

Hitting the targets

The case for ethical and empowering
population policies to accelerate
progress towards the
Sustainable Development Goals

Introduction

10 years left to go – the international community must break its silence and tackle population growth if the Sustainable Development Goals are ever to be realised.

The United Nations' 17 Sustainable Development Goals (SDGs) aim to achieve decent lives for all on a healthy planet by 2030. As things stand in 2020, many of their targets are likely to be missed. By the end of 2020, 21 of the 169 Sustainable Development Goal targets will have matured. To date, only three out of these 21 have been met. The current forecast predicts the majority of goals will be missed by 2030¹.

There are many reasons for that – each Goal has its own drivers and obstacles, and a network of interrelationships between them (some positive, many negative) mean there are few simple answers and no magic bullets. This report does not argue that tackling population growth will solve our problems: what it does argue is that failure to address unsustainable population will prevent us from achieving many of those Goals, and that addressing population through ethical, empowering means will accelerate the progress of change.

We are not alone in this belief.

A growing body of evidence explicitly addresses the impact that continued population growth has on environmental crises, socio-economic development and people's lives. This brief report will highlight just a few examples in regard to individual Goals but one of the most significant overall assessments is contained in the *World Scientists' Warning to Humanity* of November 2017, endorsed by more than 20,000 scientists. It identified:

“continued rapid population growth as a primary driver behind many ecological and even societal threats”

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and called for necessary and globally beneficial policy measures to reduce fertility².

Recognition of the value of population growth mitigation measures in cutting across SDGs is increasing, albeit often framed simply in family planning terms. For example, the Health Policy Plus³ model (see below) shows how investing in family planning can speed up the pace of realising 13 Sustainable Development Goal indicators in a selection of West African countries. Welcome as this is, even this model does not yet include environmental Goals which are essential to long term prosperity and security for all.

The summaries in this report show how ethical, empowering population solutions, such as family planning, women's education and the choice to have smaller families are not just about individual rights and health, but must play a part – often an essential one – to realise all the Sustainable Development Goals.

These summaries contain a number of key messages. The first is that in many cases, “progress” in meeting goals masks the reality that population growth means the number of people suffering is static, or going up. We don't create a better world through percentages and proportions – if our efforts aren't leading to more people leading better lives, we are failing.

The second is that the issue of population is not simply one of population *growth* occurring where fertility rates are currently high. We are already exceeding the capacity of the Earth to supply our needs and maintain planetary health: the primary driver of that crisis is overconsumption in rich parts of the world where fertility rates are currently relatively low. Among other actions we can take, reducing the number of people being born into that unsustainable affluence benefits everyone, and,

crucially, provides the space for others to move out of poverty.

The final message is this: the solutions to population are for the most part – but not entirely – already embedded in the SDGs. If we pursue these more actively, we reap all the benefits they bring to individuals and communities, *and* we help achieve other goals. Solutions to population aren't, and must never be, coercive or in contradiction to people's human rights, and in particular women's rights. They are empowering, positive, and people want them – no poverty, decent education for all, access to modern family planning and women's empowerment.

A growing and unsustainable global population means overexploitation of natural resources, environmental destruction and unsustainable demand for land, food, water and energy. Growing numbers trap the poorest in poverty. To meet the SDGs, the international community must tackle population, ethically and effectively. As this report shows, it can.

1 NO POVERTY



High fertility rates and population growth can trap countries in poverty. Large family size and poverty often go hand-in-hand. People living in deprived areas are usually not empowered to choose the number of children they have and in some cases feel the need to have many so they can be provided for in their old age.

“Population growth is a symptom of economic insecurity, so unless you address it as an economic issue of justice, if you keep treating pregnancy as a disease needing a technological intervention, contraceptive pills, you never get it right because you will have to violate women’s reproductive rights”⁹.

Dr Vandana Shiva

Poverty has been declining but the rate of decline is slowing and the target is set to be missed. In 2019, the UN predicted that 6 percent of the world will be living in extreme poverty in 2030 but COVID-19 is expected to see this figure rise: an additional 71 million people will have been pushed into extreme poverty in 2020⁴.

Population growth means that *numbers* of people living in poverty do not go down as fast as the *proportion* of those living in poverty: indeed they can go up – 13 African countries are expected to see just such an increase of those in extreme poverty between now and 2030⁵. In June 2020, the World Bank forecast that the three countries which between them have a third of the world’s poor – Nigeria, India and the Democratic Republic of Congo – will not grow their economies faster than their populations: in the words of the Bank, “this is hardly enough for sustainable decreases in the poverty headcount”⁶.

The Health Policy + model demonstrates the value of investing in family planning in individual country scenarios. The model projects, for instance, that if the uptake of modern family planning in Malawi reaches 68% in 2050, 25% fewer of its citizens will live below the poverty line than if uptake is only 45%⁷. Modelling for Tanzania projects 4.3 million fewer people living in poverty by 2030 if family planning targets are met⁸.

The world’s poorest countries tend to have the largest family sizes, fertility rates and population growth¹⁰. When people have no economic security and cannot rely on their government and a social safety net, they often have children to provide additional sources of income or labour, and to ensure they will be looked after when they are older. Where child mortality is high, there is an even greater impetus to have more children. Poverty is also an obstacle to reducing family size. Poor families with large numbers of dependent children may perceive the need to take children out of education early, or marry off their daughters young. They will also often live in deprived communities where access to modern family planning is limited.

The positive, mutually reinforcing relationships between economic development, access to education and uptake of modern family planning in the poorest countries offer a route out of poverty¹¹.

If all of these methods are used in combination, they are most effective, and have secured dramatic reductions in fertility rates in many countries. Thailand, for instance, reduced its fertility rate by nearly 75% in just two generations with a targeted, creative and ethical family planning programme¹². Bangladesh has seen fertility rates fall from almost 7 children per women to 2.3 children over a 25-year family planning programme.

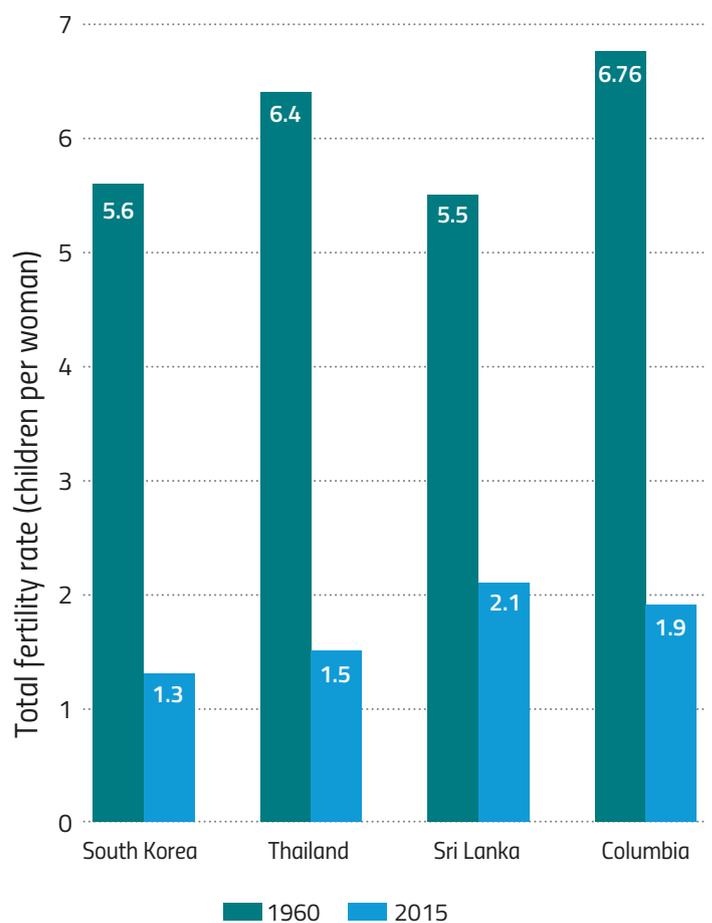


Both of these countries still have serious poverty issues to address, in part due to the effects of climate change. However, the capacity to increase the labour force and realise economic growth gains since the drops in fertility rates have been tremendous in the past 20 to 30 years. The World Bank’s assessments of Bangladesh cites between 2000 and 2016 “*Lower fertility rates, reaching almost replacement levels, have supported smaller household sizes and dependency ratios. A rapid transformation in the structure of economic activity has accompanied these changes*”. Per head extreme poverty dropped from 34.3% to 13% between 2000 and 2016¹³.

“My statement that ‘development is the best contraceptive’ became widely known and oft quoted. 20 years later I am inclined to reverse this, and my position now is that ‘contraception is the best development.’”

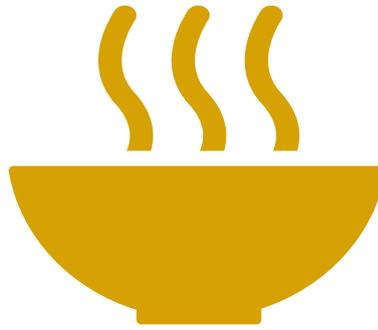
Karan Singh, Senior Indian politician

Fertility rates 1960 and 2015



Countries that have implemented successful, pro-active and ethical family planning campaigns. Combining female empowerment with facilitated access to contraception and good information is vital to bringing down birth rates.

2 ZERO HUNGER



Feeding the world without destroying more nature will become increasingly difficult and eventually impossible under sustained population growth. Agriculture is already a leading cause of environmental degradation and further conversion of land for farming purposes will have devastating consequences for biodiversity and our climate.

Food is a fundamental need: each one of us must have a certain amount of calories and nutrients for health. All other factors being equal, more people necessitates the production of more food. A 2018 report by the World Resources Institute concluded that 56% more food would be needed in 2050 than in 2010, with population growth driving “the majority of demand”¹⁴. This extra demand must be met while productive agricultural land is shrinking: in addition to the multiple threats posed by climate change¹⁵, 500 million people now live on land that has desertified since the 1980s¹⁶, and, according to a senior FAO official, soil erosion, unless unchecked, may mean we have less than 60 harvests left¹⁷. Agriculture accounts for 70% of global water use¹⁸ but water scarcity is growing (see below).

These are the challenges we face – and our baseline is that 37 million *more* people were undernourished in 2017 than in 2015¹⁹. In 2020, the UN News agency reported that hunger had “grown in step with increasing population” over the past five years. Africa is hardest hit with 19.1 per cent of its people undernourished. This is more than double the 8.3 per cent rate in Asia and 7.4 per cent in Latin America and the Caribbean²⁰.

Supplying food is not simply a matter of answering demand, however – if environmental SDGs are to be met, it must be done sustainably. Habitat destruction is the primary threat to biodiversity²¹ – 80% of extinction threats to mammals and birds are due to agriculture²². Meanwhile, deforestation and other land use changes driven by food demand increase emissions and reduce carbon sequestration and climate resilience²³.

The landmark 2019 EAT-Lancet Commission on feeding the world sustainably concluded that, with radical changes to food production and consumption, providing enough nutrition for everyone is possible²⁴. Critically, it also concluded that even these profound changes are unlikely to make it possible to feed everyone in just a generation or two from now if current population projections come true.

“Global population is expected to exceed 11 billion people by 2100 unless actions are taken to stabilise population growth. Healthy diets from sustainable food systems are possible for up to 10 billion people but becomes increasingly unlikely past this population threshold.”

EAT-Lancet Commission, 2019

The World Resources Institute’s “menu” of essential solutions for ensuring sustainable food supply includes securing replacement rate fertility as soon as possible²⁵.

3 GOOD HEALTH AND WELL-BEING



“High population growth can generate unsustainable demand for public sector services ... The capacity of the least developed countries to expand public sector services, such as education and health, is challenged by the rapidly increasing numbers of children and youth[.]”

UNDESA²⁶

Population growth requires investment in healthcare capacity, rather than healthcare quality, and therefore acts as a brake on the effectiveness of investment as defined by health outcomes. Today, only half of women in developing regions receive the healthcare they need²⁷.

Positive health outcomes also reduce population growth. Declining child mortality is associated with smaller family size²⁸ – and provision of reproductive health, enshrined in Target 3.7, is critical not just to health but achieving smaller populations through people’s choices. The proportion of women of reproductive age (aged 15-49 years) who have their need for family planning satisfied with modern methods has increased by just 2 percent since 2010 – from 75% to just 77% in 2020²⁹ – and because of population growth, the absolute number of women with an unmet need has grown: according to a study using data from 185 countries, in 2019 approximately 270 million women had an unmet need, up from 232 million in 1990. By 2030, this number is expected to rise to 272 million³⁰. Still almost half of all pregnancies³¹ are unintended, while more than 800 women die *every day*³² from causes related to pregnancy or childbirth. At present women in developing regions are 14 times more likely to die from childbirth than those in

developed nations³³, have increased unmet need for contraception, and an increased number of unsafe abortions and sexually transmitted infections³⁴.

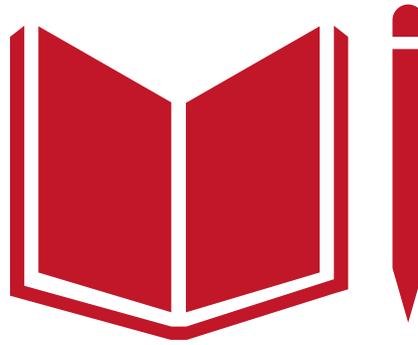
Provision of vital family planning services are under threat from multiple directions, including policy decisions such as the Trump Administration’s extension of the Global Gag Rule³⁵, and diversion of resources to tackle COVID-19.

COVID-19 also illustrates another threat to human health exacerbated by population growth: zoonotic diseases as a result of human encroachment on pristine natural environments exposing humans or domestic animals to hitherto unknown pathogens. In particular, deforestation for agriculture, infrastructure, resource extraction or to provide fuel is closely linked to population growth.

“As the human population grows, ecosystems change. Forests are exploited for logging, landscapes are clear-cut for agriculture and mining interests, and the traditional buffer zones – once separating humans from animals or from the pathogens that they harbour – are notably reduced or lost.”

UNEP, 2016³⁶

4 QUALITY EDUCATION



Population growth can cancel gains made in many spheres of development and education is one of them. Generally, the more years a woman spends in education, the smaller her family size.

Education is a fundamental right of every individual, and it is expensive: more children *require* more expenditure, and the burden falls most heavily where resources are already stretched. The United Nations has calculated that the annual costs for providing universal pre-school, primary and secondary education in developing countries and emerging economies will rise from US\$149 billion in 2012 to an estimated US\$340 billion by 2030³⁷. The global population of college-aged people (15-23), meanwhile, will grow from 715 million in 2015 to approximately 800 million by 2040³⁸.

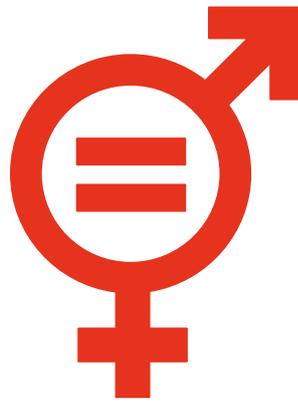
As this report identifies in many spheres, population growth also cancels gains made in provision or capacity: in the words of a 2020 UNICEF report, the drop in numbers of boys and girls out of school has “stagnated” since 2007: in sub-Saharan Africa, the number of girls out of secondary school has *increased* by 7 million due to the region’s population growth³⁹.

Education, however, is also a critical and empowering tool to address population growth. Where women and girls have economic empowerment, education and freedom, they choose to have smaller families. Greater freedom usually leads to greater uptake of family planning, and ending child marriage pushes back the age at which women have their first child which often reduces family size.

According to the International Institute for Applied Systems Analysis, African women with no education have, on average, 5.4 children; women who have completed secondary school have 2.7 and those who have a college education have 2.2. When family sizes are smaller, that also empowers women to gain education, take work and improve their economic opportunities. A World Bank assessment of Bangladesh amplifies this message, stating “*women’s educational gains have also supported better labor market options for women and increased female labor force participation, which in turn improved women’s fertility choices and empowerment within the household*”⁴⁰.



5 GENDER EQUALITY



Empowering women and girls to take control of their bodies and lives is crucial for solving our biggest social and environmental crises. Gender inequality is one of the main drivers of high fertility rates.

No country has achieved gender equality – which manifests itself in different ways to differing extremes all over the world. In countries with the greatest gender inequalities, women and girls are likely to be poorer, less educated, have less autonomy over their bodily rights and therefore more likely to have unmet needs for contraception.

To date, a quarter of all girls⁴¹ do not attend secondary school, and one in four girls aged 15-19 is neither employed nor in education or training, compared to only 1 in 10 boys of the same age⁴².

One in every five girls⁴³ is married, or in union, before turning 18. Child marriage is a violation of human rights and robs children of a bright future, yet it remains common practice in many parts of the world – to end child marriage by 2030, progress needs to be at least 12 times faster⁴⁴ than it is now.

“Some harmful practices that have received systematic attention in recent years, such as child marriage and female genital mutilation, are waning in countries where they have been most prevalent. Population growth, however, means that unless prevalence rates see a dramatic decline in the near future, a larger number of women and girls than ever before will endure such practices in the coming decades.”

UNFPA Against My Will State of the World Population 2020 Report

Empowering women means they have decision-making power regarding their health, contraceptive use and sex lives. Yet a report by the United Nations Population Fund (UNFPA)⁴⁵ found that almost half of women in 57 low- to middle-income countries have no decision-making power regarding their health, contraceptive use and sex lives. The authors point out that provision of sexual and reproductive health rights (SRHR) services is not enough and that governments must also focus on promoting women’s autonomy as without it, target 5.6 – universal access to SRHR – cannot be achieved.

Empowered women are likely to have smaller families, go to school and participate in education. Lowering fertility rates and access to modern contraception is a key part of the puzzle to closing the gender inequality gap. Sexual and reproductive health and rights are a key component of women’s empowerment, however, as outlined in the UNFPA’s latest *State of the World Population* report, they “cannot be fully realized in the absence of greater gender equality”⁴⁶.

“If we invest in girls and women, the world and all of the 17 Sustainable Development Goals will advance forward rapidly as a result.”

UNFPA Goodwill Ambassador Ashley Judd

For decades the sexual and reproductive rights movement has struggled to get the attention and investment it deserves. Whilst the feminist movement has made great strides in moving gender equality and rights up the global political agenda, policymakers have yet to fully embrace the role they play in the achievement of sustainability goals.

6 CLEAN WATER AND SANITATION



Climate change and population growth are fuelling a global shortage of water causing stress on supply and capacities of sewage structures to keep water clean. People living in impoverished, desertified areas continue to suffer from drought as well as sickness and death from unclean water sources; rich countries such as the UK face acute water stress in areas where populations are continuing to grow and wastewater treatment facilities are struggling to cope.

A new report by UNICEF and the World Health Organization reveals that a staggering 2.2 billion people around the world do not have safe drinking water and 4.2 billion lack safe sanitation services⁴⁷. Currently, around a quarter of the world's



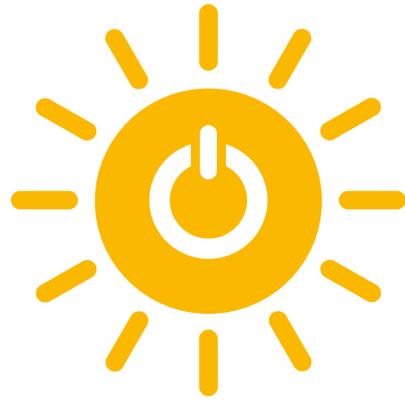
population live in areas facing “extreme water stress”⁴⁸. The Massachusetts Institute of Technology has calculated that by 2050, 5 billion people – more than half the global population – will live in water-stressed regions – meaning that they cannot rely on their water supplies to meet their needs⁴⁹.

Climate change and population growth are fuelling a global water crisis which affects not just drinking water, but, critically, sanitation. In the Sahel⁵⁰ – a desertifying and profoundly impoverished region that cuts across West Africa – around half a million people die from diarrhoeal disease and cholera each year. As the demand for water increases, the capacity to safely remove and dispose of sewage is increasingly compromised.

This isn't just an issue for the Global South. US States such as California, New Mexico and Arizona face high levels of water stress⁵¹, and in the UK, overexploitation and drought could lead to severe water shortages by mid-century. The UK population is expected to increase by more than 6 million people by 2041, with the fastest growth occurring in areas that are already the most water-stressed⁵². The country's 2019 biodiversity action plan stated “*The waste water treatment network across the UK is continuously being upgraded to ensure adequate capacity, however sustained population growth in particular regions of the UK places pressure on these areas.*”

Yet many solutions to address this focus on re-use and recycling of an already scarce resource. Failure to address the demand-side pressures will continue to place pressure on the capacity for clean water as populations increase.

7 AFFORDABLE AND CLEAN ENERGY



The number of people using dirty fuels is still increasing due to population growth and slow progress in rolling out renewable energy. High-income countries must lead the way in transitioning to clean fuels and support low-income countries to do the same. Ending population growth will make a global switch to affordable and clean energy a lot more achievable.

The US Environmental Information Administration projects increased energy demand globally of 50% by 2050⁵³. Rising demand is a consequence of increased economic activity and increased population and requires increased capacity, efficiency and productivity of alternatives to “dirty” energy. In the words of the IEA, *“The momentum behind clean energy technologies is not enough to offset the effects of an expanding global economy*

*and growing population”*⁵⁴. In these circumstances, continued expansion in the use of fossil fuels is inevitable: BP anticipates that although alternative sources will be the main supplier of energy by 2040, global demand for hydrocarbons could nevertheless increase by up to 30%⁵⁵.

Meanwhile, at the domestic level, gains in achieving this goal are again offset by population growth: according to the UN, *“the absolute number of people relying on polluting fuels and technologies for cooking has actually increased, reaching an estimated 3 billion people”*⁵⁶. In sub-Saharan Africa population growth between 2014 and 2018 outstripped growth in access to clean cooking fuels by an average of 18 million people each year. Current forecasts predict 2.3 billion people will still be deprived of access to clean cooking fuels and technologies by 2030⁵⁷.



8 DECENT WORK AND ECONOMIC GROWTH



A high number of young dependents makes economic prosperity almost impossible and is also a recipe for social unrest for the poorest countries. For rich countries, growth for growth's sake is incompatible with environmental sustainability. These nations need to rethink their pace of growth to enable them to meet international climate targets, whilst also fostering social and human development.

Economic growth is both a right and a necessity for developing countries. It is essential to develop social protection systems, health, education and infrastructure, for people to realise their potential and increase health, well-being and living standards. Population growth can, and does, cancel its benefits.

"The high population is exerting a lot of pressure on our economy. As a country we have made tremendous gains over the years but the impact is not reflected on our economy because the gains have been dissipated by population growth."

Goodall Gondwe, Minister of Finance, Malawi, 2017⁵⁸

In particular, reduced birth rate is essential for countries to harvest their 'demographic dividend' – that is the point at which fertility rates slow down enough to create a smaller proportion of dependents and a higher proportion of the population of working age. The demographic dividend is not just about demographics – education and investment in human capital are also critical⁵⁹ – but the demographic change is a prerequisite. In sub-Saharan Africa, the median age of the entire population is just 19 years old. In Niger, the country with the world's highest fertility rate, the median age is just 15.3 years⁶⁰.

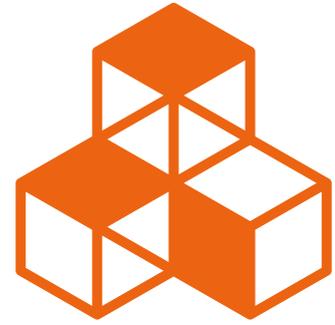
For developed nations the pursuit of economic growth is, however, in direct conflict with other SDGs, in particular in regard to environmental impact. According to Hickel et al (2018),⁶¹ decoupling (i.e. economic growth without corresponding environmental impact) must occur **seven times faster** than existing rates in high income countries over the previous 43 years. The researchers suggest that in reality achieving the decouple rates set out in SDG 8 and meeting the Paris climate target of 2%, requires developed nations to in effect scale down economic growth to 0.45% per year⁶². Developed nations need to consider degrowth – to grow at a slower pace to allow for social and human development without inflicting further ecological and environmental damage on resources.

"Anyone who believes in indefinite growth of anything physical on a physically finite planet is either a madman or an economist."

Kenneth Boulding, economist

Such deep changes in our economic structures are not easy or quick to accomplish, however. For high income countries to degrow to ease the impact on the environment and for poorer countries to harvest demographic dividends, it is essential that demand as well as supply of resources is considered – population growth being a key and fundamental driver of those demands.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



The larger the population, the harder it is to provide access to modern infrastructure and technologies to everyone, and the more nature we will destroy in the process. Conversion of land to human infrastructure is a key driver of biodiversity loss, and construction is a major source of greenhouse gases.

Increasing population demands increased infrastructure – water, sewerage, energy generation and distribution, transport, and housing and work spaces. In addition to the challenge of answering demand, buildings and construction have enormous climate change effects (responsible for almost 40% of greenhouse gas emissions in 2017⁶³). Infrastructure demands finite and renewable resources, and it has a potentially “devastating” impact on biodiversity⁶⁴.

To examine just one resource, the OECD forecasts that in the next four decades, construction demand for sand and gravel will almost double to cater for the world’s growing population and rising living standards – reaching 50 billion tonnes per year. The UN Environment Programme has described the scale of sand and gravel extraction as “one of the major sustainability challenges of the 21st century”⁶⁵.

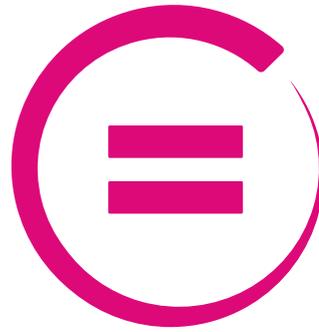
Infrastructure development also drives biodiversity loss. Land used for human habitation has doubled since 1992⁶⁶. Meanwhile, a recent report estimates that by just 2030, industrial activities will disturb an estimated 99 percent of ape ranges in Asia, while dams constructed to increase “clean” hydropower capacity are likely to result in habitat fragmentation and loss across Africa and Asia and cause long-term

effects on river ecosystems⁶⁷. The expansion of roads in South Asia is increasingly threatening the survival of tigers. Only 4,000 remain in the wild today and 40% of tiger habitat has been lost over the last 15 years alone⁶⁸. Infrastructure impacts are far from limited to the Global South – the controversial HS2 rail network in the UK for instance, is thought to threaten more than 30 ancient woodlands⁶⁹.

Innovation is core to human progress but in most circumstances, the additional demands of population growth make it more difficult for innovation to solve the problem and fill the gap, whatever it might be in a particular case – from wind turbines to GM crops. For instance, yields for many previously successful GM crops are insufficient and struggling to keep up with projected demand⁷⁰.

Nor should it be assumed that innovation or increases in efficiency lead to reduced resource use. A 2017 study by the Massachusetts Institute evaluated the use of raw materials such as crude oil and silicon, and found that greater efficiencies led to price reductions, making commodities more affordable and increasing their demand and usage. They investigated more than 60 materials, and found that only six were decreasing in consumption⁷¹.

10 REDUCED INEQUALITIES



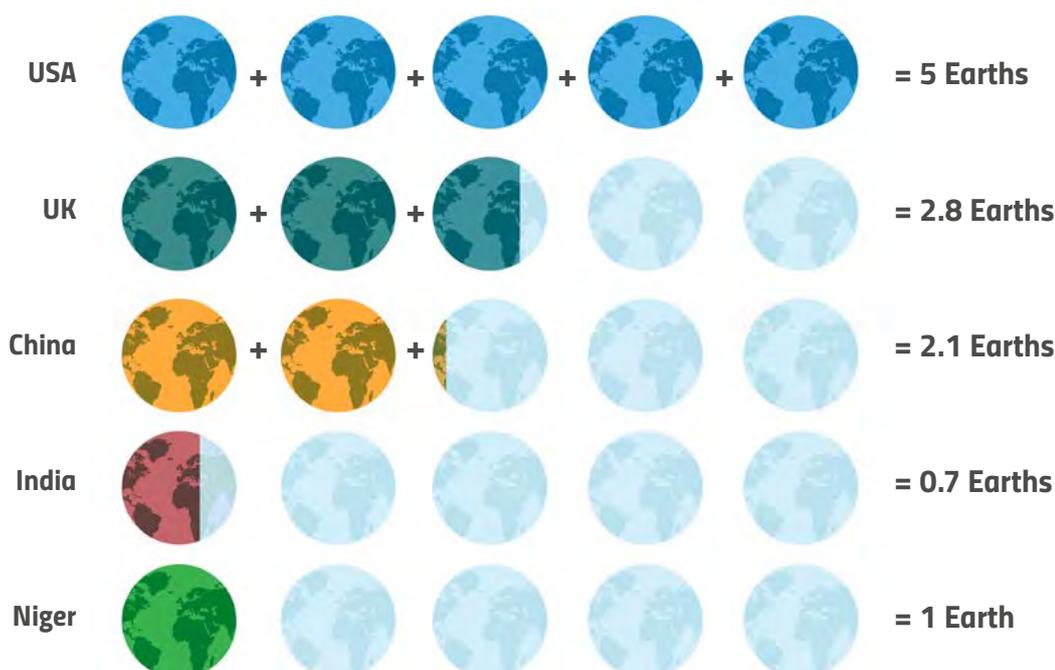
We have only one Earth. Today, the 7.8bn people on it are using more of its resources than it can provide. Every new person is a new consumer, adding to that demand. Some of us take far more than others and there are many steps we must take to make our consumption sustainable – adding fewer new consumers everywhere is one of them.

Resource scarcity can and does exacerbate inequalities, but the responsibility for addressing inequality lies with those who are the most affluent and advantaged. Pressures from population growth in poorer countries must never be used as an excuse for failing to provide aid and trade on fair terms, or permitted to absolve those in richer countries from their obligations to ensure greater global justice.

Where affluence is high, in addition to the essential measure of reducing per capita consumption, reducing the number of future consumers is an effective, permanent way of reducing the drain they place on resources, as well as their environmental impact. It is imperative therefore to encourage smaller family sizes in high-income countries.

Societal norms regarding family size also exist in developed nations. The barriers to access modern contraception also exist albeit to a lesser degree. It is crucial that women, couples and girls have the information and choice to consider the benefits of having smaller families. Population solutions do not apply only to poorer nations.

Consumption of the Earth's resources



Number of Earths needed if everyone used renewable resources at the same rate as these individual countries. Source: Global Footprint Network, 2018

11 SUSTAINABLE CITIES AND COMMUNITIES



A sustainable city needs to be able to fulfil the needs and aspirations of all. As populations grow, the numbers of climate and rural-poor migrants are increasing every day, causing rises in pockets of extreme poverty and slum dwellings.

The UN's report on progress for this target states that *“Between 1990 and 2016, the proportion of the global urban population living in slums fell from 46 to 23 per cent. This progress was largely offset by internal population growth and rural-urban migration.”* In fact, the number of people living in slums has grown: from an estimated 792 million in 2000, to over 1 billion in 2016⁷².

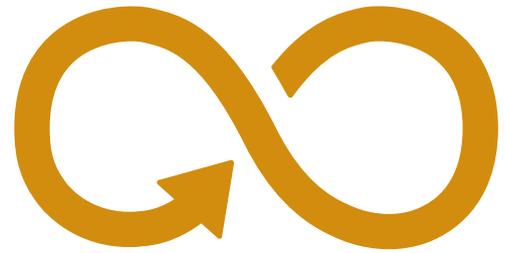
Sustainable cities will be harder to achieve for the millions of rural poor migrating to urban slums across the developing world outstripping the pace at

which infrastructure such as clean water, sanitation, health, jobs and education can be offered. The poor in highly-densely populated areas are getting poorer. Bangladesh is seeing increases in extreme poverty for the first time in several years in urban areas. The World Bank reports that in 2030 half the country's poor will be living in urban areas⁷³.

With half the world already living in a city⁷⁴ – the impacts of drought and deforestation due to climate change will see upsurges in climate refugees seeking better lives in urban areas. It is vital therefore that a sustainable city is more than just green transport and lighting – it must also invest in diversified employment opportunities, sustained levels of education for women and young girls and provide access to life-saving family planning methods.



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



Material footprint per capita in high-income countries is 60% higher than in upper-middle-income countries and more than 13 times the level of low-income countries.

United Nations

All human beings are consumers. To put this into numbers, global material footprint grew from 73.2 billion tonnes in 2010 to 85.9 billion tonnes in 2017, an increase of 17.4 per cent⁷⁵. Global levels of consumption are driven by the combination of population and per capita consumption. Ending grotesquely unsustainable levels of per capita consumption in the richest parts of the world (and by the richest people, in global terms) is the essential prerequisite of achieving this goal. However, the absolute increase in numbers of people and, critically, the movement of people from poverty to relative affluence also drives increased consumption: the minimal consumption levels of the poor are only unimportant if they stay poor.

The essential transition out of poverty enshrined in SDG 1 is the primary reason that average resource use per person is projected by the UN's International

Resource Panel to be 71 per cent higher than today in 2050⁷⁶. With population currently projected to increase by almost a quarter, according to the UN's medium projection⁷⁷, both population and per capita demand will increase over the next generation.

In addition to the finite resources whose faster depletion is inevitable when more consumers are added, the Earth also provides for our needs with renewable resources, such as timber, clean water and air, healthy soils and wild fish consumed for food. However, our demands are so great that we are now using those resources at 1.7 times the rate that the Earth can renew them. That rate has increased continually since the 1970s and, unless things change, we will require three Earths to supply our needs by 2050⁷⁸.

The UN's approach to this goal is primarily about behaviour change; asking nations to address the way consumers live and focussing on how we re-use and recycle existing scarce resources better. Without addressing population growth, nations will be constantly chasing their tails to trade off achievements in other goals – particularly the ability to grow which is still vital for the poorest countries.



We are currently using up the renewable resources of 1.7 Earths

Unless things change, we'll need three by 2050

Source: Global Footprint Network

13 CLIMATE ACTION



Unsustainable consumption patterns in high-income countries are largely responsible for the climate crisis but every additional person on our planet adds more emissions. Educating girls and providing family planning has been proven to be one of the most powerful ways to reduce atmospheric CO₂ by 2050.

Population and climate change are inextricably linked. Regardless of vast disparities in climate impact, every additional person increases carbon emissions — the rich far more than the poor — and increases the number of climate change victims — the poor far more than the rich. Those disparities are critical, however. An individual in the UK is responsible for 50 times the CO₂ of someone in Niger⁷⁹: the total fertility rate of Niger is more than three times that of the UK, yet the positive impact on emissions of one fewer birth in the UK is equivalent to 50 fewer births in Niger⁸⁰.

Population growth is also important because it affects the Earth's ability to withstand climate change and absorb emissions, such as through deforestation as land is converted for agricultural use to feed a growing, and increasingly affluent, human population. As it stands, the emissions of developing countries are up by 43.2 per cent from 2000 to 2013⁸¹ due in part to increased industrialization and enhanced economic output measured in terms of GDP. As is the case with consumption, the longer term impact of the poorest on climate change is only unimportant if they stay poor. If, as we must, we achieve SDGs 1, 2 and 8, that the number of people being born everywhere — rich and poor — in the immediate future will have a critical effect on their own and future generations.

A major and rolling international study commenced in 2017 identified practical policy measures that could be taken to minimise greenhouse gas emissions as quickly as possible. Project Drawdown analyses more than eighty policy options, such as plant-based diets, solar farms and electric vehicles⁸².

The original study identified family planning and educating girls as among the top 10 workable solutions to combat climate change. Its 2019 revision placed investment in health and education, because of their population effects, the second most powerful lever to reduce climate change after reducing food waste — at 85.42 gigatonnes CO₂ equivalent reduced and sequestered, of more value than all onshore and offshore wind power combined.

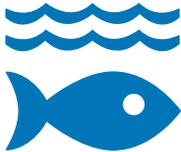
“Educating girls lays a foundation for vibrant lives for girls and women, their families, and their communities. It is also one of the most powerful levers available for avoiding emissions by curbing population growth. Women with more years of education have fewer and healthier children, and actively manage their reproductive health.”

Paul Hawken, Founder Project Drawdown

In 2019, 11,000 scientists endorsed the *Scientists' Warning of a Climate Emergency* which called for six “bold and drastic transformations” relating to energy, food, pollution, nature, economy and human population to avert the worst effects of climate change⁸³. The paper states:

“The world population must be stabilized—and, ideally, gradually reduced—within a framework that ensures social integrity.”

14 LIFE BELOW WATER



Human population growth is one of the main causes of biodiversity loss. To be truly effective in the long-term, conservation efforts must incorporate population solutions.

We are in the midst of a biodiversity crisis, now commonly referred to as the Sixth Mass Extinction. More than one million species are thought to be at risk of extinction,⁸⁴ and the rate of species loss is estimated to be orders of magnitude higher than it would be without the impact of human activity⁸⁵. In fact, the UN's latest progress report states the drastic reduction in human activity brought about by COVID-19 may be a chance for oceans to partially recuperate. The forecast for half of all marine activity is sobering, with 100–150% rise in ocean acidity projected by 2100⁸⁶. At present, only one third of countries are on track to achieve their national biodiversity targets⁸⁷.

The primary drivers of biodiversity loss are well-recognised:

- Habitat degradation/loss
- Overexploitation
- Invasive species and disease
- Pollution
- Climate change

Human population growth acts as a direct driver of all of these factors, except invasive species and disease (where it nevertheless can contribute due to human population movements).

Multiple authoritative studies and reports⁸⁸ have identified the role of population growth in driving biodiversity loss, including the 2017 Scientists Warning to Humanity. The most significant and high

15 LIFE ON LAND



profile of these is the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) global assessment, published in May 2019⁸⁹. The report identifies direct drivers of biodiversity loss such as those listed above, and the underlying indirect drivers. It clearly identifies population growth as one of the latter, alongside consumption patterns, technological innovation and governance. In its prescription for vital and urgent action, the IPBES states *“changes to the direct drivers of nature deterioration cannot be achieved without transformative change that simultaneously addresses the indirect drivers.”*

Programmes to protect biodiversity through reduction of population pressure are already being employed at the local level across the world. The Population Health Environment model recognises the synergies and mutual benefits of improving the conditions of human communities in achieving local conservation goals, including through the provision of family planning services to reduce local human population pressures on biodiversity⁹⁰. What IPBES teaches us is that fragmented local actions are not enough.

The IPBES Global Assessment is the body established precisely to advise governments on the necessary policy response to biodiversity loss. For these two goals to be truly realised requires policymakers and the environmental and development movements to come together to acknowledge the demand-supply side pressures being made on the planet's ecosystem. Policies which address both sides to this coin are critical but they require buy-in from environmentalists and development experts.

16



PEACE, JUSTICE AND STRONG INSTITUTIONS

“As economic and population growth increase levels of global consumption, many countries face growing shortages of vital renewable resources ... Depletion of renewable natural resources, combined with environmental degradation and climate change, pose fundamental threats to human security.”

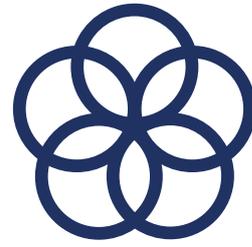
United Nations Interagency Framework Team for Preventive Action⁹¹

Educating and empowering women, including ensuring access to voluntary family planning services, can help support peace and stability goals by increasing the foundation for stability. And where families can choose the number and timing of their children, women may have more opportunity to take part in civil society and peacebuilding⁹². Providing education and employment opportunities are crucial to meet the aspirations and potential of young people around the world. A smaller population makes this easier to achieve and helps prevent pockets of social unrest.

In 2019, the number of people fleeing war, persecution and conflict exceeded 79.5 million, the highest level recorded since these statistics have been systematically collected⁹³.

Research shows that in the absence of economic growth and strong institutions, population growth contributes to conflicts related to scarce resources⁹⁴.

17



PARTNERSHIPS FOR THE GOALS

COVID-19 has presented unprecedented challenges for nations. It has the potential to reverse decades of development causing a deep global recession. Never has there been a more critical time for strengthening partnerships and securing the next ten years of collaboration for sustainable development.

As global economies contract in response to the COVID-19 pandemic and global inequalities grow within and between nations, greater investment and cross-sectoral partnerships are needed to address social and environmental challenges.

The Sustainable Development Goals set out to do this – with 10 years left to go, some nations and policymakers are choosing to retreat from working together. Protectionist trade agendas, stripping back overseas funding and redirecting funds to national interests overseas will not foster partnerships.

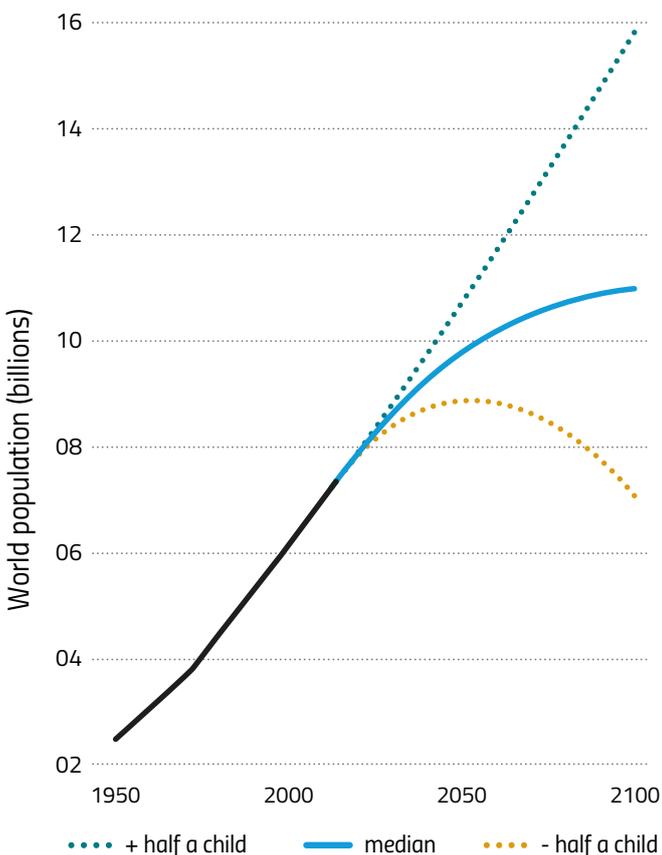
Common problems bring people together, and people are a common issue – our growth and projected impact will affect all the resources we all need. Action is needed in the next ten years of the SDGs and any future global development plan should address *global* population growth, so we can all live within our planetary boundaries.

Conclusion

We are currently adding more than 80 million people a year to our global population. The UN projects that without further action to address population growth, there will be two billion more people by 2050, and three-and-a-half billion more by 2100. It estimates just a one-in-four chance of our numbers reaching a peak before the end of this century⁹⁵.

This growth is not a given. The UN's main projection for future population is 10.9 billion people by 2100, based on assumptions about how large people's families will be across the world over the next 80 years. It also calculates that if, on average, every other family had just one fewer child than predicted ('half a child' less per family), there would be 1 billion fewer people by 2050 and our population would be lower than it is today by 2100. Small changes reap massive gain⁹⁶.

United Nations population projections to 2100



The 1994 Cairo Conference created a shift away from placing specific targets around demographic trends in favour of supporting a women's right to choose, an essential refocus at that point. It is understandable that, then and now, there is deep caution about discussion of population solutions. In the past, these have sometimes been undertaken without reference to or in flagrant breach of human rights and free choice, with devastating human consequences. It is time, however, to lay those ghosts to rest.

The Cairo paradigm shift goes some way to explaining why population or fertility is not mentioned explicitly in any of the SDGs' 169 targets⁹⁷ but that omission has not served those it may have sought to protect. Talking about tackling population growth is not about controlling the poorest or infringing on women's rights. In fact, it is the opposite. It is about empowering women and communities, educating them and making sure their rights to know how, when and if to have a family are central to economic policies. Population needs to be reinstated on the global agenda, to come out of the shadows and an exclusively individual 'rights-led' framework. While it must *never* be inconsistent with human rights, the value of ethical, empowering population action extends beyond individual benefits. It also derives an economic value. In 2018 the Copenhagen Consensus calculated that there would be a return of \$120 for every dollar spent if by 2030 there was universal access to sexual and reproductive health (SRH) services and the unmet need for modern contraception was eliminated by 2040⁹⁸. Today, there is still inadequate resourcing of these measures which is a social injustice, and a failure of the global community to recognise the human and socio-economic development value family planning represents to sustainable development.



Investing in ethical, choice-based approaches to reducing population growth and achieving a sustainable population is a much needed yet ignored factor in today's international policy dialogue. Too often population growth is couched or buried in general terms such as "family planning" and "empowerment" which obscure its importance and prevent the clarity of thinking and policymaking we need. If we want to see the absolute numbers of people, communities and habitats facing a survival crisis come down, population solutions must be more than about health indicators or individual rights, essential as those are. Achieving a sustainable global population matters. If we do, we can all have the dignity, security and wellbeing envisioned by the Sustainable Development Goals. We must not fail.

Call to action

We urge policymakers to speak plainly about population and elevate the value of empowering and ethical population policies to achieve progress across all the SDGs. Post 2030, voluntary, ethical and empowering means of achieving a sustainable population should be embedded in the framework which will replace the SDGs

To accelerate progress we ask policymakers to:

- defend and invest in the ethical population solutions already embedded within Goals 1, 3, 4 and 5.
- promote and publicise the value and importance of smaller family size, in wealthy and poor countries alike, in meeting the SDGs.
- ensure the value of ethical and empowering population action is recognised across all bodies and mechanisms intended to achieve the SDGs, including in multilateral environmental agreements.

Endnotes

- 1 <https://unstats.un.org/sdgs/report/2020/>
- 2 Ripple et al. and signatories from 180 countries (2017) World Scientists' Warning to Humanity: A Second Notice, Bioscience <https://academic.oup.com/bioscience/article/67/12/1026/4605229>
- 3 Achieving the Sustainable Development Goals Hinges on Family Planning, Health Policy Plus, by Onoriode Ezire, Olive Mtema, and Rahal Saeed Korejo <http://www.healthpolicyplus.com/WorldPop2017.cfm>
- 4 <https://unstats.un.org/sdgs/report/2020/goal-01/>
- 5 Brookings, 2018, Rethinking global poverty reduction in 2019 <https://www.brookings.edu/blog/future-development/2018/12/13/rethinking-global-poverty-reduction-in-2019/>
- 6 France 24, 9 June 2020, Elevated extreme poverty to persist through 2021: World Bank Nigeria, India and the Democratic Republic of Congo are predicted to have per-capita growth rates in real GDP of -0.8 percent, 2.1 percent and 0.3 percent, respectively, and population growth rates of 2.6 percent, 1.0 percent and 3.1 percent <https://www.france24.com/en/20200609-elevated-extreme-poverty-to-persist-through-2021-world-bank>
- 7 HP+ Policy Brief, 2017, Achieving Malawi's Sustainable Development Goals http://www.healthpolicyplus.com/ns/pubs/7176-7316_MalawiFPSDGBrief.pdf
- 8 HP+ Policy Brief, 2020, Accelerating progress towards the Sustainable Development goals in Tanzania http://www.healthpolicyplus.com/ns/pubs/17386-17702_TanzaniaSDGBrief.pdf
- 9 <https://www.freedomofresearch.org/population-development-an-exclusive-interview-with-dr-vandana-shiva/>
- 10 United Nations Population Division, 2019, World population prospects 2019: highlights https://population.un.org/wpp/Publications/Files/WPP2019_Highlights.pdf
- 11 Wietzke, 2020, Population and development review, Poverty, Inequality, and Fertility: The Contribution of Demographic Change to Global Poverty Reduction <https://onlinelibrary.wiley.com/doi/full/10.1111/padr.12317>
- 12 Population and Community Development Association (PDA), <https://pda.or.th/en/project-family-planning/>
- 13 Bangladesh Poverty Assessment: Facing old and new frontiers in poverty reduction, 2019 <http://documents.worldbank.org/curated/en/793121572582830383/pdf/Bangladesh-Poverty-Assessment-Facing-Old-and-New-Frontiers-in-Poverty-Reduction.pdf>
- 14 World Resources Institute, 2018, Creating a sustainable food future <https://www.wri.org/publication/creating-sustainable-food-future>
- 15 IPCC, 2019, Climate change and land, https://www.ipcc.ch/site/assets/uploads/2019/08/4.-SPM_Approved_Microsite_FINAL.pdf
- 16 *ibid*
- 17 Scientific American, 2014, <https://www.scientificamerican.com/article/only-60-years-of-farming-left-if-soil-degradation-continues/>
- 18 IPCC, 2019, Climate change and land
- 19 <https://sustainabledevelopment.un.org/sdg2>
- 20 https://news.un.org/en/story/2020/07/1068261?utm_source=UN+News+Newsletter&utm_campaign=d4bf3bfa9c-EMAIL_CAMPAIGN_2020_07_14_12_00&utm_medium=email&utm_term=0_fdb1af606-d4bf3bfa9c-106901929
- 21 WWF, 2018, Living planet report 2018 https://wwf.panda.org/knowledge_hub/all_publications/living_planet_report_2018/
- 22 EAT-Lancet Commission, 2020, Food in the Anthropocene: the EAT-Lancet Commission on healthy diets from sustainable food systems [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(18\)31788-4/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)31788-4/fulltext)
- 23 IPCC, 2019, Climate change and land, https://www.ipcc.ch/site/assets/uploads/2019/08/4.-SPM_Approved_Microsite_FINAL.pdf
- 24 EAT-Lancet Commission, 2020
- 25 World Resources Institute, 2018, Creating a sustainable food future <https://www.wri.org/publication/creating-sustainable-food-future>
- 26 UNDESA, 2010, Population Facts https://www.un.org/en/development/desa/population/publications/pdf/popfacts/popfacts_2010-5.pdf
- 27 <https://www.un.org/sustainabledevelopment/health/>
- 28 Institute for Family Studies, 2018 <https://ifstudies.org/blog/african-fertility-is-right-where-it-should-be>
- 29 <https://sustainabledevelopment.un.org/sdg3>
- 30 Kantarova et al, 2020, PLOS Medicine, Estimating progress towards meeting women's contraceptive needs in 185 countries <https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1003026> NOTE: this study included unmarried women and those not in relationships, who are often not included in other estimates.
- 31 Guttmacher Institute, 2018 Unintended Pregnancy Rates Declined Globally from 1990 to 2014
- 32 Maternal mortality, WHO Factsheet, September 2019
- 33 <https://www.un.org/sustainabledevelopment/health/>
- 34 COVID-19: A Gender Lens. Protecting sexual reproductive health and rights, and promoting gender equality: UNFPA Technical Brief, March 2020 COVID-19 Guidance Note-final layout
- 35 Guttmacher Institute, 2020 <https://www.guttmacher.org/gr/2020/04/unprecedented-expansion-global-gag-rule-trampling-rights-health-and-free-speech>
- 36 UNEP, 2016, Frontiers 2016 report https://environmentlive.unep.org/media/docs/assessments/UNEP_Frontiers_2016_report_emerging_issues_of_environmental_concern.pdf
- 37 UNESCO, 2019, Education 2030 http://uis.unesco.org/sites/default/files/documents/education-2030-incheon-framework-for-action-implementation-of-sdg4-2016-en_2.pdf
- 38 ICEF Monitor, 2018 <https://monitor.icef.com/2018/10/study-projects-dramatic-growth-global-higher-education-2040/>
- 39 UNICEF, 2020, A new era for girls <https://data.unicef.org/resources/a-new-era-for-girls-taking-stock-of-25-years-of-progress/>
- 40 Bangladesh Poverty Assessment: Facing old and new frontiers in poverty reduction, 2019 <http://documents.worldbank.org/curated/en/793121572582830383/pdf/Bangladesh-Poverty-Assessment-Facing-Old-and-New-Frontiers-in-Poverty-Reduction.pdf>
- 41 UNESCO Institute for Statistics, School enrollment <https://data.worldbank.org/indicator/SE.SEC.ENRR.FE>
- 42 UNICEF, 2020, A new era for girls
- 43 UNFPA, Child marriage <https://www.unfpa.org/child-marriage>
- 44 UNFPA, 2019 <https://www.unfpa.org/news/we-are-working-against-all-odds-despite-progress-fgm-and-child-marriage-numbers-cause-alarm>
- 45 UNFPA, 2020 https://www.unfpa.org/sites/default/files/pub-pdf/20-033_SDG561_and_562-MASTER_DOC2.1-2020-03-06-1121.pdf
- 46 UNFPA, 2019 <https://www.unfpa.org/state-world-population-2019>
- 47 UN Water, 2019 [https://www.unwater.org/who-and-unicef-launch-updated-estimates-for-water-sanitation-and-hygiene/#:~:text=Some%202.2%20billion%20people%20around,World%20Health%20Organization%20\(WHO\).](https://www.unwater.org/who-and-unicef-launch-updated-estimates-for-water-sanitation-and-hygiene/#:~:text=Some%202.2%20billion%20people%20around,World%20Health%20Organization%20(WHO).)
- 48 The Guardian, 2019, Extreme water stress affects a quarter of the world's population <https://www.theguardian.com/global-development/2019/aug/06/extreme-water-stress-affects-a-quarter-of-the-worlds-population-say-experts#:~:text=A%20quarter%20of%20the%20world's%20population%20live,facing%20extremely%20high%20water%20stress&text=The%20level%20of%20water%20stress,ranked%2013th%20in%20the%20report.&text=New%20Mexico%20was%20found%20to,high%20E2%80%9D%20pressure%20on%20water%20availability.>
- 49 Water Footprint Network <https://waterfootprint.org/en/about-us/news/news/water-stress-affect-52-worlds-population-2050/>
- 50 Nature, 2019, Avert catastrophe in Africa's Sahel <https://www.nature.com/articles/d41586-019-03445-z>

- 51 World Resources Institute 2019 <https://www.wri.org/blog/2019/08/17-countries-home-one-quarter-world-population-face-extremely-high-water-stress>
- 52 Office for National Statistics, 2019, National population projections: 2018-based National population projections
- 53 US Energy Information Administration, International Energy outlook 2019, <https://www.eia.gov/outlooks/ieo/>
- 54 IEA World Energy Outlook, 2019 iea.org/reports/world-energy-outlook-2019
- 55 The Guardian, 19 Feb 2019, <https://www.theguardian.com/business/2019/feb/14/renewable-energy-world-power-source-bp>
- 56 United Nations <https://sustainabledevelopment.un.org/sdg7>
- 57 <https://unstats.un.org/sdgs/report/2020/goal-07/>
- 58 Nyasa Times, March 20 2017 <https://www.nyasatimes.com/malawi-facing-population-explosion-time-bomb-teen-pregnancy-soars/>
- 59 Wietzke (2020) Population and Development Review, Wiley Online Library, <https://onlinelibrary.wiley.com/doi/full/10.1111/padr.12317>
- 60 The Conversation, March 21 2019, Niger has the world's highest birth rate – and that may be a recipe for unrest <https://theconversation.com/niger-has-the-worlds-highest-birth-rate-and-that-may-be-a-recipe-for-unrest-108654>
- 61 Hickel (2018) Third World Quarterly Is it possible to achieve a good life for all within planetary boundaries?, <https://www.tandfonline.com/doi/full/10.1080/01436597.2018.1535895>
- 62 Hickel (2018) Wiley Online Library, The contradiction of the sustainable development goals: Growth versus ecology on a finite planet <https://onlinelibrary.wiley.com/doi/abs/10.1002/sd.1947>
- 63 World Green Building Council, 2017 <https://www.worldgbc.org/news-media/global-status-report-2017>
- 64 IISD, 2020, Infrastructure development likely to be devastating for biodiversity <https://sdg.iisd.org/news/infrastructure-development-likely-to-be-devastating-for-wildlife-ecological-integrity-report-finds/>
- 65 FT, 30 December 2019, <https://www.ft.com/content/aa614ec6-21ae-11ea-b8a1-584213ee7b2b>
- 66 WWF, 2018, Living planet report 2018
- 67 Arcus Foundation, 2019, State of the apes; infrastructure development and ape conservation <https://www.stateoftheapes.com/volume-3-infrastructure-development/>
- 68 Yale Environment 360, 2020, Nearly 15,000 miles of roads will be built in tiger habitat by 2050, study finds <https://e360.yale.edu/digest/nearly-15-000-miles-of-new-roads-will-be-built-in-tiger-habitat-by-2050-study-finds>
- 69 Woodland Trust <https://www.woodlandtrust.org.uk/protecting-trees-and-woods/campaign-with-us/hs2-rail-link/>
- 70 The Guardian, 20 June 2013, Growth in crop yields could be inadequate by 2050 <https://www.theguardian.com/environment/2013/jun/20/crop-yields-world-population>
- 71 MIT News, 2017, Study: Technological progress alone won't stem resource use <http://news.mit.edu/2017/technological-progress-alone-stem-consumption-materials-0119>
- 72 UN SDGs report, 2019 <https://unstats.un.org/sdgs/report/2019/goal-11/>
- 73 Daily Star, October 8 2019, More poor in urban areas by 2030 <https://www.thedailystar.net/frontpage/news/more-poor-urban-areas-2030-1810783>
- 74 UNDESA, 2018 <https://www.un.org/development/desa/en/news/population/2018-revision-of-world-urbanization-prospects.html#:~:text=Today%2C%2055%25%20of%20the%20world's,increase%20to%2068%25%20by%202050.>
- 75 <https://unstats.un.org/sdgs/report/2020/goal-12/>
- 76 UN News, 17 March 2017 <https://news.un.org/en/story/2017/03/553452-smarter-use-natural-resources-can-inject-2-trillion-global-economy-2050-un>
- 77 United Nations Population Division (2019) World population prospects https://population.un.org/wpp/Publications/Files/WPP2019_Highlights.pdf
- 78 Global Footprint Network <https://www.footprintnetwork.org/>
- 79 Niger CO2 emissions per capita, 2018, 0.1 metric tonnes (Source: <https://knoema.com/atlas/Niger/CO2-emissions-per-capita>); UK CO2 emissions per capita, 2018 . 5.59 metric tonnes <https://knoema.com/search?query=UK+CO2+emissions+per+capita&pageIndex=&-scope=&term=&correct=&source=Header>
- 80 UNFPA, 2019 <https://www.unfpa.org/data/world-population-dashboard>
- 81 <https://unstats.un.org/sdgs/report/2020/goal-13/>
- 82 Project Drawdown <https://drawdown.org/solutions/health-and-education>
- 83 Ripple et al (2019) Bioscience, World scientists' warning of a climate emergency <https://academic.oup.com/bioscience/article/70/1/8/5610806>
- 84 Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services, 2019, Global assessment summary for policymakers <https://www.ipbes.net/news/ipbes-global-assessment-summary-policymakers-pdf>
- 85 WWF, 2018, Living planet report 2018
- 86 <https://unstats.un.org/sdgs/report/2020/goal-14/>
- 87 <https://unstats.un.org/sdgs/report/2020/goal-15/>
- 88 Selected papers: Ceballos et al, 2017, PNAS, Biological annihilation via the ongoing sixth mass extinction signalled by vertebrate population losses and declines <https://www.pnas.org/content/114/30/E6089> ; Marques, A. et al, 2019, Nature Ecology & Evolution, Increasing impacts of land use on biodiversity and carbon sequestration driven by population and economic growth. <https://www.nature.com/articles/s41559-019-0824-3>; United Nations Environment Programme & International Resources Panel, 2019, Global resources outlook <http://www.resourcepanel.org/reports/global-resources-outlook>
- 89 Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Services, 2019 <https://www.ipbes.net/news/ipbes-global-assessment-summary-policymakers-pdf>
- 90 USAid Environmental Health <http://www.ehproject.org/phe/phe.html>
- 91 United Nations Interagency Framework Team for Preventive Action, 2012, Renewable resources and conflict https://www.un.org/en/events/environmentconflictday/pdf/GN_Renewable_Consultation.pdf
- 92 Wilson Center, 2019, A more secure world: the role of population and family planning <https://www.wilsoncenter.org/event/more-secure-world-the-role-population-and-family-planning-peace-and-security>
- 93 <https://unstats.un.org/sdgs/report/2020/goal-1>
- 94 Voxdev, 2019, Does population growth cause conflict? <https://voxdev.org/topic/health-education/does-population-growth-cause-conflict>
- 95 United Nations Population Division, 2019, World population prospects 2019: highlights https://population.un.org/wpp/Publications/Files/WPP2019_Highlights.pdf
- 96 *ibid*
- 97 Abela et al, PNAS, 2016 Meeting the Sustainable Development Goals leads to lower world population growth <https://www.jstor.org/stable/26472832?seq=1>
- 98 Post-2015 Consensus: Population and Demography Assessment, Kohler Behrman, Copenhagen Consensus Centre <https://www.copenhagenconsensus.com/publication/post-2015-consensus-population-and-demography-assessment-kohler-behrman>

About Population Matters

Population Matters campaigns to achieve a sustainable human population, to protect the natural world and improve people's lives.

We promote positive, practical, ethical solutions – encouraging smaller families, inspiring people to reduce excessive consumption and helping us all to live within our planet's natural limits. We believe everyone should have the freedom and ability to choose a smaller family. We support human rights, women's empowerment and global justice.

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