

More women and girls needed in the sciences to solve world's biggest challenges

Many of the world's biggest problems may be going unsolved because too many women and girls are being discouraged from the sciences.

The role of science education in a changing world cannot be undervalued: it is [estimated](#) that fully 90 per cent of future jobs will require some form of ICT (information and communication technology) skills, and the fastest growing job categories are related to STEM (science, technology, engineering and mathematics), with recent studies indicating 58 million net new jobs, in areas such as data analysis, software development and data visualization.

But women and girls continue to be extremely under-represented in the sciences. [Data](#) from [UNESCO](#) (the UN's agency for education, science and culture) shows that less than a third of all female students choose STEM-related subjects in higher education, whilst just three per cent of women choose ICT subjects.

Artificial Intelligence (AI) is becoming an increasingly important field, where the diversity of those working on AI solutions has been identified as a crucial element in ensuring that they are free from bias. However, the World Economic Forum's Global Gender Gap Report shows that only 22 per cent of artificial intelligence professionals globally are female.

There are several reasons for the gender gap in the sciences, from the prioritization of boys' education, to gender biases and stereotypes, and the global digital divide, which disproportionately affects women and girls.

The extent to which the world is missing out on potential female scientific talent becomes all the more apparent if we look at some of the extraordinary contribution that women have made to advancing science, contributions that were often overlooked during their working lives, such as Marie Curie, computer pioneer Ada Lovelace, NASA scientist Katherine Johnson, and countless others more whose work continues to be overlooked.

This tradition of female scientific excellence continues today. For example, in South Africa, Kiara Nirghin has developed a unique super-absorbent polymer that holds hundreds of times its weight in water when stored in soil. Her discovery came about in response to severe droughts in the country, the worst in over 45 years. The cheap, biodegradable polymer is made entirely from waste, and increases the chance for plants to sustain growth by 84% during a drought and can increase food security by 73% in disaster-struck areas. In recognition of her work, Kiara has been awarded the Google Science Fair Grand Prize, and was one of UN Environment's regional Young Champions of the Earth finalists in 2018: she is still only 18 years old.

[Khayrath Mohamed Kombo](#) is even younger. At just 15, Khayrath, from Dar-es-Salaam joined more than 80 other girls, from 34 African countries, at the first Coding Camp in Addis Ababa, Ethiopia in August 2018. This was the launch of the [African Girls Can Code Initiative](#), a joint programme of the African Union Commission and the International Telecommunication Union. “When I heard about this I was excited, because my dream is to learn more things and expand my knowledge,” says Khayrath, who is the only girl in her computer science club at school. Over the four years of the programme, around 2000 girls will be trained as programmers, creators and designers, placing them on-track to take up education and careers in ICT and coding.

Whilst there are still many obstacles to women achieving their full potential in the sciences, Lisa Harvey Smith thinks that, for many women, the barriers are sociological and psychological, and are disappearing. Ms. Harvey Smith, who trained as an astronomer, is a Professor of Practice in Science Communication, and the Australian Government’s Ambassador for women in STEM.



Museum of Applied Arts and Sciences Sydney

Lisa Harvey-Smith, Australian Government’s Women in STEM Ambassador and Professor of Practice in Science Communication.

In an exclusive interview with the UN, which you can listen to here, Professor Harvey Smith said that, with the right mentoring, networks and support, women can “punch through the glass ceiling” and do “incredible work.” Referring to artificial intelligence tools, she added that we need to “design these with both men and women in mind, and with all areas of society and people from around the world to make sure that AI is representing the whole of the human race.”

The 2019 [International Day of Women in Science](#), on February 11, is shining a spotlight on this issue. UN [Secretary-General António Guterres](#) released a video to mark the day, in which he described the participation of women and girls in science as “vital” to achieving the [2030 Agenda for Sustainable](#)

[Development](#), because “the world cannot afford to miss out on the contributions of half our population.”

To help improve this situation, [UN Women](#) is working with the [UN Global Compact](#), the world’s largest corporate sustainability initiative, to call on the private sector to make a commitment to gender equality by signing up to the [Women’s Empowerment Principles](#), arguing that gender diversity helps business to perform better.

In a joint UN Women/UNESCO statement, the two UN agencies outlined ways that they are tackling the under-representation of women in science, through initiatives such as the [L’Oréal-UNESCO For Women in Science Programme](#), the [Organization for Women in Science for the Developing World](#), and the [STEM and Gender Advancement project](#).

Whilst there is still much to be done, major progress has been made in the past decade towards increasing access to education at all levels and increasing enrolment rates in schools, particularly for women and girls. When it comes to the part they have to play in the sciences, Professor Harvey Jones has a clear message: “Science and technology and mathematics are for you because you need to change the world. Women need to take their place at the top table of science, we need to use it for good to change the world for the better, and you can do it.”

[Million across Yemen ‘just a step away from famine’, with food available but inaccessible](#)

While nearly 10 million people across Yemen remain “just a step away from famine”, the United Nations Emergency Relief Coordinator has spoken of his deep concern that a large food storage depot on the outskirts of the crucial port city of Hudaydah, has been out of bounds since last September.

“Enough grain to feed 3.7 million people for a month has sat unused and possibly spoiling in silos at the mills for more than four months”, said Mark Lowcock, in a statement on the depot, known as the Red Sea Mills. “No-one gains anything from this, but millions of starving people suffer”.

The [World Food Programme](#) (WFP) alone, has 51,000 metric tons of wheat stored there, a quarter of its in-country wheat stock and enough to feed 3.7 million people for a month. WFP has been unable to access the Mills since September 2018 because of fighting.

These events are to be deplored –*UN Humanitarian Coordinator*

Last month two silos in the Government-controlled area were hit by mortar fire, probably destroying enough grain to feed hundreds of thousands of people for a month.

“These events are to be deplored” stressed Mr. Lowcock.

Access to the mills grows progressively more urgent as the longer they remain inaccessible, and the risk of grain spoilage is growing each day.

Citing security concerns, forces affiliated with the Houthi rebels, formally-known as Ansar Allah, have, to date, not allowed the UN to cross front lines to access the mills.

According to Mr. Lowcock, discussions continue with all parties. “I appreciate the genuine efforts that have been made on all sides to find a solution”, he said, “but it remains elusive”. He implored all parties “to finalize an agreement and facilitate access to the mills in the coming days”.

Meanwhile, the UN and its humanitarian partners are scaling up to reach 12 million people with emergency food assistance – a 50 per cent increase over 2018.

In December, the World Food Programme (WFP) reached a record 10 million people.

“We can save huge numbers of people, most of them in areas controlled by Ansar Allah” concluded Mr. Lowcock, “But we need more help to do that from the authorities who control these areas”.

Earlier this week, the Security Council stressed the “[vital importance](#)” of making progress towards a political agreement to end the conflict and “relieve the humanitarian suffering of the Yemeni people”.

‘Challenges remain’ implementing first steps of Stockholm peace deal

Meanwhile, in talks brokered by UN aimed at delivering the Hudaydah Agreement, which grew out of historic consultations between Government and Houthi leaders in Stockholm at the end of last year, challenges remain, the UN told correspondents in New York on Thursday.

The Redeployment Coordination Committee (RCC) met again, ending a session on Wednesday, which involves both sides, chaired by General Michael Lollesgaard, who is heading a team of UN observers and monitors, trying to negotiate the withdrawal of fighters from the Houthi-held port city, stabilize the fragile ceasefire, and open new humanitarian corridors.

“Nevertheless, challenges remain, not least the complex nature of the current frontlines,” said UN Spokesperson, Stephane Dujarric, adding that “to help overcome these issues, the RCC Chair tabled a proposal that proved acceptable, in principle, to both parties to move forward on the

implementation of the Hudaydah Agreement. A preliminary compromise was agreed, pending further consultation by the parties with their respective leaders.”

He added that “both parties have given a firm commitment to observe and enhance the ceasefire in the interim”.

[Mosul’s ‘3D contamination’ adds to challenges of deadly mine clearance work](#)

Demining and other explosives clearance operations are ongoing in former ISIL-held areas of Iraq, but the work is painstaking and even more dangerous because of “3D contamination”, the UN Mine Action Service ([UNMAS](#)) said on Thursday.

Government-led military campaigns and conflict to retake Iraq’s cities from the extremists, also known as Da’esh, displaced more than 5.8 million people between 2014 and 2017.

Many are still homeless or unable to return home because of what UNMAS calls “significant explosive hazard contamination” linked to airstrikes and improvised explosive devices left behind by ISIL and sometimes even planted on dead fighters.

7.6 million tonnes of debris to make safe, in Mosul alone

In Mosul alone, there is an estimated 7.6 million tonnes of debris from the fighting to make safe, UNMAS believes.

In Mosul, “people want to return home, but the Old City of Western Mosul, you cannot return home to...there is nothing”, said Pehr Lodhammar, Chief of UNMAS in Iraq.

He added: “We are looking at almost two million people who are still displaced outside of their homes, their towns, their villages and our work is to ensure that they can return. We are also looking at over 100,000 houses – of the 100,000 houses destroyed or damaged – potentially with explosives assets in them.”

The update on UNMAS’s work – which complements that of the Government of Iraq – coincides with the launch of an online [resource](#) showing the status of mine action in 19 countries and territories, along with current funding status and project proposals.

The 2019 Mine Action Portfolio “constitutes a solid and UN-vetted compilation of requests for assistance put together by affected countries”, according to UNMAS, with total needs amounting to \$495 million.

The highest funding requirement is in post-conflict zones including Iraq (\$265 million), Afghanistan (\$95 million) and Syria (\$50 million).

Speaking to journalists in Geneva, UNMAS Director Agnès Marcaillou, underlined the importance of her agency’s mission to ordinary people caught up in conflict.

“Mine action is about suffering, it’s about people waking up at night with nightmares,” she said. “It’s about kids who have their future jeopardized by disabilities; disabilities being mental health or physical disabilities. It’s about a country that cannot get back on its feet, cannot have all the tools they need to revive their economies because their lands are contaminated.”

In Iraq’s Mosul – a former ISIL stronghold – much of the Old City was damaged and destroyed during months of door-to-door fighting to drive out the extremists in 2017.

‘3D contamination’ an additional danger

Countless buildings were also booby-trapped, Mr Lodhammar explained, noting the additional complications caused by having to work in an urban setting with “3D contamination”, rather than a rural location, where mines are usually buried in the ground.

“In 2018 only, we removed close to 17,000 explosive assets,” he said. “2,000 of these – it’s a staggering amount – were improvised explosive devices; 2,000 devices with pressure plate fuse triggers, trip wires, infra-red devices, anti-lift devices, remote control devices – combinations of the five. This also included 782 suicide belts, many of them actually fitted on fallen ISIS fighters in debris, in rubble.”

When clearance operations started 18 months ago, finding unexploded devices was relatively straightforward, as they were scattered on the ground, the UNMAS Iraq chief noted.

Now, the operation is much more complicated, involving the use of camera-carrying drones to assess the dangers, and heavy plant machinery.

“What we are looking at now, is that we have to sift through the debris,” Mr. Lodhammar said, noting that it was likely to take at least another eight years before Mosul was cleared of danger to an acceptable level. “We have to sift through the rubble, we have to use mechanical equipment dig out parts of the rubble, spread it out evenly, inspect it and that takes a lot longer time.”

The presence of much larger explosive weapons is also significantly altering the work that UNMAS has to do.

This includes unearthing unexploded bombs dropped by coalition airstrikes

against ISIL, which are in many cases buried several metres deep in the earth.

“These are not mines any longer, an anti-personnel mine would have up to 230, 250 grammes of explosives in it,” Mr Lodhammar said. “Now we are looking at 10 to 20 kilos. People are getting injured yes, but there is also more of a tendency that people are actually getting killed by those devices rather than injured, because of the explosive weight, and the fact that many of them are within a container that is made of from metal, creating fragmentation.”

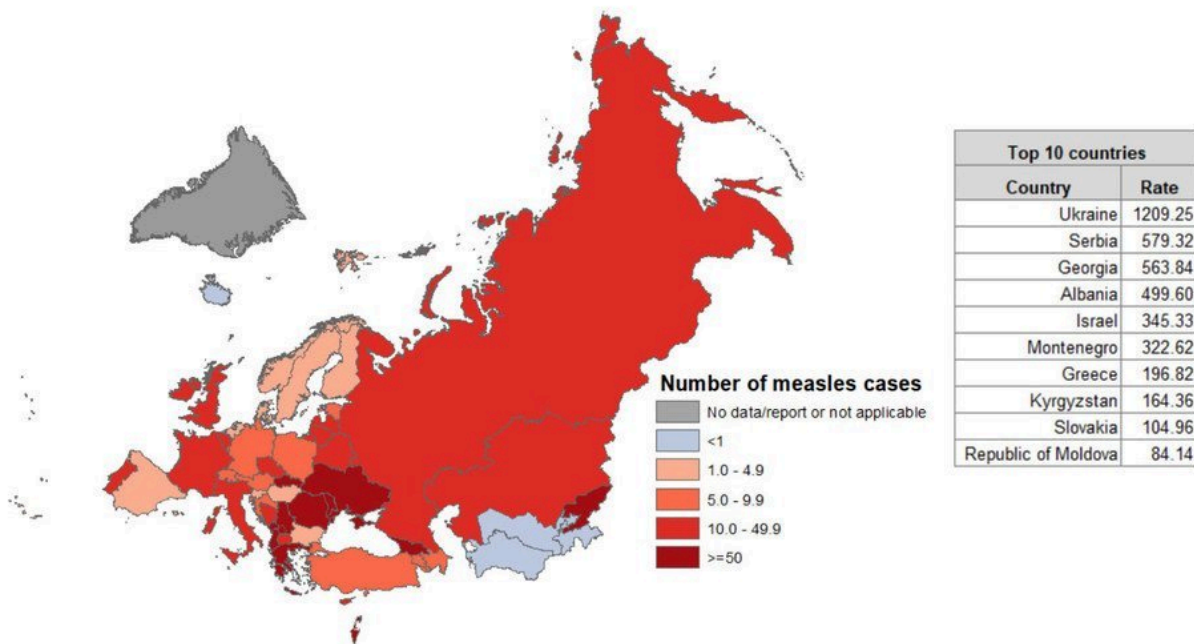
[Measles in Europe: infection rates highest in a decade, says UN health agency](#)

Although more children than ever before are being vaccinated against measles across Europe, overall infection rates are the highest in a decade, and a three-fold increase on last year, according to [new data](#) published on Thursday by the World Health Organization ([WHO](#)).

In 2018, measles killed 72 children and adults in the European Region, which consists of 53 countries, including Azerbaijan, Israel, Kazakhstan, Kyrgyzstan, Tajikistan, Turkey, Turkmenistan and Uzbekistan.

Close to 82,600 people in 47 of those 53 countries contracted the virus, representing the highest number of annual cases in the past decade: three times the total reported in 2017, and 15 times the record low, reported in 2016.

The biggest hotspot by far, is Ukraine with 53,218 reported cases in 2018, followed by Serbia with 5,076, Israel with 2,919, France with 2,913 and Italy with 2,517.



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate borderlines for which there may not yet be full agreement. © WHO 2019. All rights reserved.

*Data source: Monthly aggregated and case-based data reported by Member States to WHO/Europe or via ECDC/TESSy.

WHO 2019

Map of measles incidence rate per million in the WHO European Region, January–December 2018 (data as of 01 February 2019)

This surge in measles cases last year coincided with more children than ever before receiving their full two-dose vaccination in 2017, showing an estimated 90 per cent immunization coverage – the highest since records began in 2000. Coverage with just the first dose of the vaccine also increased slightly to 95 per cent, the highest level since 2013.

Forty-three European countries interrupted transmission of endemic measles for at least 12 months as of the end of 2017, showing that elimination of the disease is well within reach for the whole region.

WHO explained that this seeming contradiction between the record numbers of those being protected, as well as contracting the disease, can be explained by the fact that vaccination rates nationally, are not matched by major immunization gaps at a regional and local level.

“The picture for 2018 makes it clear that the current pace of progress in raising immunization rates will be insufficient to stop measles circulation,” said Dr. Zsuzsanna Jakab, Director of WHO’s Regional Office for Europe. “While data indicate exceptionally high immunization coverage at regional level, they also reflect a record number affected and killed by the disease”.

“Progress in achieving high national coverage is commendable,” added Dr. Nedret Emiroglu, who heads the Division of Health Emergencies and

Communicable Diseases for WHO Europe. “However, it cannot make us blind to the people and places that are still being missed. It is here that we must now concentrate increased efforts. We should never become complacent about our successes but continue to strive to reach the final mile. Together we can make this happen,” he stressed.

To prevent outbreaks and eliminate measles, WHO says countries need to sustain at least 95 per cent of national and sub-national immunization coverage with two doses of measles vaccine, as well as identify and target all pockets of under-immunization among their populations. This will ensure protection for everyone – including babies too young to be vaccinated and others who cannot be immunized due to existing diseases and medical conditions.

WHO has developed a [European Vaccine Action Plan for 2015 to 2020](#), which lays out a strategy endorsed by all the region’s 53 Member States to eliminate both measles and rubella.

[UN rights chief ‘deeply concerned’ over Jehovah’s Witness sentencing in Russia](#)

The sentencing in Russia of a Danish Jehovah’s Witness on Thursday to six years in prison on charges of “organising the activity of a banned extremist organisation” has been described as a “dangerous precedent” by the UN human rights chief.

[Michelle Bachelet](#), High Commissioner for Human Rights ([OHCHR](#)), said that she was deeply concerned by the sentencing of Dennis Christensen, who was first detained in May 2017, a month after Russia’s Supreme Court declared the Jehovah’s Witnesses – a United States-headquartered Christian denomination – an extremist group.

According news reports, the group numbers around 170,000 followers in Russia, with around eight million adherents worldwide. They are known for proselytising their faith door-to-door, detailed bible study and among the rules of membership are a rejection of blood transfusions, however serious the medical need, an a refusal to take part in military service.

The harsh sentence imposed...creates a dangerous precedent, and effectively criminalises the right to freedom of religion or belief, for Jehovah’s Witnesses in Russia – *UN rights chief Michelle Bachelet*

Christensen was accused of continuing to organize and work on behalf of the Jehovah's Witnesses in the city of Oryol, several hundred miles south of Moscow, despite knowing that the group had been outlawed by the State.

"Criminal cases have since then been opened against more than 100 members of the Jehovah's Witnesses, including at least 18 who are held in pre-trial detention," said Ms. Bachelet, [in a statement](#). "Others have been subjected to various measures of restraint, including house arrest and travel restrictions", she added.

The UN rights chief said that the "harsh sentence imposed on Christensen creates a dangerous precedent, and effectively criminalises the right to freedom of religion or belief, for Jehovah's Witnesses in Russia – in contravention of the State's obligations under the [International Covenant on Civil and Political Rights](#)."

"Various UN human rights bodies, including the UN Human Rights Committee and a number of UN Special Rapporteurs, have raised similar concerns in recent years."

The Russian Supreme Court has ordered the Jehovah's Witnesses to disband nationwide, and his arrest and sentencing, sets a clear precedent for other adherents who are being held, and awaiting sentencing, according to news reports. Christiansen had pleaded his innocence, stating that he was exercising his freedom of religion, guaranteed under Russia's constitution.

"We urge the Government of Russia to revise the Federal Law on Combating Extremist Activity with a view to clarifying the vague and open-ended definition of 'extremist activity', and ensuring that the definition requires an element of violence or hatred", said Ms. Bachelet.

"We also call on the authorities to drop charges against and to release all those detained for exercising their rights to freedom of religion or belief, the freedom of opinion and expression, and the right to freedom of peaceful assembly and association."