reflecting with female colleagues about the most important modalities for tackling gender bias in our respective studies and careers, the clear common denominator was the active presence of female mentors. A key factor that inspires women to pursue scientific paths, and to remain in them, is having successful female role models who have pursued a similar career and met head on those challenges. Such mentors provide an aspirational roadmap, lend confidence, and most of all, create a critical sense of belonging.

This is where organisations such as Women in Science Switzerland can play a fundamental role. WiSS encourages active interactions and knowledge exchange between science and society through local educational initiatives for both adults and children, thus tackling prejudice head on. WiSS also provides a critical network of local, engaged female leaders and builds a platform for exchange, collaboration, and mentorship.

At a recent WiSS luncheon, an undergraduate female student asked me if we could have lunch to discuss career options. I agreed and prepared some ideas. But, towards the end of our chatty lunch we hadn't reached the topic of jobs, so I asked about how I could help. She responded – "honestly, it is just nice to know another female scientist, and to get to eat lunch with her."

I understood. We are all social animals. We need to feel part of a tribe. We need to feel a sense of belonging, a reassurance that yes, this is where we are supposed to be. Women and girls belong in science, have the undeniable right to study science, work in science, and most importantly - lead in science. On February 11, we celebrate this right, and must come together as a global community to ensure that it is upheld.

WOMEN IN SCIENCE SWITZERLAND

Women in Science Switzerland (WiSS), managed by a dedicated Committee of women, creates a platform for scientific, corporate, philanthropic and other women to come together for stimulating dialogue, engagement and support.

The annual WiSS Lecture & Luncheon in autumn brings together the field of genetic research into the lives of women in the region by inviting highly successful and renowned female scientists living in the area to lecture on their research over lunch. WiSS is an initiative of the **Fund for Education and Research in Genetics (FREG)** housed at the University of Lausanne, that aims to foster stronger ties between the broader community and important research discoveries that impact humanity, the way we understand the world around us, and how we live our lives. Proceeds support community education, public lectures, scholarships for women researchers at the University of Lausanne and educational programs for children in genetics at l'Éprouvette.

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