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Women and the Environment Meeting the Challenge for the Communication Strategist

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ABSTRACT

The concept and practice of sustainable development has been carried out by women throughout history. In developing countries today, women still maintain a direct and sustainable working relation ship with the environment.

With the rise of cash markets and commodities, the commercial exploitation of the environment became the dominant philosophy and practice. The status of women decreased despite the vital, unrecognized contributions women make and continue to make.

Today, the planet faces grave environmental and human social problems. Poverty is rampant and increasing population growth will have serious, detrimental ecological results. Women are a vital asset in seeking a solution to these problems through their intimate association with the environment and their role as mothers. Women have a direct bearing on reducing population growth, eradicating poverty and improving standards of health and education.

The challenges to government and non-government field development workers are many but a clear understanding of the role women play is vital if aid programmes are to be successful. It is essentia l that women be recognized as the prime agents of change in many societies and their concerns must be met with well planned and practical policies and practices. This has not always been the case and many programmes have flounded simply because women were not involved at the planning stage and indeed all levels of implementation. There are many examples where inappropriate technology has been introduced or where there was little attempt to utilize the vast repository of ecological knowledge already possesed by local women. Field workers should be a prime medium in supplementing this already existing knowledge with modern scientific and ecologically sound training and assistance in related areas. With the ultimate goal being to help women to help themselves, the environment will benefit enormously as will the cause of women itself. By addressing both long-term and short-term concerns of women, particuarly in the sphere of education, the benefits to society as a whole will be reflected in sustained economic and environmental development as well as a better quality of life.

There are many examples where women have been instruemental in protecting and conserving the environment from the local to the international level. Women have influenced national policies as well as being the driving force behind major international and global environmental movements. They have a proven yet often unrecognized track record. With well planned and organized development packages effectively communicated by knowledgeable and understanding communicators,women will continue to play a vital role in the ecological management of the Earth's resources from the village level through to major international forums.

Key words: women and environment, women's traditional role, environmental interactions, empowerment

INTRODUCTION

Resolution of the earth's environmental and social problems are critical issues facing the future of humankind today. The problems of population, environmental degredation, poverty, and poor health pose major threats to the survival for the majority of the inhabitants of this planet. For the 4000 million people who live in developing countries the future is a challenge; they face the worst of the problems yet are the least able to cope.

It is now recognised that, sustainable development, as opposed to the unsustainable development of the past, must be undertaken if humankind has any hope of meeting today's needs and sharing a reasonable quality of life with future generations. It is also

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vital for humankind to recognize the importance and utilise perhaps its most valuable asset - the 50% of itself which it has previously ignored; women.

Women are vital for the attainment of sustainable development; they always have been. Traditionally, in hunter-gatherer societies, they worked in unison with the environment to produce the majority of the food. Yet their activities were not in conflict with nature because women's outlook recognized the need to preserve, to sustain and not to exploit and destroy; it did not see the environment as a series of commercial opportunities. But sadly humankind, with the rise of cash markets, did come to regard nature in those terms and women's views and women themselves were excluded from the mainstream of society, regarded as unimportant.

It has only been comparatively recently that humankind has realised its mistake. Women's contribution is potentially humankind's greatest asset in the troubled world of today. Women can directly influence the root cause of our biggest threat: population growth and environmental mis-management. It is the challenge facing the communicator of aid and development programmes to effectively target this group and fully utilize these key agents of change through well planned and thoroughly thought out projects. By recognizing the importance of women, their roles, contributions and concerns, not only will humankind survive but prosper for the benefit of future generations.

The Role of Women in the Environment

Women have played a significant role in environmental management since prehistory. A traditional social division of labour, based on gender, ensured women were responsible for the primary collection of food and water for the community as well as the community's domestic animals. The maintainance of the household and other basic human requirements were also entrusted to women. Hence women have always had an intimate relationship with their surroundings which tended to be quite different from that of men.

Women tend to perceive the environment as a source of key domestic requirements while men incline to view it as a source of commercial possibilities. This difference in the way men and women perceive, and more importantly, respond to their surroundings can be blamed for many of the environmental disasters facing the world today. As Shiva, (1989,p44), notes," the crisis of survival ...arises from ecological disruption that is...grounded in a blindness towards the quiet work and invisible wealth created by nature and women..."

Women were the very first managers of "sustainable development" and have continued that tradition through to the present day. They have always been seen as the sustainers and producers of life both physically and practically. In traditional societies they produced the majority of the food supply working in cooperation with nature. (Rodda, A., 1991 p59; Shiva, V., 1989, p50) They understood the intricate relationships which existed between survival (utliization of natural resources) and continued survival (regeneration of natural resources) and the limits which could be placed on these resources. They produced their food by working within these limits, viewing the forest as both a giver and sustainer of life and the fact that exploitation without regeneration was physical suicide. This same principle, they extended to their other activities which included the gathering of fuelwood, fodder and water.

In developing countries, women are the largest collecters of fuelwood, often spending many hours and travelling great distances in the process. Mindful of the need to preserve such a valuable resource, the wood collected is nearly always dead because it is easier to chop and gather. This physically exhausting activity generally tends to be undertaken twice a week in most rural societies. However, with increasing urbanization in developing countries, there has been an increased demmand for wood which, when turned into charcoal, constitutes the major fuel of cities. Wood-merchants encourage the local rural populations to supply wood in return for cash payments. The result is to ravage the environment. (Rodda, A. 1991, p 40)

Women are also charged with the responsibility of collecting water and overseeing its use. They utilize their sound local knowledge of water location, quality and reliability to carefully manage water supplies. They will usually decide on the purpose to which the water is to be used, arrange sanitary ammenities and ensure that the society has a good supply of drinking water. Collecting water in rural communities is often so time consuming, that very little time is left for other pressing duties (Van Wijk-Sijbesma in Rodda, A. 1991 p54).

The maintainance and the running of the household is another important duty carried out by women. Here health, child-care and a capability, through productive work, to earn an extra income, are

of prime consideration. The sexual division of labour in developing countries, thus places a heavy physical and time-consuming burden on women.

Men, on the other hand, instead of viewing the environment as a whole, departmentalize it, and look upon it in terms of commercial possibilities; the forest is separated from the crops and each developed and exploited separately. Men's activities have been essentially environmentally violent and degenerative. Indeed, their activities in the past, such as hunting, would have led to their own extinction if it were not for the fact that their numbers were small and that their activities constituted only a minor part of total sustenance (Shiva, V. 1989, p50).

The differences between the environmental viewpoints of men and women were exacebrated with the rise of cash markets; the cycles of nature were destroyed and the environment was reduced to "raw materials and commodities." (Shiva,1989). The rise of this money-based philosophy, has led to wholesale and unrestricted exploitation of natural resources, poorly planned development programmes and the resulting environmental degredation.

But more insiduously, this philosophy, expounded by Adam Smith in the eighteenth century, led to productivity and progress being exclusively defined as "producing commodities." The work of women, their role as quiet achievers and sustainers , was now marginalised and considered unimportant in the structure of industralised society. Colonization spread this concept and cash markets sustained it until the male viewpoint of the environment was accepted globally. This devaluation of the role of women subsequently led to dualism, sexism and discrimination because productive power was only associated "with male western labour and economic development," (Shiva, 1989, pg 44). Economic statistics could be placed on the work done by men, while by definition, the quiet, yet essential work done by women, was excluded from productivity figures.

It has only been in comparatively recent times that the folly of this unsustainable, commodity-orientated development has been recognized. Today, environmental issues are a global concern and given high priority by powerful world bodies such as the United Nations. The important role provided by women has been recognised (UNFPA, 1992, p i-ii) as being crucial to the successful implementation of sustainable development, yet the current status of women in the developing world precludes it. Women shoulder virtually all of the responsibilities necessary for basic survival, yet for all this, they remain inferior to men politically, socially and economically. Although they account for most of the society's production, they have the least say in matters that directly concern them.

The Concerns of Women

For women to play a significant part in future environmental management, it is vital that their needs and concerns be taken into consideration. It is also critical to differentiate between short-term practical, and long-term strategic considerations.

Short term concerns of women:

Short term concerns are those which affect basic day to day survival and are of a practical nature. Arising directly from the traditional roles '"pre-determined and sustained by custom and pracice...[they are] very often a response to an immediate necessity identified by women within a specific context," (ESCAP, 1991, p2). Previous, poorly planned and implemented development programmes and technologies may also be root causes of women's short term concerns.

In the past, development programmes and projects were essentially designed to help meet the immediate necessities for survival, yet their lack of proper planning has called their appropriateness into question . In the vast majority of cases, women were not consulted as to their specific needs and requirements thus opening the door for the implementation of unsuitable technology and the establishment of goods and services which were either under utilized or neglected.

At the micro-economic, local scale, negligence of the real concerns of women often lead to poorly designed technology being installed. For example, the designs of many water pumps, provided to rural areas in developing countries, failed to take into consideration that women differ physically from men and that their specific practical needs may also be different (WaterAid in Rodda, A. 1991. p54-55). Such short-sighted planning would have been avoided if women were consulted beforehand. An engineer may be essential in providing a constant supply of safe water to a village, but after that, the village women themselves can and should make the decisions as to regards the siting of the pump and other related agronomic matters.

The introduction of inappropriate and poorly designed technology not only makes women's work-

load harder, it may actually increase it. Technonolgical innovations to agriculture tend to be directed at men; women receive no training how to use tractors or threshers and as a result, are relegated to the more labour intensive "side-effects" of technological transfer. For example, with the introduction of tractors to rural areas, farming intensified which necessitated more weeding and harvesting. This task was given to the women on top of their other chores. Again, this was negligance on the part of the programme planners (Thacker, P. 1992, p12). New technology should be directed at making women's workloads lighter (eg, better tools for harvesting and weeding) which would allow them more time for their other pressing needs.

Services, provided in past development programmes also show a lack of planning foresight. Many facilities, such as child-care and health facilities were under-utilized due to poor siting. Women simply could not spare the time to attend if the facility was too far away or transport costs too high (Smyke, 1991, p38).

Perhaps the primary fault with previous development programmes in meeting the short term needs of women, is that they essentially do nothing to raise women's status but merely perpetuate their inferiority as defined by society. The training programmes provided to women are, in the majority of cases, in areas already classified as traditionally being "female "(e.g, home-economics, primary school teachers, nursing). They merely reinforce traditional roles. Whereas, training in areas traditionally defined as "male" (such as mechanics) would broaden employment activities and give women more financial independance (ESCAP,1991. p4-5).

Long term concerns of women:

Long term needs and concerns of women are more strategic in their nature. They are those formulated with the view to improving the status of women; of abolishing the socially defined superiority of men and of creating an alternative and more equal society than that which operates at the the present time. It has been noted that , "economic growth and improvement in the quality of life have been the fastest in those areas where women have higher status and slowest where they face the greatest disadvantages," (UNFPA, 1992. p1). Yet, despite the fact that women make up nearly half the total population, and contribute more working hours per day than their male counterparts, women still face acute sexual discrimination socially, economically and politically.

The traditional, sexual division of labour means that women are overburdened with work, allowing them little or no free time for other activities. Studies have shown that in an average household in India, women account for 53% of the total number of human workhours per day, while men contribute only 31% (Batliwala, in Shiva,1989, p117-118); in Asia as a whole, women work, on average 13 hours more each week than men (UNFPA, 1992. p4). Moreover, women do not share the same health and education opportunities as men and many cultures tend to regard them as a liability which can be dispensed with. In Bangladesh, girls under the age of five, receive 16% less food than boys of the same age. In India, some cultures especially in the north, have changed marriage customs from receiving bride price, to giving dowries. Consequently, girls suffer more cases of malnutrition and are "fifty times less likely to be taken to a clinic or hospital" (UNFPA, 1992. p5). With the introduction of aminocentesis (sex determination of the unborn child), studies have shown that most abortions involved female foetuses (Patel in Smyke, 1991,p39) and between 1978 and 1983, 78000 had been carried out in India alone by parents wishing to save on future dowry costs (Shiva, 1989, p119).

Restricted access to family planning, either by poor facilities, religious and social taboos, or fear of physical violence, prevent women from controlling the number of children they bear. In countries which see wealth measured in terms of children, this right, traditionally that of the woman, is now the the prerogative of the male. Caring for children lessens the woman's time she can spend in the field and births, spaced too closely together, can seriously damage her's, and the successive baby's, health.

Social customs in developing countries also deprive women of equal educational opportunities; males are given preferential treatment while females are taken out of school to help with the running of the household. Female secondary school enrollments in Africa are only 55% that of males; in the developing countries of Asia, it is 70%. The greatest proportion (67%) of illiterate adults in developing nations are women (Smyke, 1991. p101).

One area where discrimination severly limits any attempt by women to improve not only their status, but their general quality of life, is on the economic front. Women are solely responsible for the welfare of the family unit, but are denied access to its finances which usually rests with the male head of the household. This gives them little independence in

choosing how the family income is spent. The trickle-down theory that all family members will be provided for equally by the male house-hold head is a myth as different family members have different priorities and status. Women are invariably low on the list. Wealth is determined in terms of land, yet in most developing countries, women are precluded from owning, selling or inheriting land. This denies them access to credit (land being the traditional collateral for a loan) and limits their working capital with which they may otherwise escape the cycle of poverty. Where banks have provided women with low security loans, such as in Bangladesh and parts of India, the results have been very successful (Thacker, P. 1992. p 4). However, more needs to be done.

Wage levels in all developing countries (and for that matter in many western countries), between men and women do not show parity despite participating in the same task. Shiva (1989.p119) cites this fact as a motive for female infantcide in the Indian state of Tamil Nadu. In the industrial sector, the unorganized labour sector, predominantly consisting of women, allows employers to manipulate wage rates and conditions to suit themselves (Rhodda, A. 1991. p 103).

Despite blatent discrimination, women in most countries, have no legal or political form of redress; indeed, the laws themselves, are often discriminatory. In male dominated societies, the woman's political clout is limited and often marginalized as her political education and awareness of her rights is poor (Rhodda, A. 1991. p 99 - 101).

All the above issues need to be resolved if women's long term needs are to be met. The Economic and Social Commission for Asia and the Pacific (ESCAP) has recommended five broad areas for implementing effective policies to effectively address the strategic concerns of women (ESCAP,1991, p6 - 16).

Policies must be formulated on a national level with enough institutional support to see that they are effectively implemented at the local, village level. Development programmes must shift their orientation away from economic growth and concentrate on improving the distribution of "wealth, income and welfare" (ESCAP,1991, p7); in short, allevation of poverty. Since women constitute the majority of the poor, such measures will directly improve their condition. The United Nations Population Fund, UNFPA, has shown that when a community's economic situation improves, traditional attitudes are more willing to accept new, more positive ideas (UNFPA, 1992, p 4-6).

Women need to be brought into the mainstream of society and not be a separate issue; they must be actively involved in the planning, organization and implementation of programmes at a national level as well as at a grass-roots level. ESCAP recommends that women's concerns be carefully addressed in all policies and programmes and not "be marginalised as the responsibility of only one government agency and only one gender" (ESCAP,1991, p9).

The recognition of women's diverse roles in contributing to society should be more widely reflected in economic statistics. Some attempts have been made by agencies in this field (e.g., United Nations Development Fund, UNDP) which give a statistical value to a human development index (HDI). This index takes into account, life expectancy, education, and basic purchasing power of a country. In a recent report (UNDP, 1993), when this index was sensitized to male-female disparities, it concluded, "no country treats its women as well as it treats its men." While such reports are a start in recognizing women's contributions, more promotion should be done to make this system more widely used.

Decentralized planning to the local village level is an effective method of identifying the real needs and concerns of women. It also allows constant feedback of data, which permits development planning to be tailored to suit specific community requirements. For example, health issues, family planning, land management, education requirements etc. specific to a particular community can be planned and organized at this level with the backing of a central institution. By involving women at a local level, along with further representatives to a regional and national level, women's political voice and power will also be raised.

More must be done in the fields of women's education. Lack of education limits the opportunities open to women and leaves them at the mercy of unscrupulous employers. Girls should be encouraged to continue their education right through to tertiary level. Due to traditional prejudices, which perpetually renegate women's status, national education programmes should also be mounted with the aim of changing the "negative traditional attitudes of both men and women," (ESCAP, 1991).

Thus by adopting sensible, long term strategic policies which principally aim at eliminating traditional

prejudice, the quality of life for both women and society as a whole, will drastically improve. With the severity of the environmental problems facing the world today, a society which allows women to participate more fully, is not only desirable, but a vital necessity.

POPULATION AND WOMEN: ENVIRONMENTAL INTERACTIONS

The worlds population reached at 5.48 billion in mid 1992; it has been predicted to reach 6 billion by 1998. Over the next decade, the average annual increase will be 97 million people. Most of this growth will take place in Africa, Asia and Latin America; 83% of the total growth will be in urban areas. The world's population is expected to continue climbing until the middle of the twenty-second century reaching an estimated 11.6 billion. However, it could also reach over 20 billion if steps are not taken to reduce its growth (UNFPA, 1992, p i - ii).

Of particular concern, is the fact that over 90% of the population growth is currently taking place in developing countries. These countries are the least able to cope with the pressures put on the environment and resources. By the year 2000 AD, population growth in industralized countries will be 5.2% compared with 24.6% in developing countries (UNFPA, 1990 p 5).

The world's population places tremedous strain on both human and natural resources. Indeed, the three factors are intricately and inextricably connected. A solution to the population problem (specifically, slowing population growth, reducing the overall totals and providing a more evenly balanced population distribution) would help solve the problems facing human resources. The converse is also true; an improvement in humanitarian problems (that is, raising the quality of life by alleviating poverty, improving health services and raising education standards) will help reduce population growth. Any improvement in either of these problems will help relieve pressure on the third factor in the triangle, natural resources. For the benefit of this and future generations these resources must be handled with care; development must be balanced and sustainable; able to meet the aspirations of the majority while miminizing the cost to the environment.

In all these cases, women are directly involved on a personal level and as a social group. Any improvement in the status of women will help improve the quality of human life, reduce population growth and ensure that natural resources are better managed and preserved. "Of all the issues facing the world, it is that of population and of population planning which most affects the lives of women. And, as has been shown, it is inextricably interwoven with all of the other global ecological issues..." (PPSEAWA, 1992). Raising women's status is recognized as a crucial part of the solution and improving their education is seen as "probably the world's best investment" (UNICEF in Smyke, P. 1991 p 41).

The Pressure on Natural Resources:

Nearly all of the problems facing the world today are influenced by population and population growth in a complex web of inter-relationships. Increased population means more people to feed which puts more pressure on resources, especially land. These pressures, in-turn lead to an array of problems, both environmentally and socially; from deforestation, loss of animal species, pollution etc. through to poverty, migration and urbanization (see fig. 1).

Population growth in developing countries, at present, accounts for 79% of deforestation, 72% of arable land expansion and 69% of growth in livestock numbers (UNFPA, 1992, p i - ii). Between 1971-1976, 1.7 million km2 of tropical rainforest disappeared; soil erosion and land degredation could account for a 29% decline in food by 2010 (UNFPA, 1991 p31).

Reducing the world's population would mean less pressure on land needed for agriculture and social infrastructure (e.g. land required for roads, towns, offices etc.). To meet the needs of the world's expected population in 2050, it has been estimated that an additional 4.5 million km2 of land will be required than is currently being utilized; 2.75 million km2 of this total being for non-agricultural uses which is a direct response to population increase (UNFPA, 1992, p 26). This figure of 4.5 million km2 represents a 56% increase on the arable land area in developing countries in 1988. To meet this need, more forests and marginal land will have to be utilized. This will lead to more deforestation, desertification, and land degredation. It will also lead to the loss of many species of plant and wildlife.

Another threat to natural resources comes from the alarming trend of urbanization. Migration to the cities, especially in developing countries , will put urban population at 4000 million people by 2025; twice the urban population of today and has been

described as "one of the most extreme demographic phenomena " in history (UNFPA, 1991,p59). By the turn of the century, 83% of the world's population growth will be in cities (UNFPA, 1992, p 16). The strain on human resources will be immense both in terms of infrastructure and the provision of basic services. Yet this trend to urbanization will also place severe pressure on natural resources. The demmands of urban populations today seriously damage the environment through pollution, fuel and land requirements. Delhi imports its fuelwood from Assam (over 1000 kms away) and the conversion of wood to charcoal (the major fuel for cities in developing countries) has been blamed as the major cause of deforestation in Kenya (UNFPA, 1991, p 62).

The United Nations recognize that the key to controlling most of the world's other environmental problems, the factor which would have the most impact in a seeking a solution, is limited population growth. And the key to limited population growth is women (UNFPA, 1992, pi-ii).

Pressure on Human Resources:

Increased population has an adverse effect on the quality of human life physically, economically and socially. Poverty and deprivation are widespread by-products of population growth. As numbers increase, the pressures on human and natural resources increase. The problem is magnified by the fact that most of the population growth is happening in countries which are the least able to cope with its consequences, the developing world. Government social expenditure in these countries is limited and is spread too thinly over rapidly increasing numbers. In an attempt to alleviate poverty, these countries will be forced to accelerate growth at the expense of the environment by large-scale exploitation of natural resources. As a result, the scope for environmental catastrophe is enormous.

The fight to alleviate poverty is crucial not only for improving the quality of human life, but also for the achievement of sustained development. It calls for improvements in health and economic status. Some of the worst poverty is seen in the slum, squatter settlements of today's large cities like Calcutta, Manila and Mexico City. The problems faced when the number of people outstrip the services available has serious repercussions on health. Poor housing and sanitation, polluted air and unsafe drinking water plus the social pressures of people living in such a confined space are reflected in poor health and disease among the inhabitants.

Studies have indicated that diseases such as acute diarrhea, dysentry and cholera account for over a million cases per year and 6% of all deaths in Bangkok. Most of these cases being among the unplanned squatter slumslocated on the city's low, wet lands (Hiranpruk, C. 1992 p 1).

Despite the efforts of many countries over the last three decades, UNFPA (1991, p5) reported that there are some 1500 million people with no access to safe water and health care; 2300 million did not have adequate sanitation. There are "300 million women of fertile age with no access to modern methods of family planning." which alone could count represent a population of 1500 million people based on average family sizes in developing countries (UNFPA, 1992, p 5).

Theses problems are being earnestly fought and the results to date, have gone a long way in reducing the proportion of the poor in the world but due to increasing population growth, the actual number of poor has increased. Thus we are faced with a paradox which can only be resolved by a decline in the growth of population.

From 1965 to 1989, per capita incomes increased on average by 2.5%. The percentage of poor in developing countries fell from 52% in 1970 to 44% in 1985. However, due to population growth, the numbers of poor increased from 944 million to 1156 million over the same time period; in Asia alone, the population of the poor increased 75 million.

The same paradox exists for alleviation of malnutrition. The average person's diet in developing countries improved from a daily calorie intake of 1930 cal. in 1961-63 to 2474 cal. in 1987-89. The intake of protein improved from 49g/day to 60 g/day over the same time span; and the proportion of malnourished people decreased from 27% in 1969-71 to 21% in 1983-85. Yet population growth pushed the actual numbers of malnourished people from 460 million (1969-71) to 512 million (1983-85); an 11.3%increase.

Education and health figure show similar trends. Primary and secondary school enrollments have grown substantially over the last three decades and in 1986 there were 480 million children enrolled in primary school. However, with the economic recessions of the 1980's, the growth rate, while still positive, has fallen. With the population increase, there are more children not attending school in developing countries today than there was in 1970.

This trend is reflected in literacy rates. The percentage of illiterate people in developing countries dropped from 55% in 1970, to 39% in 1985. However, the actual numbers of illiterate people rose 7.72% from 842 to 907 million.

Although progress has been made in reducing percentages, in a recent report UNFPA concluded " the attack on poverty through improving public services would have been more effective with slower population growth, allowing a reduction in the numbers of the absolute poor as well as the proportion," (UNFPA, 1992, p 5).

Studies have shown recently that population directly affects a number of economic factors (UNFPA, 1992, p 6-8). It has been noticed that over the last decade and a half, countries with fast population growth tend to have low income growth. The converse is also true; those countries with low population growth rates have higher income growth. The World Bank in a recent report, has shown a correlation between a country's GDP and its education level; an increse of 3 years on the average level of schooling, increased a country's economic growth by 27%; a 6 year educational increase improved a country's economic growth rate by 39% (UNFPA, 1992, p 9). Education levels are affected by population growth and vice-versa. And both these factors are affected by the role of women.

Thailand is a prime example where increased education and a drop in fertility rates led to increased social and economic development. Massive literacy and educational drives promoting family planning reduced the fertility rate from 6.14 in 1965-70 to 2.2 in 1987; contraceptive use among women was 66% in 1987. As a consequence, infant mortality rate fell and life expectancy increased.

An increased literacy rate (91%) was transformed directly into economic growth and prosperity. One extra year's schooling improved farmers (40% of which are women,) output by 3% and improved the average person's expected wage by 17%. Thailand is the world's largest exporter of rice. Over all, between 1964-1989, Thailand's annual rate of growth was 4.2%, the seventh fastest in the world (World Bank in UNFPA, 1992 p10; Vickers, J. 1991, p21).

The Benefits of Smaller Families.

The benefits that humankind could expect from a lower population can be gauged directly by comparing the differences between large and small families. Studies have shown that smaller families have better standards of health, nutrition, intelligence, education and are economically better off than large families. When viewed in this context, the benefits of low population available to humankind as a whole become obvious.

Studies have shown that educational performance is directly related with family size; children from small families perform better at school and tend to stay there longer, than children who come from large families. Some explanations for this are that the resources for spending on educational requirements (such as books, pencils, etc.) are stretched when it comes to providing for many children; (lack of funds was cited by 50% of small families compared to 82% of large families as the principle reason why a child stopped education, UNFPA, 1992, p 5).; parents with small families are able to spend more time per child, imparting valuable knowledge, than parents with large families.

Other factors, such as health and nutrition are linked with low family size. Where family size is large and births are very close together, the mothers health may be impaired. Consequently, she may not be able to sustain an optimum pregnancy which subsequently could result in children which have been "starved and stunted in the womb," and who are below average height for their age (UNFPA , 1992, p 10).

With smaller families, parents are able to stretch their budget further on the children's nutritional needs; spending more money on such items as milk, eggs and meat per child than parents with large families are able to do. Again, lack of nutrition can cause physical stunting and prolonged malnutrition can also cause mental problems, learning problems and low intelligence (UNFPA, 1992, p 10).

Larger families generally have more economic problems than smaller families. If parental income is equivalent, expenditure per person is higher in small families than in large families. It is a case of limited resources spread more thinly with each successive child.

Health directly affects the economy of a country. Poor health in both the agricultural and industrial sector affects productivity. On a personal level, if a worker suffers from poor health and is forced to take days off work, his wages will be lower than a worker in good health. Bangkok is just one example. Due to pollution, more than $1000 million per year is lost on medical bills and worker absenteeism in Bangkok (UNFPA, 1991 p61).

The mothers of large families generally have

frequent pregnancies starting from an early age. If their daughters marry early, the pattern repeats itself. By the time they reach 20, approximately 40% of all 14-year-old girls alive today will have been pregnant, at least once. In Bangladesh, 80% of adolescent girls are mothers. These high rates reflect, in many cases, women who have no access to family planning or information services (UNFPA, 1990, p12). But early pregnancies not only mean more children, they can also be a health risk to both the mother and to the successive children. The process of pregnancy and breast feeding put a strain on the nutritional resources of the mother. Insufficient recovery time between pregnancies may threaten the life of the child. Children born within 18 months of the previous child are twice as likely to die before the age of five than if a longer interval between pregnancies was allowed. A two to three year spacing between births could cut infant mortality rates in the developing world by 17% (UNFPA, 1992, p i-ii). This reduction in mortality rates by longer inter-birth intervals would also reduce the number of stunted, deformed and mentally handicapped children because the mother's and the baby's health would be better.

A similar reduction in the infant mortality rate would also occur if women started having children at a later age. A study in 25 countries concluded that by increasing the age of mothers to 20 years, would cut infant mortality rates by 24%. It would also cut maternal deaths from obstructed labour by 40% and reduce the high number of women who "suffer prolonged or permanent ill health and disability" from problems in childbirth (UNFPA, 1992, p12; Smyke, P. 1991 p61). Studies have also concluded that most women would prefer a longer interval between births but only a small proportion were able to achieve this. The main reason being that for many women, the husband still has the prerogative in determining the number and the timing of children (Smyke, P. 1991, p33-34; UNFPA, 1992, p12). But these problems could be overcome with more widespread access to family planning, information and education to both men and women.

Thus smaller families mean better health, better nutrition for mother and children. Better health increases a country's economic performance by increasing productivity. Smaller families means better education which leads to a higher standard of living and an increase in the quality of life. The relationships are complex but the essential ingredient to obtaining smaller families is women.

The Empowerment of Women:

Women are a vital component in directly reducing family size and the overall population (see fig. 2). They have a direct bearing not only on, the number of children but also children's health and physical development which in turn leads to the educational and economic development of the individual and the total population as a whole. Increasing the status of women, principally through improving women's education, will therefore lead to lower population growth with its subsequent social and economic benefits; reduction of the pressures on natural resources and ultimately world-wide sustainable development. The World Bank has said that women's education is "a prudent economic investment that consistently earns high rates of returns...particularly in the poorest countries" (Vickers, J. 1991, p29).

Women's education plays a vital role in lowering fertility rates which subsequently lowers population growth and increases economic development and growth. Education brings awareness and understanding of important issues (this is especially the case in the area of family planning, population and sex education). This can lead to modifying traditional behaviour for the benefit of humankind by decreasing fertility and mortality rates.

Two factors which affect fertility rates are, the age at which women get married, and the use of modern family planning methods. Increasing a girl's education by retaining her at school encourages both. Studies have shown that educated women get married at a later date; on average, four years later than uneducated girls. In Brazil, girls with secondary education had, on average 2.5 children each compared with 6.5 children to uneducated girls. In Liberia, girls with secondary education were ten times more likely to use family planning methods than uneducated girls (Smyke, 1991, p 42).

The growing self-awareness and confidence of the woman also enlightens her attitude to health and other socially important issues. "Women chiefly determine the quality of children..." (UNFPA, 1992,p 13).It starts in the womb when a women's health and nutrional status directly affects the unborn child. It continues during breast feeding, where again a woman's health status affects the quality of milk supplied. Studies have shown that educated women are more likely to seek both pre-natal and ante-natal care; they are more likely to give birth with a trained attendant present and will make better use of health services generally than uneducated and illiterate women

(Smyke, 1991, p 42).

Better health for the child, before and after birth, means the effects of malnutrition diminish. Thus there are fewer children born prematurely, undernourished and under- weight. As a result the number of mentally impaired children and children with behavioural and learning problems decreases. In the long term, this will improve educational standards in the country and help the children of the present generation be responsible, better educated parents in the next.

An increase in the standard of education and healthcare for the child decreases the infant mortality rate. Studies have shown that one extra year of education to a mother effectively reduces child mortality rates by 7-9% in developing countries (UNFPA, 1992 p 13). Many of the 500 thousand deaths each year from labour complications could be avoided if women were more aware of the health services available to them (UNFPA, 1991, p 55).

A higher education also means that women are more likely to be gainfully employed and have a larger earning capacity than uneducated women. This will give them more financial independance and more control over the allocation of the household budget. Working women are likely to marry at a later age (thereby reducing the fertility rate again) and this greater degree of financial independance allows them, as mothers, to spend more on the child's health and education.

The practical benefits of increased education for women have been demonstrated in numerous case studies. Other effects are not so easy to quantify with facts and figures. Essentially, improvements in a woman's education are a long-term strategic concern which eventually will help raise the status of women in general; they allow a woman to take more control of her own life by making her aware of her and her family's rights,and give her the confidence to claim those rights. In doing so, she becomes more involved in family decisions and gains respect in the process. This can subsequently lead to women pusuing their rights in the public arena thus increasing their political participation.

With more educated people in society, the environment will benefit. The change will come, once again, through women. Although the state of the world is of concern to all, the traditional roles of women mean that they interact more with the environment on an everyday basis. A reinforcement of her traditional managerial skills along with a practical programme for improvement, will gaurantee significant strides towards sustainable development, from the local village level through to the national and international level.

The empowerment of women through education is a potent agent for change. And with the severity of the problems facing the world, humankind requires change not reform. With educated women participating fully in society, humankind can now utilize their traditional roles as resource managers, a hitherto disregarded asset, yet one which is essential for the sustainable development of natural resources. A combined, cooperative effort of the whole of society, men, women, government institutions and non-government institutions, is imperative if humankind is to tackle these problems in an intelligent and lasting manner.

Women as Agents of Change

Empowering women through improving their education will go a long way in meeting their long term concerns. But such improvements will take some time to show results as many countries may face difficulties and delays in implementing new education policies. In the meantime, on a more pragmatic level, the challenge of initiating changes in environmental practices which will show significant results in the short-term, falls onto the shoulders of government and non-government field workers in development programmes. By focussing on women as key agents in implementing improved environmental practices, these field workers will enhance their chances of a successful development scheme.

The reason why women are so important can be found in an examination of the often unrecognized roles played by women. As a mother, she not only maintains and supervises the home but is also a primary educator to her children. Her influence affects and shapes her entire family's environmental perceptions, values and attitudes; a fact which is sometimes lost on development field workers. By addressing themselves to the men, who are mistakingly seen as the active elements of change, the development and relief field workers are effectively handicapping their efforts. In order to "get the message across", it should be addressed to the people who are directly concerned; that is, the women in society.

Women today in village communities are often a vast repository of knowledge concerning environmental management. The idea of the field workers should be to make use of this knowledge and yet, at the

same time, provide training which would give a more rounded approach to environmentalism by instructing these women in modern scientific advances. For effective sustainable development programs to be instituted, these village women need training in areas such as soil sciences, soil survey, land evaluation and assesment of soil degradation and desertification. Their agricultural knowledge can be supplemented with training in assesment of land-use potential and evaluation of population-supporting capacities. Training in other areas such as : forestry management, botany, silviculture, pisciculture, hydrology, land-use planning, management of aquatic ecosystems, economics and sociology would also supplement their "inherent" knowledge of environmentalism.

Providing this type of training to women would help ensure the success of a field project. Indeed, it could prove vital as trained woman would also help disseminate information to those who need it and can use it as well as providing feedback to the field-workers about the success of the scheduled initiatives. They are also the people who are most able to bring to the field worker's attention the needs and concerns of the village. Where the field workers themselves are women, they are more likely to understand these needs and concerns because they will have easier access to this local knowledge than men; a case of "birds of a feather flock together."

Where this has been carried out, the results have been dramatic. Women have initiated many environmental movements which have later become internationally recognized such as the famous Chipko Movement in India where simple village women protected critical forests from timber contractors by placing themselves in-front of the axes. Their actions eventually lead to the Indian government to ban green felling of trees in several states.

Another example is the Green Belt Movement in Kenya where women donated their labour to a national tree-planting campaign which effectively retarded desertification in many areas. A similar program is now underway in southern Thailand where women are actively involved in replanting and maintaining seedlings in the cyclone damaged areas of Chumpon.

But it is not only forestry where women are playing a vital environmental role. In Rajastahn, India, the SWACH project has been responsible for the planning, implementataion and maintainance of an integrated clean water project. Despite the traditional male-orientated views concerning womens' technical expertise, these women have been extremely successful in installing, designing and maintaining water pumps as well as implementing practices to reduce water-born diseases.

Moreover, from these famous national movements, women have also been instruemental in implementing some of the most important environmental concepts in the world today. They were behind the idea of sustainable development and coined the slogan, " Think globally, Act locally," as well as being among some of the first to draw attention to the problems of overuse of pesticides (Roda, 1991, p104-105). Women also took the initiative in commercializing environmentalism. The idea of environmentally friendly cosmetics under the now famous "Bodyshop" brand was the brainchild of a woman. This heralded the flow of other environmentally friendly or "green" products which now stock supermarket shelves around the world; everything from greeting cards printed on recycled paper to CFC free aerosol sprays.

So there have been numerous examples where women have been the main instigators of major environmental movements. As such, they cannot be ignored as probably the key agent of change in improving environmental practices. Consequently, their involvement at a local, national and international level in the planning and implementation of environmental policies is vital. To do otherwise would be to waste this valuable resource.

The challenge to government and non-government field workers is therefore to develop programmes which

i) actively involve women at all levels

ii) to address the short-term concerns of women by supplementing their education in fields directly associated and related to these concerns.

iii) initiate programmes and practices which raise the status of women and will eventually meet their long term concerns.

Field workers must also consider the local culture and customs. What works in one area may not, due to culture considerations, work in another. So a degree of cultural training, understanding and appreciation is important.

The prime goal is to give women the support and training which allows them to take control over their own lives. In other words, help them to help themselves while helping the environment at the same time. This support should be of a practical nature, supplementing their existing knowledge in areas outlined above, where results can be quickly achieved.

Nevertheless, long term policies and programmes should not be neglected. When the results of the short term practical programmes are seen, the ensuing confidence will allow progress to be made into other areas where women are traditionally oppressed as well as conserving the environment for future generations. Properly planned and executed field programmes will therefore reach both women and the environment and both will benefit from them.

Summary and Conclusion

Women, through their traditional roles, were the very first environmental managers. They not only produced but sustained life, living in harmony with the natural environment. With the emergance of the cash economy, their status was diminished, and simple sustenance was regarded as non-development; wealth was measured in production and the environment was regarded as a source from which to extract and exploit commodities. Women were considered unimportant and dispensable.

The problems facing the world today are substantial. Past development has created an ecological nightmare with pollution, deforestation and land degradation rampantly destroying the environment. If humankind hopes to survive with some amount of quality of life, there is an urgent need to change from the simple exploitation of resources to that of sustainable development; there is a need for women to be environmental managers again.

For this to happen, however, their many roles and contributions to society must be fully recognized and appreciated not only by governments but also those involved directly with development programmes in the field. Both their long term aspirations and their immediate survival concerns must be met; for women hold the key to solving many of the problems facing the world today. Development and aid packages must be well thought out, well planned and properly communicated to those they seek to assist. New technology must be appropriate and designed to alleviate the workload of women. Contrary to many past examples, women must be seen as the prime agents of change in society and their cooperation in these programmes must be sought at all levels. And indeed, development programmes should aim away from pure economic growth and seek to raise the quality of life of everyone by helping to raise the status of women.

Given more education and support, women can drastically reduce population growth which is intriticaly linked to many of today's environmental and human problems. With more education, women, through their innate role as a mother, can significantly reduce many of the deaths associated with malnutrition, childbirth and disease. This will mean, not only fewer children, but children which are healthier, better educated and a valuable assest for the generations of today and the future.

With more education and support, woman can substantially add to a country's economic growth by being gainfully employed instead of being regarded as insignificant and and dispensable. Most important is giving women enough opportunity to take control of their own lives; to be able to make their own decisions regarding their own bodies, their own future, and their own children's and family's future and well being.In short, society must give women the respect they deserve and demand.

Denying women equal status is denying half the population its due human rights. And while most nations have signed international U.N. treaties guaranteeing equal status for women, the realities are different. Women are not treated equally to men in any country.

With the threat of impending environmental disaster, the world has only limited options left for it to choose. Humankind can no longer pay lip-service to the concept of equality for women. It must act quickly and decisively and utilize this vast human resource potential which it has for centuries neglected. Women have been a catalyst for change in environmental policies. They have a proven but often unrecognized track record of implementing national and international environmental policies. Given proper policies and well planned programmes which are effectively communicated to those key agents of change, women, humankind will see a rapid improvement in ecological management. Only then, will it be possible for society to attempt to live, once again, in harmony with the environment.

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