



Population, technology and research in the context of sustainable development

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Advances in technology and research have played a key role in furthering the implementation and monitoring of the Programme of Action of the International Conference on Population and Development and enhancing its contribution to the Sustainable Development Goals. At the same time, technological change has in some cases exacerbated inequalities and created new divides and challenges, compounded by a decline in aid related to technology, data systems, and research and development.

The following key messages draw on three reports of the Secretary-General submitted as inputs to the fifty-ninth session of the Commission on Population and Development, taking place from 13 to 17 April 2026 and focusing on the theme of “Population, technology and research in the context of sustainable development” ([E/CN.9/2026/2](#), [E/CN.9/2026/3](#) and [E/CN.9/2026/4](#)).

Ten key messages

1. Technology and research are powerful enablers of sustainable development.

Rapid advances in digital systems, artificial intelligence (AI), biotechnology and geospatial tools are transforming population data, health, education, labour markets and environmental management, creating opportunities to accelerate the implementation of the ICPD Programme of Action and the 2030 Agenda, provided that technological initiatives are safe and inclusive, guided by principles of human rights and equity, and governed in accordance with the Global Digital Compact.

2. Technology and research are transforming population data for inclusive planning.

Innovations in information and communications technologies have improved all stages of census operations, from digital data collection using tablets and online self-enumeration to advances in geospatial mapping and real-time insights from Big Data, such as mobile phone records. However, the adoption of such techniques remains uneven due to limitations of infrastructure and data security challenges. Moreover, 35 countries, mainly in Africa, Asia, and Latin America and the Caribbean, missed the 2020 census round, limiting the ability to identify and reach those most in need.

3. Demographic shifts are shaping technological needs and innovations.

Slower growth and rapid ageing of populations increase the demand for “gerontechnology” and robotics to support care systems. Conversely, rapid growth and youthful populations highlight the importance of STEM training and digital literacy to harness a potential demographic dividend following a decline in fertility rates. With nearly half of humanity already living in cities, and with cities expected to absorb two thirds of the global population growth between now and 2050, AI and geospatial analytics are key to the sustainable management of urban transport, public health and waste disposal.

4. Innovations are expanding access to sexual and reproductive healthcare.

New technologies, such as telemedicine, AI-assisted diagnostics and mobile health apps, are improving quality, personalization and reach in the delivery of sexual and reproductive healthcare, as seen in platforms in India, Rwanda, Estonia and Chile. Such tools enable earlier detection, better monitoring, and more confidential access to information and care. At the same time, innovations such as microneedle patches and self-administered injectables are expanding reproductive choice by reducing barriers in access to contraceptives.

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5. Use of assisted reproductive technology (ART) is growing but access is still limited.

As childbearing is increasingly postponed, the global demand for ART has risen rapidly, with over 10 million ART-conceived babies born worldwide between 1978 and 2018. However, access remains starkly unequal. ART is available in only about 100 countries due to high costs, limited public funding, inadequate infrastructure, shortage of skilled personnel and cultural or religious restrictions. Countries such as Belgium and Denmark offer equitable access through public funding that covers multiple ART cycles for eligible women, contributing to some of the world's highest ART utilization rates.

6. New technologies can have both positive and negative impacts on the environment.

While research and technology are essential for strengthening climate resilience and supporting the environmental sustainability of cities, the expansion of digital infrastructure increases energy use, resource extraction and e-waste. Achieving sustainability and combating climate change require strategic investments to decouple population increase and economic growth from environmental damage, including through the application of “circular economy” principles, which can improve efficiency, increase recycling and reduce waste.

7. Digital divides by gender, income and place of residence remain stark.

Deep digital divides persist globally. Only 39 per cent of people in the least developed countries use the Internet, compared to 93 per cent in high-income countries, and just 15 per cent of the global population has access to AI. Rural populations and women, especially in poorer countries, are disproportionately excluded. Women face greater risks of job disruption from AI while at the same time being underrepresented in technology sectors. Without urgent investment in digital access and skills and rapid adoption of gender-responsive policies, these gaps risk widening inequality, limiting opportunity and slowing development.

8. Inequalities in access to technology mirror disparities in research investment.

Research investment and outputs are heavily skewed, with G20 countries accounting for 90 per cent of global research expenditures, personnel, publications and patents. Sub-Saharan Africa has fewer than 100 researchers per million inhabitants, well under the global average of approximately 1,370 per million and far below countries like Denmark and the Republic of Korea with over 4,000 researchers per million inhabitants. These inequalities limit the ability of many nations to generate locally relevant knowledge and innovations. Bridging these gaps will require increased investment in education and research infrastructure and greater collaboration and cooperation between countries.

9. Prevalence of harms perpetrated online demands rights-based governance.

Technology is creating new and evolving risks, including technology-facilitated gender-based violence, cyberbullying, misinformation, harmful content and threats to privacy. Among women who use the Internet, 38 per cent report having experienced online harassment and abuse, while over a third of young people across multiple countries report being cyberbullied. These harms highlight that digital inclusion cannot be achieved without digital safety. Addressing these challenges requires strong governance frameworks, including global agreements to guide the design and deployment of technologies, as well as rights-based regulations to protect privacy, prevent data exploitation and ensure accountability.

10. Dwindling financial support is undermining advancement of the ICPD agenda.

Global aid for population programs fell by 12.6 per cent in 2024, with further cuts of up to 18 per cent projected for 2025. Official support for sexual and reproductive health declined from \$7.71 in 2022 to \$5.97 per woman in 2023. Funding for contraceptive research was down to \$107 million in 2023, having fallen every year by a total of \$51 million since 2019, with contributions from the pharmaceutical industry dropping by 69 per cent. Cuts in aid to support population data systems are undermining the statistical capacity needed to implement the 2030 round of censuses. Least developed countries, particularly in sub-Saharan Africa, remain the most vulnerable as they struggle with rising debt in a context of shrinking development assistance.



Prepared by the Population Division of the United Nations Department of Economic and Social Affairs (UN DESA). More work of the Population Division is available at population.un.org.