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Submission to the High-Level Champions on the Roadmap for Global Climate Action

1 August 2016

Synopsis

A safe climate future depends on minimising the further growth in the human population. Strengthening efforts to empower women and to avoid unwanted births through voluntary, rights-based family planning programs, are necessary measures without which low-emissions scenarios cannot be achieved.[1]

The IPCC socioeconomic scenarios which achieve low emissions and a "safe" climate all assume very low population growth, far lower than current UN expectations. Yet no programmes are discussed to achieve this lower population, because it is assumed that strong economic development and educational advances will achieve it. Evidence is presented which demonstrates that

a) current trends are for a higher, not lower, population than current UN expectations, rendering most future emissions scenarios invalid.
b) economic advance has not been the driver of fertility decline, but on the contrary, fertility decline, driven by voluntary family planning programs, has enabled economic advance. Such programs have been neglected in recent decades, to the great detriment of the world's poorest people and to their environment.

In relation to the questions on which responses were invited,

1. Current Situation: We call on the High-Level Champions to acknowledge the essentiality of low population growth for the roadmap to successful climate change mitigation and adaptation.

2. The role of the high-level champions: UNFCCC mechanisms for supporting developing country actions should be encouraged to explore means of supporting and integrating family planning initiatives. Among new initiatives focusing on adaptation, the High Level Champions could feature the highly successful PHE (Population Health and Environment) programs[2], which integrate environmental protection, sustainable livelihoods, public health and family planning, and urgently need greater resources to allow scaling up. These programs have proven that communities can embrace rapid

[1] Guillebaud J 2016. Voluntary family planning to minimise and mitigate climate change. British Medical Journal 353:i2102 doi: 10.1136/bmj.i2102
[2] PAI, Pathfinder International, Sierra Club (2015) Building resilient communities: the PHE way. http://womenatthecenter.org/wp-content/uploads/2015/07/Building-Resilient-Communities-The-PHE-Way.pdf

change when they learn about the benefits to themselves and their children, and that men champion family planning when it is taken out of its silo in women's health clinics and made relevant to their aspirations. These are successes that deserve to be championed.

3. Transparency and Tracking: We encourage the High-Level Champions to track the progress on fertility decline against the required rate for achieving low-emissions scenarios (such as the IPCC's SSP1), to report any gap between actual and assumed population outcomes, and to question the integrity of scenario modelling which fails to test the impact of credible variations in future population.

4. High Level Event: We encourage the High-Level Champions to feature family planning and PHE projects among the initiatives showcased at the high level event. One such project is HoPE-LVB (Health of People and the Environment in the Lake Victoria Basin).[3] The PHE Ethiopia Consortium is well placed to showcase a range of projects.[4]

5. The role of the technical expert meetings (TEMs): The evidence we present here should be validated by TEMs, and the adaptation and mitigation impacts of initiatives such as PHE projects should be among the climate action measures reviewed.

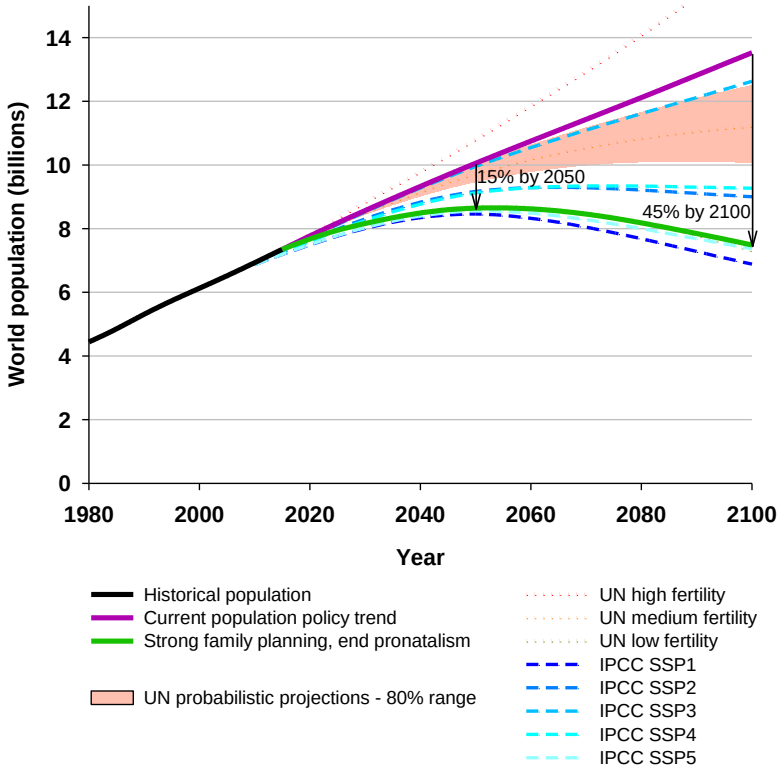

Figure (i). Projections of future global population, comparing outcomes if countries continue their recent trends, or if remaining high fertility countries adopt strong family planning and achieve the average path that past family planning countries achieved (and assuming low-fertility countries abandon efforts to raise birth rates). These outcomes are compared with the UN projections[5] and the IPCC's Shared Socioeconomic Pathways.

[3] Health of People & Environment in Lake Victoria Basin. Pathfinder International 2014. https://www.youtube.com/watch?v=CFPQxgvSmM0&feature=youtu.be
[4] PHE Ethiopia Consortium. (2016). What is PHE? http://www.phe-ethiopia.org/
[5] UNDESA (2015) World Population Prospects, the 2015 Revision. New York: United Nations Department of Economic and Social Affairs. http://esa.un.org/unpd/wpp/

Introduction

The High-Level Champions are to be congratulated for filling an extremely valuable role for enhancing international co-operation on climate action. We applaud the Champions for their emphasis on urgency of action, accountability of UNFCCC initiatives and efficacy of instruments such as the technical expert meetings.

Several recent reports stress that climate change is accelerating, and that its impacts may be more severe than earlier models suggested. Hansen et al. (2016) found evidence for acceleration of ice-melt, its relationship with storm intensity, and concluded, "The modelling, paleoclimate evidence, and ongoing observations together imply that 2ºC global warming above the preindustrial level could be dangerous."[6] Spratt (2016) emphasises that basing required action on a 50% probability of achieving a "safe" target does not meet any normal standards of risk management. We would not get on a plane with only 50% chance of landing safely. He demonstrates that there is already no carbon budget left if we are to have 90% chance of remaining under 2ºC.[7]

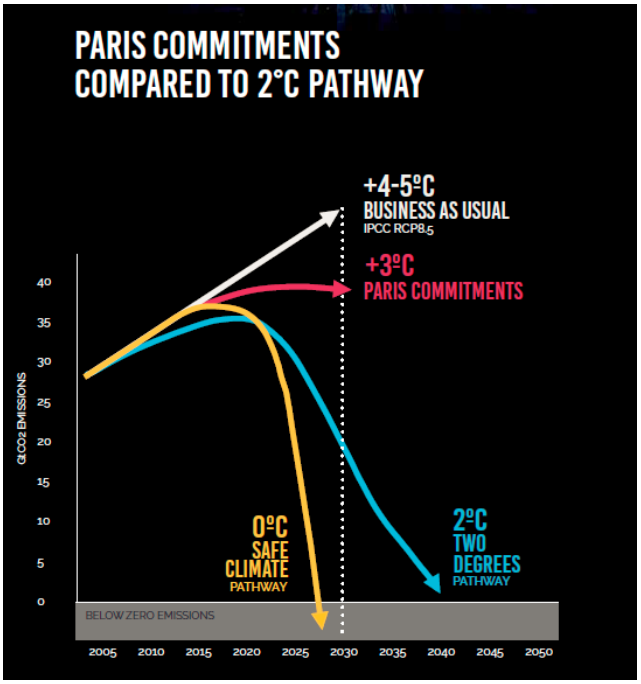

Figure 1. (From Spratt 2016) A "safe" climate requires far greater mitigation effort than current Party commitments to the Paris agreement.

Such urgency emphasises that action must be taken on all effective fronts simultaneously. It is meaningless to argue which actions are most important, unless they compete directly for the same resources.

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[6] Hansen J, Sato M, Hearty P, Ruedy R, Kelley M, Masson-Delmotte V, et al. 2016. Ice melt, sea level rise and superstorms: evidence from paleoclimate data, climate modeling, and modern observations that 2 ˚C global warming could be dangerous. Atmos Chem Phys. 2016;16(6):3761-3812. http://www.atmos-chem-phys.net/16/3761/2016/

[7] Spratt D 2016. Climate Reality Check: After Paris, Counting the Cost. Breakthrough, March 2016. http://www.breakthroughonline.org.au/#!papers/cxeo

Yet there is one line of action which has been excluded from UNFCCC discourse up to now. This is despite it being inexpensive, impacting adaptation and mitigation simultaneously, enhancing the impact of all other climate responses and directly benefiting the poorest and most vulnerable sectors of humanity, particularly women and children in the least developed countries.

This low-hanging fruit is the extension of voluntary family planning, to minimise further growth in the human population.

"Safe" IPCC scenarios depend on low population outcomes.

The socioeconomic scenarios developed by the IPCC have formed the basis of most attempts to model the impact of climate actions on outcomes. The "shared socioeconomic pathways" (SSPs) described in the IPCC's Fifth Assessment Report (AR5) comprise five scenario "families".[8] Each of these families has a different global population trajectory.[9] The population outcome has enormous impact on prospects for both mitigation and adaptation, as they did in the earlier SRES projections of the Fourth Assessment Report.[10] But actions to address population are not included in the discourse, because population outcomes are assumed to be a product of economic and educational outcomes.[11]

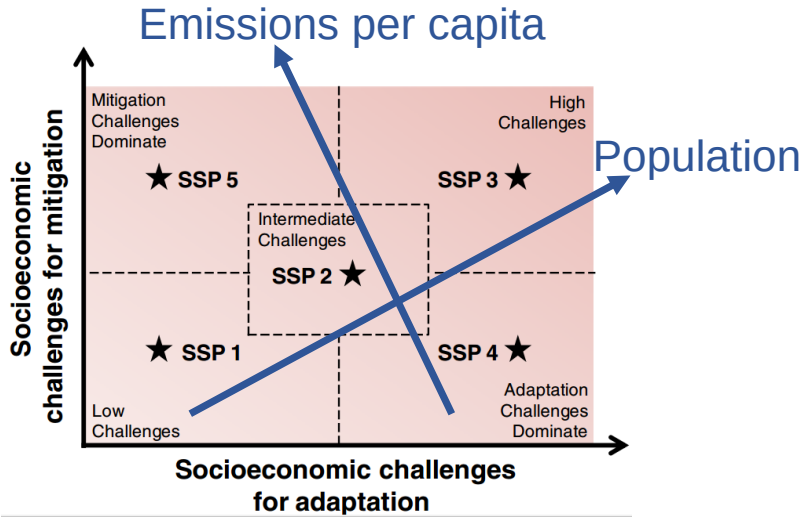

Figure 2. The five families of IPCC Shared SocioeconomicPathways, in relation to the strength of mitigation and adaptation challenges posed by each scenario (from van Vuuren et al, 2014). Approximate trends in population outcomes and emissions per capita outcomes are indicated. Population outcome is particularly influential on adaptation challenges.

[8] O'Neill BC, Kriegler E, Riahi K, Ebi K, Hallegatte S, Carter TR, Mathur R, van Vuuren DP 2013. A new scenario framework for climate change research: The concept of shared socio-economic pathways. Climate Change Special Issue 122(3): 387–400. doi:10.1007/s10584-013-0905-2

[9] van Vuuren DP, Kriegler E, O'Neill B, Ebi K, Riahi K, Carter TR, Edmonds J, Hallegatte S, Kram T, Mathur R, Winkler H 2014. A new scenario framework for Climate Change Research: scenario matrix architecture. Climatic Change Special Issue 122(3): 373–386. doi:10.1007/s10584-013-0906-1

[10] Young MH Mogelgaard K and Hardee K 2009. Projecting Population, Projecting Climate Change: Population in IPCC Scenarios. PAI Working Paper WP09-02. Population Action International. https://www.researchgate.net/publication/237249604_Projecting_Population_Projecting_Climate_Change_Population_in_IPCC_Scenarios

[11] KC S and Lutz W 2014. The human core of the shared socioeconomic pathways: Population scenarios by age, sex and level of education for all countries to 2100. Global Environmental Change doi:10.1016/j.gloenvcha.2014.06.004

Notably, all but one (the worst-case scenario, SSP3) of the SSP families anticipates a global population well below the UN's medium projection – indeed, below the 95% probability range of the UN's 2015 probabilistic projections.[12] The preferred scenario, SSP1, assumes a population path lower than the UN's "low projection", which no demographer considers to be realistic. (The "low fertility projection" merely applies a fertility rate 0.5 units – i.e. half a child per family – lower than the medium projection, in all countries with immediate effect.)

It is vital to note that each of the UN's revisions in the past decade has increased the expected population, because fertility decline is not happening as fast as its medium scenario expects. The UN's estimate for the year 2100 has increased by more than two billion in just 11 years (Figure 3).

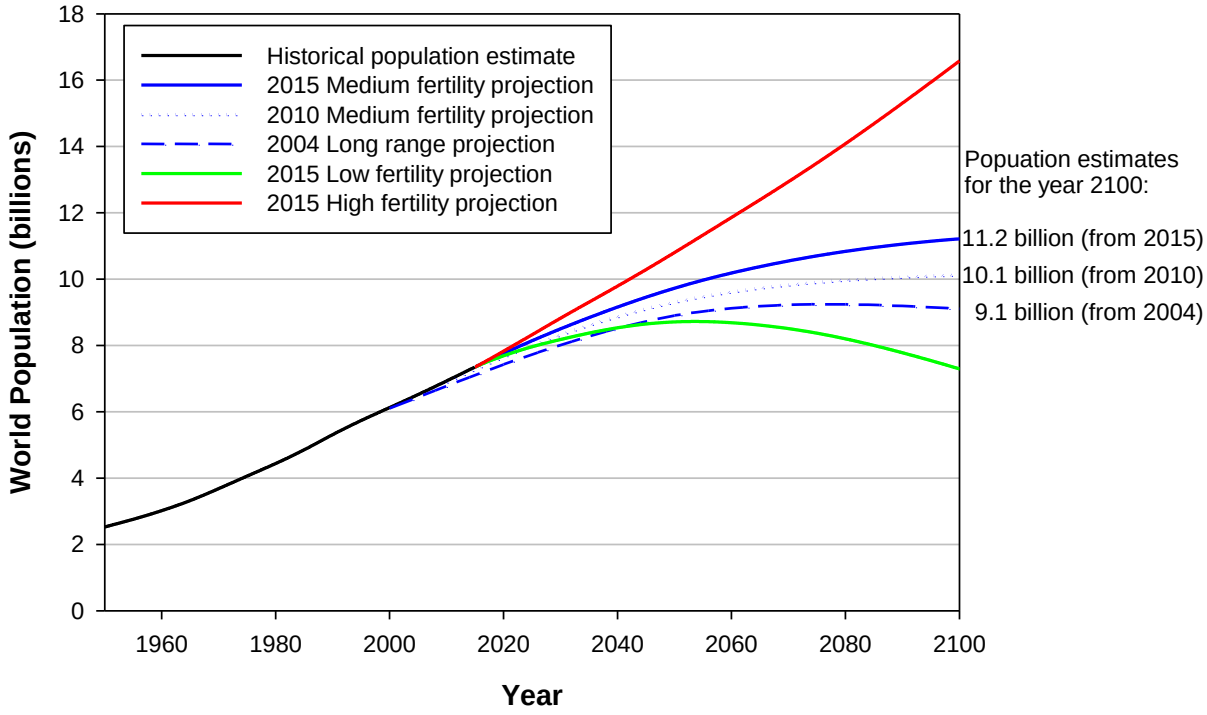

Figure 3. Population projections from the United Nations, showing the dramatic rise in expected outcomes since 2004.

The reason for these regular upward revisions is obvious when we look at annual increments of global population growth (Figure 4). Fertility declines which were occurring strongly from the 1970s to '90s had enabled the increment to peak in 1989 and to decline throughout the 1990s. However, since 2000, the increment has increased again. This is the result of fertility decline slowing, stalling or reversing since the withdrawal of funding and political support for family planning programs from the mid 1990s.[13] Countries such as Indonesia, Algeria and Egypt, which made good progress achieving fertility decline prior to the mid-1990s, have seen fertility increase again before reaching replacement rate. Such interruptions or reversals of the fertility transition are not accommodated in the UN's population projections. The UN's

[12] UNDESA 2015. World Population Prospects, the 2015 revision. Probabilistic projections. Population Division, United Nations Department of Economic and Social Affairs.
https://esa.un.org/unpd/wpp/Graphs/Probabilistic/POP/TOT/

[13] Bongaarts J. (2008) Fertility Transitions in Developing Countries: Progress or Stagnation? Studies in Family Planning 39(2): 105–110.

medium projection continues to expect the downward trend to resume, based on immediate resumption of fertility decline in high-fertility countries, despite most of them seeing little if any decline recently. These data show that the world is greatly exceeding the "medium" projection. The "constant fertility" projection assumes all countries continue with the same fertility they had in 2010. If sustained, it results in a global population of 28 billion by 2100. Of course, such a population could not be fed – if fertility does not fall, then death rates must rise.

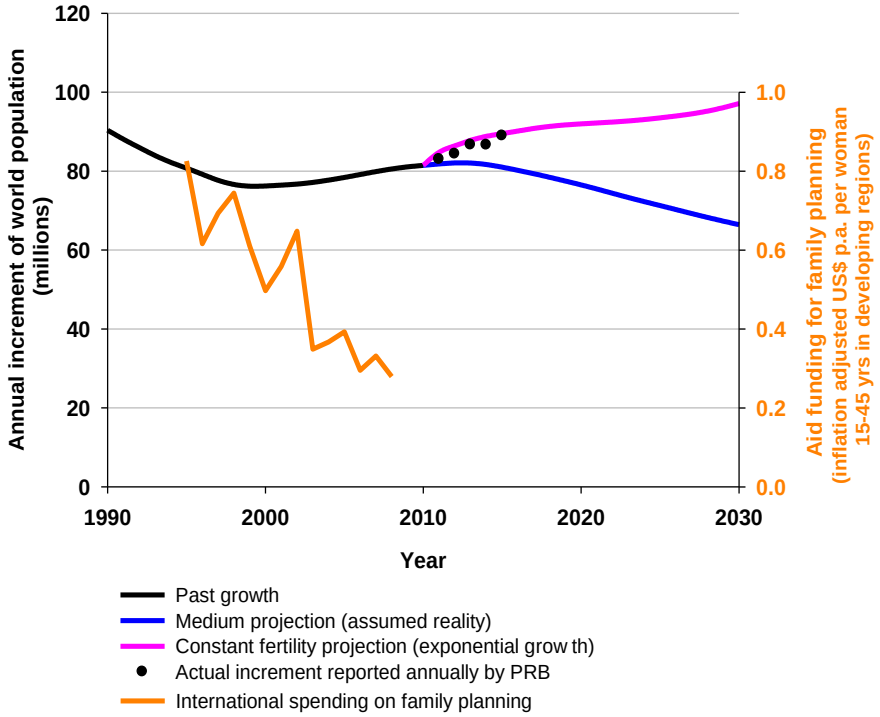

Figure 4. The annual increment of global population, showing an upturn from around 2000. This reversal occurred despite good progress on girls' education, infant mortality and GDP per capita growth (factors popularly claimed to drive fertility decline). A likely contributing factor was the dramatic fall in international support for family planning (orange plot and right-hand axis). Black dots give recent estimates of actual increment reported annually in the Population Reference Bureau's "World Population Datasheets".[14] These are compared with expectations under the UN's medium projection, and its constant fertility projection.

Yet, despite the poor track record of recent projections, the world of climate impact modellers continues to regard future population as predetermined. They do not consider what measures might be available to influence it. Most do not even consider any sensitivity analysis around population, to see how outcomes would be affected if population is higher or lower than expected.

There are rare exceptions, and their findings are salient. O'Neill et al. (2010) estimated the difference in projected greenhouse gas emissions between scenarios assuming UN's medium population projection and those assuming the low projection, taking account of impacts of changing age structure, household size and urbanization.[15] They concluded that achieving the

[14] Population Reference Bureau 2015. 2015 World Population Datasheet. http://www.prb.org/Publications/Datasheets/2015/2015-world-population-data-sheet.aspx

[15] O'Neill BC, Dalton M, Fuchs R, Jiang L, Pachaui S, Zigova K (2010) Global demographic trends and future carbon emissions. Proc Natl Acad Sci 107:17521-17526.

low population projection could provide 16-29% of the emissions reductions needed by 2050, and could reduce fossil fuel demand by 37-41% by the end of the century. In a recent study, Bajželj and co-workers (2014) found that greenhouse gas emissions from the food system were sensitive to population outcomes by a factor of 1.9, meaning that 10% higher population would result in 19% more emissions from the food system, assuming the same wealth and dietary preferences.[16] The World Resources Institute's exemplary series "Creating a Sustainable Food Future" (2013) found that achieving replacement level fertility (around two children per woman) in sub-Saharan Africa by 2050 would spare an area of forest and savannah larger than Germany from conversion to cropland, and in doing so save 16 Gt of carbon dioxide emissions (Searchinger et al. 2013).[17] The RoSE project, a major international effort to model energy and emissions pathways, discovered that a higher-than-expected population in Africa had a far greater impact on deforestation and land use emissions than high economic growth (Figure 5).[18]

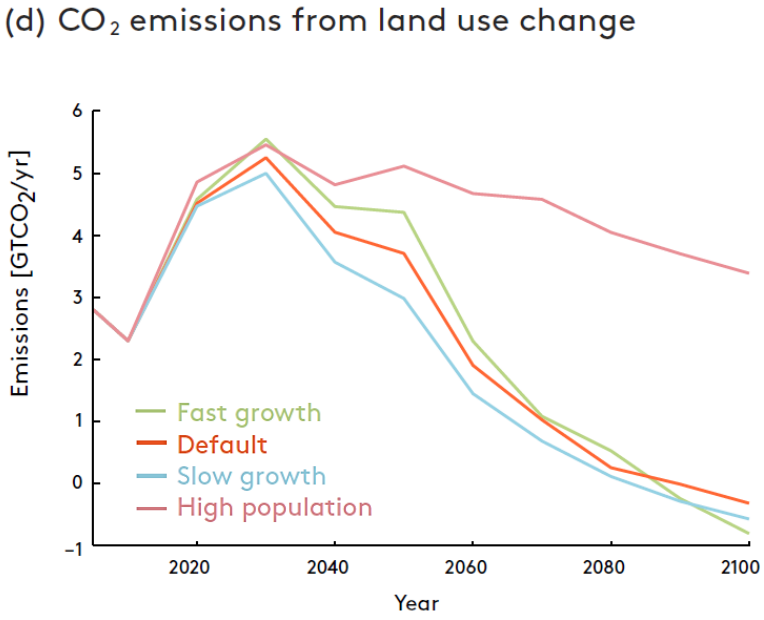

Figure 5. (From Kriegler et al. 2013) Carbon dioxide emissions from land use change, as estimated by the "Roadmaps towards Sustainable Energy futures" (RoSE) project, showing poor prospects for containing this source of emissions if African population follows the UN's high projection. In the legend, "growth" refers to global GDP growth rate.

Emissions models are wrong to assume that population will be determined by education and development.

There is no basis in historical evidence for the assumption that the low population outcomes, which the "safe climate" scenarios assume, can be achieved as a result of economic

[16] Bajželj B., Richards K.S., Allwood J.M., Smith P., Dennis J.S., Curmi E. and Gilligan C.A. (2014) Importance of food-demand management for climate mitigation. Nature Climate Change 4, 924–929. http://www.nature.com/nclimate/journal/v4/n10/full/nclimate2353.html

[17] Searchinger T., Hanson C., Waite R., Lipinski B., Leeson G. and Harper S. (2013) Achieving Replacement Level Fertility. World Resources Institute working paper, Instalment 3 of "Creating a Sustainable Food Future" http://www.wri.org/publication/achieving-replacement-level-fertility

[18] Kriegler E. et al. (2013). Roadmaps towards Sustainable Energy futures and climate protection: A synthesis of results from the RoSE project (1st edition). Potsdam Institute for Climate Impact Research, Potsdam.

development or education, without any interventions directly aimed at lowering fertility. No country has been able to achieve significant enrichment while fertility and population growth remained high, with the exception of those with large mineral resources. The latter, including Syria and Egypt, did not see fertility falling rapidly as a result of enrichment, and have suffered a reversal of fortunes as their oil revenue declined.

In contrast, there is abundant evidence that population-focused voluntary family planning programs were highly effective in causing rapid fertility decline and subsequently accelerated economic development. The family planning countries such as South Korea, Thailand and Costa Rica experienced broad-based economic development after fertility fell towards 2 and population growth slowed. Their fertility decline was achieved while most of the population were poor and many women were illiterate, yet the rate of fertility decline was two to three times as fast as UN projections expect (Figure 6).

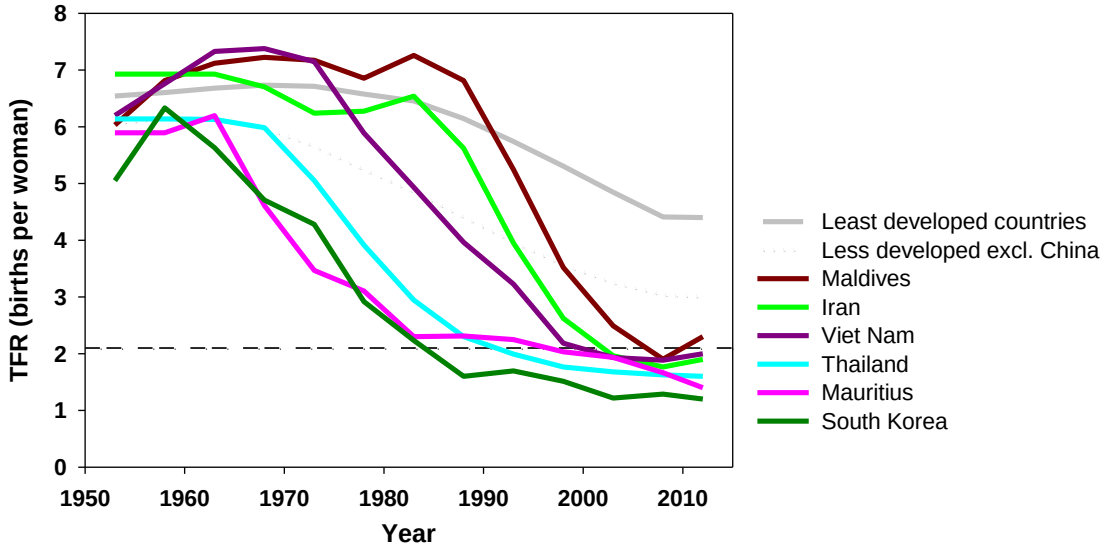

Figure 6. Time course of total fertility rate (TFR, births per woman) for selected countries which implemented population-focused voluntary family planning programs at differing times, showing rapid change in fertility, compared with aggregate TFR for less developed countries (excluding China) and least developed countries. Data from UNDESA (2015).

Figure 7 further investigates whether wealth drives fertility decline, or whether fertility affects economic development. It was found that the rate of fertility decline has not related at all to wealth. The poorest countries could reduce fertility as rapidly as middle-income countries if they were motivated to do so. In contrast, economic development has evidently been severely hampered by high fertility. While fertility remains above three children per woman, the chance of sustained economic improvement has proven to be extremely low. While low fertility has not guaranteed enrichment in any five year period, high fertility has virtually precluded it. Fertility decline appears to be a necessary, if not sufficient, precondition for economic development.

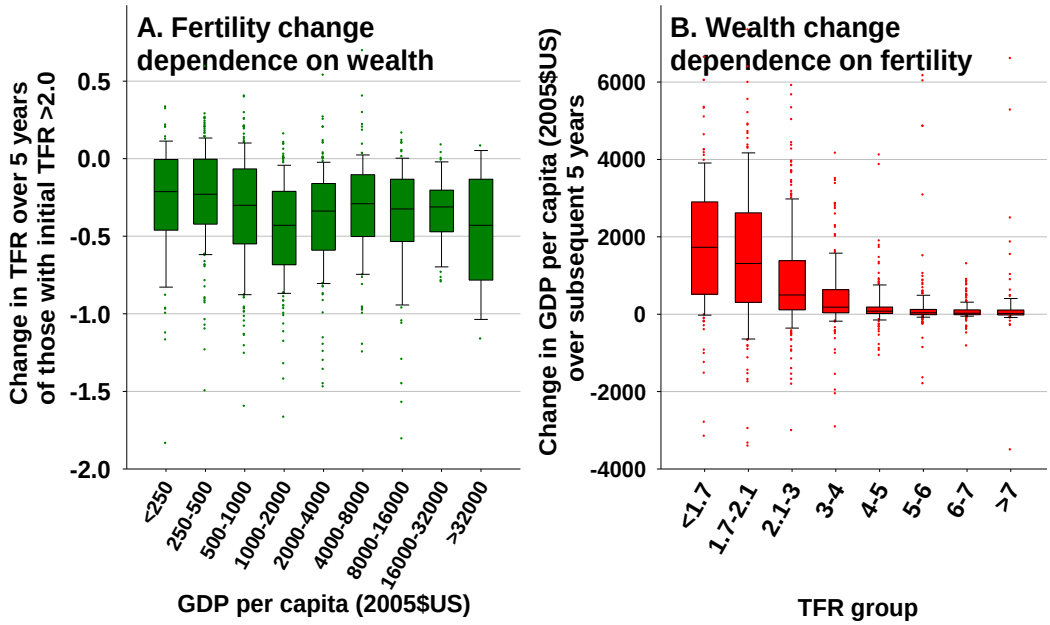

Figure 7. Evidence for causal influence of wealth on fertility decline (A), or of fertility on economic development (B). GDP data are derived from the World Bank economic database, and fertility data from UNDESA (2015). Data points represent each country in each five-year period between 1960 and 2010. All countries and time periods with available data are included.

Figure 8 contrasts the experience of all countries which had high fertility in 1950, grouped according to their rate of fertility decline. Only those which implemented strong family planning programs and achieved rapid fertility decline have achieved a tapering of their population growth (Figure 8B). Most will achieve a peak population around 2 – 2.5 times the population when they started addressing family planning. Moderate transition countries have lessened population growth, but have not reduced family size as fast as the number of families has increased. Weak adopters have seen population triple in the same time, and have another doubling in store, if they choose to embrace family planning now (and more if they do not).

The impact of fertility decline on wealth can be seen dramatically in Figure 8C. Rapid fertility decline has been associated with dramatic economic improvement. Slow-transition countries have seen virtually none. Figure 8D contains two features which are completely at odds with the popular belief that development drives fertility decline:

1. The relationship between fertility and wealth is steeply concave, as *fertility fell first* before economic development accelerated.
2. *All three groups have followed the same path!* Those which accelerated fertility decline progressed more rapidly to economic development. With rare exceptions, development first has not been an achievable option.

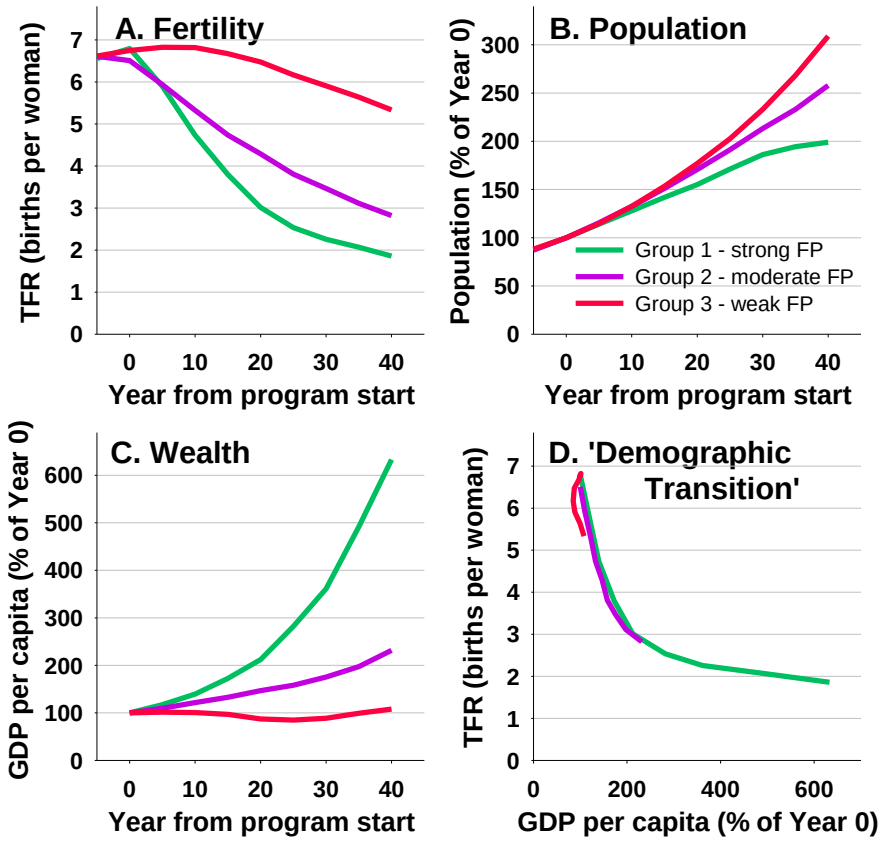

Figure 8. The average time-course for (A) fertility, (B) population and (C) GDP per capita (inflation-adjusted US$), and the relationship between TFR and per capita GDP for developing countries grouped according to the rate of their fertility transition. Each of the rapid transition countries (Group 1) deployed successful family planning programs. Group 2 had programs that were weaker or not sustained. Group 3 countries generally did not have population-focused family planning programs. Year 0 is the start of the fertility transition in each country, or 1970 for weak adopters (Group 3).

We are not arguing that enrichment does not influence family size. We are arguing that this is a strategy that simply isn't possible for most high-fertility countries. High population growth poses such a high economic burden that significant reductions in poverty are impossible to achieve. Family planning programs, on the other hand, have proven achievable even in the poorest settings.

We took the experience of past family planning countries as a basis for policy-based projections of future global population (Figure 9). We compared the outcome for "business as usual" against a proactive scenario, in which the remaining high-fertility countries adopt voluntary, rights-based family planning programs, emulating the success stories of the 1970s and '80s, and achieve the average rate of fertility decline of those past adopters. (This is a conservative scenario, as better contraceptive technologies, communications, education levels and community engagement methods all have the potential to make future programs more effective than in the past.) A "business as usual" approach to population would see the UN continue to shun any attempt to frame population growth as a problem, the international community continue to direct a derisory level of funding and program attention to family planning (which currently receives less than 1% of international aid) and family planning

programs continue to lack the scale and visibility needed to reach disadvantaged people and to achieve rapid fertility decline.

Our projections find that a "business as usual" approach is likely to see growth exceed the UN's current medium projection, and head towards 13 billion before the century's end. We do not have high expectations that such a population would be achieved, but the risk is that it will be curtailed by widespread conflict and famine – a scenario which will likely derail climate action.

On the other hand, if the remaining high-fertility countries were to embrace voluntary family planning programs, a global population path close to the UN's current low projection could be achieved. This would put SSP1 into the realm of possibility.

Without such action, SSP1 is not possible. The validity of all modelled "safe" pathways is breached.

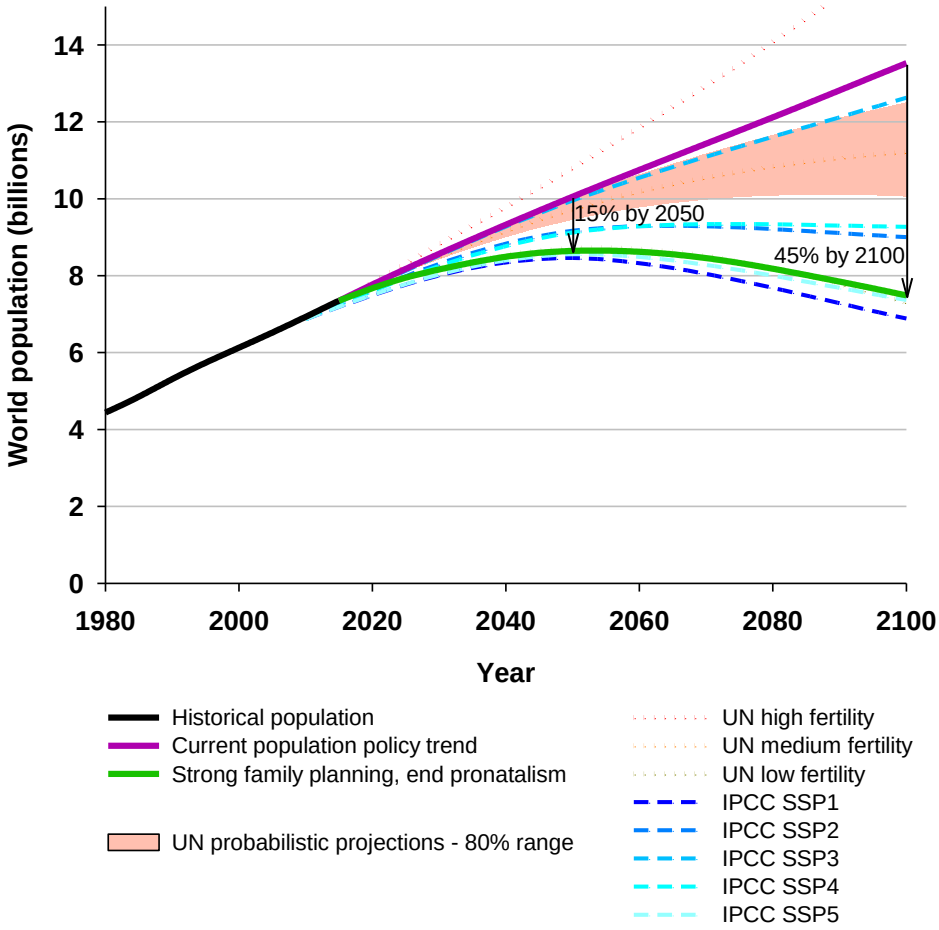

Figure 9. Policy-based projections of future global population, comparing outcomes if countries continue their recent trends, or if remaining high fertility countries adopt strong family planning, achieving the average path that past family planning countries achieved, and assuming low-fertility countries abandon attempts to increase births. These outcomes are compared with the UN projections (UNDESA 2015) and the IPCC's Shared Socioeconomic Pathways (KC and Lutz, 2014).

Empowering women and couples to control their fertility is the most cost-effective climate action.

Avoiding unwanted births through investments in family planning and girls' education has been shown to avoid greenhouse gas emissions at considerably lower cost than renewable energy initiatives, and lower than most reforestation initiatives.[19]

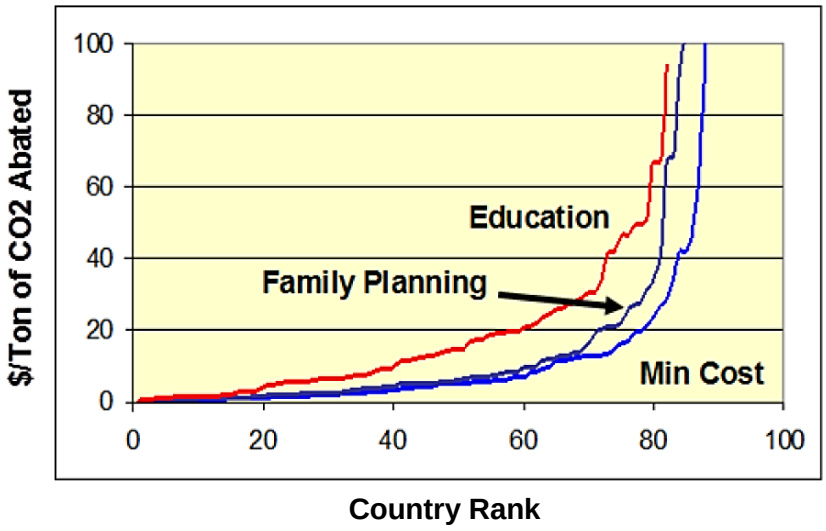

Figure 10. (From Wheeler and Hammer 2010) The estimated cost of abating a ton of carbon dioxide emissions through investment in family planning, or in education for girls, or in a least-cost (most synergistic) combination of the two, in a sample of over 80 countries. Although education investment usually yielded less fertility decline per dollar spent, the high degree of synergy between education and family planning access meant that mixed programs generally were more cost-effective than family planning alone. This study found that, even in countries where emissions per person are very low, reducing unwanted births is highly cost-effective emissions reduction, while simultaneously empowering women and improving health, nutrition, education and economic outcomes for families.

A USAID study of 16 sub-Saharan African countries in 2006 found that fulfilling the unmet need for family planning not only contributed materially to the attainment of all other Millennium Development Goals, but each dollar spent on family planning saved between two and six dollars on interventions to meet other development goals.[20]

There is a high rate of unwanted pregnancy even in developed countries, where each avoided birth reduces far more emissions. Even in developed country contexts, net costs have been found to be negative. A recent program to reduce teen pregnancies in the USA state of Colorado lowered the teen birth rate and abortion rate by 40 and 42 percent respectively, and

[19] Wheeler D and Hammer D. 2010. The economics of population policy for carbon emissions reduction in developing countries. Center for Global Development, Working Paper 229, November 2010. http://www.cgdev.org/publication/economics-population-policy-carbon-emissions-reduction-developing-countries-working

[20] Moreland S and Talbird S 2005. Achieving the Millennium Development Goals: The contribution of fulfilling the unmet need for family planning. USAID. http://pdf.usaid.gov/pdf_docs/Pnadm175.pdf

saw a similar decline in the number of unintended pregnancies in unmarried women under 25. The program saved Medicaid around $5.85 in perinatal care for every $1 invested.[21]

High fertility countries face multiple challenges and threaten global outcomes

The High Level Champions have the good fortune to come from countries which have benefited from reproductive health and rights. Both France and Morocco have been champions of family planning in the past. Modern contraception has its roots in France, which was the first country to undergo the fertility transition. Morocco successfully extended voluntary family planning even to low-income and rural women, sharply reducing maternal mortality rates and improving prospects for food and water security, although its fertility is not yet low enough to establish a stable and sustainable population. Perhaps these successes lead to the situation where reproductive freedom is taken for granted, and the impact of yet-unmet needs in remaining high-fertility countries is underappreciated.

In France, the fertility transition was instrumental in reducing the terrible poverty which had previously motivated the French revolution. Conditions in France improved to the extent of attracting envy of Germans in need of "lebensraum". While Western Europe is still one of the most densely populated regions on earth, slowing the *rate* of population growth allowed employment, education, health care, decent housing and sanitation to be extended to almost all. Morocco is now experiencing such a period of betterment, which its higher-fertility neighbours in sub-Saharan Africa are failing to achieve. This is understandable if we realise that it takes around 7% of GDP to add 1% to the capacity of a nation's infrastructure, in order to accommodate 1% more people. An African country growing at 2.5% per annum might require 17% or more of its GDP to be diverted to infrastructure creation that achieves no improvement – merely running in order to stand still, against the tide of population growth.[22]

As many commentators have observed, the effects of population change in sub-Saharan Africa dwarf the likely impacts of climate change on food and water security, and on environmental damage. Figure 11 demonstrates how dramatically the projected increase in population will affect African countries' ability to feed their own populations. Food import dependence is growing in many of them already, exposing them to global food price spikes which have been shown to be powerful triggers of civil unrest and violent conflict.[23] The dashed lines in Figure 11 demonstrate how much this challenge could be alleviated, if these countries emulated the voluntary family planning successes of the past.

While many commentators acknowledge the future risk of violence and displacement caused by population pressure, almost none are willing to recognise its role in current crises. While Angela Merkel's prime ministership is under pressure due to the influx of victims of overpopulation, media stories this week expressed no hint of irony in tipping Germany's defence minister, a mother of seven, as a potential successor.[24] The 2015 "Demographic

[21] Rinkunas S 2016. Will Delaware become the next birth control utopia? New York Magazine, The Cut, 14 July 2016. http://nymag.com/thecut/2016/07/delaware-birth-control-program-utopia.html
[22] O'Sullivan JN 2013. The cost of population growth in the UK. Population Matters. http://populationmatters.org/documents/cost_population_growth.pdf
[23] Lagi, M., Bertrand, K.Z., Bar-Yam, Y. (2011) The food crises and political instability in North Africa and the Middle East. New England Complex Systems Institute. http://arxiv.org/pdf/1108.2455.pdf
[24] Campbell M 31/07/2016. German voters set to punish Angela Merkel over refugee policy. The Times. http://www.theaustralian.com.au/news/world/the-times/german-voters-set-to-punish-angela-merkel-over-refugee-policy/news-story/f810629d60b15d7bf8c9614ae0acd916

Vulnerability Report" noted "*Population pressures are also contributing to environmental degradation and political instability. In effect, rapid population growth is a challenge multiplier, and for many developing countries the challenges are formidable*."[25] A UK all-party parliamentary committee also warned "*Population dynamics interact with climate change and with conflict to affect people and communities, and will increasingly do so over the course of the 21st century. If the world is to achieve sustainable development then there is an urgent need to scale up access to family planning, and to support sexual and reproductive health and rights*."[26]

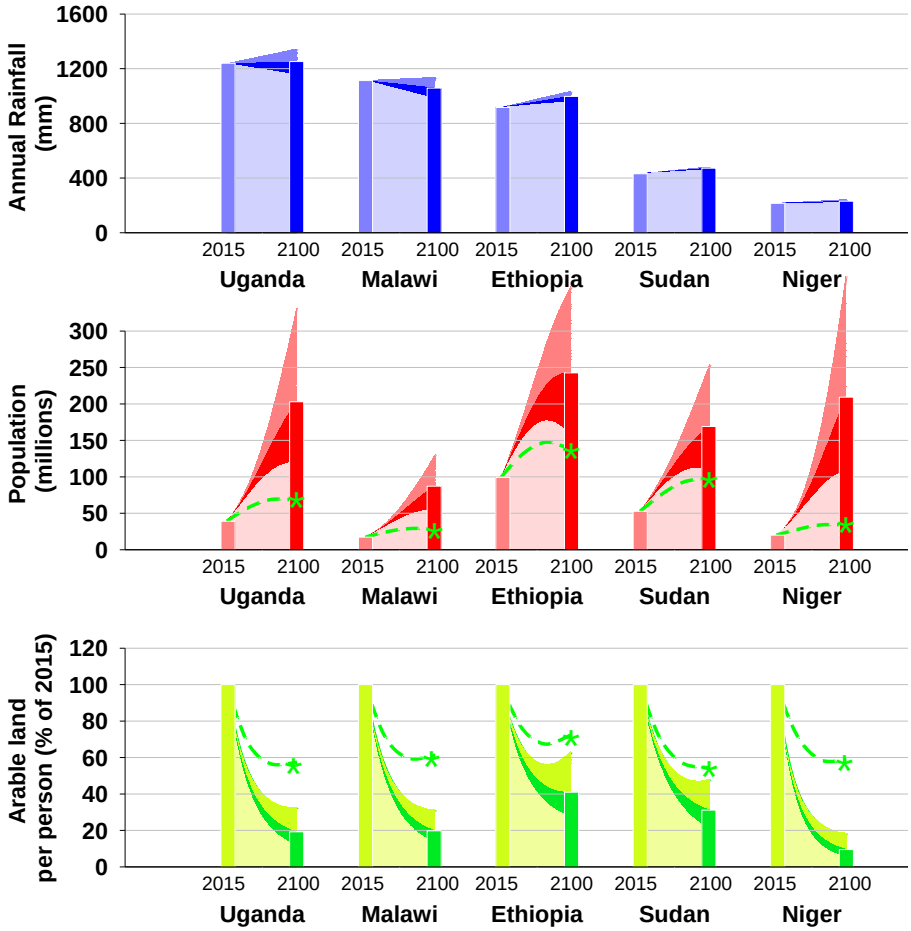

Figure 11. Projected change in rainfall due to climate change (from Carter and Parker 2009)[27] and in population (from UNDESA 2015) in five sub-Saharan African countries. Arable land per person is calculated as a percentage of that currently available. The green dashed pathways are those which would be achievable if national family planning programs were rapidly initiated and achieved the average rate of fertility decline that strong family planning countries achieved in the 1970s-1990s (see Figure 9).

[25] Population Institute 2015. Demographic Vulnerability: Where Population Growth Poses the Greatest Challenges. https://www.populationinstitute.org/demovulnerability/

[26] APPG 2015. Population Dynamics and the Sustainable Development Goals. http://www.appg-popdevrh.org.uk/Population%20Dynamics%20and%20the%20Sustainable%20Development%20Goals.pdf

[27] Carter RC and Parker A. 2009. Climate change, population trends and groundwater in Africa. Hydrological Sciences Journal, 54:4, 676-689.

A recent study found that even a modest increase in the rate of fertility decline in Ethiopia would negate the impacts of climate change on food security.[28] Thankfully, Ethiopia is now making progress to extend family planning, but most other east African countries are doing less well.

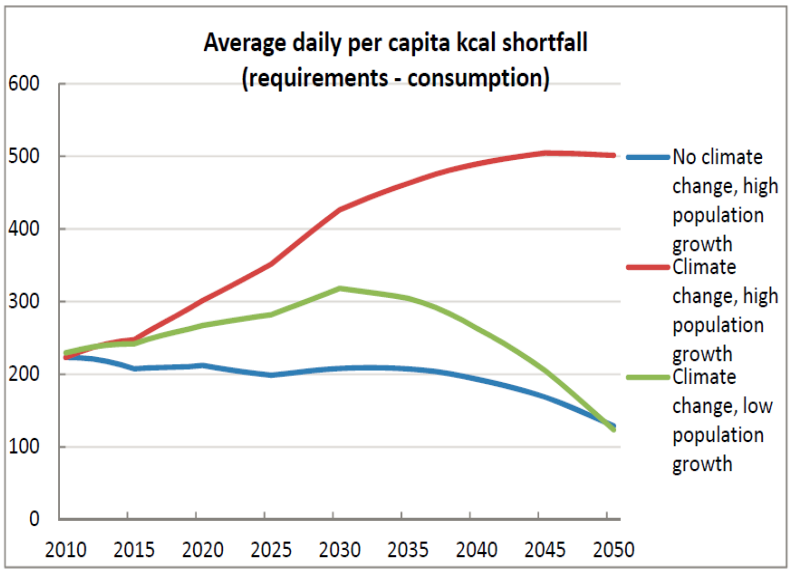

Figure 12 (From Moreland and Smith 2012) Outcomes for food security of expected impacts of climate change and of agricultural productivity gains in Ethiopia, under the UN's medium fertility projection for Ethiopia and under a scenario with accelerated fertility decline.

It has been estimated that we will need additional fresh water equivalent to an extra 20 Nile Rivers, to feed one billion more people.[29] Currently we are adding one billion every 12 years or less.

During the UNFCCC's 2009 climate adaptation agenda, 37 out of 41 least developed countries highlighted population growth and density as an adaptation threat in their National Adaptation Plans for Action (NAPAs).[30] But only one proposed project included a population component, and none were funded. The UNFCCC guidelines lacked appropriate categories in which population action could be presented as valid climate action. This situation should be remedied so that adaptation responses can address the greatest contributor to poverty and climate vulnerability in high-fertility countries.

Conclusion

We hope that the High-Level Champions recognise the lack of population action as a key barrier to achieving a safe climate future, and to protecting vulnerable communities from the impacts of unavoidable climate change.

[28] Moreland S. and Smith E. 2012. Modeling climate change, food security and population: pilot testing the model in Ethiopia. Futures Group.
[29] InterAction Council 2012. The Global Water Crisis: Addressing an Urgent Security Issue.
[30] Mutunga C and Hardee K 2009. Population and reproductive health in national adaptation programmes of action (NAPAs) for climate change. Population Action International working paper WP09-04.

The High Level Champions have a unique opportunity to create a space for population issues to be given due attention in the climate change response. The Sustainable Development Goals include target 3.7: "By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning." Yet few people appreciate that most other targets depend on achieving this long-neglected goal.

UNICEF has said *"Family planning could bring more benefit to more people at less cost than any other single technology now available to the human race."*

Climate change makes this statement doubly true.

Sustainable Population Australia
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