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Gender Equality, Economic Development and Environmental Sustainability

United Nations Development Programme

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Graphic design: Suazion (suazion.com)

Print production: AGS, a Consolidated Graphics company

July 2013

ACRONYMS

CDM	Clean Development Mechanism
CEDAW	Convention on the Elimination of All Forms of Discrimination against Women
COP	Conference of the Parties
GDP	Gross Domestic Product
GEF	Global Environment Facility
MDG	Millennium Development Goals
OECD	Organisation for Economic Co-operation and Development
OECD-DAC	OECD Development Assistance Committee
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children's Fund
WEDO	Women's Environment and Development Organization
ZEIS	Special Zones of Social Interest (Brazil)

5 POPULATION, ENVIRONMENT AND HUMAN RIGHTS: A PARADIGM IN THE MAKING

GITA SEN AND ANITA NAYAR

INTRODUCTION: A TALE OF FOUR CITIES

Current controversies about population, environment and human rights can be traced back to pivotal United Nations Conferences of the early 1990s that occurred in four cities—Rio de Janeiro, Vienna, Cairo and Beijing. In the international policy arena, the early 1990s were flush with optimism engendered by vigorous civil society movements, the growing realization of democracy—particularly in Latin America after a long night of dictatorship—and perceptions that the era of hard structural adjustment programmes was giving way to a greater focus on poverty eradication and human development. The democratic processes of the 1980s strengthened the voice of powerful actors on the global stage—in particular, environmental groups, women's rights organizations and human rights activists.

The UN conferences of the 1990s were the ground for cross-fertilization of ideas and strategies among these actors, sometimes synergistically and at other times through deep controversies. The 1992 UN Conference on Environment and Development (Earth

Summit) in Rio, and especially its 'women's tent' (*Planeta Femea*) at the Non-governmental Organization Forum, saw day after day of intense debate about the links between population and environment among environmental activists (particularly from the global North) and women's health groups that had begun to articulate a sexual and reproductive health and rights agenda. The 1993 Vienna World Conference on Human Rights saw the first explicit official recognition of women's rights as human rights and of violence against women as a violation of those rights (UNWCHR 1993, Bunch and Reilly 1994). The Global Campaign for Women's Human Rights had mobilized over three years to bring this about, and laid thereby the basis for the recognition of sexual and reproductive health and rights at the International Conference on Population and Development in Cairo the following year and at the Fourth World Conference on Women held in Beijing in 1995 (Sen 2006).

The close and sustained interaction of environmental activists and women's rights groups (especially those focusing on sexual and reproductive health and rights) began to transform the hitherto Malthusian approach to population/environment linkages towards one based on human rights. This paper discusses the nature of this paradigm change away from a macro-level focus on population growth towards a more bottom-up and gender-sensitive approach based on women's human rights, buttressed by the work of anthropologists and other social scientists. Understanding the nature of this paradigm change—and the role of women's organizations in effecting it—is critical in the context of renewed debates within the processes marking the twenty years after both the Earth Summit and the International Conference on Population and Development.

POPULATION/ENVIRONMENT LINKAGES: A MALTHUSIAN REPRISE?

The three critical elements of a paradigm are its world view (as shaped by the values that guide the questions it asks), its internal consistency or logic, and its robustness with respect to evidence from both within and outside. Kuhn (1962) defined a scientific paradigm as the acceptance by a community of researchers of a common set of questions, a common basis of evidence, and a common approach to interpretation and analysis. Handa (1986) broadened Kuhn's original frame to recognize the importance of world views (*weltanschauung*)—cogent systems of values and ideas—in shaping paradigms in both social and natural sciences. Not acknowledging the role of values in the making of paradigms imbues the latter with a false objectivity. Indeed it is the evolution of values, shaped by social movements and historical shifts, that quite often determines the change from existing to new paradigms. Furthermore, the robustness and durability of

a paradigm depends on its ability to explain other evidence that 'intrudes' so to speak from outside itself to pose a challenge. We will examine the paradigmatic challenges that have been posed to analysis of population/environment links, from this perspective.

The Malthusian approach to population/environment linkages was a dominant paradigm until it was transformed through the UN processes of the 1990s. In between, the field of technical demography and population studies grew and fuelled more sophisticated understanding of the demographic transition from high to low birth and death rates. There has been extensive debate on the factors that have fuelled this transition. These include the role of rising affluence and urbanization, cultural change, contraceptive availability and family planning programmes, as well as the role of women's autonomy, literacy and education. Whether the predicted steady state global population of 9 to 10 billion is environmentally sustainable is really not known. Although Malthus' 19th century thesis of population growth outstripping food supply was not stated in terms of its impact on the environment—a concept and terminology that evolved some hundred years later—its substance bears a striking resemblance to modern day concerns about the impact of population growth on food security. These were stated in the clearest terms in the 'IPAT' equation proposed four decades ago by scientists John Holdren and Paul Ehrlich (1971, 1974). Driven by the rising concerns of ecological scientists, they argued "the most elementary relation between population and environmental deterioration is that population size acts as a multiplier of the activities, consumption, and attendant environmental damages associated with each individual in the population. The contributing factors in at least some kinds of environmental problems can be usefully studied by expressing the population/environment relation as an equation: environmental disruption = population x consumption per person x damage per unit of consumption…." (1974).

This can be written as: $I = (P)\,(A)\,(T)$, where I = environmental impact; P = population; A = affluence measured as gross domestic product (GDP) divided by population; and T = technology measured as environmental impact per unit of GDP. Actually, IPAT is not strictly speaking an equation but a mathematical identity that is always true, which can be seen by re-writing it as: $I = (P)(\text{GDP}/P)(I/\text{GDP})$.

Written in terms of growth rates, the relative rate of growth of I = the sum of the relative growth rates of P, A and T. Strictly speaking, while the growth rate of I can thus be decomposed into the growth rates of the other three variables, it is invalid to attribute causality to the terms in an identity.[1] The choice of variables to include in an identity can be made *a priori*, and in fact any variables can be chosen without ever invalidating the identity. This is a classic paradigm issue where the choice of questions asked and variables chosen depends on one's world view.

The IPAT identity has been criticized because it treats all population subgroups as the same and ignores the role of distribution. It also assumes implicitly that environmental vulnerability is a constant. For instance the fact that high water consumption may be less problematic in a swamp than in a desert is not reflected in the identity. In a world where evidence exists supporting the existence of an environmental Kuznets curve, and also strongly linking affluence to environmental problems, and where affluence is itself highly unequally distributed (across and within countries), privileging aggregate population as the variable of choice is deeply problematic. The world view that attributes causality to population growth without attention to distribution is a typically Malthusian one, and has been problematic since the time of Malthus himself.[2] IPAT was also problematic in its day because it focused on growth rates rather than levels, an approach that has since been challenged by fast-growing developing countries and reflected in agreement about 'common but differentiated responsibilities' at the Rio Conference in 1992. This agreed principle is now under attack by the global North.

Despite the criticism it has received, IPAT has continued to influence thinking for over forty years. More recent approaches to the links between population, environment and consumption have used more sophisticated modelling and data sets and have gone beyond IPAT to address the challenge of distribution explicitly. O'Neill et al. (2010) use a computable general equilibrium model—the so-called PET (population-environment-technology) model—to compute the energy use and climate change impacts of population growth, ageing and urbanization. The PET model assumes that households affect energy use directly through their consumption patterns, and indirectly through their impact on labour supply and economic growth. The model uses household survey data on composition and consumption to assess the impact of population dynamics. Another model (Chakravarty et al. 2009), takes explicit account of distribution by distinguishing high-CO_2 lifestyles in *all* countries, and uses this to allocate differentiated responsibility for emissions reductions on an individual rather than a country basis.[3]

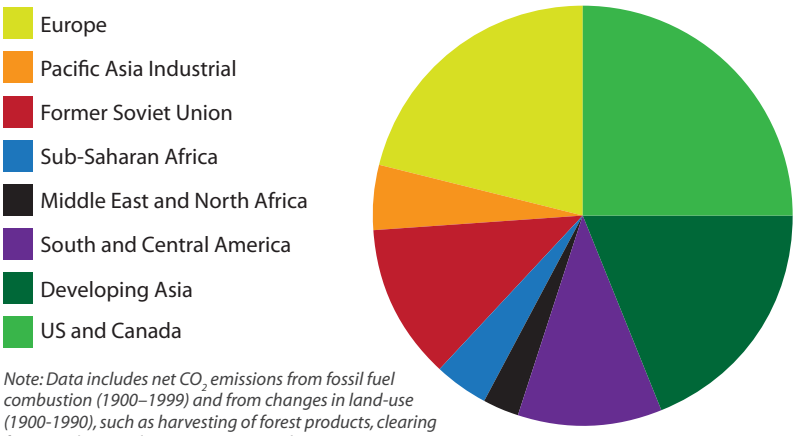
The sophistication of these models and the data they build on makes them more attractive and plausible than the simplistic ones that preceded them. Nonetheless, it must be remembered that these models are not truly dynamic in that they assume that existing consumption relationships will also hold in future, although different scenarios for the relationships may be spelled out. For example, are historical patterns of urban energy consumption necessarily a good predictor of the future? What if the pressures of urbanization itself resulted in lowered consumption patterns (i.e. there are downward shifts in the urban consumption function over time)? What if the current deep global economic crisis or the triple crises of finance, food and fuel dampens economic growth prospects in both high and low-income countries over the medium term?

Another limitation of computable general equilibrium models like PET is in their assumptions about the causal links between population dynamics, labour productivity and economic growth, in which the former drive the latter. The models do not recognize that economic growth may well be driven by macroeconomic forces unleashed by global financial or other markets that have little to do with population age structure, labour force availability or other aspects of population dynamics, either globally or for any particular country or region. These may render irrelevant any past observations about such relationships and make them unstable and unreliable.

A great deal also depends on whether the sharp increases in economic inequality that have been recently observed in some of the fastest growing economies are only relative or, at least in some instances, may indicate a rise in absolute levels of poverty for some. Undoubtedly, growth of population will always result in greater resource use (except if it is counter-weighed by a corresponding and opposite reduction in per capita consumption). But a focus on growth rates should not mask the continued importance of levels of consumption and the history of huge inequalities therein. This history matters and continues to matter for large numbers of people despite the rise in affluence in some hitherto poor large countries.

Over the past century, developed countries (home to only 20 percent of the world's population) have been responsible for over two thirds of the net carbon emissions from fossil fuel burning and land use changes (Baumert et al. 2002). Breaking this down further, of the top 20 historical emitters, only four (namely China, India, Mexico and South Africa) are developing countries. China and India, home to 40 percent of the world's people and among the countries with recent experiences of fast economic growth, have contributed only 7 and 2 percent respectively since 1900 (see Figure 1).

FIGURE 1. CARBON EMISSIONS FROM INDUSTRIAL SOURCES AND LAND-USE CHANGES, 1990-1999



Note: Data includes net CO_2 emissions from fossil fuel combustion (1900–1999) and from changes in land-use (1900-1990), such as harvesting of forest products, clearing for agriculture and vegetation regrowth.

FIGURE 2. CUMULATIVE EMISSIONS OF GREENHOUSE GASES, TO 2002

Source: Patz et al. 2007.

FIGURE 3. ESTIMATED PER-CAPITA MORTALITY FROM CLIMATE CHANGE, 2000

Source: Patz et al. 2007.

The South Centre, an intergovernmental think tank of developing countries, has calculated the total global carbon 'space' as a measure of the inequitable share that industrialized countries have used up and is no longer available to developing countries (South Centre 2009). Estimates of carbon space usage suggest that a maximum of 2,000 to 2,100 gigatonnes of carbon dioxide is the allowable total of all emissions that would keep the rise in global temperature below the tipping point of 2 degrees Celsius. Between 1880 and 2010, about 1,300 gigatonnes of CO_2 were emitted almost entirely by industrialization in the North. This leaves only around 750 gigatonnes, which at the current rate of a 40 gigatonne rise in emissions per year in both North and South combined will use up the carbon space in the atmosphere within two decades. At the heart of the UN climate change negotiations is a struggle over how much carbon space developed countries have consumed, and their historical responsibility for having contributed most of the emissions. To pay back their emissions debt, developed countries would have to both cut emissions by 100 percent and compensate developing countries through, for example, contributions to adaptation.

Two maps illustrate the inequities in terms of the proportion of carbon emissions by country and the likely impacts of climate change on per capita mortality (see Figures 2 and 3).

While climate negotiations remain deadlocked over reducing emissions and financing commitments, the harsh reality is that the bulk of the effects of climate change will be felt in the poorest countries. The poorest people—disproportionately women—will suffer most and first from droughts, floods, sea rise, famines, water shortages and disease exposures, as well as related conflicts that will likely ensue (see Figure 4).

Meanwhile, some demographers, environmentalists and development analysts have related world population projections to environmental ones, and are predicting a bleak future. Citing factors such as climate change projections, chronic water scarcity and less land under cultivation, they have questioned the capacity of planetary resources to meet peoples' needs, including whether food production can keep pace with rising populations

(Engelman 2011). They argue that, despite significant reductions in the total fertility rate to near replacement levels in many low- and middle-income countries, population growth will still continue because of the impact of young age structures—the so-called 'momentum effect' (Bongaarts 1994)—and there are some parts of the world (mainly sub-Saharan Africa) where fertility rates continue to be high. However the extent of the decline in fertility rates can be seen in Figure 5, and account must be taken of continuing disparities in resource distribution and consumption rates between and within countries, and the impact of economic crises (unrelated to population growth) on the volatility of global commodity markets causing unpredictable spikes in food and fuel prices.

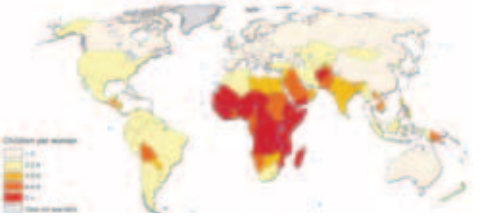
Should the concern today be about the effects of population on the environment or should we focus on the impact of climate change (caused by unsustainable and historically unequal patterns of production and consumption) on people, including large-scale displacement, new infectious diseases, poverty and the destruction of ecological commons? What effects will these have on standard population variables such as life expectancy, fertility and migration?

The latest and most elaborate attempt to gather the evidence on population's macro-links to the environment is the recent report by the Royal Society, *People and the Planet* (2012), in the lead up to the Rio+20 processes, intended to generate renewed global commitment to addressing environmental challenges. The report moves significantly forward in its recognition of inequitable consumption, and in drawing on the most sophisticated of recent modelling on environmental change. It is also useful in that it recognizes the need both to increase per capita consumption for those living in extreme poverty, and to reduce the consumption of those in high-income countries.[4] But in some fundamental ways the report is flawed: its authors include very few social scientists (excluding neoclassical economists) and, possibly as a result, it misses the opportunity to provide an analysis of the political economy of either environmental or demographic change, or to take a micro- approach that would explain the actual behaviour of individuals or groups differentiated by economics, gender, age or other markers.

FIGURE 4. CLIMATE CHANGE VULNERABILITY INDEX

Note: Light green represents low risk; dark blue represents extreme risk. Source: Maplecroft 2011. Source: Patz et al. 2007.

FIGURE 5. TOTAL FERTILITY RATE, 2000-2004



Source: WHO 2005.

Most crucially, the report is distinctly 'pre-Cairo' in its approach to such issues as gender equality, health or women's human rights. Its main recommendation in this context is to stress the importance of girls' education as instrumental to fertility reduction. As we argue below, the population field has moved a long way from this in the last two decades.

CHALLENGES TO THE PARADIGM: A WORM'S EYE VIEW ON POPULATION AND SUSTAINABILITY

Challenges to the dominant Malthusian paradigm on the relationship between population, economic growth and the environment have critiqued both the logic of its arguments, and also put forward uncomfortable evidence about its purported connections, as is clear from the previous section. Social scientists have offered a third strand of critique, questioning the paradigm's approach to population, which is largely based on macro-level data and relationships without reference to the micro-level reality of the lives of poor people. In the lead up to the Cairo conference of 1994, the South feminist network, Development Alternatives with Women for a New Era initiated a collaborative research project with the International Social Science Council and the Social Science Research Council that brought together researchers and activists with the explicit objective of rethinking the population-environment debate by "identifying and examining the micro-level linkages between population and environment and relating these to macro-level considerations" (Arizpe et al. 1994). The effort resulted in a book, *Population and Environment—Rethinking the Debate*.

The editors argued for moving beyond a "polarized debate which ultimately poses an impossible choice for policy makers—a choice between people's needs and wants, and the conservation of the environment" (Arizpe et al. 1994). They went on to say:

> *The debate has failed to benefit from the wealth of data generated at the micro level—data which provide rich information on the social and economic factors that mediate the relation between population and the environment…the population problem does not just involve absolute numbers of people nor even just population densities or overall rates of increase, but also, in important ways, social, political, and institutional factors. Complex patterns of human relationships overlay, alter and distort the relation of people to the land and to the cities… The cultural, social and political filters through which the environment is interpreted and viewed (for example the concept of 'desertification') are also crucial to the social science understanding of ecology and environment.*

Different papers in the volume focus on the way in which the researcher's world view and approach affect the questions asked and the evidence gathered, and how social, political or economic factors shape how a person uses and manages natural resources. This is true *a fortiori* for women who, because of the gendered division of labour that assigns to them the main responsibilities for the care economy (domestic work, care of human beings and social reproduction), are often the stewards of local ecologies, including food production, and therefore most severely affected by environmental damage and resource loss. A number of the papers were on deforestation, and together they showed:

> *The links between environmental problems, human activities and issues of population are rarely direct. It is clear that social scientists must carefully re-examine social, economic and political processes from the point of view of their potential environmental impacts. Models that accomplish this would include mechanisms that govern the use, access and control of resources, as well as the allocation of costs and benefits of human activities exploiting those resources.*

Since the period when the book was published, there has been a wealth of research, mostly but not only based on developing countries, which starts from the micro-basis of how people actually live, produce and consume for their livelihoods, use resources, and conserve or abuse local ecologies. The work of Agarwal, Leach, Ostrom, Peluso and Watts, Ribot, Rocheleau among others provides some important examples (Agarwal 2010, Leach et al. 1999, Ostrom 2000, Peluso and Watts 2001, Ribot and Peluso 2003, Rocheleau 1996). While some of this research has influenced the 'people versus planet' debate, a critical element—the place of gender relations in population dynamics and human ecology—is not always recognized in the resurgence of Malthusian approaches.

ENTER HUMAN RIGHTS: WOMEN TRANSFORM THE PARADIGM

The previous section has argued that the more micro-level approaches and complex behavioural interactions studied by social scientists bring in new and varied evidence, which is not easy to take account of in large-scale macro-level models of the links between environment and population. An even greater paradigmatic change has been brought about by the work of feminist researchers and women's organizations.

Sen (2006) argues that women's struggle for control over their bodies is currently in its second phase. The first phase occurred during the birth-control movement of the late nineteenth and early twentieth centuries. This movement was interwoven with the suffragist struggle for the recognition of women as citizens in Europe and North America, and to some extent the anti-colonial movements of that time, although the

relationship was by no means straightforward. The period between the first phase and the second phase that began about 30 years ago saw the population policy field and the discipline of demography grow substantially.

Population policy, as it evolved in the period after the Second World War, was largely Malthusian. Talk of a 'population bomb' fed concerns in the policy establishment of the global North about the growing numbers of non-white people. Population growth was portrayed as the single most serious threat to economic development, and population control was put forward as the policy answer (Ehrlich 1971). Despite the South-versus-North skirmishes over the relative importance of 'development' versus family planning in controlling population growth,[5] there was very little real challenge to this consensus about population policy.

Though anthropologists and other social scientists have had some influence, demography developed as a largely technical discipline concerned with the calculus of birth, death and migration, with much less interest in social and behavioural issues. Perhaps for this reason, the field as a whole was largely able to close itself off from attention to the causes and consequences of sexual and reproductive behaviour, and the social institutions, practices and norms within which that behaviour is embedded in different cultures and societies. It was not until the rise of the modern women's movement in the 1960s and 1970s that real change became possible in the field.

The international women's movement had coined and been using the term 'reproductive rights' for about 20 years before the paradigm shift that transformed the population field at the International Call on Population Development in Cairo in 1994. Much of this work was motivated by activist concern to challenge coercion, human rights abuses and unethical practices in population policies and programmes.[6] A strong focus of this work was to challenge the ways in which new contraceptive technologies were introduced in family planning programmes and the problem of coercion and quality of services, as well as the problem of inadequate access to contraception or safe abortion services. This activism was not matched by significant feminist research effort until the 1990s. During the 1980s, feminist demographers remained concerned with the question of whether and through which pathways women's education or autonomy can affect fertility and related behaviour (Mason 1988).

POPULATION, ENVIRONMENT AND GENDER

The UN conferences of the 1990s galvanized both research and activism. In the lead up to the Earth Summit, many major North-based environmental groups posited population growth as a major threat to the earth's carrying capacity. Feminist activists began a

process of consolidation of a counter-position that was articulated in the *Planeta Femea*, the women's tent, through interactions with a large number of women from environmental organizations. In the next two years, women's organizations worked together to develop a consensus position on population policy that would bridge the considerable differences and mistrust that existed among groups from different regions and backgrounds. While some of these differences were the product of mistrust of Northern by Southern civil society groups, there were also tensions among groups within each global pole. A major and conscious effort at bridging gaps and building agreement was critical in allowing the women's movement to turn its attention to two tasks: the first was to negotiate an alliance with the family planning lobbies, and the second was to develop the political capacity to challenge the growing bloc of religious conservatives that was being created by the Vatican. The success of the women's movement in accomplishing these two tasks is the history of the International Conference on Population and Development.

A new framework for population-related policy was created, which affirmed women's right to control their fertility and meet their needs for safe, affordable and accessible contraceptives, while recognizing the social determinants, and health and rights consequences of sexual and reproductive behaviour (Sen et al. 1994, Correa and Reichmann 1994, Dixon-Mueller 1993). New and radical concepts, such as reproductive and sexual health and rights, had to be clarified in a field that had been an "odd mixture of technocratic modelling and doomsday scenarios until then" (Antrobus and Sen 2006). The result of all this effort was the paradigm change of the International Conference on Population and Development, as detailed in its Programme of Action—the shift away from a policy focus on aggregate numbers and population growth towards a focus on sexual and reproductive health and rights (including contraception and family planning) and gender equality.

While there was no intrinsic disagreement between the women's groups and the environmental groups in terms of the importance of and need for high quality, effective contraceptive services, there were other differences. These were about overarching goals: macro-level planetary sustainability versus the health and rights of people, particularly of women and young people. These differences in goals meant that each approach asked different questions and marshalled different evidence. For example, family planning programmes in India had for a long time explained away the poor uptake of intra-uterine contraceptive devices as being due to women's ignorance and unscientific traditional beliefs. This was because they did not actually focus attention on women's reproductive health and rights. It was only after the focus on women's reproductive health generated evidence about high rates of reproductive tract infections among poor rural women (Bang 1989) that their reluctance to use the devices became acknowledged as being rational and sensible.

CONCLUSION: CHALLENGES OF RIO+20 AND CAIRO+20

These differences in approaches and evidence came to a head in the lead up to the Rio and Cairo conferences. Macro-level approaches linking the natural sciences with traditional demography tended to oversimplify the causes and consequences of both demographic and ecological change. More nuanced social science and political economy approaches brought less simplistic analysis but also raised more difficult questions about needed policies and changes. It was here that women's organizations provided the radical shift in approach that led to the change of the population paradigm. Up until Cairo, the main question asked about women's role in population change was whether and the extent to which girls' education would alter fertility behaviour, and thereby population growth. But Cairo moved population thinking from such *instrumentality* to a human rights basis for policies that assigned *intrinsic* value to gender equality and women's sexual and reproductive health and autonomous decision-making. It opened up and made possible a range of new questions about policies, programmes and ethics that demographers had not been asked before.

The engagement between women's and environmental groups dampened the macro approaches to population and environment for well nigh two decades after the Rio and Cairo conferences. More recently, however, in the lead up to the intergovernmental negotiations on climate change and the review of the Kyoto Protocol, such approaches have resurfaced, raising human rights concerns about the implications for global consensus about population policies and programmes. They also appear to have come back in major reports such as that of the Royal Society (2012), albeit in a much more nuanced and sophisticated manner. Some of this may be simply because many environmentalists are natural scientists for whom the complexities of social science approaches may be unsettling. But it may also be the case that, in the difficult context of bitter South-versus-North battles over climate change, common but differentiated responsibilities for current environmental problems, and reaffirmation of the core principles of the Earth Summit, the bogey of population growth may serve to diffuse the call for recognizing historical responsibilities. Caught in the middle of these battles is the continuing struggle for the realization of women's human rights, including their sexual and reproductive rights and gender justice.

Marrying a human rights-based approach to population and environmental change is not easy by any means. But when both population and environment, and the links between them, are examined from the perspective of women, gender equality, human rights and social justice, not only can new questions be asked but new approaches can be taken and new policy and programme answers given. For example, the intergovernmental negotiations during the 45th session of the UN Commission on Population and Development held in April 2012 resulted in a remarkably progressive recognition of the needs, health and human rights of adolescents and young people (UNCPD 2012). This is the direction that the paradigm change of Rio, Vienna, Cairo and Beijing needs to follow for its completion. ■

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Endnotes

1 One can always add any number of terms to an identity as long as numerators and denominators cancel out. What this means is that the choice of the terms one includes has to be made *a priori* and their causal connections cannot be derived from the identity itself.

2 Contemporary critics of Malthus argued against blaming the victim, which is what Malthus appeared to do.

3 Thanks to Deepak Malghan for personal communication on this. Any errors of interpretation are ours alone.

4 The report itself only focuses on 'extreme' poverty, and also sidesteps the challenge of 'common but differentiated responsibility' by lumping emerging economies with the 'most developed'.

5 "Development is the best contraceptive" was the South's slogan during the international population conference held in Bucharest in 1974.

6 The Women's Global Network for Reproductive Rights was the main international organization mobilizing women at this time.