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Enhanced action on mitigation, Various approaches, including opportunities for using markets, to enhance the cost-effectiveness of, and to promote, mitigation actions, bearing in mind different circumstances of developed and developing countries (AWG-LCA)
Submission of views by Parties and admitted UNFCCC observer organizations on the matters referred to in paragraphs 83 and 84 of decision [-/CP.17] Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention, including their experiences, positive and negative, with existing approaches and mechanisms as well as lessons learned.

Population growth reduction as an appropriate, cost effective and development enhancing contribution to mitigation

The purpose of this submission is to highlight the contribution of population growth to emissions growth and to vulnerability of communities to future climate change impacts, and to argue for the inclusion of non-coercive measures aimed at reducing population growth among climate change responses.

In relation to *paragraph 83*, a stable population is a prerequisite for sustainable development, given finite land, water and atmospheric resources. International assistance for voluntary family planning and girls' education has been shown to be more cost-effective in reducing emissions than wind power (the cheapest low-emissions energy technology) or forest conservation.[i] The avoided emissions continue to grow over time without further investment, while those achieved by technological change require ongoing maintenance to sustain.

In relation to *paragraph 84*, we note that the impacts of the implementation of such response measures are overwhelmingly positive, particularly for women and children, and many times greater than the direct mitigation value. For the same dollar, many development objectives are achieved, including empowerment and economic opportunity for women, better survival and nutrition of children, greater food and water security for communities, reduced deforestation and land degradation, and reduced national expenditure on infrastructure enabling more spending on services.

We argue that

1. sufficient emissions reduction cannot be achieved without measures to accelerate the stabilization of population numbers globally;
2. a number of options exist to support reducing birth rates through the climate change response framework, that enhance the rights and wellbeing of women, children and communities;
3. inclusion of population growth mitigation does not compete with other areas of climate change response, but increases the impact of all other measures; and

4. not including population growth reduction constitutes a moral hazard, by accepting much greater climate change than could otherwise be achieved, and by abandoning the goal of ending poverty.

We present three rights-based options for consideration by the AWG-LCA.

Contribution of population growth to emissions growth

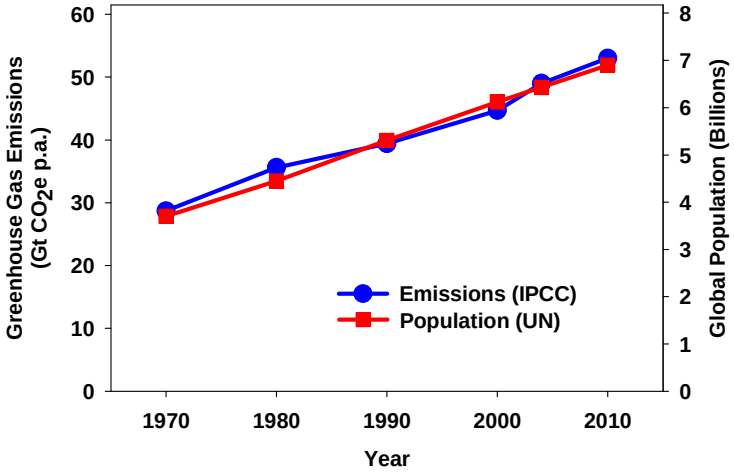

Figure 1. Global greenhouse gas emissions, as estimated by the IPCC, and global population estimated by the United Nations Population Division, since 1970.

The chart above shows that greenhouse gas emissions have been directly proportional to global population over the past forty years. Growth in emissions over the period was equivalent to 1.59% p.a., and growth in population was equivalent to 1.64% p.a. Per capita emissions globally were effectively unchanged. Other studies have shown that per capita emissions have been constant over this period in individual developed countries and regions.[ii] The growth in per capita emissions in rapidly developing countries has been off-set by the dilution of national emissions by population growth in least developed countries.

It is often claimed that growth in affluence has had a greater impact on emissions growth. The IPCC discusses the 'Kaya Identity' composed of four contributing factors: total population (p), economic output per capita ($GDP/p), energy intensity of the economy (J/$GDP), and emissions intensity of energy production (CO_2e/J).[iii] The problem is that the last three terms are self-affirming, in a circular logic. Regardless of the real relationship between economic activity and emissions, these three terms would tell you that emissions rise in proportion to GDP, except to the extent they are mitigated by reducing energy intensity of the economy and the emissions intensity of energy. In fact the emissions intensity of meeting each person's physical requirements has changed little, while measured economic activity has been inflated by counting activities which did not previously involve monetary transaction and, via debt-generated capital, counting future production as wealth today – all emissions-free 'froth' on the macroeconomic data. In fact, the relationship between emissions growth and economic growth over time is weak, and the 'energy intensity of the economy' is a measure of this weakness, not a measure of mitigation success. This is not to say that per capita emissions can't be substantially reduced in the future, only that we should not draw false comfort from the 'progress' to date on emissions intensity of the economy.

We do not aim to detract in any way from the importance of changing consumption behaviour, energy technology and the protection of forests and soils. However, it is unlikely that sufficient change can be achieved in each of these areas to achieve the required emissions reductions, unless population growth is diminished as a matter of urgency. It is even less likely that such reductions will be achieved at the same time as lifting rapidly growing populations out of poverty.

This conclusion is affirmed in the IPCC's presentation of SRES scenarios of future emissions. Only those scenarios assuming a low population path achieved less than 2°C climate change.[iv]

It has been estimated that a lower population path could contribute 16-29 % of the emissions reductions needed by 2050. The contribution expands with time, accounting for 37-41% of total fossil fuel use by 2100[v].

If anything, this is an underestimate, since the calculations don't consider the role of population growth rate in overall demand for physical resources. For each 1% population growth rate, between 10% and 15% of economic activity may be needed to expand capacity of housing, infrastructure and equipment, simply to maintain existing levels of service delivery and amenity to a larger population.[vi] These construction and manufacturing activities are among the most energy and resource intensive sectors of the economy. Consequently, it might be assumed that an even greater proportion – perhaps upwards of 20% – of total emissions are generated on account of our 1.2% p.a. global population growth rate. These emissions are not easily diminished by changes in lifestyle, but would be eliminated by ending population growth.

An ethical response to the population growth factor

Our position is that a large proportion of the current population growth is due to coercive pregnancy:[vii] the failure to provide women and couples the freedom to choose the timing and number of their children, and to inform them of the implications of their choice on the health, resource access and economic wellbeing of themselves, their children and their community.

The remainder is largely due to demographic momentum, which takes time to diminish after fertility reduction has been achieved.

Hence we reject Yvo de Boer's comment that including response measures aimed at slowing population growth 'takes you onto shakey ground morally'.[viii] The greater moral hazard is continuing to ignore population growth's contribution to climate change.[ix]

We also point out that such measures do not compete with any other emissions reduction efforts. The UN estimates that "for every dollar spent in family planning, between two and six dollars can be saved in interventions aimed at achieving other development goals."[x] Furthermore, the same dollar increases the impact of every other mitigation and adaptation effort. Every kW of renewable energy is a greater proportion of the total needed, every increase in agricultural production ensures food security for longer, less requirement for intensive agriculture means less nitrous oxide emissions and reduced dead zones in river plumes, fewer people are forced to live on vulnerable flood plains and steep slopes, fewer climate change refugees must be accommodated elsewhere.

Currently international support for family planning constitutes less than 0.3% of all official aid. This is about a hundredth of the support given to agricultural development. While it has been strongly argued that agricultural development assistance needs to quadruple to avoid famine in coming decades,[xi] placing only one percent of these resources into family planning would likely double the impact on food security, by halving the additional population yet to be supported.

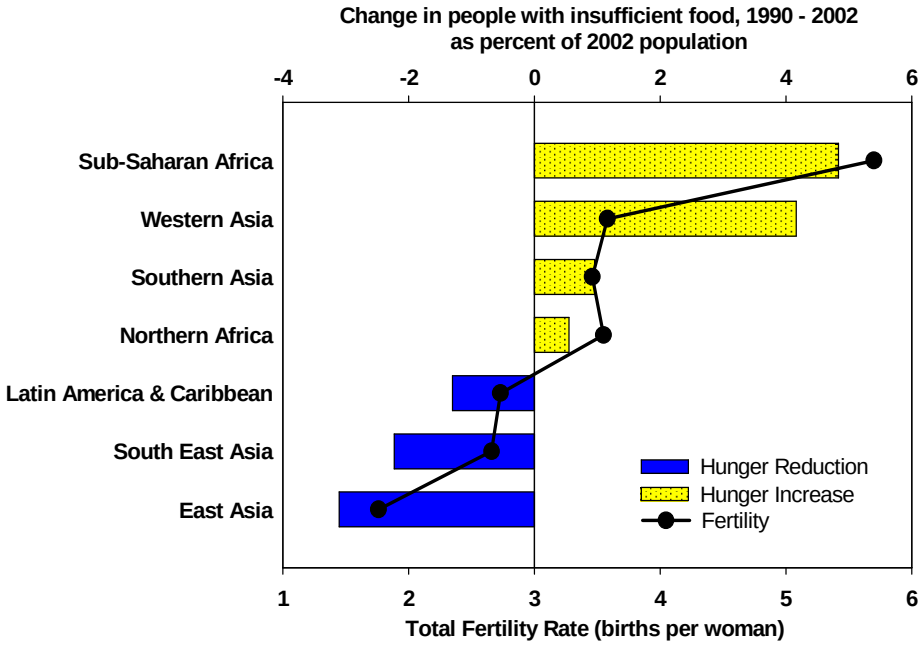

Figure 2. The change in proportion of people with insufficient food (derived from WHO data) and the total fertility rate, in developing regions of the world.

As Figure 2 shows, the extent of fertility reduction of nations and regions in the past correlates strongly with their recent food security status.

Correlation is not causation, and there is much detail lost in the regional groupings depicted here. However, there is increasing evidence that high population growth rates are driving poverty in least developed countries,[xii] and that the 'demographic transition' (whereby increasing wealth is correlated with declining family size) results from declining population growth rate enabling economic advance, to a greater extent than the other way around.[xiii]

The lost decade: efficacy of voluntary family planning measures

The efficacy of voluntary family planning programs, and of both financial assistance and political commitment for population stabilization, has been starkly demonstrated over the last decade, by the effect of their removal.

Due to political lobbying and a misinformation campaign by certain religious extremists, in the mid-1990s it became politically unacceptable to identify population growth reduction as a goal for development and health interventions, and to use metrics relating to birth rates or population numbers in reporting program success. The 1994 UN Conference on Population and Development in Cairo dictated that women's reproductive health and rights must be the exclusive goal of population interventions (instead of essential goals along side population stabilisation, as the vast majority of programs already upheld).

The ironic result of the Cairo Agenda has been to greatly undermine women's reproductive health and rights, by decimating support for family planning programs. Between 1995 and 2007, international assistance for family planning dropped from $723 million to $338 million.[xiv] As a proportion of total aid for population assistance, it dropped from 55% to only 5%, as the total program was expanded by the response to HIV-AIDS (Figure 3). This expansion also drew national capacity within developing countries away from family planning programs.

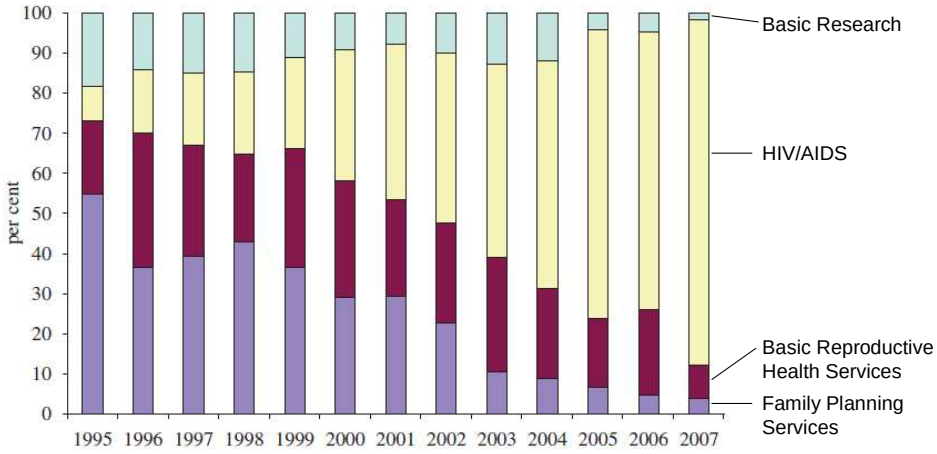

Figure 3. Allocation of international funding for "Population Assistance" (Sinding 2009)[xv]

This was despite the overwhelming success of purely voluntary, non-coercive programs in many countries in reducing family size, liberating women from unwanted pregnancies and improving the economic situation for families and nations. Although the challenges posed by population growth are widely acknowledged, and the impact of reproductive health programs and girls' education on birth rates openly recognised as a good thing, actually *intending* to do this good thing became abhorant.

This situation is analogous to insisting that forests should never be valued for their carbon storage, as this would be an affront to the intrinsic value of their biodiversity. Such a view would contend that we should only protect forests via biodiversity programs and, while celebrating the avoided emissions that may result, never *seek* to avoid them, nor indeed measure the outcome in terms of carbon stocks. Most people would agree that such a position would not serve the cause of biodiversity but rob it of valuable opportunities. Similarly, we should see that the cause of women's reproductive health and rights is not served by the taboo on population numbers.

To say that this strategy has been a failure is understatement. *It has been a catastrophe.*

As a result of this taboo, neither population stabilisation nor access to reproductive health care and contraception were included among the Millennium Development Goals (MDG). At the first review of the MDG in 2005, it was realised that population growth threatened every other goal.[xvi] Belatedly, universal access to reproductive health care was added as a dot point under Goal 5 – too little, too late.

The fertility decline established in sub-Saharan Africa by earlier family planning programs has stalled, and birth rates in many rural areas have actually increased.[xvii] [xviii]

The global population trend has decisively changed course. The number of people added to the planet each year peaked in 1988 and was showing steady decline, but from 2003 to 2010 the numbers increased each year. This is not a course consistent with the UN's medium projection. Only renewed attention to family planning can achieve even the medium projection, let alone a lower outcome.

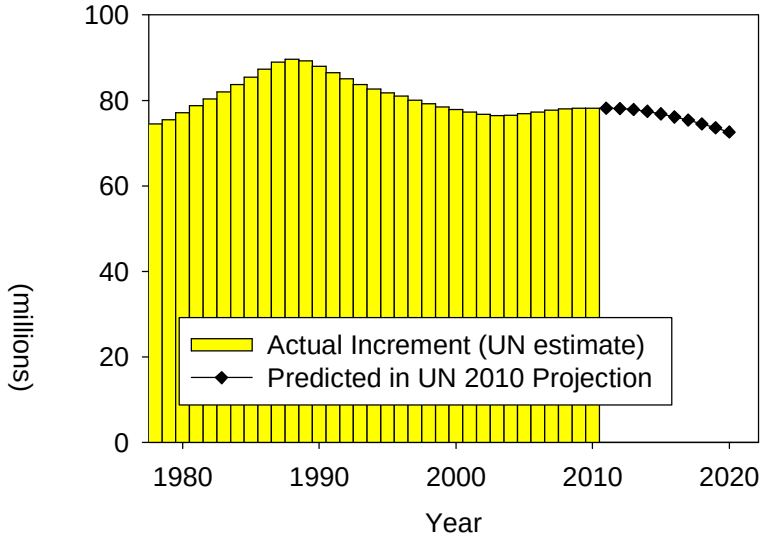

Figure 4. Annual increment in global population, according to estimates published in the UN 2010 revision.

The current trend in global population constitutes near-linear growth (the same number added each year). Linear growth does not peak and decline, it goes on rising at a steady pace. Even linear growth requires fertility decline (constant fertility results in exponential growth, until mortality increases), and results in a declining growth rate (the same increment is divided by a greater total each year). Hence we should not be deceived that reported declines in fertility or global growth mean that stabilization is happening.

It should also be noted that, over this period of time, efforts were increased to address several other aspects of human development. The agenda of the Millenium Development Goals increased efforts and progress in reducing infant mortality, increasing girls' participation in education, and reducing some measures of poverty. These changes are claimed to encourage people to choose smaller families. Whatever impact they have had has been more than off-set by the reduction in family planning effort. It can no longer be argued that a focus on human development will stabilize population, without the need for a stated intention to do so.

Conversely, several countries have demonstrated that non-coercive voluntary family planning programs are effective even in poor, low-education settings. They are capable of halving births per woman within a decade, and reaching below-replacement fertility levels within two decades. Such rapid decline can limit future growth to no more than double the current population, despite initially high demographic momentum. This is in contrast to several African countries that are currently doubling each 20 years.

Figure 5 shows plots generated by Gapminder World of total fertility rate (births per woman) against GDP per capita from 1969 to 2007, contrasting the path of India, Thailand and China. China and Thailand both adopted high-profile family planning programs in the late 1960s.

India's population policy and family planning programs have been inconsistent, and at times ill-conceived, with resentment against coercive measures causing programs to be wound back. China's coercive one-child policy was not introduced until 1978, after the main decline in fertility which occurred under voluntary programs. The plots show that fertility decline preceded increases in wealth in both China and Thailand, and subsequently wealth increased faster than in India, whose fertility remains higher. Similar paths can be seen for all nations that have actively pursued voluntary family planning. Indeed, all nations that have moved from developing status to developed status since 1950 did so after reducing fertility rate and population growth. In each case, the low fertility has been sustained without continued family planning promotion, because it is what women choose once they have had experience of it. Such charts are powerful evidence that birth reduction promotes economic development, to a greater extent than economic development promotes birth reduction.

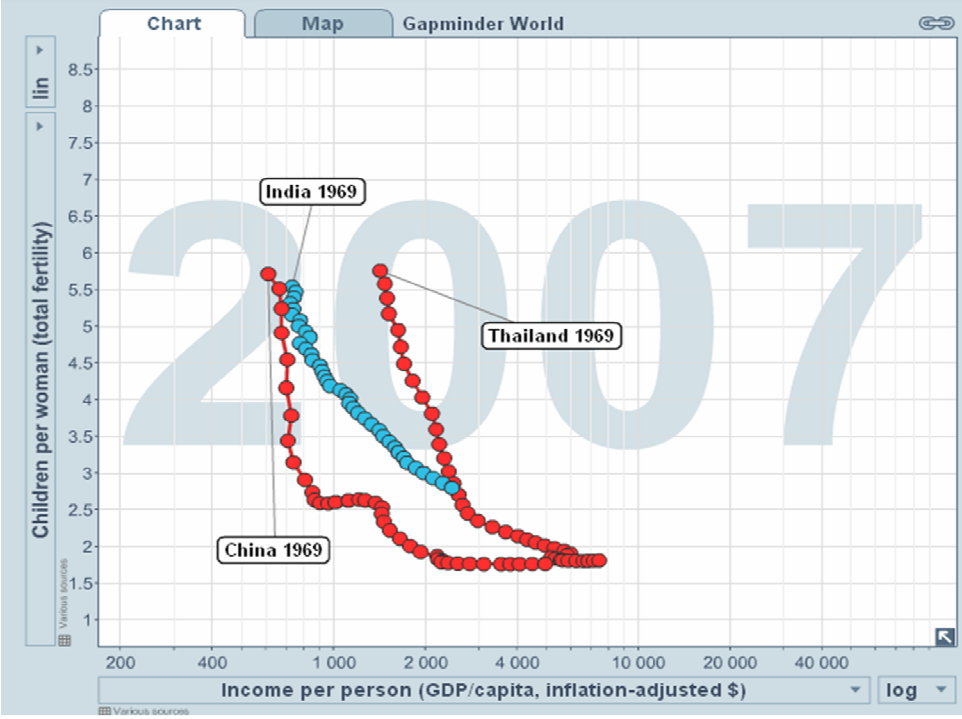

Figure 5. Comparison of the historic course of fertility reduction and per capita wealth, in India, China and Thailand, generated by Gapminder World simulation (www.gapminder.org)

Options for addressing population growth

Implementing any or all of the following suggestions would greatly improve the chance of avoiding dangerous climate change through mitigation actions. They would also greatly reduce vulnerability of poor communities to climate change impacts. While each option may be adopted alone, they would enhance each other's impact.

1. A paragraph in the preambular section or shared vision

Suggested text:
Recognises that population growth: increases total carbon emissions, especially in developed countries; increases the number of victims requiring adaptation measures, especially women in developing countries; inhibits economic development, notably in the least developed

countries; thus worsens all problems of both mitigation and adaptation; and can be countered cost-effectively by meeting the unmet need for reproductive health care; by women's empowerment, gender-equality, and the right to family planning; and by non-coercive population stabilisation policies in all countries.

Simply including such a statement would go a long way toward reversing the neglect of family planning since the mid-1990s. It would give permission to governments and donors to renew voluntary measures aimed at population stabilization. The cost of required programs is very small, but without political commitment, they are neglected.

The impact of population growth in developed countries also needs to be stated, as each additional person causes considerable emissions. Contrary to popular belief, almost all developed countries continue to grow, and some of them quite rapidly. Natural increase has become negative (more deaths than births) in Japan and several European countries, but immigration more than compensates in most countries. Some nations, especially Australia, Canada, USA and UK are growing strongly due to very high immigration rates and pro-natalist policies. Fertility rates have risen in most developed countries,[xix] probably due to pro-natalist propaganda motivated by myths about supposedly dire consequences of too many old people.[xx] Few recognize that the cost of additional infrastructure for growing populations far outweighs the small saving in aged care that such growth can achieve.[xxi]

The climate change impacts of such policy positions should not be left out of the equation of costs and benefits. A line of text in the climate change treaty would greatly help to ensure that it is not.

2. Inclusion among modalities for adaptation response, and addressing drivers of deforestation

Suggested text:
[The new institutional arrangement will provide technical and financial support for developing countries in the following areas:]
non-coercive and culturally appropriate support for population stabilization by addressing barriers to universal access to information and resources for reproductive health care and family planning;

Among 41 National Adaptation Plans for Action (NAPAs) submitted in 2009, 37 identified population growth as a factor affecting climate change impacts, yet only six recognized family planning or reproductive health as part of an adaptation strategy, two included family planning and reproductive health in projects submitted for priority funding, and none were funded.[xxii]

Possible reasons for this omission are many, but include the lack of fit with guidelines provided to countries, and with criteria for project selection. Population growth impacts across all sectors identified as potential focus of projects, including food security, water resources, terrestrial ecosystems, coastal and marine systems, health, education and capacity building, disaster management, infrastructure, energy. Emphasis was also given to activities with outcomes measurable directly on climate resilience in the near term. By failing to fit in the boxes provided, and by having predominantly indirect and medium-term (but nonetheless large) impacts, priority could not be given to population measures.

Omission from the treaty text is thus a barrier. By acknowledging the link between population growth and community vulnerability to climate change, the text would enable measures of fertility reduction and population growth rate to be included directly as metrics demonstrating enhanced adaptation.

3. A framework for equitable distribution of effort based on low population projections

Several models have been put forward for setting a safe trajectory for greenhouse gas emissions, and allocating the entitlement to emit, or emissions reduction effort, to individual countries. All assume a top-down distribution of responsibility and effort. It must be agreed that the time for bottom-up voluntary commitments has passed. A fair system must establish entitlements, and enable sanctions against those who do not comply.

A widely accepted principle is that of 'contract and converge', in which developed countries are required to reduce emissions at a faster rate than the global requirement, while least developed countries may increase per capita emissions, with all converging on a similar low per capita rate. Other proposed models divide remaining 'atmospheric space' on a per capita basis, requiring developed countries to purchase surplus allowance from developing countries.

Still more strongly weighted in favour of developing countries is the concept of Greenhouse Development Rights, giving developed countries a negative allocation due to historical emissions. This system is problematic from both ethical and practical perspectives. Firstly, while seeking to punish developed countries for 200 years of culpable fossil fuel use, they simultaneously assert the right to follow the same development path. Secondly, they bestow on children the debts of their parents and grandparents. Thirdly, they ignore the contribution of population growth to the emissions legacy of past people. Finally, they allocate emissions entitlements that the planet could not stand, but require that these are sold to developed countries to cancel their negative allocation. This is appealing to developing country leaders who would like to see the developed world at their mercy, but the sale of those entitlements is likely to generate resentment among ordinary people who do not directly receive the funds and feel that the rich are appropriating their development opportunities, even though these opportunities were never real.

Each of these proposals refers to the distribution of emissions on a per capita basis. Most do not elaborate on when the population should be counted. Kofi Annan and others, who have recognized the inevitable changes in population proportion due to different population growth rates, suggest a 'population base year', to avoid providing a perverse incentive for population growth.

We agree that the framework should not reward the neglect or encouragement of population growth. Even least developed countries should be expected to contribute via population growth reduction, if not by per capita emissions reduction – especially as this will benefit them significantly in terms of poverty reduction and avoided vulnerability to climate change impacts. However, we do not support the concept of a population base year. This is too harsh a penalty for least developed countries, whose demographic momentum will prevent them from ending population growth for some time.

A fairer system would be to establish fair-share emissions trajectories for each country, based on a population-weighted portion of the global trajectory, using the IIASA Low Population

Projection to forecast future populations of each nation. Such emissions paths should not be entitlements, but benchmarks toward which to converge. The extent by which a nation exceeds its benchmark should be reflected in the rate of emissions reductions it is required to achieve, in order to converge by mid-century.

We propose the IIASA low projection, because it is realistic and achievable by non-coercive measures to extend family planning access and equity for women. There is even considerable potential for nations to reduce growth more rapidly, and to benefit in terms of allowable per capita emissions allocation as a result.

The IIASA low projection is somewhat higher than the UN's low projection, because the latter is not a realistic projection. It simply takes the UN medium projection, and subtracts 0.25 from the fertility rate in each country immediately, expanding to 0.5 units later. We can't reduce fertility rate by 0.25 children per woman globally between today and tomorrow. It is merely an illustrative projection, not a plausible scenario. However, the peak population it achieves could be achieved if sufficient priority is given to family planning efforts, and to the range of policies needed to foster later marriage and smaller family aspirations, and to accommodate rather than resist demographic ageing. Adopting the IIASA projection as a benchmark would not prevent even faster growth reduction. It would merely give incentive to rapidly growing nations in the form of a carrot rather than a stick.

Conclusion

It is not enough to mention population growth as an exacerbating factor increasing the challenge of climate change mitigation and food security, without acknowledging that future population is a variable that we can and should manage.

Current policy settings are likely to result in higher populations than predicted in the UN medium projection, unless there is a calamitous increase in deaths.

Political will needs to be restored for measures to reduce population growth. The climate change agreement is a powerful vehicle for achieving this. Without such commitment, the chance of avoiding dangerous climate change is extremely poor.

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