



Sustainable Development Policy Institute

Working Paper Series no: W-08

Population Malady or Symptom?

Frank Amalric and Tariq Banuri

8 March 1993



All rights reserved. No part of this paper may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording or information storage and retrieval system, without prior written permission of the publisher.

A publication of the Sustainable Development Policy Institute (SDPI).

The opinions expressed in the papers are solely those of the authors, and publishing them does not in any way constitute an endorsement of the opinion by the SDPI.

Sustainable Development Policy Institute is an independent, non-profit research institute on sustainable development.



WP- 008- 002- 080- 1993- 031

© 1993 by the Sustainable Development Policy Institute

Mailing Address: PO Box 2342, Islamabad, Pakistan.
Telephone ++ (92-51) 2278134, 2278136, 2277146, 2270674-76
Fax ++(92-51) 2278135, URL:www.sdpi.org

Table of Contents

Abstract	1
Local Level	3
The National Level	7
Population Growth as a World Problem	11
The Two Paradigms	14
The Conflict between two Forms of Globalization	16
References	17

The Sustainable Development Policy Institute is an independent, non-profit, non-government policy research institute, meant to provide expert advice to the government (at all levels), public interest and political organizations, and the mass media. It is administered by an independent Board of Governors.

Board of Governors:

Mr V. A. Jafarey
Chairman of the Board

Khalid Ahmed
Editor, AAJ KAL

Syed Babar Ali
Advisor, Packages Ltd.

Dr Tariq Banuri
Executive Director, SDPI

Dr Parvez Hassan
Senior Partner, Hassan & Hassan Advocates

Aban Marker Kabraji
Country Representative, IUCN-Pakistan

Sohaib Sultan Khan
Senior Advisor, NRSP

Dr G. M. Khattak
Co-ordinator, Sarhad Provincial Conservation Strategy

Abdul Rahim Mahsud
Regional Representative for West Asia, Nippon Gieken Associates

Dr Atta-ur-Rahman
Director, HEJ Research Institute, Karachi University

Imtiaz Ahmed Sahibzada
Secretary, Environment and Urban Affairs Division

Dr Arshad Zaman
Former Chief Economist to the Government of Pakistan

Under the Working Paper Series, the SDPI publishes research papers written either by the regular staff of the Institute or affiliated researchers. These papers present preliminary research findings either directly related to sustainable development or connected with governance, policy-making and other social science issues which affect sustainable and just development. These tentative findings are meant to stimulate discussion and critical comment.

Population: Malady or Symptom?

Frank Amalric and Tariq Banuri

Abstract

The paper starts by examining the three debates on population at the local, national and global levels. In the fourth section the authors sketch the two emerging and competing paradigms: the first one, in line with the conventional theory of development, isolates the population factor from other societal factors; this is contrasted by the alternate paradigm, built around the concept of governance, which takes a more structural approach to population growth. Finally, the fifth section relates the opposition between these two paradigms to the opposition between the two forms of globalization. In conclusion the authors call for a need to build a community of the world i.e., an inter-dependent world, where responsibilities are shared and for good governance at the global level.

If one debate is highly controversial and raises emotional reactions, it is without doubt the one on population, and more particularly, on the interaction between population growth and environmental degradation. The subject is particularly sensitive in North-South discussions. In Bucharest in 1974, India and China led the opposition of Third World countries to Northern views (particularly that of the United States) stressing the negative effects of population growth and the need to control it, while at the same time they implemented particularly strict population control policies at home. Symptomatically, population was the issue not raised in Rio during the "Earth Conference", whereas it is on everybody's lips elsewhere. In international forums and conferences, physicists and biologist repeatedly argue that it does not make sense to speak about global sustainability without speaking about population growth. And representants from the South denounce new forms of colonialism disguised under environmental concerns, of which the population debate would be the epitome.

This paper is an attempt at deciphering what is at stake behind this apparent impossibility to communicate. To start, it is necessary to recognise that there is not one, but several debates on population, each corresponding to a different level of aggregation - the local, national and global levels - and each raising different aspects of what may constitute the population growth "problem"¹. At the local level, central aspects of the debate revolve around the health of the mother and of the children, including education, and the problem of commons in the wake of Hardin's famous "tragedy of the commons" (Hardin 1968). At the national level, the debate turns around the links between population growth and (economic) development, with particular focus on the consequences for capital formation, employment, and the capacity for the government to purvey social services. Finally, at the international level, a growing focus has been given to the links between population growth and environmental degradation.

This is the "conventional" position on the issue of population growth. But there is another way to look at it, which starts by denying that there is a population "problem" at the local level (in line in fact with much of demographic theory), and rather emphasizes the conflict between national priorities (to reduce population growth) and local goals. In this line, the population growth "problem", mainly a national one because this is the level at which development and modernization takes place, is first and foremost a

1. McNicoll (1984) follows a somewhat similar approach in his review of the literature on the impacts of population growth.

problem of governance, linked to the incapacity of the state (notably in South Asia) to take and implement collective decisions. Population growth instead of being the source of all ills is seen as the symptom of bad governance, as are in large measure forms of mis-development and environmental degradation.

This different interpretation changes fundamentally the nature of the debate at the international level. Indeed, if it was straightforward, within the conventional view, to suspect population growth of even greater ills, the matter becomes much more difficult in the other perspective. Moreover, the different intervenants in the debate tend to choose one or the other perspective according to their own interest; thus the North will rely on the first interpretation in order to shift the agenda towards population growth in the South rather than facing the issue of over-consumption in the North. Similarly, governments in the South speak about inequalities at the global level when intervening in the international arena, thereby relying on the second interpretation, but shift back to the first one at the national level as to avoid addressing larger political questions. But one's capacity to export one's problems is not the same for all actors, and depends very much on the relationships of power. At the bottom of the hierarchy, the poor's only possibility to export their own problems is through high population growth.

In the end, the conflict over population is directly related to the opposition between two processes of globalization, one which has been taking place *de facto*, led by economic forces, power relationships, and the possibility of certain actors to export their problems onto others, and the other one which is a political attempt at addressing global issues, and which calls for people's responsabilization. The first process also loosely corresponds to the way economists perceive the world, that is as infinite, whereas the second one correspond to the physicists' and biologists' perspective that stresses the finiteness of the biosphere in all its dimensions - water, soil, forests, energy, sinks - with the general goal to delimitate the world in which human activities take place². In this line, Alain Lipietz (1992) has notably described the UNCED process as a global "enclosures movement" through which rights to the global commons are being allocated.

The heart of the matter is whether this global enclosures movement is possible without its entailing some new form of colonization. In the North, a number of participants in the debate refuse to consider this question and withdraw behind supposed scientific neutrality and questions of the type: "how many humans can live on the Earth?". Representants from the South, definitely more historically aware, refuse precisely to enter this game unless the North can provide strong warrants that the process will not be eventually diverted in its (that of the North) favour.

The possibility to discuss population issues at the global level thus rests on the capacity for the North to provide warrants that it is really "Our Common Future" which is discussed. But beyond the political conflict, the real matter to reach sustainability is the capacity to influence local behavior to make them take into account global goals. In this sense, it is a matter of governance. In this perspective, we need to reflect further on the so-called "crisis of development", for this crisis is precisely in part a failure of governance in a number of southern countries. It would be illusory to try to achieve at the global level what national governments have repeatedly failed to do.

Local Level

2. For a review of the literature on the two approaches, see Keyfitz (1991).

By local level we mean the level at which face-to-face interactions take place, like the family and village communities in southern countries. It is at this level that the immediate causes and consequences of population growth are to be found. The specificity here is that if population growth is recognized as a problem, it must be explained in terms of domination or of impediments to collective action: at the local level, the persistence of externalities cannot be reduced to a free-rider phenomenon (Olsen 1965).

Refinements of Demographic Transition Theory

The micro-foundations of what has long been the major theory of fertility, namely demographic transition theory, have always been quite dubious. The theory was initially set to explain and/or describe the process by which European societies had passed from high to low mortality and fertility rates, and the framework was later applied to non-European countries³. In a first stage, mortality rates were supposed to decline due to improvements in health, notably linked to the introduction of modern medicine. With persistent high fertility rates, this would lead to the growth of the population. Finally, with development and an improvement in the conditions of life, fertility rates would decline, thereby closing the transition.

Yet the series of causation - the mechanism of transition at the local level - was rather left vague. Since in pre-modern societies social reproduction required high fertility rates given the high mortality rates, it was argued that such rates were maintained by a whole series of props: "religious doctrines, moral codes, laws, education, community customs, marriage habits and family organizations... all focused towards maintaining high fertility."⁴ With the decline of mortality rates, such props would be less needed and would eventually wither, if not more actively eroded by forces associated with modernization, like urbanization or industrialization (Caldwell 1976).

What rendered the theory so appealing is that it is broadly supported by evidence, both from cross-country and time-series data (Dasgupta 1992). But the theory neither provided a theory of fertility as such - it was rather a description of a wide historical process - nor a framework from which prescriptions from population policies could be drawn⁵. In 1972, Indira Gandhi could say that "development is the best contraceptive"⁶, but such a statement remained as meaningless as the concept of development remained vague. Moreover, the theory seemed to lack internal consistency, notably with respect to the concept of rationality (Caldwell 1976): if it is rational for people to have many children, why does the theory deal with social norms, tradition and religious beliefs? During the transition process, the theory often refers to resistances to change, to lags in making fertility adjustments to new conditions of life. How are these lags explained? What is the rationale behind them?

Perhaps more decisive against the transition theory have been new studies done on the European experience undercutting central tenets of the theory⁷, and others questioning its relevance with regard to developing societies (Teitlebaum 1987). Moreover, if the first stage (reduction in mortality rates) indeed occurred throughout the world, it was not followed by a decline of the birth rates: in spite of several decades of development, of urbanization, of modernization even, fertility rates did not come down as expected in many parts of the southern countries.

3. Seminal works are Notenstein (1945, 1953), Davis (1955).

4. Notenstein (1945), p.39. Cited in Caldwell (1976).

5. On the lack of a theory of fertility, see notably McNicoll (1980), Miro' and Potter (1981), and the declaration made by the Population Council's International Awards Program (1981).

6. Cited in Keyfitz (1991).

7. For a presentation of some recent studies, see Greenhalgh (1990).

In response to these critiques, there have been several attempts to give content to the concept of "development" in its relation with demographic dynamics. One of them is that of economists who, following the seminal work of Becker (1960), have tried to link the desired number of children with the level of income by applying an economic model of the household. But the model failed on several accounts; theoretically, by placing itself above any contextual particularism and denying the importance of such factors as the family system, or social and traditional norms; empirically by failing to explain differences in the level of fertility at similar levels of income. By reducing development to growth of income per capita, it lost in fact much explanatory power.

Another attempt has been that of Caldwell, whose wealth flow theory has been a major contender as the revised theory of fertility (Caldwell 1976, 1982). In his view, there are only two possible states of society: one in which the integrational flow of wealth is towards parents, making them want as many children as possible, which will yet possibly be mitigated by social norms. In the other case, the net flow of wealth benefits children. There the economic incentive is to have no child at all, which is again compensated for by social and psychological forces. A major difference with Becker's model is that for Caldwell the cost and benefit of a child is constant whatever the order. There is therefore no optimal family size but just an incentive is to have or not to have children. Furthermore, for Caldwell, the economic incentive is ingrained within the structure of the family, rather than in the level of income. Development as in the transition theory becomes therefore a radical change in the institution of the family - the "westernization" of the family as Caldwell puts it -, linked to the influence of modern life-styles and possibly brought about by education (Caldwell 1982).

Other attempts have focused on other proximate components that bear on fertility (age at marriage; children as insurance goods; status of women; etc.) leading to a somewhat compartmented theory of fertility. A common assumption, however, has been that of rationality, thereby entailing to consider the demand for children as the main determinant of fertility (Bulatao and Lee 1983). As a consequence, lesser importance has been attached to the problem of the "unmet" needs of contraception⁸. Incidentally, this choice is in accordance with many anthropological studies which have shown that all societies have always known some form of population control (Carr-Saunders 1922; Ford 1956).

In this line, the recent emphasis on education, particularly of women, as an indirect way to reduce fertility rates, and more generally to promote development⁹, can be seen as the more recent attempt at revising the transition theory by putting a specific content into the concept of development.

The link between women's level of education and reduced fertility rates is however not straightforward. One connection is that education will take women "out of the household", that is, endow them with other opportunities in life than simply attending to the household chores, and thereby reduce the number of children they desire.

The other connection, perhaps more important, is that education will raise women's status within the household. Indeed women in traditional societies do not always control their fertility. Their incapacity to

8. For Westoff (1988), all needs are met. In opposition, Bongaarts (1991) estimates the unmet needs in 15 southern countries to about 15 percent. In another study, unwanted births would account for 22 percent of total births in southern countries.

9. Banuri (1990) has shown how the theory of development evolves by endogenizing external critiques within its paradigm. The same happens here: the women's (from the South) external critique on development is being indigenized under the form of a need to "invest in women" to foster development. But the process leaves out the substance of the critique, which was about culture and ways of perceiving the world, to retain the strictly instrumental aspect. See WB (1992), Summers (1992).

control sexual relationships within marriage, pressure from their husband and from the extended family, social and religious traditions often result in their giving more birth than they would indeed desire. In this line it is argued that an educated woman will more easily take control over her own body¹⁰.

Is there a Population Growth "Problem" at the Local Level?

Moreover, this approach permits us to define what the "problem" of high fertility rates is: it is that it reflects a situation of domination within the household, and one which has very negative effects on the health of the mother (Dasgupta 1992). High rates of maternal mortality¹¹ are a direct consequence of early marriage and child bearing, unspaced pregnancies which, beyond four children, raises significantly the risks of haemorrhage during labor (Sadik undated). According to demographic and health surveys, 49 to 91% of women in a position of bearing children want to postpone the next birth or stop having children, which could save the life of 200,000 or 250,000 women (Sadik undated).

Investing in women, as Sadik puts it, is thus the major objective to pursue, for its own sake, but also because it will lead to an improvement of health within the household and indirectly to a reduction in fertility rates. Yet, it must be noted that this does not provide a definition of what the population problem is. The problem here is exploitation of women, bad health, limited education, with one consequence being population growth; but why this is a *nefast* consequence must be found elsewhere, notably under the form of externalities.

The problem of externality at the local level is well illustrated by the following excerpt from the 1984 *World Development Report*:

In a small village in Asia or Africa, a Father of two sons and a daughter dreams of having two or three more children. He believes that enough land might be available for each of his sons.... Other families, particularly those with children, seem barely able to use the land they have; at the right price, he could buy patches of it from them.... This is not just one man's plan. It is shared by almost every man in the village. Some may succeed; the majority will not, simply because the amount of land in the village is limited... The pursuit of private gain can make most people worse off. One term for this phenomenon is the isolation paradox. Individuals in isolation act to the detriment of each other... If parents had their way, many of them would wish to limit the fertility of others; if children had their way, many of them would wish to limit their parents fertility (WB 1984: 55).

This explanation of the problem, although pretending to rest on a "rational" argument, still retains the same ambiguity with regard to the concept of rationality as classical transition theory did. As Ng (1986) justly remarks, the preceding logic is valid only if it assumes that peasants do not make expectations of how the other families are going to behave. In fact, the same framework could be transposed to analyzing the behavior of small firms in a competitive market. But in that case, it is commonly assumed that firms reach an equilibrium. On what ground do we then assume that peasants fail?

10. On women's status and fertility change in Pakistan, see Sathar et al. (1988). On the autonomy of women and the impact on demographic behavior in India, see Dyson and Moore (1983), as well as the more theoretical piece by Sen (1989)

11. Maternal mortality rate is 420 on average in developing countries, as against 26 in industrialized ones (UNDP 1992).

To add to the framework the existence of commons *a la* Hardin (1968) does not solve the paradox. Repetto and Holmes (1983) have rightly pointed out that Hardin mistook common-property (*res communis*) for open-access resources (*res nullius*). As opposed to open-access resources, common resources are regulated by strict rules, and the free-rider problem is solved by social pressure and locally-based monitoring. Thus if the problem of population growth at the local level takes the form of externalities, more ultimate causes must be sought under the form of a degradation of the conditions for collective decision making within a community¹². Repetto and Holmes even show that the breakdown of a collective form of management, based on considerations of sustainability, has a much greater detrimental impact on the environment than would population growth alone. In fact, in a large measure, environmental degradation in rural areas of Southern countries -land erosion, desertification, water-logging, de-forestation can be explained by a breakdown of collective forms of management of resources, which insured a balance between the local population and local resources, following the intervention of the state and the market forces¹³.

The rupture of this balance not only opens the door to free exploitation of the resources, thereby entailing environmental degradation, but also permits unrestrained population growth (Cain and McNicoll 1988). The lack of feed-back effect of environmental degradation on fertility behavior that could not be explained in an analysis starting with an independent theory of fertility becomes here ingrained in the explanation of both environmental degradation and population growth, seen as the result of a same cause, rather than as opposed to one another.

This interpretation is notably supported by a structuralist theory of fertility developed by a number of scholars, which starts by investigating the links between the institutional framework (notably in rural areas) and demographic behavior (McNicoll 1975, 1978, 1980; Cain 1981, 1983), and has led to a "political economy of fertility", on which we shall say more in the next section. These studies also stress the importance of family structures, the role played by women, the organization of work within the village, access to resources. But their specificity lies in trying to understand how these different institutions evolve in an interactive manner, rather than isolating one of them from the rest of the society. The family system, whether it is joint or nuclear, has a direct bearing on the social responsiveness in terms of population growth to the prevalent economic conditions. For instance, unlike Europe, the timing of marriage in most of contemporary Asia is not responsive to variations in economic conditions because it does not entail the formation of an independent household, which would require some capital (Cain and McNicoll 1988). Similarly, under a joint-family system, economic well-being of old age parents is closely related to that of their children, thereby creating incentives to have many children in the absence of other insurance opportunities (Cain 1983). In a very stimulating essay, Sen (1989) shows how the status of women within the household in different parts of India is in direct relation with the way the household

12. To go further in the matter would take us too far aside. Just one remark: the capacity of a community to take and implement collective actions, what Cain and McNicoll (1988) call its degree of "corporateness", will depend on internal and external factors. Straightforwardly, this latter is directly affected by the process of development and the greater integration of communities within the larger socio-economic framework and a shift of authority to higher levels of aggregation. More subtle are the impacts of development on the internal factor, which has to do with the conditions of sociality within a community. In this line, Banuri (1990) relates modernization to the submission of the personal to the impersonal, while Appadurai (1990) speaks of a shift from "centripetal" to "centrifugal" organizations of society. The result is that the degree of corporateness of a community may well wither, not because of a change in the physical context, but because transformations in the way people perceive the world around them and feel the need for collective action.

13. See Almaric and Banuri (1992a; 1992b); McNicoll (1989); Ghimire (1992a; 1992b); Apffel Marglin and Banuri (1993); Joeke (1992).

interacts with the external world. In this framework, education is no panacea: the status of women is determined more by social factors than by objective ones such as the level of education.

The National Level

The concept of nation, and thus of a national level, must be used with precaution when applying it to some of the southern countries. Yet, it does make sense as the level of aggregation at which the responsibility for modernization is taken, or at least claimed. What most (if not all) governments in southern countries have in common is precisely their flaunted responsibility for the development of their countries. In this sense, the ideology of modernization creates a de-limitation of space. The possible discrepancy between the auto-proclaimed authority of the state, and its reality ingrained in the historical, social and political context, can lead to a mis-functioning of national institutions, and in broad terms to a failure of governance.

Yet, most discussions of population growth at the national level have been limited to its impact on economic development, while considering the demographic process as mainly externally-driven, with the consequence that the elaboration of integrated population policies has been neglected. As a last resort, the state must rely on specific actions, such as the sterilization campaign in India in the 1970s, and more often, in less ambitious policies of family planning limited to the purveyance of contraceptives, information and other connected services. The inefficiency of these measures -- a case in point is South Asia -- reveal the incapacity of the state to address the population problem (if indeed there is one): it is a failure of governance.

Population Growth and Economic Development

The debate is a long lasting one since all the classical economists - among them Smith, Ricardo, Mill - broached on the subject. The main figure attached to the debate however is Malthus (1798), who had predicted economic stagnation without a strict control of the size of the population. Although Malthus has clearly been proved wrong in the case of now developed countries, the thesis, or revised extended versions of it, is still much discussed in the case of developing countries.

A review of development plans in southern countries gives a good insight into the form under which population growth is given attention by policy-makers. Stamper (1977), reviewing sixty of these plans drawn in the early seventies, found that sixty percent of them (representing 80 percent of the population considered) gave some attention to some type of population problem. From the most oft-cites to the less cited one, these problems are: growth of working-age population; school-age increase; economic growth reduced; pressure on social services; high dependency ratio; pressure on health services; pressure on housing; pressure on individual or family welfare; pressure on food or agricultural systems; high population density. Interestingly, the long-term consequences of population growth (density, pressure on food) are the less cited problems. Rather, attention is given to the pace of the process, and the difficulties to adapt to it.

These preoccupations do echo the analysis made by a number of economists after World War II: Lewis (1955) and Myrdal (1968) have stressed the handicap constituted by too fast-growing a population to promote social welfare and general economic development. In a classical contribution, Coale and Hoover (1958) linked lower birth rates with more savings available for productive investment and per capita growth. The different aspects of the argument are summarized by Coale (1963):

Any low-income country that succeeds in initiating an immediate reduction in fertility would in the short run enjoy a reduction in the burden of child dependency that would permit a higher level of investment and more immediately productive uses of investment.

After twenty-five or thirty years the advantage of reduced dependency would be enhanced by a markedly slower growth of the labor force, making it possible to achieve a faster growth in capital per worker from any given investment, and making it easier to approach the goal of productive employment for all who need it.

In the long-run, the slower rate of growth that fertility reduction causes would reduce the overwhelming multiplication of density that continued rapid growth implies. (p. 68)

The dilemma that faces the governments of fast-growing populations pertains to the trade-off between social services and development schemes. On the one hand, there is a race between economic development and population growth, measured by the level of unemployment and more generally by the level of capital available per worker. On the other hand, there is the need to purvey social services, both as a goal of development in itself, and as a way to curtail further population growth. In this framework, little attention is given to the long-run effects of population growth, namely the question of density. The real issue is that of development; and population becomes one only inasmuch as it interferes with it.

In fact even among economists the impact of population growth is not a subject that has gathered consensus: population growth may well have a positive effect on economic development, by providing a ready labor force for industrialization and raising expectations of future demand (Kuznets 1979), enhancing creativity (Simon 1981), or creating the conditions for technological changes (Boserup 1965). Furthermore, the view that population growth has an adverse effect on economic development is not well supported by evidence: in many developing countries, population growth has occurred together with rapid economic development (Srinivasan 1988).

This should not suggest that the debate is a major one among economists, or even among development economists. It is true that the issue has been raised. But it would also be fair to realize that it has been a marginal one in the general debate on development that has taken place since World War II¹⁴.

At the time, however, these views did not bear much on the general perception of the problem by the policy-makers in the South, which remained predominantly attached to the transition view up to the early eighties, and in 1972 Indira Gandhi could still claim that "development is the best contraceptive" before embarking, a few years later, in an authoritarian campaign of sterilization that presumably made her lose the elections of 1977. In 1971, the World Population Plan of Action, dominated by LDCs, stated that "of all things in the world, people are the most precious. Mankind's future can be made indefinitely bright"¹⁵. The opposition, which was also very much against views fostered by more developed countries, notably the United States, culminated in the 1974 Bucharest Conference, with the statement included in the final act that "the basis for an effective solution of population problems is, above all, socio-economic transformations"¹⁶.

Things have changed since the Bucharest Conference. In 1984, at the Mexico City Conference, the protagonists had changed sides. The United States, under the lobbying of anti-abortion groups, had dropped its

14. Even reviews of the literature on development do not broach on the subject, for instance Hirschman (1981), Banuri (1990). Keyfitz (1991) also notes that the report of the Special Session of the United Nations on Revitalizing Economic Growth in the Developing Countries (1990) contains 38 paragraphs, of which two mention population at all, and neither suggests that rapid growth could be a problem.

15. In Demeny (1984), p. 132.

16. In Keyfitz (1991).

leading role in promoting population control policies. Conversely, many developing countries had started to stress the need for population policies. Typical of this reversal is the official stand of the People's Republic of China: "Population is not a problem under socialism", declared the head of the Chinese delegation in Bucharest. "We continue to lay special stress on population control. late marriage and one child per couple", said Prime Minister Zhao Ziyang in 1983¹⁷.

Be that as it may, government appraisal of rates of population growth, and their intervention to influence rates, still remain very unequal amid southern countries. The appraisal that rates are too high followed by political intervention is reported in China, South Asia, Central America, part of Africa (representing about 55 percent of the population), and in the island states of the Carribeans (excluding Cuba) and of Micronesia-Polynesia. By contrast, no direct intervention is reported in most of South America, Western Asia and the rest of Africa. Finally, in most of South-Eastern Asia, rates are seen as satisfactory but intervention to lower them is still reported (UN 1989). In all, it is about 61 percent of the world's population that lives in a country in which the government tries to lower population growth rates. Interestingly, and according to the United Nations medium-variant prospects, the population growth rate in these countries between 1990 and 2025 will only be slightly higher than that in the other ones, 65 percent against 54 percent (from UN 1990). This means that out of the 3 billion population increase that will possibly occur during the three coming decades, 1 billion will take place in areas where population growth is not considered a problem. And 2 billion will take place in countries where there is the political will to curb population growth.

Population Growth and Governance

The capacity of a government to foster development or to provide social services is but one aspect of polity. In more general terms, this capacity will depend on the ability of the state to take and implement collective decisions. For the issue raised is again that of externalities and the incapacity of the state to implement decisions that would make everyone better off¹⁸. Demeny (1986) defines precisely the problem of population growth in these terms: "a population problem exists when my preference for children diminishes your access to steak(...) We have a population problem, in other words, when externalities are attached to demographic behavior" (p. 481).

And as we argued in the preceding section, it is a mistake to believe that population policies can be entirely de-centralized to private decision-making. In other words, and as argued by Demeny (1986), the externality cannot be solved by an "invisible hand" type of mechanism. If there is a population problem, it is largely a national one, as development is; and it thus calls forth the intervention of institutions that could at the same time act at a sufficiently high level of aggregation as to englobe the problem, and be sufficiently close to local populations as to be legitimate and gather participation and involvement. This is the problem of governance¹⁹.

17. In Keyfitz (1991), p. 7.

18. Miro' and Potter (1980) note that "fertility is the one demographic variable for which it is often argued that policy-induced change has the potential to make everyone better off". (1980: 426) This has been the main incentive to develop new theories of fertility, of which the political economy perspective is one branch.

19. By governance we mean the set of institutions that regulate the political and economic spheres. It raises notably issues of de-centralization versus centralization, of the coherence between political and economic institutions in particular historical and social contexts. The revival of the notion of governance in economics is linked to the French "regulation" school of economics. Among other see Boyer (1986), Marglin and Schor (1991), Banuri (1991).

Interestingly, it is mainly among demographers that this point has been raised²⁰. Although it is better known under the notion of "political economy of fertility", what is really the issue is governance and its link with fertility, rather than the more narrow meaning political economy now has in the economic field. As Johansson (1991) puts it, "in general, (...), the political economy perspective on fertility axiomatically assumes that "policy" should be defined very broadly, so that it can be perceived as an effective force under a wide variety of circumstances, and not just when it involves the conscious attempts of the "ruling classes" or "governing elites" to compel ordinary people (using the institutional power of the state) to make reproductive decisions they do not consciously want to make" (1991: 379). Aside from cultural and economic determinism, the political economy perspective thus tries to define a space for policy-making, in the broad sense of the term (Johansson 1991: 377). The example of China and the apparent success of the state to curb significantly fertility rates, proves at least the relevance of the political economy perspective, although one can justly question the methods employed in that particular instance.

But China is not the only case in point. A number of other Asian countries - Republic of Korea, Thailand, Singapore, Sri Lanka - have also gone through a rapid decrease of fertility rates. By contrast, in other countries such as India, Bangladesh and Pakistan, fertility rates have remained quite high in spite of long traditions of family planning policies²¹.

But this is not the sole domain in which South Asian countries have apparently failed in comparison with its Eastern counterparts or China, be it in terms of social achievements (literacy, infant mortality rates, etc.), implementation of agricultural reforms, or schemes aimed at preserving the environment. All these relative failures have to do with the failure of the state to gather popular support and participation. The reasons are multiple and intricate: the experience of colonialism; over-centralization of the state hindering the emergence of democratic participation; the violent intervention of the state in local communities, depriving people of their traditional rights over local resources (as notably documented in the case of forests); lack of commitment of public officials for public welfare and open corruption. All this has led to the alienation of the population in public matters, what we have described elsewhere as the "de-responsibilization" of local populations (Almaric and Banuri 1992a), and has also been called the "learned helplessness of developing societies" (Zaman and Zaman 1991). As we found in a study on Pakistan, if at the local level, neither population growth nor environmental degradation are considered issues, it is not because of a lack of education about national priorities, but because of a conflict between national and local goals. Heuristically speaking, the adverse consequences of population growth exist at the national level. However, there are no institutions at that level that can influence behavior to respond to this problem; in fact the existing institutional structure has created a local level indifference and even hostility towards national problems²².

20. A leading figure is McNicoll (1980), who stressed the importance of institutional factors on fertility. The "political economy of fertility" is however an older field of inquiry (see Greenhalgh 1990). Particularly interesting is the following view expressed by the English mathematician-economist W.F. Lloyd in 1833:

"The simple fact of a country being overly populous... is not, of itself, sufficient evidence that the fault lies in the people themselves, or a proof of the absence of a prudential disposition. The fault may rest, not with them as individuals, but with the constitution of society, of which they form part" (cited in Demeny 1986) which is echoed by Laesteghe (1980): "mechanisms of social control of fertility and of population growth in general to some degree reflect basic institutional arrangements that pertain to the functioning of society as a whole." (p. 527)

21. In 1960 and 1990, the fertility rates in these countries were respectively: 5.8 and 2.4 in China; 5.6 and 1.7 in Korea; 6.3 and 2.4 in Thailand; 5.4 and 1.8 in Singapore; 5.4 and 2.8 in Sri Lanka; 5.9 and 4.2 in India; 6.9 and 6.2 in Pakistan; 6.6 and 5.3 in Bangladesh (UNDP 1992).

22. In 1960 and 1990, the fertility rates in these countries were respectively: 5.8 and 2.4 in China; 5.6 and 1.7 in Korea; 6.3 and 2.4 in Thailand; 5.4 and 1.8 in Singapore; 5.4 and 2.8 in Sri Lanka; 5.9 and 4.2 in India; 6.9 and 6.2 in Pakistan; 6.6 and 5.3 in Bangladesh (UNDP 1992).

This takes us back to the issue of collective decision-making at the local level referred to in the preceding section: by intervening aggressively in local communities, the state (and the market) have undermined collective decision-making. On the other side of the fence, they have alienated people from public affairs, that is, from the very process of collective action.

Population Growth as a World Problem

The consequences of population growth are primarily felt at the local, regional or national levels. Yet, the figures are undoubtedly of an order of magnitude that also calls for a global perspective. Indeed, it can hardly be denied that world population growth is one of the main historical features of this century, and one which will run well into the next one. At the turn of the century, world population is estimated to have been about 1.5 billion. It reached 2 billion around 1930, 2.5 billion in 1950, 4.8 billion in 1985, and the prospects for the year 2025 are between 7.6 and 9.4 billion, with a medium-variant at 8.5 billion (UN 1990). Most of this growth took, and will take place in southern countries, confirming the prediction made by Hauser in 1963 that "the under-developed areas alone stand to experience a population increase in the second half of this century considerably greater than that achieved by all mankind in all of the millennia of his existence up to the current year!" (1963: 3).

Yet the issue at the global level becomes much more ambiguous and complicated. At the local level it was possible to point to the responsibility of the parents and the local governments; analogously, at the national level, to the responsibility of the national governments. But at the global level there is no authority that can claim, or is recognized to be responsible for global issues. There is not even any clear project, nor goal at the global level against which the impact of population growth could be assessed.

The Threat

One way out has been to look at the effects of population growth on inter-country relationships. The bench-mark thus remains defined at the national level, and what is assessed is the impact on a given country of population growth taking place in other countries. The evident advantage of this approach is that it remains "politically" realistic. Restraints on international migration, for instance, with undoubtedly remain in place in the coming decades. But it has the major drawback of presenting a situation of externality at the international level, that is at a level at which the possibility to resolve such cases appears most slender.

In any case a recurrent question in developed countries is indeed to what extent population growth in southern countries can have an impact on their own welfare.

For some, the answer is clear: see, for instance, the following declaration of the Club of Earth, whose members all belong to both the U.S. National Academy of Sciences and the American Academy of Arts and Sciences; the declaration was released in 1988, and is cited in Paul and Anne Ehrlich's *Population Explosion* (1990):

Arresting population growth should be second in importance only to avoiding nuclear war on humanity's agenda. Overpopulation and rapid population growth are intimately connected with most aspects of the current human predicament, including rapid depletion of nonrenewable resources, deterioration of the environment (including rapid climate change), and increasing international tensions. (1990: 18).

How exactly population growth will increase international tensions is a matter of supposition. This idea could surely be traced back to the old view that the strength of a nation is proportional to its population. After the breakdown of the Soviet Empire, the hegemony of the Western World would now be jeopardized by the growing population in southern countries, whose inhabitants Ruffin (1989) called the "new barbarians" in analogy with the last enemies of the Roman Empire after its victory against Carthagenes. The fear is real: it is the fear of the rich seeing the poor around him becoming more powerful. Frank Lorimer elaborates: trends which threaten the national aspirations of more than half the world's population present a problem to all nations. Frustration breeds envy, suspicion and violence. The security of the lucky nations with large natural resources, accumulated wealth and advanced techniques may be critically affected by the progress or reverses experienced in less fortunate nations during the next few decades" (1963: 145)

Is Size the Issue?

The other way out of the population dilemma at the global level, more ambitiously, has been to try to define a global project around the idea that we all share, after all, the same Earth. This project, in short, is global sustainability. To define it in a negative way, it can be summarized as the avoidance of global catastrophes, be it a thermo-nuclear war, wide-spread famine, general climatic cataclysms brought about by the over-emission of greenhouse gases, pandemics (AIDS), etc. But this project encounters a major obstacle: by making every human a citizen of the Earth, it abolishes all social and historical differences, and at the same time all possible claims of rights over resources under the allegation of traditional usage, as well as all possible claims of reparations addressed to those who have degraded the environment. With respect to population growth it leads to apparently infinite problems.

To put the matter bluntly, why should we focus (as is implicitly done) on the sixth child of a Pakistani woman, rather than on the second of an American woman? Even more troubling is that there is no ground on which to distinguish between Pakistani women, who on average give birth to six children, and the group of American women who do the same. Why then should one group come under pressure from any sort of agency to alter its behavior, while the other is not? Some would perhaps say that it is because Pakistan has a population growth problem, whereas the United States do not. But in that case, it would be irrelevant to speak of a population "problem" at the global level. To speak of such a problem is meaningful only if it is related to some form of externality. That is, if the international problem is "larger" than the mere sum of the national problems.

The larger problem stems from the global "environmental crisis" - climatic change, loss of bio-diversity, depletion of the ozone layer - and its potential impact on global welfare. Deforestation should be added here as one of the global issues, not because it is indeed one -what is refuted by a number of southern countries - but because, being closely related to the issue of bio-diversity, it is treated as such by many scholars.

An apparently elegant way to measure the contribution of population growth to the global environmental crisis is to apply the equation $I=P*T*C$, where "I" denotes the impact on the environment, "P" the population factor, "T" a technological factor and "C" the level of consumption. This equation has been presented as the theoretical synthesis of the question (Ehrlich and Ehrlich 1990, UNFPA 1991, Harrison 1992), and applied empirically to measure the contribution of population growth to global warming (Bongaarts 1992, Myers 1990), and increase in the use of pesticides, nitrogenous fertilizers and motor vehicles (Commoner 1988). Except for Commoner's, all the other studies have concluded on the importance of the population factor.

Yet, the equation has so many drawbacks that the validity of any kind of result derived from it must be considered very cautiously. Written as it is, it is in fact simply wrong, except if we assume that consumption and the technological factor are homogenous across the entire population considered²³. Not to take into account this condition leads to nonsensical results: UNFPA (1991) notably suggests that population growth is responsible for about two-thirds of the increase in the emission of carbon dioxide between 1950 and 1985, because during the period, the emissions of carbon dioxide grew by 3.1 percent a year, and population by 1.9 percent per year. Just to illustrate the error, suppose that the part of the population that is growing does not emit any carbon dioxide. Any increase in the emissions would then have to be explained by the consumption or technological factors alone: this to point out that there is no simple relationship between the static equation, and one that would relate the rates of growth of the variables.

Another drawback of the equation is that since it is hard to imagine what the world would be like without humans inhabiting it (sic!), it is difficult to conceive what "I" exactly represents. All that can be "measured" are changes in "I" according to a point of reference taken in the past. Notwithstanding the difficulty of agreeing on what is a positive or negative environmental change, there is the problem of choosing the relevant point of reference. Should it be 1950 or 1900, or 1600 before the advent of the industrial revolution. Presumably, a different point of reference will entail a different result and possibly different policy recommendations. This equation thus does not appear as possibly building consensus, but rather as raising new points of conflicts in a debate which has already too many²⁴.

Lastly, applying the equation on a period of time implicitly assumes the independence of the variables "P" and "C". In other words, that a change in "P" will have no effect on "T" or "C". It thus resolutely abides by the Malthusian view. In the first approximation, and in the case of intrinsically free resources, like air, the assumption is clearly valid. It is less clear in the case of forests, because in many instances, as argued above, forests have been considered a common resource rather than an open one. It is at this level that the claim of southern countries takes all its meaning: de-forestation is first and foremost a local problem, because it is a conscious phenomenon.

The Two Paradigms

The precedent description of the different debates on population growth reveal the opposition of two different paradigms. One, which we could call "population and development within the ecosphere" is mainly a refinement of modernization theory. The other one, possibly coined "Population and Environment within Development", differs in that it views the organization of society, with its cultural, historical and natural endowments, as the appropriate structure of analysis. It notably drops the assumption of exogeneity of population growth. The two paradigms and how they define the population growth "problem" are sketched in the box below:

	Development paradigm	Alternative Paradigm
--	----------------------	----------------------

23. The total impact is in fact the sum of each individual's impact, equal to her/his level of consumption multiplied by a technological factor. The equation $I = P \times T \times C$ would be valid if "P", "T" and "C" are considered matrix, which is not the case in the literature cited.

24. A title will be sufficient to give a taste of the problem: *Global warming in an unequal world: a case of environmental colonialism*, Agarwal and Narain (1991). See also Lipietz (1992), Parikh (1992).

	Development paradigm	Alternative Paradigm
Local level	<ul style="list-style-type: none"> • "poverty trap" • environmental degradation due to the existence of commons • lack of access to contraceptives • low status of women 	<ul style="list-style-type: none"> • no population growth problem (status of women is a separate issue)
National level	<ul style="list-style-type: none"> • negative impact on economic growth • over-stress on social services • density and food security 	<ul style="list-style-type: none"> • population growth reflects a failure of governance • alienation of the public from public issues: <i>de-responsibilization</i> • helplessness
International level	<ul style="list-style-type: none"> • contribution to global environmental degradation ($I=P*T*C$) • over-stress on natural resources: de-forestation, desertification • international security 	<ul style="list-style-type: none"> • environmental degradation first and foremost due to northern countries • failure of international governance • neo-colonialism
Strategies advocated	<ul style="list-style-type: none"> • "better" development • purveyance of contraceptives • education of women 	<ul style="list-style-type: none"> • emphasis on participation • de-centralization • democratization • changes in the economic system towards a more egalitarian one.

"Population and Development within the Ecosphere" because it is precisely to fill the ecosphere to its limits which is the goal²⁵. The model works from the global to the local. As limits arise at the global level, it is all of human's activities at the local level that become suspect of unsustainability: the loss of biodiversity renders suspect of unsustainability any logging in rain-forests; floods: the use of up-hill wood; desertification: grazing, etc. And in all these processes population growth becomes one of the prime suspects. The paradox is that this calls for putting yet another limit on the poor who supposedly have too many children, whereas they already face limits in all directions: limited access to resources, limited power, limited education, limited health, limited voice. It is thus those that have benefited less and suffered more from all past experiences of development and globalization that should make the necessary adjustments to the "development" and "environmental" crisis²⁶.

Although perhaps not intended, this is the message to be drawn from Shaw's distinction between "ultimate" versus "proximate" causes of environmental degradation made in a relatively influential paper Shaw (1989). Shaw contrasts the intellectual roots of Commoner's position - that "environmental impact is not correlated with the rate of population growth" (commoner 1988, cited in Shaw 1989) - with that of the other extreme and apparently opposite one of Nafis Sadik (1988, cited in Shaw 1989) who claims that

25. A title will be sufficient to give a taste of the problem: *Global warming in an unequal world: a case of environmental colonialism*, Agarwal and Narain (1991). See also Lipietz (1992), Parikh (1992).

26. Note that this is already the case with respect to the mis-functioning of the international economic system: poor countries have implemented programs of structural adjustments under the guidance of the IMF and the World Bank of a magnitude that would be politically unthinkable in Western countries.

"high fertility and population growth are contributing to the damaging of the natural resource base" (Shaw 1989: 199). Shaw suggests that Commoners claim is one of ultimate causality in which the major contributor to environmental degradation is the high and wasteful consumption of countries with low population growth rates, while Sadik's claim is one of proximate causality, where the question is not about the factors that produce a particular outcome, but those that aggravate, trigger or catalyze the incidence in a situation specific way. Shaw's argument is that the latter position has become particularly important today because the control of ultimate causes of environmental degradation have remained out of reach. In other words, between the two forms of expansion of human activity, demographic and economic, Shaw sees the former easier to tackle than the latter.

What enables him to argue explicitly that people who have large families should change their behavior because the ones who created the problem in the first place cannot do so, are precisely the assumptions that characterize this paradigm: that population growth is a fairly independent phenomenon, linked to the introduction of modern medicine in traditional communities; and according to the demographic transition theory, that low fertility rates are a characteristic of development, and therefore something desirable in itself. This follows the view that the problem could be tackled if enough efforts were devoted to it, notably through proper education and the purveyance of contraceptives.

The other paradigm, "Population and the Environment within Development", does not center around the possibilities of expansion, but around relationships, between people at the local level and their ability to make collective decisions, between them and their environment and their possibility to control it, between people and the state and the possibility of good governance, finally between different countries and their capacity to address global issues. In this view, to define limits and make them binding through a privatization of rights, as advocated by mainstream economics²⁷, it is not sufficient. Three conditions must be added which are in fact conditions of responsibility²⁸: first, rights need to be legitimate and equitable, otherwise they will not be politically sustainable. Second, if the social interest lies in insuring that natural resources are not degraded, it is essential that rights are vested in those who share this concern²⁹.

And third it is important to insure that whoever has rights over a resource also has the capacity to manage and protect the resource. The upshot of the argument is that the discussion of global sustainability must begin with the explicit treatment and analysis of rights, empowerment and legitimacy. These considerations notably rule out Shaw's argument: the issue of population growth cannot be addressed before the problem of legitimacy of national governments or of equability of the economic system are tackled.

The difference between the two paradigms that takes special importance lies in the different interpretation of the local level. Indeed, by making population growth a problem the first paradigm opens the door to the possibility of exporting to that level the global environmental problem, in line with Shaw's reasoning. It is the belief that these people (who have too many children) need help to solve their own problems that, in the end, provide support for speaking about the population "explosion". Note the difference with the

27. In a seminal article, the Nobel Laureate Ronald Coase (1960) argued that the failure of the market to regulate the production of public (or common) goods arises due to the absence of property rights in the good or the resource. Coase's solution is to create explicit property rights. As long as these are explicit, it does not matter in whom these rights are vested.

28. See Almaric and Banuri (1992b)

29. This is the main reason why writers on scientific forestry argued in the 19th century that control of forest should be vested in governments or perpetual corporations, i.e., in entities with a sufficiently long time horizon. While the individual's incentive may be to, say, cut down a forest and invest the money in a better paying financial instrument, this will generally not be in the social interest.

problem of over-consumption in northern countries: as then-president Bush said in Rio, the American way of life is not debatable. (It is rather low consumption that both people at the local level and governments see as a problem). Speaking about population growth thus gives the illusions that global environmental problems could be solved by making everyone better off. It is this avenue that representants from the South repeatedly try to close by arguing that the real problem is in the North.

The Conflict between two Forms of Globalization

We have previously noted the historical dimension of present rates of world population growth. But this is not the only astounding event of this century: economic growth, technological innovation, the "shrinking" of the world due to the emergence of modern means of transportation and of communication, are other phenomena of historical dimension. After two world wars, the threat of a thermonuclear war, the breakdown of the Soviet empire, and now a global environmental crisis, some argue that we enter a new era in human history, that of "one World", interdependent and fragile.

Population growth is embedded in this historical context, and its very process, as well as the debate around it, cannot be fully understood unless we take into account the two opposing forces of globalization that underlie this historical context (Morin 1993). In fact, this opposition is already contained in the concept of sustainable development.

The reality of globalization is that the local level is more and more diluted into the national and global ones. Thus development has led to a more intensive and more extensive integration of hitherto independent communities within the larger economic and political realm. This integration has notably loosened people's dependence on their immediate natural environment -urbanization being the extreme example - although without necessarily expanding people's possibilities for survival (Marglin 1990). The history of this process has been marked by wars and conquests, perhaps starting with the "discovery" of the Americas, imperialism and colonization, and more recently the interplay of inegalitarian forces, leading first and foremost to a globalization of conflicts and competition, of dependence and scarcity, and eventually of an uncertain future (Morin 1993: 21). It is in this history - the capacity for some to expand their activities - that in part lies the economist's visions of an infinite world; it is also in this process of the colonization of commons that lie the essential causes of environmental degradation.

In this line, there is another way to interpret Bush's defence of the American way of life: not as a defence of a level of consumption, but as a defence of the myth of the "frontier". This interpretation is given indirect support by the way two French philosophers have recently defended Modernity in recent books on the environmental crisis. For Ferry (1992) and Lecourt (1990), it is the concept of modernity as *infinity* that they oppose to what they view as ecological fundamentalism. "Against fear, the infinite adventure" writes Lecourt: the infinity of creation, of invention, of liberty represented by the free inquiry of scientific research and thereby opposed to dogmatism. But there is a way to separate this idea of modernity from its degraded embodiment in the illusion of infinity that undergird imperialism, and now neo-classical economic theory, what Morin calls the "false infinite towards which industrial growth, development, and progress were springing" (p.107).

Theoretically, the direct effect of curbing population growth would be to slacken the environmental constraint on levels of consumption under the principle that the "less people there are, the more they can consume". Yet, the historical capacity of northern countries to take over surpluses suggests that if some sort of environmental surplus is released, it will be taken over by them. In other words, southern countries would

not collect the global benefits of a reduction in world population growth, whereas they would incur the cost of adjustment.

The competing form of globalization is the one referred to earlier as the attempt to build a community of the World, around the idea that we all share the same Earth. This is a call for responsibility, as symbolized by the title of the report of the World Commission on Environment and Development, *Our Common Future*. It is also the idea of sustainability, since by creating *de facto* an inter-dependent world, development (as globalization) gives meaning to the concept only at the global level.

The success of this form of globalization rests on the capacity to influence local behaviors with respect to global goals. This gives the measure of the challenge of sustainability; for as Banuri remarked elsewhere³⁰, the world - in terms of per capita income, of inequalities, of access to resources, of human development, of demographic dynamics - is at the image of a Southern country. It demands therefore to achieve at the dimension of the planet what has failed repeatedly at the dimension of many developing countries around the world. It asks for good governance at the global level, whereas the so-called "crisis of development" is in part a failure of governance at (only) national levels. The implication is clear: before aborting global issues, such as population growth, we need to draw lessons from the failed experiences of globalization that have marked this second half of the century.

References

- Amalric, Franck and Tariq Banuri. 1992a. *Population, Environment and De-Responsibilisation*. Working Paper WP/POP/1992/1. Islamabad: SDPI.
- Amalric, Franck and Tariq Banuri. 1992b. *Northern Sustainability Versus Southern Survival*. paper presented at the 42nd Pugwash Conference, Berlin, September.
- Apffel Marglin, F. and Marglin, S. eds. 1990. *Dominating Knowledge*. Oxford: Clarendon Press.
- Banuri, T. 1990. Development and the Politics of Knowledge: A Critical Interpretation of the Social Role of Modernization Theories in the Development of the Third World. In *Dominating Knowledge*, eds. Apffel Marglin, F. and Marglin, S. Oxford: Clarendon Press.
- Banuri, T. 1990 "Modernization and its Discontents: A Cultural Perspective on the Theories of Development. In *Dominating Knowledge*, eds. Apffel Marglin, F. and Marglin, S. Oxford: Clarendon Press.
- Banuri, T., ed. 1991. *Economic Liberalization: No Panacea*. Oxford: Clarendon Press.
- Banuri, Tariq. 1993. Paper Presented at the Conference '*Les Intellectuals du Monde*'. Paris: UNESCO (February).
- Barbier, E. 1989. *Economics, Natural-Resource Scarcity and Development*. London: Earthscan.
- Becker, Garry. 1960. An Economic Analysis of Fertility. In *Demographic and Economic Change in Developed Countries*, ed. Becker. Princeton: Princeton University Press.
- Binswanger, H.P. and V. Ruttan. 1978. *Induced Innovation: Technology Institutions and Development*. Baltimore: John Hopkins University Press.
- Bongaarts, John. 1990. The Measurement of Wanted Fertility. *Population and Development Review* 16 (3).
- Bongaarts, John. 1991. The KAP-gap and the Unmet Need for Contraception. *Population and Development Review* 17 (2).
- Bongaarts, John. 1992. *Population Growth and Global Warming*. New York: The Population Council.

30. Banuri (1993)

- Boserup, E. 1965. *The Conditions of Agricultural Growth*. London: George Allen and Unwin Ltd.
- Bulatao, Rodolfo A., and Ronald D. Lee, eds. 1983. *Determinants of Fertility in Developing Countries*. Vol. 2. New York: Academic Press.
- Cain, Mead. 1981. Risk and Insurance: Perspectives on Fertility and Agrarian Change in India and Bangladesh. *Population and Development Review* 7.
- Cain, Mead and Geoffrey McNicoll. 1988. Population Growth and Agrarian Outcomes. In *Population, Food and Rural Development*, eds. Lee, Arthur, Kelley, Rodgers and Srinivassan.
- Caldwell, John C. 1976. Towards a Restatement of Demographic Transition Theory. *Population and Development Review* 2.
- Caldwell, John C. 1982. *Theory of Fertility Decline*. New York: Academy Press.
- Carr-Saunders, A.M. 1922. *The Population Problem: A Study in Human Evolution*, Oxford: Clarendon Press.
- Coale, Ansley J. 1963. Population and Economic Development. In *Population Growth and Economic Development in Low-Income Countries*, eds. Hauser Coale, A. and E. Hoover. 1958. Princeton: Princeton University Press.
- Coase, R. 1960. The Problem of Social Cost. *The Journal of Law and Economics*. 3:1-44.
- Commoner, B. 1988. *Rapid Population Growth and Environmental Stress*. Paper Presented to the United Nations Expert Group on Consequences of Rapid Population Growth (24-26 August). New York: United Nations.
- Dasgupta, Partha. 1992. *Poverty, Resources and Fertility: the Household as a Reproductive Partnership*. The Development Economics Research Programme DEP No. 37. London: London School of Economics
- Davis, Kingsley. 1955. Institutional Patterns Favoring High Fertility in Underdeveloped Areas. *Eugenics Quarterly* 2 (1).
- Demeny, Paul. 1986. Population and the Invisible Hand. *Demography* 23.
- Dyson, Tim and Mick Moore. 1983. On Kinship Structure, Female Autonomy and Demographic Behaviour in India. *Population and Development Review* 9 (1).
- Ehrlich, P. and A. Ehrlich. 1990. *The Population Explosion*. New York: Touchstone.
- Ferry, Luc. 1992. *Le Nouvel Ordre Ecologique*. Paris: Seuil.
- Ford, C. 1952. Control of Conception in Cross-Cultural Perspective. *Annals of the New York Academy of Sciences* 52: 763-68.
- Ghimire, K. 1992a. *Coping with Deforestation: An Analysis of Local Level Responses*. Paper Presented at the Conference on the Social Dimensions of Environment and Sustainable Development (22-25 April). Malta
- Ghimire, K. 1992b. *Parks and People: Livelihood Issues in National Parks Management in Thailand and Madagascar*. Discussion Paper 29. Geneva: UNRISD.
- Greenhalgh, Susan. 1990. Toward a Political Economy of Fertility: Anthropological Contributions. *Population and Development Review* 16.
- Hardin, Garrett. 1968. The Tragedy of the Commons. *Science* 1162 (1).
- Harrison, Paul. 1992. *The Third Revolution: Environment, Population and a Sustainable World*. London: I.B. Tauris and New York: St Martin's Press.
- Hauser, Philip, ed. 1963. *The Population Dilemma*. Englewood Cliffs: Spectrum.
- Hayami, Y. and V. Ruttan. 1971. *Agricultural Development: An International Perspective*. Baltimore: Johns Hopkins University Press.
- Johansson, Ryan. 1991. Implicit Policy and Fertility During Development. *Population and Development Review* 17 (3).
- Keyfitz, Nathan. 1991. Population and Development Within the Ecosphere: One View of the Literature. *Population Index* 57 (1).

- Kuznets, Simon. 1979. *Growth, Population and Income Distribution: Selected Essays*. New York: Norton and Co.
- Lecourt, Pierre. 1990. *Contre la Peur*. Paris: Seuil.
- Leibenstein, Harvey. 1957. *Economic Backwardness and Economic Growth*. New York: John Wiley and Sons.
- Lee, Ronald, Brian Arthur, Allen Kelley, Gerry Rodgers and T.N. Srinivasan, eds. 1988. *Population, Food, and Rural Development*. Oxford: Clarendon Press.
- Lesthaege. 1980. On the Social Control of Human Reproduction. *Population and Development Review*. 6.
- Lewis, A. 1955. *The Theory of Economic Growth*. London: Allen and Unwin.
- Lipietz, Alain. 1992. *La Presentation de la Conference des Nations Unies sur l'Environnement et le Developpement (Rio de Janeiro, 1992) comme Processus de Negociation: Rapport a l'UNESCO*. Paris: UNESCO.
- Lorimer, Frank. 1954. *Culture and Human Fertility: A Study of the Relation of Cultural Conditions to Fertility in Non-Industrial and Transitional Societies*. Paris: UNESCO.
- Malthus, T. 1872 [1976]. *An Essay on the Principle of Population*. New York: W.W. Norton.
- Marglin, S. 1990. Towards the De-Colonization of the Mind", In *Dominating Knowledge*, eds. Apffel Marglin and Marglin. Oxford: Clarendon Press.
- McNicoll, Geoffrey. 1975. Community-Level Population Policy: An Exploration. *Population and Development Review* 1(1):1-21.
- McNicoll, Geoffrey. 1978. Population and Development: Outlines for a Structuralist Approach. In *Population and Development*, ed. G. Hawthorn. London: Frank Cass.
- McNicoll, Geoffrey. 1980. Institutional Determinants of Fertility Change. *Population and Development Review* 6 (3).
- McNicoll, Geoffrey. 1984. Consequences of Rapid Population Growth: An Overview and Assessment. *Population and Development Review* 10 (2).
- McNicoll, Geoffrey. 1989. Social Organization and Ecological Stability Under Demographic Stress. In *Rural Development and Population: Institutions and Policy*, eds. McNicoll and Cain.
- McNicoll, Geoffrey and Mead Cain. eds. 1989. Rural Development and Population: Institutions and Policy. *Population and Development Review* 15 (supplement). The Population Council. New York: Oxford University Press.
- Miro, Carmen and Joseph Potter. 1980. The Potential Impact of Population Research. *Population and Development Review* 6 (3).
- Morin, Edgar with Anne Brigitte Kern. 1993. *Terre-Patrie*. Paris: Seuil.
- Myers, Norman. 1990. The World's Forests and Human Populations: the Environmental Interconnections. *Population and Development Review* 16 (special supplement).
- Myers, Norman. 1991. *Population, Resources and the Environment: The Critical Challenges*. New York: United Nations Population Fund.
- Myrdal, G. 1968. *Asian Drama: An Inquiry into the Poverty of Nations*. Vol. 2. New York: Twentieth Century Fund.
- National Academy of Science. 1974. *In Search of Population Policy: Views from the Developing World*. Washington: The National Academy of Science.
- Ng, Yew-Kwang. 1986. On the Welfare Economics of Population Control. *Population and Development Review* 12 (2).
- Notenstein, F.W. 1945. Population: The Long View. In *Food for the World*, ed. Theodore Schultz. Chicago: Chicago University Press.
- Notenstein, F.W. 1953. *Economic Problems of Population Change*. 8th International Conference of Agricultural Economics. London: London University Press.
- Olson, Mancur. 1965. *The Logic of Collective Action*. Cambridge: Harvard University Press.

- Population Council's International Research Awards Program. 1981. Research on the Determinants of Fertility: A Note on Priorities. *Population and Development Review* 7 (2).
- Repetto, Robert and Thomas Holmes. 1983. The Role of Population in Resources Depletion in Developing Countries. *Population and Development Review* 9.
- Sadik, Nafis. 1988. *1988 State of the World Population Report: Safeguarding the Future*. New York: UNFPA.
- Sathar, Zeba et al. 1988. Women's Status and Fertility Change in Pakistan. *Population and Development Review* 14 (3).
- Sen, Amartya. 1989. Cooperation, Inequality, and the Family. In *Rural Development and Population: Institutions and Policy*, eds. McNicoll and Cain. *Population and Development Review* 15 (supplement).
- Shaw, R. Paul. 1989. Rapid Population Growth and Environmental Degradation: Ultimate versus Proximate Factors. *Environmental Conservation*. 16(3): 199-208.
- Simon, J. 1981. *The Ultimate Resource*. Oxford: Martin Robertson.
- Stamper, Maxwell. 1977. *Population and Planning in Developing Countries: a Review of Sixty Development Plans for the 1970s*. New York: The Population Council.
- Summers, Larry. 1992. *Investing in All People*. Paper Presented at the Conference of Development Economics, Islamabad.
- Teitlebaum, Michael S. 1987. Relevance of Demographic Transition Theory for Developing Countries. In *Perspectives on Population: An Introduction to Concepts and Issues*, eds. Menard and Moen. New York: Oxford University Press.
- Touraine, Alain. 1992. *Critique de la Modernite*. Paris: Fayard.
- UNDP. 1992. *Human Development Report 1992*. New York: Oxford University Press.
- Westoff, Charles F. 1988. Is the KAP-gap Real? *Population and Development Review* 14 (2).
- The World Bank. 1984. *World Development Report 1984*. New York: Oxford University Press.
- The World Bank. 1992. *World Development Report 1992*. New York: Oxford University Press.
- World Commission on Environment and Development. 1987. *Our Common Future* ("The Brundtland Report"). New York: Oxford University Press.

SDPI is an independent non-profit research Institute
on Sustainable development

Mailing Address: PO Box 2342, Islamabad Pakistan

Street Address: 3rd Floor, Taimoor Chamber, 10-D West,
Fazal-ul-Haq Road, Blue Area, Islamabad.

Telephone: +(92-51) 2277146
2278134 2278136 2270674-6

Fax: +(92-51) 2278135

URL: www.sdpi.org e-mail: main@sdpi.org