

Family planning, reproductive health care, female education and mother and child health are the best development assistance investments available. That is true whether the aim is to help poorer nations and disadvantaged groups to improve their incomes and quality of life or to safeguard peace, prosperity and a stable environment.

### Why is population important?

The International Conference on Population and Development in Cairo, 1994 (ICPD), heralded a new era in global population and development initiatives. All countries present accepted that population concerns are central to sustainable development strategies (see **Regional Overview and Global Trends**). They recognised that rapid population growth helps to perpetuate poverty (see **Jobs, Income and Poverty**).

ICPD dispensed with the concept of “population control” and replaced it with the more constructive concept of “free choice in access to reproductive health care” (see **Quality and Choice and The Human Right to Family Planning**).



*Countries which invest in education, health and family planning perform best economically*

ICPD also drew more attention to the importance of education for women and girls, and the importance of improving infant and child health and reducing infant and maternal mortality (see **Education, Health and Gender, Development and Fertility**). Governments participating in ICPD agreed to increase annual spending on population and related programmes to US\$17 billion a year by 2000, with a further increase to US\$22 billion a

year by 2015. One third of this would come from more developed countries (see **Financing Family Planning, Policies and Programmes and NGOs and the Private Sector**).

The population of less developed countries as a whole is growing by 1.7% per year, while their urban populations are increasing at 3% per annum (see **Migration**). The need to feed greater numbers is placing increasing pressure on the environment and natural resources (see **Land, Food and Water and Environment**).

Policy makers in both more and less developed countries need to support the implementation of ICPD (see **How Policy Makers Can Help**). The consequences of any shortfalls in funding and support for population activities would include:

- **Deteriorating reproductive health services**
- **More unwanted pregnancies**
- **Poorer access to contraception**
- **More abortions**
- **More deaths and injuries from pregnancy**
- **More deaths of young children**
- **Pressure on education, health care, housing, water and sanitation**

The agreed investment of US\$17 billion each year is less than one week of world expenditure on armaments. The consequences of not making this investment would be felt for generations to come.

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Unfpa, 1997, *coming Up Short*, New York

Commitment is needed from Australian and New Zealand policy makers to enable individuals to satisfy their right to space and limit their families. Development assistance for family planning programmes must increase or world population will reach 11 billion before the year 2050.

### Australia and New Zealand

The major sources of official development assistance (ODA) are the European Community, Japan, and the United States. Australia and New Zealand also are important donors, especially in the Pacific region. They assist several of the world's poorest countries, for which ODA comprises virtually the only source of external funding.

The largest recipient of Australian ODA, administered by AusAID, is the South Pacific, which receives approximately 31 % of the total Australian ODA. This comprises 22% to Papua New Guinea and 9% to other Pacific Island nations. The East and Southeast Asian region receives 25% of Australia's ODA.

In 1996-97 the ratio of Australia's ODA to the country's gross domestic product (GDP) was 0.3% compared with 0.5% in 1983-84. In contrast, all the Scandinavian countries had ratios around 1% in the early 1990s.

Australia's budget for ODA is expected to be A\$1430 million in 1997-98, representing a decline of 3.2% in real terms over expenditure in 1996-97. This, in turn, represented a decline of 9.7% in real terms compared with 1995-96 expenditure.

In 1995-96 7.3% of Australia's ODA was spent on population and health, as part of the four-year initiative for 1993-97. In 1997-98 total Australian ODA expenditure on population and health is estimated to be A\$130 million. Of this, support for reproductive health and family planning is expected to be maintained at previous levels, around A\$37 million. Most will be directed towards activities which provide women and men in developing countries with improved access to

voluntary, safe and affordable family planning options. Expenditure on HIV/AIDS prevention is expected to be A\$14.5 million in 1997-98.

### How Policy-Makers Can Help

Australian and New Zealand parliamentarians can put pressure on their governments to allocate additional resources to reproductive health and family planning. The Australian All-Party Parliamentary Group on Population and Development was established in 1994 and the New Zealand Parliamentarians Group on Population and Development in 1997. Both are linked with the Asian Forum of Parliamentarians on Population and Development, with Parliamentarians for Global Action and with the United Kingdom's All-Party Group on Population, Development and Reproductive Health.

Policy-makers can help to mobilise political commitment to reproductive health and family planning by:

- Calling for increased funds for reproductive health.
- Tabling parliamentary questions
- Drawing attention to population matters in reports on development, health, gender and the environment, such as Australia's independent inquiry report into Population and Economic Development, commissioned by the Australian Government, 1994
- Ensuring that reproductive health concerns are incorporated into development, health, gender and environment programmes
- Supporting government contributions to multilateral agencies in the population field, such as United Nations Population Fund (UNFPA) and the World Health Organisation (WHO)
- Ensuring that action is taken to implement the recommendations of international meetings such as the International Conference on Population and Development, Cairo, 1994 (ICPD)
- Contributing to development debates and ensuring that population-related matters are not neglected.
- Advocating training in population awareness in the public service and non-governmental organisations (NGOs)
- Supporting the training of overseas personnel

- Encouraging a dialogue on population questions with developing country governments

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Ahlburg, D.A. et al., 1994, Population and Economic Development, Independent Inquiry Report commissioned by the Australian Government; AusAID, 1997, Australia's Overseas Aid Programme 1997/98, Canberra; NZ Ministry of Foreign Affairs, 1997, NZODA Programme Expenditure 1997/98, Wellington.

Non-governmental organisations (NGOs) play a crucial role in family planning and reproductive health. They launch services where governments are reluctant to do so, and they pioneer new activities. The private sector has much potential for reaching a wider clientele, especially through social marketing initiatives.

### **The importance of NGOs in international population assistance**

Population assistance can be directed through government channels, the United Nations system or NGOs. Increasingly NGOs are becoming the preferred intermediaries through which to channel funds from developed country governments. NGOs enjoy greater freedom from bureaucracy, which allows them to act faster in emergencies. Their programmes can be more flexible, more responsive to community needs and often more cost-effective. NGOs in developing countries are important to build up local initiatives and advocate change. They raise funds directly from international and local sources, often working in partnership with their international associates.

### **Funding for family planning**

NGOs have played an important role in implementing family planning and reproductive health programmes. In regions where governments are less active in family planning and reproductive health care, donors find it appropriate to disburse aid through NGOs. Private charitable foundations such as Rockefeller, Ford and others have been a significant source of aid for family planning programmes. In 1994 such sources provided \$117 million, accounting for nearly ten per cent of total global commitments for population assistance. Between 1985 and 1994 the amount of global funds being channelled through NGOs ranged between 27% (1985, 1991) and 43% (1994).

### **NGOs pioneer family planning**

In many countries NGOs have created public acceptance and political support and opened the way for governments to act. NGOs are usually the first to offer low cost or free family planning services. In many Pacific states, as in many other

parts of the world, NGOs established family planning services well before government programmes began.

The International Planned Parenthood Federation (IPPF) was instrumental in supporting the establishment of family planning organisations in countries where the government was reluctant. In recent years, IPPF affiliates have been at the forefront of promoting awareness of Sexually Transmitted Diseases (STDs), addressing adolescent sexuality and issues of quality of care. Other organisations such as the United States-based Population Council have played a crucial role in introducing new contraceptive technologies, such as injectables and implants, as well as playing a leading role in the collection and analysis of demographic data. Family Planning New Zealand and Family Planning Australia have initiated and been involved in activities in both the Pacific and South-East Asia, while CARE Australia has provided support for activities in Cambodia, China and Vietnam.

### **The role of NGOs**

The extent to which NGOs can make a significant contribution to family planning and reproductive health services in developing countries depends on the prevailing conditions. In some nations NGOs are the only providers of information and family planning services, while in many others they play a complementary role to government programmes. In China NGOs are assisting in the improvement of the quality of care offered at family planning clinics. The Vietnam Family Planning Association plays an important role in community education programmes, improving the quality of services, and in offering types of contraceptives which are not provided by the government programme. In the Philippines NGOs are trying to improve the range and quality of services available, often in the face of hostile opposition.

### **The private sector and social marketing**

The private sector, including pharmacies, other retail outlets and private practitioners, plays an important role in providing family planning services. Just over a quarter of all contraceptive users in the continent of Africa rely on private sources. In North Africa 38% do so. In Latin America the private sector supplies 42% of contraceptive users - more than government sources. Many people are willing and able to pay for contraception, especially in urban areas.

Because the costs are fully recovered from purchasers, the private sector offers flexibility and cost-efficiency. The sector can be strengthened by training and equipping providers, and by enabling them to refer problems to medical services.

Private services can be brought to a much wider clientele through social marketing. This is the application of marketing concepts and techniques to maximise sales rather than income. It involves subsidising retailers to keep prices affordable. Social marketing programmes selling contraceptives through a variety of outlets, such as pharmacies and general stores, now operate in some 30 countries.

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CARE Australia, 1996, Annual Report 1995-96, Canberra; IPPF, 1993, Annual Report Supplement 1992-93, London; IPPF, 1993, Vision 2000: Strategic Plan, London; IPPF, 1994, Annual Report Supplement 1993-94, London; UNFPA, 1996, Global Population Assistance Report 1994, New York; UNFPA, 1996, Inventory of Population Projects in Developing Countries Around the World 1995, New York; World Bank, 1993, Effective Family Planning Programmes, Washington DC.

To improve the status of women, meet the unmet need for family planning and to stabilise world population in the next century, the 1994 International Conference on Population and Development (ICPD) in Cairo specified that global funding for population activities must increase to US\$17 billion per year by 2000. One third of this should come from developed country governments. Yet, funding for population assistance in the 1990s has fluctuated greatly, and in recent years concern has grown over the international community's willingness to meet this challenge. The contributions of Australia and New Zealand have fallen consistently short of those of many donors of development assistance.

### Assistance for family planning

The issue of family planning has always been sensitive, keeping it low on the list of aid priorities. Controversies over abortion, coercion and safety of contraceptives, as well as changing views about global population issues, have affected levels of assistance for family planning and reproductive health. Before 1960 there was no significant development assistance for population and family planning programmes.

During the 1960s and early 1970s concerns over food security, famines and environmental calamities in developing countries caused assistance for population programmes to rise rapidly. However, the predicted disasters never happened, and from the mid 1970s to the early 1990s funding for population assistance stagnated in real terms.

The need to improve the status of women and growing concern about the environment have given the issue a new impetus. Most family planning expenditure is now funded by developing

country governments and by individuals, but there are big differences between countries. Countries such as Thailand and South Korea show what can be achieved by public expenditure, while other countries still need considerable international support.

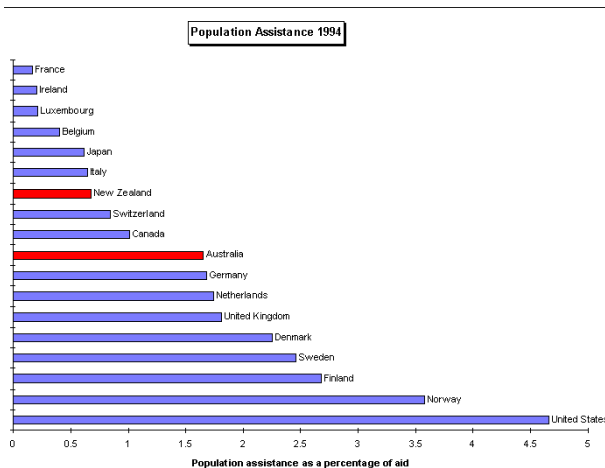
Total assistance from developed countries for population programmes rose from US\$803 million in 1990 to US\$1,201 million in 1994 (in current dollars) excluding World Bank spending, which varies from year to year. Although this sounds like an impressive increase, it simply increased population assistance to just above 1970s levels in real terms. In 1994 population and family planning programmes accounted for just 1.7% of all development assistance - well short of the internationally agreed target of 4%.

### Promises of Cairo

The ICPD 1994 Programme of Action is a comprehensive strategy to improve the reproductive well-being of individuals. To achieve its goals, spending on population, family planning, reproductive health, maternal health and the prevention of sexually transmitted diseases in developing countries, and countries with economies in transition, must rise from US\$4.5 billion in 1990 to US\$17 billion in the year 2000.

While two-third of this cost will be met by developing country governments, the Programme of Action pledges donor governments to expand their share of funding for population and development activities to make up the other third. Donors of population assistance will need to increase their contributions to US\$5.7 billion in 2000, US\$6.1 billion in 2005; US\$6.8 billion in 2010 and US\$7.2 billion in 2015 (all in 1993 US dollars). This figure could be achieved by meeting two targets that have already been agreed internationally. The first is that ODA donors should give at least 0.7 % of their gross national product (GNP) as official development assistance (ODA). The second is that population activities should be allocated 4% of all ODA.

Despite recent initiatives to increase population assistance, Australia and New Zealand are far from the most generous ODA donors. The percentage of Australia's total ODA earmarked for population assistance increased from 0.4 in 1990 to 1.7 in 1994. In New Zealand the increase was from 0.5 to 0.7. However, they still lag behind other donors.



Source: UNFPA (1996) Global Population Assistance Report 1994

Ninety per cent of all population assistance comes from just eight donor countries. In absolute terms the United States was the biggest single ODA donor, contributing US\$463 million in 1994. Germany came second with US\$115 million and Japan third at US\$83 million. Australia gave US\$18 million and New Zealand US\$0.75 million. In recent years ODA budgets and funding for population assistance have declined in virtually every developed country. This raises questions about the willingness of the international community to meet their promises. Any scaling back of ODA budgets in either Australia or New Zealand would appear as failure to honour international commitments to improve reproductive health in developing countries and stabilise global population.

### New priorities

Consensus exists at the international level for the development assistance donor community to pursue a common agenda of sustainable development that makes population issues one of its priorities. To meet this end more resources could be made available by reprioritising ODA. Spending increases are required, not only for family planning and reproductive health care, but also for female education and child health.

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The quality of family planning services has a strong impact on contraceptive use. Choice is the first and fundamental element in providing quality family planning, in addition to technical competence, sympathetic relations between provider and client and good follow-up. Making family planning available at various types of outlet also promotes choice.

### Quality of Care in Family Planning

Until the 1990s the emphasis was on the quantity of services provided rather than the quality. However, growing evidence from field programmes demonstrates that the quality of the services provided can have an important impact on contraceptive use.

Quality in family planning programmes means extending the choice of contraceptive methods, providing adequate information, increasing the technical competence of providers, improving interpersonal relations between providers and client, and incorporating adequate client support and follow-up. Much of the failure to use existing services is attributable to lack of quality.

### Offering choice

Choice is fundamental to quality (see figure). One-method family planning programmes are inadequate. For example, in India in 1988, 70 percent of contraceptive users had to rely on sterilisation. Offering an additional method is associated with an increase of about 12 percentage points in the contraceptive uptake. A study in Indonesia found that, 12 months after receiving contraceptive services, 85% of women who had not received their first choice of method had stopped using contraception.

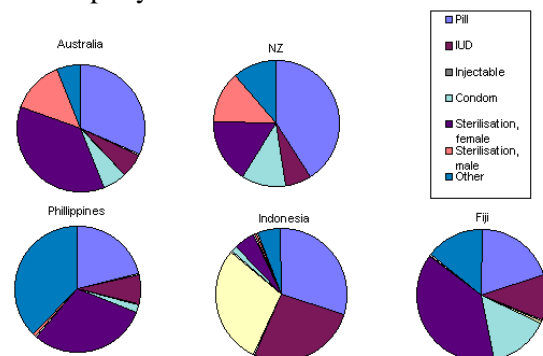
Choice must be backed up with technical competence, counselling and follow-up. A Bangladesh study found that lack of counselling about usual side effects and their significance was the main reason why women discontinued using injectables. A range of service providers need to be trained in family planning, because women see different types of health personnel at different

times and these opportunities should be utilised to provide counselling and follow-up. For example, medical personnel need to know that oestrogen-based hormonal contraception is not appropriate during early breastfeeding.

Programmes generally achieve better results when they concentrate on providing a smaller number of acceptors with good care rather than recruiting larger number and providing them with indifferent care. In Mysore, India, a study of 400 women who had intra-uterine devices (IUDs) inserted found that those who discontinued within 12 months were much more likely to have received no follow-up than women who continued with the method.

### Use Effectiveness

In general steroid (hormonal) methods are more effective than appliance methods such as condom. Actual failure rates for steroid methods are between 0.0 and 5.0 pregnancies per 100 women per year. The failure rate for the IUD is 0.6, but those for other appliance methods and natural methods may be up to 40 pregnancies per 100 women per year.



Source: United Nations Population Division, 1996



## Family Planning Delivery Systems

### Clinics

Clinics which specialise in family planning or which provide integrated health services are an important source of family planning. They may be either static or mobile. Many clinics now offer a broader range of services to meet the needs of their clients, for example linking family planning to antenatal and postnatal care, or seeking ways to address the increasing prevalence of HIV/AIDS.

### Community based distribution (CBD)

Community based provision of contraceptives has proved an effective way of supplying clients with condoms, pills and injectables, using trained local distributors. CBD programmes need a clinical

backstop to monitor the health of pill-users and for women wishing to use methods other than pills and condoms.

### Social marketing

Social marketing harnesses the resources of the private sector to increase access to contraception. It is most frequently utilised for condoms, which are sold through normal retail outlets at low cost, usually involving a subsidy. Examples of successful schemes can be found in countries as diverse as Bangladesh, Indonesia and Papua New Guinea. Where available over the counter, pills also can be marketed in this way.

## Modern Methods of Family Planning

### Voluntary surgical contraception (VSC)

This is the most effective and popular form of contraception, with a failure rate of only 0.5 per 100 woman-years. Globally 32% rely on female sterilisation (tubal ligation) and another 8% on male sterilisation (vasectomy). Advances in sterilisation techniques mean that both procedures can be performed as a day-case operation, though vasectomy remains the quicker and less complex procedure.

### The intra-uterine device (IUD)

An IUD is a small plastic or metal appliance, which prevents implantation of the fertilised ova. An estimated 21% of contraceptive users have an IUD. Special training is needed for insertion, and an insufficient programme effort to train and supervise staff has resulted in the failure of some attempts to promote IUDs, such as in India in the 1970s.

### Oral contraceptives

Combined oral contraceptive pills contain both oestrogen and progestogen. An estimated 15% of all contraceptive users currently use pills. Its safety has been demonstrated over two decades, and many countries allow pills to be sold over the counter and distributed through CBD schemes.

### Condoms

Since the threat of HIV/AIDS appeared, condoms have become increasingly popular and are now the method chosen by 8% of contraceptive users. For example, condom use in Hong Kong doubled between 1977 and 1987, from 13% to 26%. Despite such increases, global use of condoms remains low.

### Injectables

DMPA (Depo Provera(R)) and NET-EN (Noristera(R)) injectable contraceptives, are growing in popularity around the world. In 1992 the United States Food and Drug Administration approved Depo Provera, following World Health Organisation studies which largely refuted fears that it could increase the risk of cancer. Despite side effects, injectable contraceptives are highly effective, convenient, discrete and reversible. Globally, however, only 2% of women use injectables.

### Implants

This is the newest hormonal contraceptive to become available. Norplant(R) consists of up to six thin capsules (each the size of a matchstick) which are inserted under the skin of the upper arm and slowly release progestogen. Protection against pregnancy is for up to five years. A growing number of countries are licensing Norplant, which requires skilled insertion and removal.

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Most governments have now adopted national population policies. However not all population policies promote a successful family planning programme. Firm political commitment - at the highest level - is essential in order to make quality family planning widely available.

### Population and development: an old debate

Many of the issues discussed at the International Conference on Population and Development in Cairo, 1994, (ICPD) are not new.

In the 1950s improvements in health and a falling death rate in many developing countries led to startling population growth rates that were seen as a threat to the development process itself. The 1950s saw a wave of public anxiety about 'overpopulation'. This led to the first funding to slow world population growth, in the 1950s and 1960s, and in 1951 India became the first country in the world to develop a population policy.

### Development of a worldwide strategy

The United States initiated the first International Conference on Population, in Bucharest in 1974, planning it as a staging ground for a united worldwide effort to lower fertility. However there were dissenting voices, as illustrated by the now famous statement from the Indian delegation: 'development is the best contraceptive'. The objective was not to undermine family planning efforts, but to call attention to issues of food shortages, underdevelopment and poverty.

By the time of the Mexico Conference of 1984 most developing countries had incorporated family planning programmes and sometimes population growth reduction targets into their development plans. Linkages between high fertility rates and the lack of education, health care and employment opportunities for women and their low status were intensively discussed at the Mexico Conference. Internal political and ideological shifts in the United States led to a shift in priorities: 'The United States does not consider abortion an acceptable element of family planning programmes and will no longer contribute to those of which it is a part'. This became known as the 'Mexico City Policy'. It led to the de-funding of the United Nations Population Fund

(UNFPA) and the International Planned Parenthood Federation (IPPF) by the United States. However, with the inauguration of President Clinton in 1992, there have been substantial efforts to get this policy over-turned despite opposition from the Republican dominated Congress.

### Progress in access to contraception

In 1980 70% of 165 countries in the world supported access to contraception. This had risen to 81% by 1995. In that year, only the Holy See and Saudi Arabia actually restricted access to contraception. The Organisation for Economic Co-operation and Development (OECD) countries were spending about US\$500 million annually on international population assistance, while developing countries themselves were spending US\$1.5 billion annually.

Funds for population programmes need to increase considerably in the next decade. At the Cairo conference governments agreed to increase spending on population and related programmes to US\$17 billion a year by 2000.

### The role of women in development

Another major policy shift in the years since the Mexico conference has been the growing commitment to strengthening the position of women in development. The years since the 1985 Third International Women's Conference in Nairobi (Forward-Looking Strategies for the Advancement of Women to the Year 2000) have seen women's development become a key policy issue at both national and international level.

Over 100 countries have now ratified the United Nations Convention on the Elimination of all Forms of Discrimination Against Women. One objective of the ICPD Programme of Action was to eliminate social and economic discrimination against women to reduce poverty, promote economic growth and achieve sound population policies.

### From family planning to reproductive health

Closely linked to the emphasis on women's development is a shift in both policy and programmes towards the right of couples to have children by choice. Programmes should meet all reproductive health needs such as antenatal, natal and postnatal care, access to safe abortion services, and prevention and treatment of infertility and sexually transmitted infections, including HIV/AIDS. An estimated 500,000 women die of pregnancy-related causes each year.

### Adolescents

Half of the world's 2.8 billion women are between 15 and 49 years of age. Population policy is now focusing on how to improve the quality and range of services for adolescents, particularly adolescent girls. Responses include increasing the range of contraceptive choice with the number and variety of service delivery channels available.

### Achievements of family planning programmes

An estimated 350 million couples who want to plan or limit their families still lack access to safe and effective contraception. However, research conducted by the United States-based Population Council has demonstrated that family planning programmes were directly responsible for reducing the total fertility rates (the average number of children a woman will have in her lifetime) in developing countries by 1.4 by the late 1980s. This was in addition to the decline which would have occurred as a result of other socio-economic changes. Access to family planning services enables couples to choose to have some 43 million fewer births every year, 26% fewer than if there were no family planning programmes.

### Regional policies

A survey conducted by the Washington-based Population Action International which assessed access to family planning in the developing world, rated five countries (Taiwan, Singapore, South Korea, China and Hong Kong) as excellent. 18 of the 31 countries rated as 'very poor', are in Africa.

For successful family planning programmes, political commitment at the highest level is required along with a climate which facilitates access to information and services. For this reason family planning in Indonesia is widely regarded as a success story. 76 % of all services are provided by the government, and half of all currently married women are now using contraception. Consequently Indonesian women had an average of only 2.5 children by 1994.

India continues to invest in its family planning programme, even while cuts are made in its health budget. The average number of children that each woman had declined to 3.0 in 1994, but this conceals wide differences between states. In two southern states, Kerala and Tamil Nadu, women have on average just over two children each. In Uttar Pradesh in northern India women can still expect to give birth to more than five children. Consequently considerable effort is being put into developing

quality programmes for those districts of India which still have above average levels of fertility.

In Sub-Saharan Africa, support for family planning is increasing but remains limited, partly due to resource constraints. However Kenya, once renowned for the world's highest population growth rates is now experiencing one of the most rapid fertility declines documented, with a 20% reduction in fertility since 1989. Strong government commitment to service delivery has been an important factor here. Malawi has recently adopted a population policy which is widely regarded as among the more progressive in Sub-Saharan Africa.

It is now widely believed that family planning programmes can have an important impact on fertility, even in countries which are not developing rapidly. In Bangladesh, one of the world's poorest countries, fertility declined from seven children per woman in 1970 to 2.9 in 1994. In those 24 years the number of married women using contraception rose from 3% to 47%.

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For developing countries as a whole, the average number of children each woman bears in her lifetime has declined from 6.0 in 1960-65 to 3.3 in 1990-95. In some parts of East and Southeast Asia fertility has fallen to near Western levels, but in parts of South Asia and the Pacific women are still having four to five children. Generally fertility decline has been greatest in countries with good family planning, education and health services.

### The background to high fertility

In many societies the status of men and women may depend on the number and gender of their children. There is a link between high infant mortality and high fertility, because parents need surviving children to contribute to the family income and support them when they grow old. In the event of divorce or widowhood, having two or more children may be the only way a woman can avoid destitution.

### The demographic transition

When improvements in public health cause death rates to fall, there is seldom an immediate, and corresponding decline in birth rates. People take time to realise that more of their offspring will survive, and so have more children than they need to ensure their future security.

This wider gap between birth and death rates causes a period of substantial population increase. As people adjust to lower death rates, fewer children are born. When the balance between birth and death rates is restored the rate of population growth slows. The whole process is known as the demographic transition. The time it takes to close the gap is crucial in determining eventual population size.

### Fertility patterns in developed countries

The key measure of population growth is the total fertility rate (TFR), which is the average number of children women would bear if the pattern of child-bearing for a given year remained constant throughout their reproductive lives.

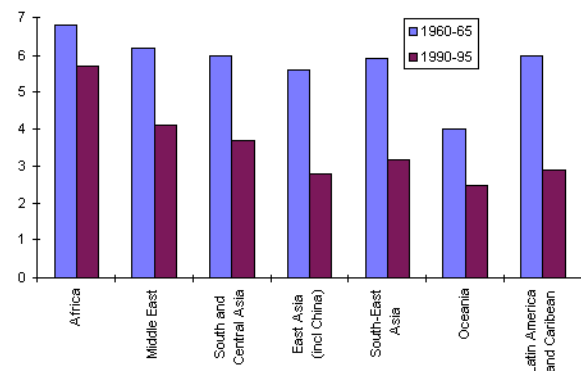
Before the Industrial Revolution in Europe TFRs of five to seven or more were common, as in many developing countries today. Then, as infant and child mortality declined, so did fertility.

Since the 1970s the TFR in some developed countries has fallen below the replacement level of 2.1 children per woman. Currently it ranges from 1.2 in Italy and Spain, 1.8 in Australia, and 2.0 in New Zealand and the United States. Every country in Western Europe now has a TFR of less than 2.0. If these low rates persist, their population size could decrease substantially over the next few decades. Although pro-natalist policies do not have a good record of success elsewhere in the world, it is possible that improved economic conditions and new policies to encourage child-bearing could increase fertility in developed countries.

### Falling fertility in developing countries

Nearly all developing countries had high fertility rates in the 1960s. On average women had anything from 5.4 children in East Asia and the Caribbean to 7.1 in North Africa (see graph).

Since then fertility rates in some developing countries have declined dramatically, while other countries, especially in Africa and the Muslim world, have seen little or no decline in fertility.



### Asia

Asia has experienced the most impressive changes. In 1960-65 the TFR was 5.4 children but in the period 1995-2000 it has declined to 2.9 for Southeast Asia and 1.8 for East Asia.

In four countries (South Korea, Hong Kong, Singapore and Thailand) women are now having an average of 1.8 children or fewer. These countries have certain key factors in common: they enjoy low infant mortality, high levels of education

(especially for females) and almost universal availability of family planning, even in rural areas.

Some Asian countries have made slower progress. Laos, Vietnam, Cambodia and Mongolia have been affected by war and isolationism. In the Philippines lack of political commitment and Catholic opposition hindered the spread of family planning, but even so the TFR had declined to 3.8 in 1994.

### Causes of fertility decline in Asia

The dramatic fertility declines in some Asian countries are not solely due to economic development. China, South Korea and Thailand still have large rural populations with low incomes relative to their urban populations.

For example, in Thailand the decline was largely because of the high level of social development. In 1970 infant mortality had declined to 73 per 1000 live births and 79% of girls were enrolled in primary school. Contraceptives were made widely available during the 1970s and the contraceptive prevalence rate (CPR) among women aged 15-49 soared from only 14% in 1969-70 to around 70% in the late 1980s. The CPR was 83% in China in 1992.

### South Asia, Middle East and North Africa

Fertility decline has been slower in South Asia, as well as in Africa. On average women in South Asia had six children 30 years ago. Today they have 4.3. In the Middle East and North Africa the percentage decline has been similar, but from a higher base. Women in these two regions are still having 4.7 children each, despite relatively high average incomes. However, in Bangladesh strong government support for the family planning program has increased the CPR to 47% and the TFR has declined to 3.1.

In all three regions infant mortality remains high and there are low rates of enrolment of girls in school. The general status of women is low, forcing them to rely on child-bearing as their chief source of status and security. In South Asia the dowry system and a marked preference for sons act to women's disadvantage. In Islamic societies purdah hinders women's access to education and jobs, while polygamy and easy divorce reduce their security and encourage them to have more sons.

### Sub-Saharan Africa

Fertility decline has been slower in Sub-Saharan Africa. Infant mortality is still high, and education and literacy levels tend to be low. The extended family is valued, and individual couples have little incentive to reduce the number of children they have. Fathers of many offspring can work a bigger area of land, which increases their wealth and status.

But Africa has its success stories. Zimbabwe's mothers were having 6.7 children in 1969, and as recently as 1975-80, Kenya's TFR of 8.1 children per woman was the highest in the world. Recent demographic and health surveys indicate that Zimbabwe's fertility has declined to 4.3, and Kenya to 5.4, owing to widespread and effective primary health care and family planning programmes.

### The South Pacific

The rate of fertility decline has generally been slow in the South Pacific, even though education levels and social development are high in most of Polynesia and Micronesia. In the 1990s most Pacific countries have TFRs of 4 or more. Pacific cultures generally favour a large family size, and in the past the relatively small populations could subsist comfortably by fishing and gardening.

In Polynesia high levels of outmigration to developed countries on the Pacific Rim have prevented rapid population increase, but the populations of Micronesia and Melanesia are doubling every 25-30 years. In the largest country, Papua New Guinea, the CPR was less than 5% in the early 1990s, but poor reproductive health in some regions depressed the average TFR to only 4.7. Fiji has one of the most successful family planning programmes in the South Pacific and a CPR of 41% in 1994.

### Fertility decline and economic development

In the 1970s it was fashionable to think that population growth rates could not be reduced by direct policy measures but would only decline as a result of economic development.

Since then that theory has been proven incorrect. In the oil states of the Middle East, incomes have risen to relatively high levels but fertility has stayed high. In Saudi Arabia women averaged 6.4 children in 1994, although real per capita income was US\$5,953.

By contrast, in other countries fertility has fallen steeply before any significant rise in incomes. In 1994 real per capita income in Sri Lanka was only US\$3,277, and the country was still 78% rural, yet woman had on average only 2.1 children.

These examples show clearly that low fertility can be achieved before per capita incomes increase substantially. Human development is more important than economic progress. Certain conditions facilitate fertility decline, including: low infant mortality, high literacy (especially female), high female school enrolment and equal rights for women and access to family planning services. It is estimated that family planning programmes contribute up to 50% of the fertility decline in developing countries.

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In developing countries the average number of children each woman bears in her lifetime has declined from 6.0 in 1960-65 to 3.3 in 1990-95. In some parts of East and Southeast Asia fertility has fallen to near Western levels, but in parts of Asia and the Pacific women are still having four to five children. In general, fertility decline has been greatest in countries with good family planning, education and health services.

### The background to high fertility

In many societies the status of women and men may depend on the number and gender of their children. High infant mortality leads to high fertility because some surviving children are needed to support their parents in old age. In the event of divorce or widowhood, having two or more children may be the only way a woman can avoid destitution. For example, Fiji has no universal social security system, so children are insurance for old age. Sons may be valued more than daughters because their potential contribution to the family is perceived as greater.

### The demographic transition

When improvements in public health cause infant death rates to fall, there is seldom an immediate decline in birth rates. People take time to realise that more of their children will survive, and so have more children than they need to ensure their future security. Initially this causes a period of substantial population increase. As people adjust to lower infant death rates, fewer children are born. When the balance between birth and death rates is restored the rate of population growth slows. The whole process is known as the demographic transition. The time it takes to close the gap is crucial in determining eventual population size.

### Key Measure

A key measure of population growth is the Total Fertility Rate (TFR), which is the average number of children women will bear during their reproductive lives. Most industrialised countries have now completed a transition to low fertility. New Zealand's TFR has declined to 2.0 children per woman from around 3.79 in 1960-1965.

### Fertility decline in Asia

Asia has experienced impressive declines in fertility. In 1960-65 the TFR was 5.4 children but in the period 1995-2000 it will decline to 2.9 for Southeast Asia and 1.8 for East Asia. In the Republic of Korea, Singapore and Thailand, fertility is lower than in New Zealand.

There is now a consensus of opinion that both family planning programs and broader socioeconomic development work together to reduce fertility. In Thailand the fertility decline occurred largely because of the high level of social development and an effective family planning program. In 1970 79 per cent of girls were enrolled in primary school. Contraceptives were made widely available during the 1970s and the contraceptive prevalence rate (CPR) soared from only 14 per cent in 1969-70 to 74 per cent in the early 1990s.

### Indonesia

Indonesia, which is predominantly Muslim, has reduced its TFR to less than three children per woman by vigorous promotion of the two-child family. Its family planning program is now widely regarded as a model for countries in the Asia-Pacific region. The key to Indonesia's success is to ensure ready access to family planning in both rural and urban areas, and the provision of a wide choice of methods to suit all clients. In 1994, 50 per cent of women of reproductive age were using contraception, with pills, injectables and IUDs of equal importance.

Both Thailand and Indonesia, have implemented their very successful family planning programmes despite more than 60 per cent of their populations living in rural areas and having low incomes relative to urban populations.

### High Fertility

Fertility remains high in some other Asian countries. Cambodia's TFR in 1990-95 was 4.9 children per woman, even though the country was severely disrupted by war. The United Nations estimated that in 1994 none of Cambodia's population had ready and easy access to a supply of modern contraception. Laos too has made slow progress in both socioeconomic development and family planning service delivery, and its TFR was even higher, at 6.7 children per woman in 1994.



In the Philippines, women are generally well educated. Fertility has however declined very slowly because of a lack of political commitment and Catholic opposition. The TFR was 3.8 in 1994. Only 40 per cent of women aged 15-49 were contraceptive users in 1993, of whom 30 per cent were sterilised, while almost 40 per cent were relying on natural methods.

### **Vietnam**

Some countries which adopted the socialist model of health service delivery, such as Vietnam and Mongolia, have been slow to develop effective family planning services. One reason is that they were unable to ensure reliable supplies of hormonal contraceptives, so most contraceptive users had to rely on IUDs or natural methods, backed up by abortion. Although the situation has now improved, in the late 1980s in Vietnam, almost 60 per cent of all contraceptive users were relying on IUDs, and about 30 per cent on natural methods, while less than 1 per cent were using the pill.

### **The South Pacific**

There is considerable diversity in the Pacific region, in both culture and fertility. Currently TFR ranges from less than three in New Caledonia to almost six in Tokelau. Although in the past Pacific cultures have tended to favour high fertility, they have also had traditional ways of limiting numbers, such as spouses staying apart for several years after child birth. Improvements in survival in the post-war period led to greater population numbers, but population densities vary markedly between nations, ranging from 533 per square kilometre in Nauru and 419 in Tuvalu to only 9 in Papua New Guinea.

In 1950 the issue of population was raised at the First South Pacific Conference. The first family planning clinic opened in Tonga in 1958. Despite this early interest in family planning, Polynesia fertility did not decline greatly. Emigration to developed countries on the Pacific Rim mitigated population pressure and brought the benefits of remittances.

The Cook Islands, Samoa and Tonga all had growth rates of 0.4 per cent or less in the 1990s and in Niue the growth rate was negative -1.6 per cent, despite its TFR of 3.5 children per woman. Without emigration most Polynesian countries

would have had growth rates of 2 per cent per annum or more.

### **Population Doubling**

There has been less emigration from Micronesia and Melanesia, and the populations of most countries in these regions are doubling every 25-30 years. Although several countries, including Kiribati, the Marshall Islands, Papua New Guinea and the Solomon Islands, have adopted population policies with fertility reduction targets, their fertility generally remains at 4.0 or more children per woman.

In the largest Melanesian country, Papua New Guinea, the CPR was less than 5 per cent in the 1990s, but poor reproductive health in some regions depressed the average TFR to only 4.7. This implies that improvements in reproductive health could lead to future increases in Papua New Guinea's fertility unless there is a corresponding increase in the use of contraception. Estimates from Vanuatu and the Solomons suggest that CPRs are increasing, but they vary between districts.

### **Fiji**

Fiji has one of the most successful family planning programmes in the South Pacific, with a CPR of 41 per cent in the early 1990s. However, a strong program in the 1970s faltered in the 1980s. Progress in increasing CPRs is sometimes constrained by limited service delivery points, inadequately trained staff, few choices of method, irregular supplies and taboos on discussing sexual matters.

### **The need for assistance in our region**

Some of the poorer Asian countries like Laos and Cambodia, and Pacific Island countries like Papua New Guinea have been unable to sustain progress in family planning or to monitor progress accurately.

In the Pacific opportunities for economic development are limited so assistance is needed to ensure that reproductive health services are improved and made widely available. Apart from the need to provide family planning as a basic human right, increasing prevalence of sexually transmitted diseases including HIV/AIDS is adding urgency to the need to improve education, communication and services in reproductive health.

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In recent decades population growth rates have been the fastest ever. The global total of 5.8 billion in 1996 could exceed 11 billion by 2050. However, if governments give high priority to fulfilling the unmet demand for family planning, to improving women's autonomy, education and reproductive health, world population may be limited to eight billion.

### The first two billion

For most of prehistory human numbers grew very slowly, reaching approximately five million in 5000 BC. Crop cultivation permitted much faster growth but still it took until about 1800 AD to reach the first billion.

By the time of the European Industrial Revolution the population growth rate had accelerated to about 0.6% a year. The advent of safe water and sanitation made an important contribution to mortality decline. The second billion was reached in the 1920s.

### Rapid growth since 1940

Improvements in public health from 1950 onwards accelerated population growth rates still further. Antibiotics, vaccination and spraying against malaria caused a decline in death rates. Birth rates were slower to decline. The widening gap between death rates and birth rates led to sudden population growth.

The third human billion was reached in 1960. The global annual population growth rate peaked at 2.0% in the years 1965-70. By 1990 the total exceeded 5 billion, so that more than three billion had been added in about 45 years.

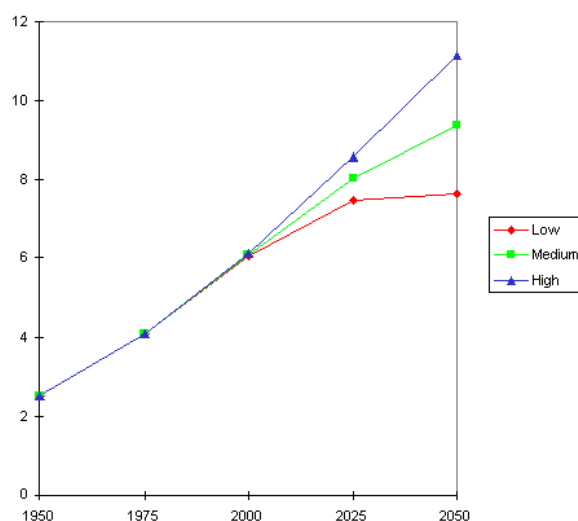
### Promising trends in growth rates

The rate of growth slowed to less than 1.5% in 1990-1995, and the United Nations has revised its 1994 projections downwards. Although the annual increase in numbers may have peaked in the period 1985-1990, around 80 million extra humans will be added each year in the period 1995-2015. This is equivalent to more than four Australias per year.

### Alternative futures

United Nations medium projections have a good record of accuracy over the past 30 years. If that record continues, we can expect a world population of about 8.0 billion by 2025 - an increase of 2.3 billion compared with 1995. The total would rise to 9.4 billion by 2050 and could level off soon after that.

The medium projection assumes that past progress in bringing down birth rates is maintained. But if we make poor progress in the crucial decades ahead, we could be on target for the United Nations high projection. This would mean a world population of 8.6 billion people by 2025 and 11.2 billion by 2050.



Source: United Nations Population Division (forthcoming)

### Aiming low - the safe option

Less crowded futures are possible. If all developing countries' fertility rates were to decrease as fast as those of Thailand, South Korea or Sri Lanka, the United Nations' low projection could be achieved. In that case world population could peak at 7.7 billion in 2050. This is 1.7 billion less than the medium projection, and a massive 3.4 billion less than the high projection.

If women all over the world follow the pattern of today's most developed countries and have less than 2.0 children each on average, world population would start to decline after 2040.

### The shifting balance

Over the next three decades the balance of world population will shift dramatically. In developed countries annual population growth has already slowed to 0.4%. In Europe it is about half of that. Fertility levels in both Australia and New Zealand are

already below replacement level but population growth is sustained by immigration.

Less-developed countries contributed 94% of world population increases between 1990 and 1995. According to the United Nations medium projection, the populations of less-developed countries are expected to rise by almost two thirds between 1995 and 2025, from about 4.5 billion to 6.8 billion in 2025.

This will mean massive shifts in the geopolitical balance. In 1950 today's developed countries contained one third of the world's population. According to the medium projection they will have dwindled to only 15% by 2025. By 2050, Africa's population could treble to 2.1 billion, from about 740 million in 1995. These changes will inevitably increase the pressures for migration to developed countries (see **Migration** sheet).

### Crowded future

The prospects for some countries are daunting. Even though average fertility in India and Bangladesh has fallen to only 3.1 children per women, the momentum created by large numbers of young people who have yet to reach child bearing age could cause their populations to double before stabilising. India had 945 million in 1996, but even if it achieves the medium variant population it would have to support 1.5 billion. With its present population of 120 million, Bangladesh is already twice as densely populated as Netherlands, and may have to accommodate 265 million people. With its higher fertility rate, Pakistan's population could treble, from 140 million to 412 million.

High rates of population growth could cause severe problems in small Pacific countries, some of which have little land area. For example, the population of the Marshall Islands is currently doubling every 17 years, but little food is grown on its poor atoll soils, and already the country imports most of its needs. In Papua New Guinea, where much of the land is mountainous, inaccessible and unsuitable for cultivation, the population is likely to increase from 4.3 million in 1997 to 7.5 million in 2025.

### Uncertainties and options

All these projections are based on expected trends in fertility and mortality, and, for some countries, net migration. It is conceivable that some of the totals may never be reached because environmental changes or shortages of key natural resources like

land and water may impose limits on population growth.

The HIV/AIDS epidemic is another factor which is difficult to assess. Some people have speculated that HIV/AIDS might offer an apocalyptic 'solution' to the world population problem. This argument is unsound, since the majority of HIV/AIDS deaths occur among people of working age. This means HIV/AIDS deaths increase the proportion of people who are too young or too old to support themselves by working, thus adding to poverty.

Even so, the impact of HIV/AIDS on net population growth is quite small. The United Nations 1994 population projections for 15 African countries with high HIV seroprevalences estimated that average growth rates would have been 3.0% if HIV/AIDS did not exist. Even allowing for HIV/AIDS mortality, growth rates were still as high as 2.7 %.

There is an alternative and more humane approach to reducing the growth in human numbers. There is a high level of unmet need for family planning in many developing countries (see **The Human Right to Family Planning** sheet). Providing contraception to those women and men who would like to practice family planning, but currently lack the means and opportunity to do so, would ensure that the world's population stays below 11 billion.

Even faster progress could be made if the demand for family planning increased further. Investing in female education, improving women's status and reducing infant mortality through mother and child health care could all contribute to slowing growth. If governments in developing countries gave these matters a higher priority, and governments in developed countries help them to satisfy their unmet need for family planning, the world's population could remain below eight billion.

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School enrolment and adult literacy have risen in developing countries. Yet high fertility rates mean that the numbers of out-of-school children and illiterates have also grown, and governments need to spend increasing amounts just to keep pace.

### Smaller families, better education

Studies from both developed and developing countries show that children from smaller families spend longer at school and perform better than children from larger families. For any given income level, larger families have less to spend per child, and this may impact on how well children are fed. Poor nutritional levels affect growth and development and may lower the attention span. Both these factors lower performance.

In Thailand a recent survey found that children from families with only one or two children tended to stay at school longer than those from large families. Poverty was the main reason large families could not afford to keep children at school.

The effect of family size is strong in Thailand, even allowing for differences in family income. Among the low income groups, children from families of one or two children had a seven times better chance of starting secondary school than those from large families. Among the high income groups, children from families with one or two children were twice as likely to start secondary school as those with six or more children.

### Progress and retreat

The past two decades have seen enormous progress in education. In 1970 84% of the primary age group in developing countries was enrolled in primary school. By 1990 the proportion had risen to 98%. In secondary school the enrolment ratio rose from 24 to 42% over the same period.

Yet because of the effect of population growth, the total number of children who were not attending school in developing countries actually increased. In 1970 some 223 million children aged 12 to 17 were not in secondary school in developing countries. By 1990 their numbers had mounted to 274 million. The United Nations Educational, Scientific and Cultural Organisation (UNESCO)

predicts a further increase to 301 million by the year 2000.

The same paradox applies in the battle for literacy. In 1970 55% of adults in developing countries were illiterate; in 1996 only 36%. Yet because of population growth the total number of illiterate people increased from 842 million in 1970 to 934 million in 1996. That is, even after 20 years of progress in education, an extra 88 million adults could not read or write. This means that when fertility is high, governments need to spend increasing amounts on education just to keep pace, and more again to increase enrolment ratios.

In most countries more male than female children attend primary school and males are more likely to progress to secondary school. For example in Papua New Guinea, which has the lowest enrolment rates in the Pacific, only 46% of females aged 6-17 years were attending school compared with 55% of males.

### Rapid population growth can limit progress in education

In Africa during the 1980s rising debt and falling commodity prices forced governments to impose public spending cuts while, at the same time, rapid population growth increased the number of children of school age. By 1990 only 68% of children were attending primary school compared with 78% in 1980.

If Thailand had experienced the same growth rate in its school-age population as Kenya in 1988-89, it would have had to spend an extra 1.3% of its gross national product (GNP) on education. Malaysia would have had to spend 1.6% extra, and Korea 2.8% extra. Slower population growth thus greatly reduced the pressure on education budgets in East Asia.

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The number of international migrants (foreign-born) in the world rose from 75 million in 1965 to 120 million in 1990. International migration has both benefits and costs. For individual migrants it boosts incomes but severs social and cultural roots. Emigration brings remittances, yet it also drains skills and expertise. Immigration brings extra labour - yet in times of recession this is unwanted.

### Economic migration

Migration brings benefits to both source and destination countries. Home countries benefit from money remitted by migrants. Receiving countries gain extra workers, some of whom may be highly skilled, without needing to invest in their education. Contract labour can supplement the labour requirements of richer countries and help to redistribute income between rich and poor countries. For example, in 1992 565,000 South and Southeast Asian migrants found work in the oil states of the Middle East. The benefits of labour migration reach proportionally more people in source countries when their population growth rate is slow.

Source countries may be disadvantaged by migration if too many educated professionals migrate and needed skills and expertise are lost. Also, in times of recession migrant labour may bring unwelcome competition with the labour force in receiving countries.

### Refugees

There is a growing stream of people fleeing from their home country to escape persecution. They numbered less than 2 million in 1965, but more than 13 million by 1997. In addition there are as many again who have suffered forced displacement and are considered to be of concern by the United Nations High Commissioner for Refugees. Moderate flows of refugees can be resettled in recipient countries and contribute to the economy, for example, Vietnamese refugees in Australia. However, massive inflows of political refugees seeking emergency relief, such as from

Rwanda and Burundi to neighbouring countries, constitute a heavy burden for recipient countries.

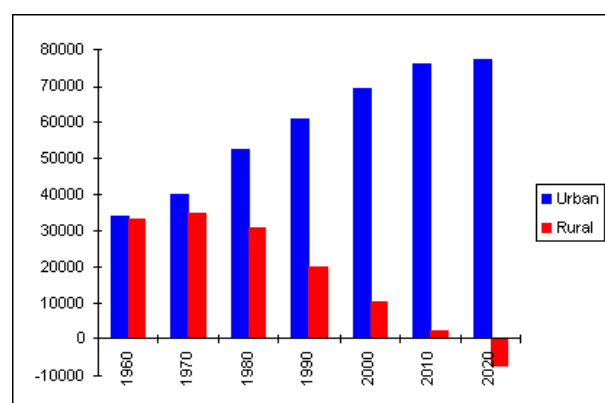
### Environmentally displaced

Growing environmental pressures are driving some people from their homes as land and livelihoods are lost to desertification, sea-level rise and climate change. There may already be as many as 10 million environmental refugees in the world and predicted sea level rises will displace many more (see **Environment** sheet).

### Urbanisation

In 1950 750 million people lived in urban areas, but in 1995 there were 2.6 billion - more than three times as many. Only 42 per cent of all urban dwellers in 1950 lived in developing countries, but by 1995 they comprised 71 per cent. The rapid rate of urbanisation in developing countries is due both to natural increase and to migration of rural dwellers to urban areas in search of economic opportunity.

Rapid urbanisation has outstripped the capacity of many cities to provide facilities. Shanty towns on the outskirts of big cities lack roads, sewers, water and electricity. Between 1995 and 2000 cities in developing countries will have to accommodate an extra 65 million people each year. Between 2010 and 2020 they are projected to grow by 85 million a year, which is substantially more than the increase in rural dwellers (see graph).



Source: United Nations Population Division (forthcoming)

### Migration in Oceania

Labour migration to countries on the Pacific Rim plays an important role in the economies of some Pacific countries, especially migration of Polynesians to Australia and New Zealand. Remitted earnings make a significant contribution to the economies of some Pacific countries, including Cook Islands, Tonga and Samoa.

Australia compensates for its falling fertility by accepting an annual quota of immigrants. In 1997-98 a total of 80,000 people will be accepted under Australia's immigration program; 32,000 will be reuniting with family, 36,000 will be selected for work skills and 12,000 will be admitted as refugees under the Humanitarian Program.

In the period 1975-89 New Zealand had 224,300 more emigrants than immigrants, many crossing the Tasman Sea to Australia. In 1990-94 the trend reversed and New Zealand had a net gain of 53,800 from immigration.

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Family planning is an important health measure in its own right. Pregnancies which are unwanted, too numerous, too closely spaced or to women who are too young or too old, threaten the health and lives of mothers and children. Reproductive health care and family planning can help reduce these risky births.

### Improved health as a family planning measure

In countries without adequate social security, parents need some children to survive to adulthood to look after them in their old age. To make absolutely certain of this, in countries where infant and child mortality are high, women must bear four to six children on average.

Before couples will have only two or three children, they must be sure that nearly all the children they bear will survive. Generally nine out of 10 children need to survive before this feeling is firmly established.

### Reducing the toll of maternal deaths

Every year it is estimated that almost 600,000 women die during pregnancy and childbirth. Many times that number escape death, but suffer lasting physical and psychological injuries. The provision of better reproductive health care during and after pregnancy would help reduce this toll.

Since every pregnancy involves some risk of maternal mortality, reducing the total number of pregnancies over a lifetime automatically reduces this risk for each woman. Where women have six or more children, the lifetime risk of dying from maternal causes is five times higher than where they have two or less. If women could have only the number of children they desired, maternal deaths could be cut by anything from 17% in Africa up to 35% in Latin America. Many maternal deaths occur among women under the age of 20, over 35, or with five or more children. Studies in Nigeria found that women under 20 were 10 times more likely to die in pregnancy than women aged 20-24. Women with five or more children were 1.5 to three times more likely to die in childbirth.

Avoiding all births to women in high risk age groups could cut maternal deaths by 35%.

### Cutting the carnage of backstreet abortion

Every day in developing countries, some 150,000 unwanted pregnancies end in abortion. One third of them are performed in unsafe conditions and/or in situations where abortion is illegal. Banning abortion does not reduce its incidence, it merely drives it into the backstreets. Every year at least 70,000 women die as a result of badly performed abortions. Giving women access to safe abortion would cut the toll of abortion-related deaths massively, as would making effective contraceptives universally available.

### Improving child survival

When mothers have children too young, too late, or too closely spaced, the risk of infant death or disability increases. Recent surveys from 25 countries show children born to women below the age of 18 years are 46% more likely to die before their fifth birthday than when mothers are aged 20 to 34. If all births were to mothers aged 20 and over, the deaths of children under five years would be reduced by 17%.

Birth spacing is important too. When the interval between pregnancies is too short, women have little time to recover. Children born within 18 months of a previous birth are more than twice as likely to die before age five as when there is a two or three year interval. If women could use family planning to achieve the birth spacing they preferred, overall child mortality could be reduced by an average of 21%.



*After birth, children from larger families are often less well nourished than those from smaller families*



**Improving child health and nutrition**

The children who die are not the only victims of unwanted, untimely or too numerous births. Those who survive suffer too, through poor nutrition in the womb, or setbacks and injuries during gestation and childbirth. After birth, children from larger families are often less well nourished than those from smaller families. A recent Philippines study found children of later birth orders were shorter than average for their age, indicating malnutrition. This effect applied even among wealthier families. Family planning could help to reduce the numbers of children who are severely disadvantaged by malnutrition.

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Family planning is a basic human right. It is also a means to promote other rights - the rights to life and health, and women's rights to equal education and work opportunities. However the right of access to family planning is currently denied to 350 million couples worldwide.

### Enshrining the right to family planning

Family planning is officially recognised as a human right. This was first acknowledged at the United Nations International Conference on Human Rights, held at Tehran in 1968. According to the Tehran declaration: 'Parents have a basic human right to determine freely and responsibly the number and spacing of their children.' The 1994 International Conference on Population and Development (ICPD) in Cairo Programme of Action included in its objectives 'To help couples and individuals meet their reproductive goals in a framework that promotes good health and respects the dignity of persons and their right to bear and raise children. To eliminate unwanted pregnancies and reduce the incidence of high-risk pregnancies. To improve the quality of family planning services and to make them available to everyone'.

### Family planning as the means to other rights

Family planning helps to promote other human rights recognised by the United Nations declarations. Foremost among these is the right to life. Family planning can avert many of the 600,000 women's deaths each year resulting from pregnancy complications. In the same way, family planning can promote the right to the highest attainable standard of health. This is enshrined in article 12.1 of the 1966 International Covenant on Economic, Social and Cultural Rights, and reaffirmed at the Fourth World Conference on Women in Beijing 1995, which stated that the right of women to control their fertility is basic to their empowerment.

### Human rights and family planning

The issue of rights within the field of reproductive health care has been a focus of heated debate in recent years. Many who oppose family planning programs fear that women may be coerced into preventing births they prefer to have, or that

contraception could encourage promiscuity. Some women fear that population programs, which are traditionally designed by men, seek to control women's bodies in order to achieve male-determined political goals. Other women argue that men can most easily control their fertility when women have no simple means at their disposal to avoid pregnancy.

These arguments emphasise the importance of ensuring all women have the right of access to family planning and reproductive health and that women's rights to free choice and full information are respected. Women must be involved in designing and managing family planning programs at the highest levels.



*Women must be involved in designing and managing family planning programs at the highest levels*

### The scale of unmet need

Certain methods of fertility regulation are illegal or severely limited in some countries. For example, until recently Depo Provera, an injectable contraceptive, was widely available in New Zealand but not in Australia. Abortion is available only on health grounds in many countries, for example, in most Pacific countries.

An estimated 350 million couples worldwide do not have ready access to the full range of family planning methods. Approximately 120 million additional women would like to use a modern family planning method. This estimate excludes some relevant categories including unmarried

people and those who do not have adequate choice of method. A range of medically approved methods should be available wherever possible, including natural family planning.

Simply satisfying unmet need would be sufficient to raise contraceptive prevalence in the developing world from the current level of 51% to at least 60%, and to reduce fertility from an average of four children per woman to three.

### **Coercion does not work**

Coercion is the use of threats or sanctions and is morally unacceptable. Coercion and compulsion are counter-productive in family planning. Over the medium to long term, they are more likely to damage the credibility and spread of family planning than to encourage uptake.

India's experiment with compulsion in 1975 was made possible only by emergency rule. Mrs Indira Gandhi lost the subsequent election because of this and the cause of family planning in India was set back a decade.

However, improving services and encouraging people to use them is not coercive and can be very effective. Indonesia's highly successful family planning program is based on vigorous promotion of the two-child family, provision of quality family planning services and offering a wide range of contraceptive choices.

### **Reconciling all rights**

Respect of the right to safe methods, free choice, full information about side-effects and avoidance of any form of coercion is essential to increasing contraceptive prevalence rates. Hence there is no conflict between the right to family planning and the right to choice and freedom from coercion within family planning.

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In recent years progress in cereal production has varied in the major regions of the world. In 72 out of 113 developing countries, food production fell behind population growth between 1980 and 1990. Although in the 1970s new crop varieties dramatically increased yields of some grains, limited irrigable land and water shortages have since slowed the rate of improvement.

### The population / food balance

In 1798 Thomas Malthus pointed out that the current rate of population increase was faster than the rate of increase in food production. He argued that humans should restrict their rate of increase so that harsh natural checks on population growth, including famine, would not come into play.

Since then improvements in agricultural technology have increased world food output dramatically. Despite a fivefold increase in population since Malthus, there has been an improvement in average diets. So far total food production has kept ahead of total people production.

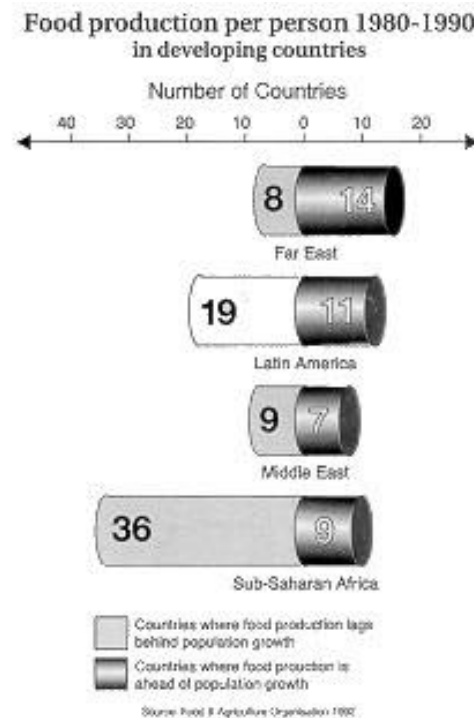
Obviously food production cannot continue to increase indefinitely. Recent estimates are that the world probably has the capacity to feed the 9.4 billion population projected for 2050, but population increases beyond this point could result in a reduction in average nutrition.

### Regional differences

Although there is enough food to feed the current population of the world, it is not evenly distributed. United Nations Development Programme (UNDP) estimates that in 1997 1.3 billion people were below the US\$1 per day poverty line, most in Africa and Southwest and Southeast Asia. Most of these received inadequate nutrition. Women and children were more often malnourished than were men.

The amount of home-produced food available per person declined in 73 out of 113 developing countries between 1979-81 and 1989-91, and in 36 out of 45 countries in Sub-Saharan Africa (see graph). The United Nations Food and Agricultural

Organization (FAO) estimates that by 2000, 64 countries out of 117 will be unable to feed their populations; 29 in Africa and 15 out of 16 in Southeast and Southwest Asia. Even so, about two thirds of food-dependent countries have improved their average intakes of calories and protein by supplementing home production with food imports.



### The varying impact of the Green Revolution

The Green Revolution, which began in the late 1960s, developed new, higher yielding varieties of some staple crops. New varieties of rice dramatically increased outputs, but required more inputs of water, pesticides and fertilizer. The Green Revolution brought smaller improvements to maize and wheat varieties. So far there has been very little improvement to the main subsistence crops of the poorest people: millet, sorghum and root crops.

### Fluctuations in food production

Although world food production grew at an average of 2.7% per year between 1950 and 1990, it varies substantially from year to year. A series of five-year averages show that world cereal production per person peaked around 1984 at 371 kgs per head of population. Since then it has hovered around 350-370 kgs. Africa's peak cereal production, which occurred around 1969 was only 171 kgs. In 1990 it had declined by 16%. The

world's largest cereal export region, North America, peaked at 1,379 kgs in 1980 and produced 12% less in 1990. In contrast, Asia peaked at 274 kgs around 1990.

Because of these fluctuations world food security depends on an adequate food distribution system and maintaining global stocks of cereals. In 1986-1987 food reserves reached a peak equal to almost 100 days of world consumption. In 1996 cereal reserves were the smallest volume since 1981, equal to only 55 days, and below the FAO recommended safety level of 65 days.

### Land shortages

Past increases in crop production resulted mainly from expanding the cultivated area and more frequent cropping. Now the best land is already in use, so future expansion into new agricultural land will be less productive. Arable land per person in developing countries dropped from 0.33 hectares per person in 1961 to only 0.21 in 1988 which is well under half the developed country average of 0.55 hectares. Almost half the world's population lives in countries which are cultivating over 90% of their useable land.

Higher applications of fertilisers and irrigation have increased outputs. At first the rate of increase was rapid, but it has declined over time as the production limits of the land are approached. There has also been an increase in the cost of obtaining further increases in yields. The cheapest irrigation schemes have already been built and the irrigation potential that remains is increasingly costly to exploit. Fertiliser use has risen beyond sustainable levels in developed countries and much of Asia, and may have to be reduced to avoid environmental contamination.

### Water

In most developing countries agriculture is the main user of water, but industrial development and improvements in health also depend on a plentiful supply.

In 1990 24 developing countries, and Australia, were using 20% or more of their available water resources - a level at which national problems develop. Most Asian countries are expected to have severe water shortages by 2025. Excessive use of irrigation can lead to loss of productive agricultural land through salination.

### Water crisis ahead in Africa and Middle East

Most North African and Middle Eastern nations already face shortages which can only be overcome by extreme or expensive measures: rationing, drawing down irreplaceable 'fossil' water reserves, desalinisation or purification and re-use.

As populations grow, more and more countries will face water scarcity. In 1982 only six African countries with a total population of 65 million, faced water shortages. By 2000 water shortages will affect 11 countries with a population of 250 million. By 2025, 21 countries with a total of 1.1 billion people (two thirds of the African population) will be affected.

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The biggest environmental problems stem from our growing need for space and our rising output of pollutants. Rapid population growth accelerates environmental problems. Slowing population growth is a major conservation measure in its own right. It can reduce carbon dioxide emissions, deforestation and exploitation of marine resources.

### Three impacts, three factors

Human beings impact on the environment in three main ways: through the resources they use, the wastes they emit and the land they occupy for settlements and farms. The strength of the impact depends not just on human numbers but on levels of consumption and the technologies used to meet that consumption and to dispose of wastes.

### Population and resources

The debate on the links between population and environment has traditionally focused on resources. Will we have enough land, water, energy or minerals to meet the needs and desires of future populations or will resources pose limits to our future growth?

Many individual countries are facing shortages of land and water (see Land, Food and Water sheet). However it is estimated that at the global level the essentials for survival are available for 9.4 billion people - the United Nations medium projection for the year 2050.

Human adaptability and ingenuity has increased the world's population carrying capacity. When a particular resource grows scarce, we increase exploration and improve efficiency, or develop a substitute. For many minerals, known reserves have actually grown over the decades, despite increasing use. Clearly this cannot go on indefinitely: most minerals will eventually become scarce. When they do, we shift to substitutes.

However the future will tax our adaptability to the utmost. Assume, for the sake of illustration, that we are all consuming at current American levels. In that case, today's world copper reserves would be used up in four years instead of 41. Today's oil

reserves would run out in seven years instead of 41. Even if we could find new sources and substitutes, the globe is likely to be laid to waste if resources were mined at such a rapid rate.

### Pressures on natural habitats

One of our biggest impacts on the environment is the space we occupy for farms, homes, roads and cities. Growth in population means growth in the area used for such purposes. That area is taken away from wilderness and wildlife.

In the tropics, some 15.4 million hectares (154,000 square kilometres) of forest were being cleared every year around 1990, or about one square kilometre every three minutes. This is a 36% increase over 1980, and amounts to 0.8% of the total tropical forest area.

Between 1973 and 1988 population increase accounted for about 79% of the loss of forest in developing countries. This is the proportion of forest cleared for farms to feed growing populations, and for towns, roads, and workplaces to accommodate them. The other 21% was due to increasing food consumption per person, and to ranching in Latin America. In developing countries, some 72% of this growing demand between 1961 and 1985 was due to population increase, the rest was due to growth in consumption per person.

Expanding human territories swallow up wildlife habitats - wetlands, grasslands, even marginal semi-arid and mountainous areas. In 50 African and Asian countries studied by the World Conservation Union, there was a very close link between population density and loss of original wildlife habitat. In the 10 countries with the highest habitat loss (averaging 85%) population density averaged 189 people per square kilometre. In the 10 countries with the lowest habitat loss (averaging 41%) average population density was only 30 people per square kilometre.

### The waste mountain

Problems of the future come not only from what we use but also from what is wasted. Solid wastes grow in volume as populations and incomes rise. Over a lifetime the average person in a developing country produces 150 times their body weight in waste; the average European 1,000 times; the average American 3,900 times.

In developed countries, landfill sites are becoming scarce, so the pressure to recycle and reduce waste is growing. Liquid and gaseous wastes are harder to deal with. They flow into the oceans and atmosphere, and there is no comprehensive international regulation of the quantity of pollutants released in this way.

Run-off from fertilisers is a serious water pollutant. In rivers, lakes and coastal waters it leads to large amounts of algae which starve the water of oxygen, killing fish and other animals. Fertiliser use increases to meet growing demand for agricultural products.

One of the most serious environmental threats is climate change. Global warming is accelerated by population growth. Carbon dioxide, the major greenhouse gas, comes from the burning of fossil fuels and deforestation. Population growth increases fossil fuel use. Over the period 1965-1989 population growth accounted for 42% of the growth in carbon dioxide emissions by developing countries. Increased consumption accounted for the rest.



*As areas of human habitation expand they reduce the area available to wildlife*

### Future pressures

The environmental challenges ahead are daunting. According to the United Nations medium projection, the world population will almost double over the next half century. With improving living standards in some developing countries, average consumption per person will at least double, even if it grows at the low 1.3% a year of the 1980s recession period. The total impact of population multiplied by consumption could therefore rise by a factor of four or more.

This means that even to limit environmental damage to its present high levels, we must reduce

the impact of our activities by at least 75%. Clearly the task would be made easier by slower population growth rates. For example, the land demands of the low projected population for 2050 would swallow up about 4 million square kilometres less wildlife habitat than the medium, even if we assume a very low land requirement of only 0.2 hectares per person (about today's level in Asia). The saving is almost equal to the entire remaining forested area in Asia's developing countries. The low projection would demand around 9 million square kilometres less land than the high projection. This is more than all the currently remaining rainforests in Latin America.

Slower population growth could also slow the rate of global warming by reducing carbon dioxide emissions. Sustaining present levels of emissions could produce an average sea temperature rise of almost 3 degrees Celsius by 2100. The consequent rise in sea levels of from 0.3 to 1.0 metres could completely submerge atoll states in the Pacific, such as Kiribati, the Marshall Islands and Tuvalu, and dramatically reduce coastal lands throughout the world. Up to 10% of the populations of countries such as Bangladesh and China could be displaced.

Slower population growth could also mitigate the negative impact of global warming on crops production. A doubling of carbon dioxide levels could reduce rice yields by up to 5% and maize yields by up to 24%. This, in turn, would increase the projected malnourished population from 640 million to 823 million by 2050, assuming the United Nations medium projected growth rate. Achieving the United Nations low population projection would both slow the rate of global warming and reduce the projected number of malnourished to 481 million.

Slowing population growth can thus be a very significant conservation measure in its own right.

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Women's place in society is crucial for every aspect of development, from quality of life to economic growth and sustainability. Where women enjoy equal rights, their children - female and male - are healthier and better educated. Fertility rates are slower and economic growth is usually faster. But where women are oppressed and undervalued, they suffer, their children suffer, economic growth is slower and fertility rates higher.

### Women and family welfare

Development is not just a question of raising incomes. Quality of life - the state of health, nutrition, and education - is just as important. Women are key agents in determining the quality of life of their families. Children's success in school and their health and productivity in later life may depend to a considerable extent on their mother's health, education, welfare and skills.

### Female education: key to the future

Education is the strongest of all factors enabling women to improve their own lives and those of their children. 'Once all the benefits are recognised,' said former World Bank Vice President Lawrence Summers, 'investment in the education of girls may well be the highest return investment available in the developing world'.

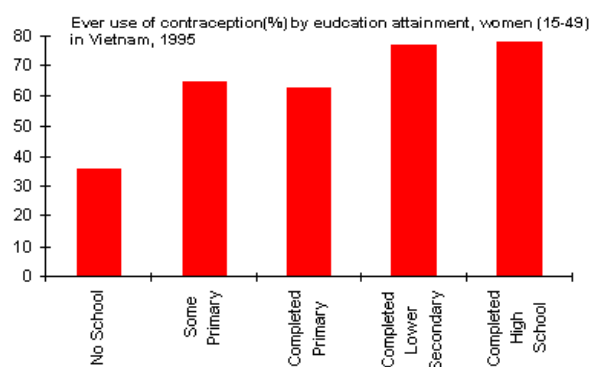
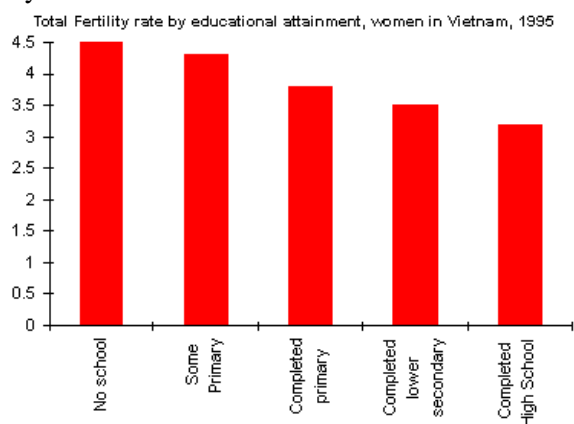
Education increases family income and reduces poverty by boosting the wages women can earn. It also has a strong effect on child health (see Education). Educated women have a better knowledge of nutrition and sanitation, and are in a better position to obtain outside help if needed. A World Bank survey calculated that if developing countries had been able to double girls' secondary enrolment in 1975, infant mortality 10 years later would have been more than halved. This effect was seven times more powerful than doubling the national income and 10 times stronger than doubling the number of doctors.

Educated women tend to marry later, have fewer children and use contraception (see graph). They are more open to change and more aware of social

services. These effects combine to reduce women's fertility dramatically. Typically a woman with four years of secondary education has two children fewer than a woman with no education. The World Bank study cited above found that doubling female secondary enrolment in 1975 would have reduced the number of births in 1985 by 29%.

Conversely family planning helps to improve women's status and education. Where women marry early, or risk teenage pregnancies while still at school, they are more likely to have to cut short their education. Teenage pregnancy frequently curtails education.

Women who are exposed to repeated pregnancies find it harder to get and keep jobs outside the home. When family planning is widely available women are more able to choose what type of work they do.



Source: Vietnam Reproductive Health Survey

### Women and economic development

Women's economic contribution to families and nations is huge, but often underestimated. Their work is often underpaid or unpaid. It is difficult to measure domestic work and work in the informal economy, which are often essential to family survival. Work in family fields, animal husbandry and petty trading are often not counted as 'work' because they are seen as an extension of women's



domestic role. But without these daily acts of labour, families would not be fed.

Increasing numbers of women are being drawn into the formal workforce. Interestingly, where women's participation in the workforce is highest, economic growth has been fastest. Women workers are sought after in textile, clothing and assembly factories, usually the first types of manufacturing jobs to arrive in newly-industrialising countries. Women are seen, rightly or wrongly, as a more 'docile' and productive workforce, less likely to join unions and less disruptive, and often willing to work for lower wages. In many countries they are more vulnerable than men to unemployment or job loss.

There are many family and social benefits when women have access to the labour market. They are more likely to marry later and have fewer children. Access to a cash income may mean more money is spent on improving children's nutrition.

### A matter of equity

Gender relations between women and men in any given society determine the extent to which women's contribution to the economy and to family welfare is recognised. Gender relations also determine women's access to education. In societies in which women traditionally play a subordinate role to men, women's opportunities may be severely curtailed, particularly when gender inequity is compounded by poverty.

In many parts of Papua New Guinea women have lower status than men, especially in those communities where women leave their own village to live in their husbands' villages. A study in such an area, Milne Bay, found that boys were twice as likely as girls to be taken for medical treatment when they were sick. This was because girls moved away from their fathers, so investment in the health of boys took priority.

The same attitude affects education of women. In 1990 64% of Papua New Guinea women were illiterate compared with 47% of Papua New Guinea men. Only 7% of women had more than ten years of schooling, but 14% of men.

In some countries with strong son preference, such as Nepal, girls may receive less food than their brothers. Malnourished girls grow into malnourished women. Poverty and a low regard for the well-being of women also may limit the

availability of ante-natal care. Malnourished women give birth to daughters of low birth weight, and so the cycle repeats itself.

### Gender and reproductive health

There is growing interest in the reproductive health needs of men. The increasing availability of condoms and the new focus on sexually transmitted diseases and HIV/AIDS have provided a context in which to promote the rights of men to reproductive health care, and to encourage men to take responsibility for their own fertility. Reaching men through men-only programmes and through innovative information, education and communication activities, has been an important achievement of non-government organisations in particular. While there is a long way to go in the matter of reproductive equity, an important start has been made.

### Women in the two Indias

The connection between women's status, quality of life and fertility comes into focus when we compare the South Indian state of Kerala with the five northern states of Rajasthan, Uttar Pradesh, Madhya Pradesh, Bihar, and Orissa.

Kerala is poor, but its female literacy rate is almost double that of its nearest Indian state rival. In Kerala women are considered an asset; in North India they are seen as a burden. In Kerala women can inherit land; in the North they do so more rarely. In Kerala, the husband's family traditionally pays a bride price to the wife's family; in the North the bride's family pays a dowry.

Kerala has 1,032 women for every 1,000 men. The five northern states average only 935 women per 1,000 men. Son preference in the North, particularly in the context of poverty, leads to neglect of the health of girls and women. When resources are scarce they are spent on boys. Selective abortion and infanticide also add to the unbalanced sex ratio.

Kerala has the lowest infant mortality rate in India - only 26 per 1,000 live births half the average for middle income developing countries. In the northern states, infant mortality is four to five times higher.

There have been economic benefits too. Kerala has performed well in eradicating poverty. In 1987 only 27% of its population lived in poverty. In the northern states, the poverty rate averaged 44%.

In the northern states women still have an average of 4.9 children. Kerala's fertility rate declined from over six children per woman in the 1960s to around 2.0 in the 1990s.

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Rapid population growth can be an obstacle to economic progress, both in families and in nations. Slower population growth is beneficial to per capita income growth, especially in poor agricultural countries.

### Poverty and fertility

Both the Australian and New Zealand aid programmes are focused on poverty reduction through sustainable economic and social development. High fertility rates are often blamed on poverty.

Among poor families in poor countries, rearing children costs little more than feeding them, yet the benefits they bring are high. As youngsters they help out with family work. As teenagers they can do paid work and bring their earnings into the family. They provide the only source of social security for elderly relations.

But the theory has its limitations. The evidence shows that in many countries rapid population growth has slowed development and increased the numbers in poverty. When this happens, development never gets the chance to begin its contraceptive effect. High fertility rates can trap families and nations in a vicious circle of poverty.

### Absolute poverty

The world has made some progress in fighting poverty. In most regions the proportion of poor has declined. According to a United Nations survey, the percentage of people in poverty in developing countries fell from 52% in 1970 to 32% in 1993. Yet because of population growth, the actual numbers of poor rose from 944 million to 1.3 billion over the same period. This meant an extra 354 million human beings suffering incomes too low to provide even a basic existence. The numbers in poverty increased in every developing region except East Asia - which had the lowest population growth rate.

According to the World Bank, there has been a reduction in poverty in East Asia, but an increase in Eastern Europe, Central Asia and Africa. It is likely Africa will become the region with the highest incidence of poverty in the future.

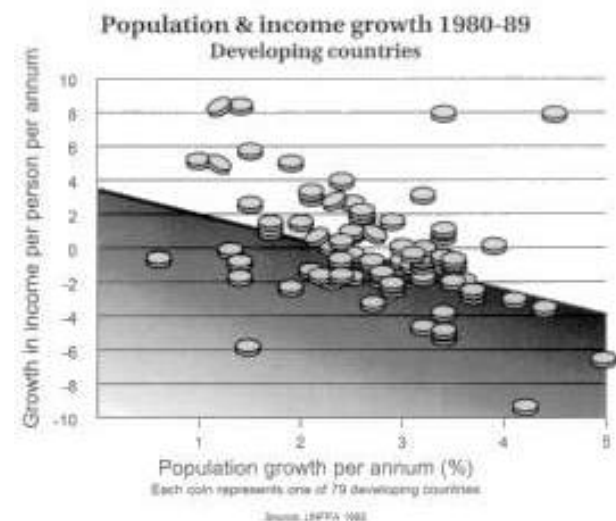
### Fertility rates and family poverty

High fertility rates contribute to poverty at the family level. A study by the International Fund for Agricultural Development found population growth was among the three leading causes of rural poverty in Africa, Asia and the Middle East.

Population growth has helped to shrink landholdings, often pushing them below subsistence level. In most developing countries the principle of equal inheritance applies. Holdings are split up among heirs - the more heirs, the more the size of individual holdings shrink. This process is common to countries as far apart as Papua New Guinea, Kenya and Bangladesh.

In India the average landholding reduced from 2.28 hectares in 1970-71 to 1.68 hectares in 1985-86. Marginal farms with less than one hectare increased from 51% to 58% of all farms.

In regions where there are reserves of unused land - as in Africa - larger families can open up bigger areas. But even here surveys show they end up with less land per person.



### The jobs challenge

At the national level, population growth makes the task of job creation harder. The employment problem facing the developing world is daunting. According to the United Nations medium projection, there will be an additional 2.2 billion people aged 15-64 in 2050. Extra jobs must be found by developing countries for many of these people to stop unemployment rising. Many

millions more jobs will be needed to reduce unemployment.

The challenge is becoming greater. In the 1950s the labour force grew by only 16 million per year. But in the two decades 1995-2015 there will be an increase of more than twice that many every year. Most will live in developing countries.

The labour force expanded in developing countries by 2.3% annually in the 1980s. This provided a continual flow of cheap labour, so some manufacturing industry relocated to developing countries. Companies based in developed countries had to improve productivity to compete, and fewer jobs could be created, so unemployment rose even in years of economic growth.

Governments in developing countries face an even greater challenge. Although productivity is increasing, their larger labour force is growing also, at 2% per annum. National incomes must grow at least as fast as the two combined - perhaps as much as 4% - if the army of unemployed is not to swell. High fertility increases the demand for school places, which in turn leads to a greater demand for employment.

The task of job creation is most difficult where population growth rates are highest. In 1980 South Asia's workforce was smaller than East Asia's by 103 million. Yet South Asia now must create more jobs than East Asia, which has lower birth rates.

India's case shows just how hard it can be to create enough jobs in a situation of high fertility rates. Although the national economic growth rate always exceeded the population growth rate, India's jobless total rose steadily from 2.6 million in 1966 to 9.6 million in 1976 and 36 million in 1992.

### Population and economic growth

The links between population growth and economic growth are still controversial. A few economists believe population growth stimulates economic growth. There has never been any evidence for this view in developing countries.

Until 1975 there was little evidence that rapid population growth was a handicap. Between 1965 and 1980 there was no correlation with growth in incomes per person in 82 developing countries studied by the United Nations Population Fund (UNFPA). Since then the picture has changed

dramatically. In the 1980s there was a large disparity in income growth between countries with slower or faster population growth rates (see graph). The 41 countries where population was growing more slowly managed an average income growth of 1.23% a year. In the 41 countries with faster growth, incomes fell by an average of 1.25% a year. The difference between these two groups was a massive 2.5% per year.

We cannot be sure from this one period whether slower population growth brought faster economic growth - or vice-versa. It is therefore important to consider how population growth before 1980 affected economic growth in the 1980s.

The effect was quite marked. The 41 countries with slower population growth in 1965-80 saw their average incomes grow at 0.9% annually during the 1980s. But the 41 countries with faster population growth in 1965-80 saw average incomes fall by 0.9% annually in the 1980s. The difference in income growth between the two groups was 1.8% per year. Regional factors cannot explain these findings. The same link between slower population growth and faster income growth applies within the four main developing regions.

The reasons are complex. Countries with slower population growth tend to be those with better education and improved health - and these factors also stimulate economic growth. Slower population growth also helps increase savings, since families with fewer children have more surplus money after meeting basic needs.

A UNFPA study of data from 76 developing countries showed the 38 countries with slowest population growth during the 1980s had savings ratios averaging 18.5% of gross domestic product (GDP) at the end of the decade. However the savings ratio averaged only 12% in the 38 with the fastest population growth.

In 1974 former Indian Health Minister Dr Karan Singh argued that development was the best contraceptive. This theory has now been overturned. There seems to be more truth in the view that slower population growth is a good recipe for economic growth. In a recent change of heart Dr Singh commented 'Contraceptives are the best development'.

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