



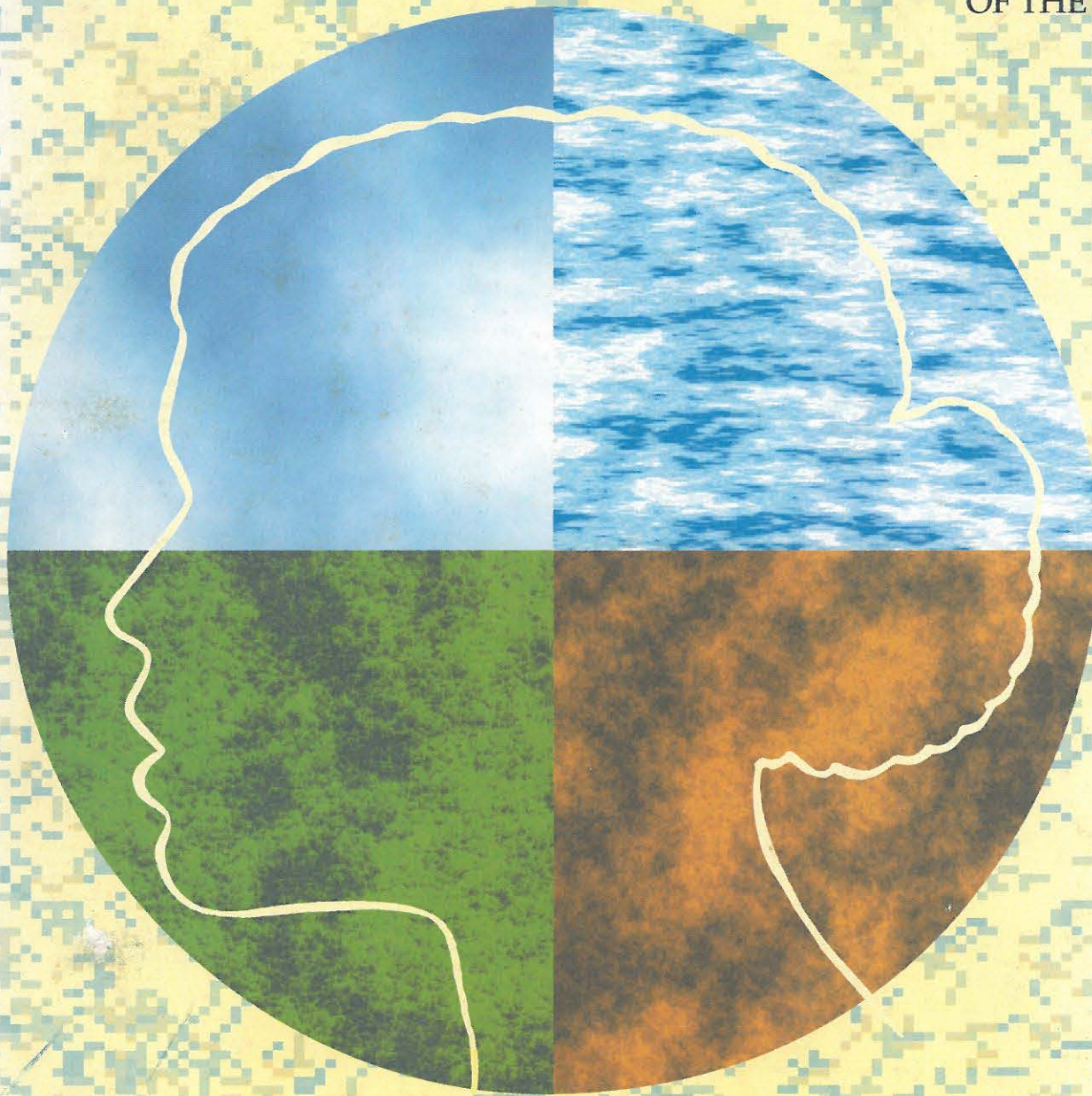
UN INSTRAW



UNITED NATIONS



INTERNATIONAL
TRAINING CENTRE
OF THE ILO



TRAINING PACKAGE

WOMEN

ENVIRONMENTAL MANAGEMENT AND SUSTAINABLE DEVELOPMENT

Prepared by Borjana Schieber • Martha Dueñas - Loza
Adelina Guastavi

1995 T
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TRANSPARENCIES
MODULE TWO

*WOMEN AS AGENTS OF CHANGE
IN THE DEVELOPMENT SECTORS*

TRANSPARENCIES
MODULE TWO

*WOMEN AS AGENTS OF CHANGE
IN THE DEVELOPMENT SECTORS*

THE STATE OF THE GLOBAL ENVIRONMENT

- ➡ ENERGY
- ➡ HUMAN SETTLEMENTS
- ➡ FOOD AND AGRICULTURE
- ➡ FORESTRY
- ➡ WATER RESOURCES
- ➡ WASTE MANAGEMENT
- ➡ POPULATION

ENERGY

- ➡ **DEMAND FOR ENERGY WILL INCREASE**
- ➡ **INDUSTRIALIZED COUNTRIES CONSUME 4 TO 7 TIMES MORE ENERGY PER PERSON**
Source: (UNEP, State of the Environment Report, 1972-1992).
- ➡ **ENERGY PRODUCTION AND CONSUMPTION A MAJOR CAUSE OF ENVIRONMENTAL DEGRADATION.**
- ➡ **HYDROELECTRIC SCHEMES OFTEN RESULT IN FORMS OF ENVIRONMENTAL DEGRADATION**
- ➡ **NON-COMMERCIAL SOURCES OF ENERGY**
- ➡ **NUCLEAR POWER**

HUMAN SETTLEMENTS - 1 -

- ⇒ IN 1990, WORLD URBAN POPULATION WAS 2.4 BILLION, OUT OF WHICH TWO-THIRDS LIVING IN DEVELOPING COUNTRIES**
- ⇒ ACCELERATING URBANIZATION WILL RESULT IN URBAN POPULATION EXCEEDING 4000 MILLION BY 2010**
- ⇒ MEGA CITIES WILL CONTINUE TO GROW PARTICULARLY IN DEVELOPING COUNTRIES**

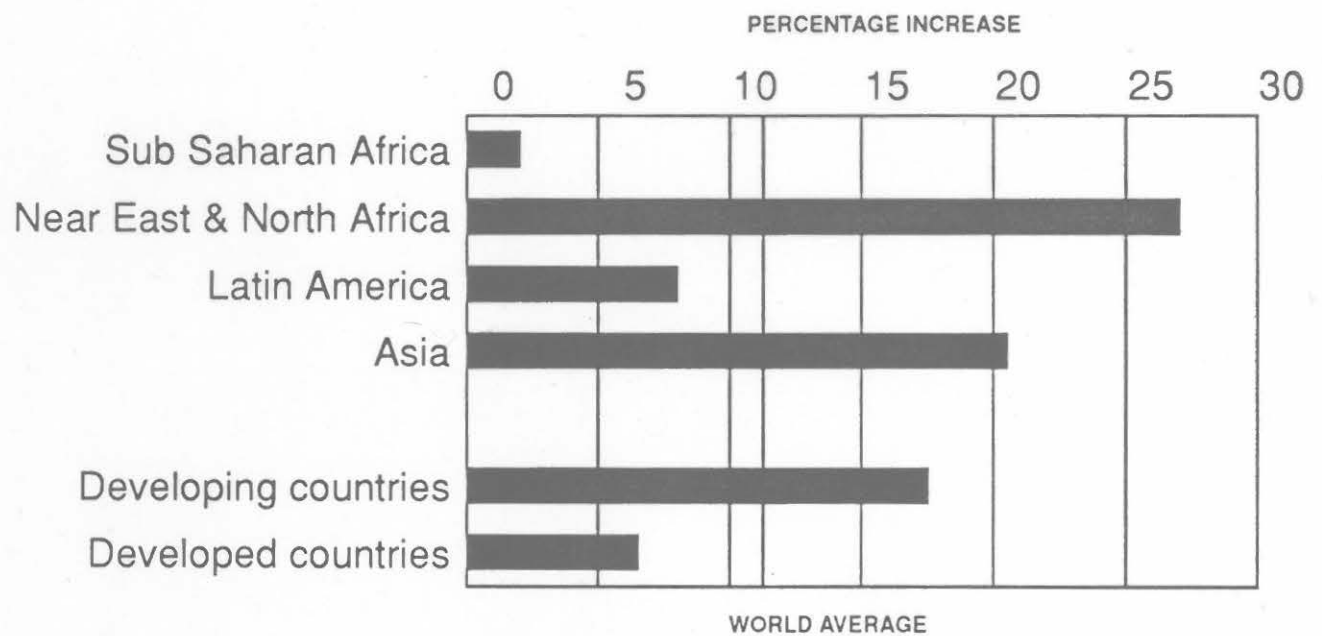
HUMAN SETTLEMENTS - 2 -

- ➡ URBAN POPULATIONS CONSUME VAST QUANTITIES OF NATURAL RESOURCES AND GENERATE ENORMOUS AMOUNTS OF WASTE
- ➡ MANY MIGRANTS IN URBAN AREAS LIVE IN ABJECT POVERTY
- ➡ ONE OF WORLD GREATEST THREATS TO SOCIAL DEVELOPMENT AND ECONOMIC GROWTH COMES FROM A MUTUALLY REINFORCING CYCLE OF POVERTY AND ENVIRONMENTAL DEGRADATION

FOOD AND AGRICULTURE

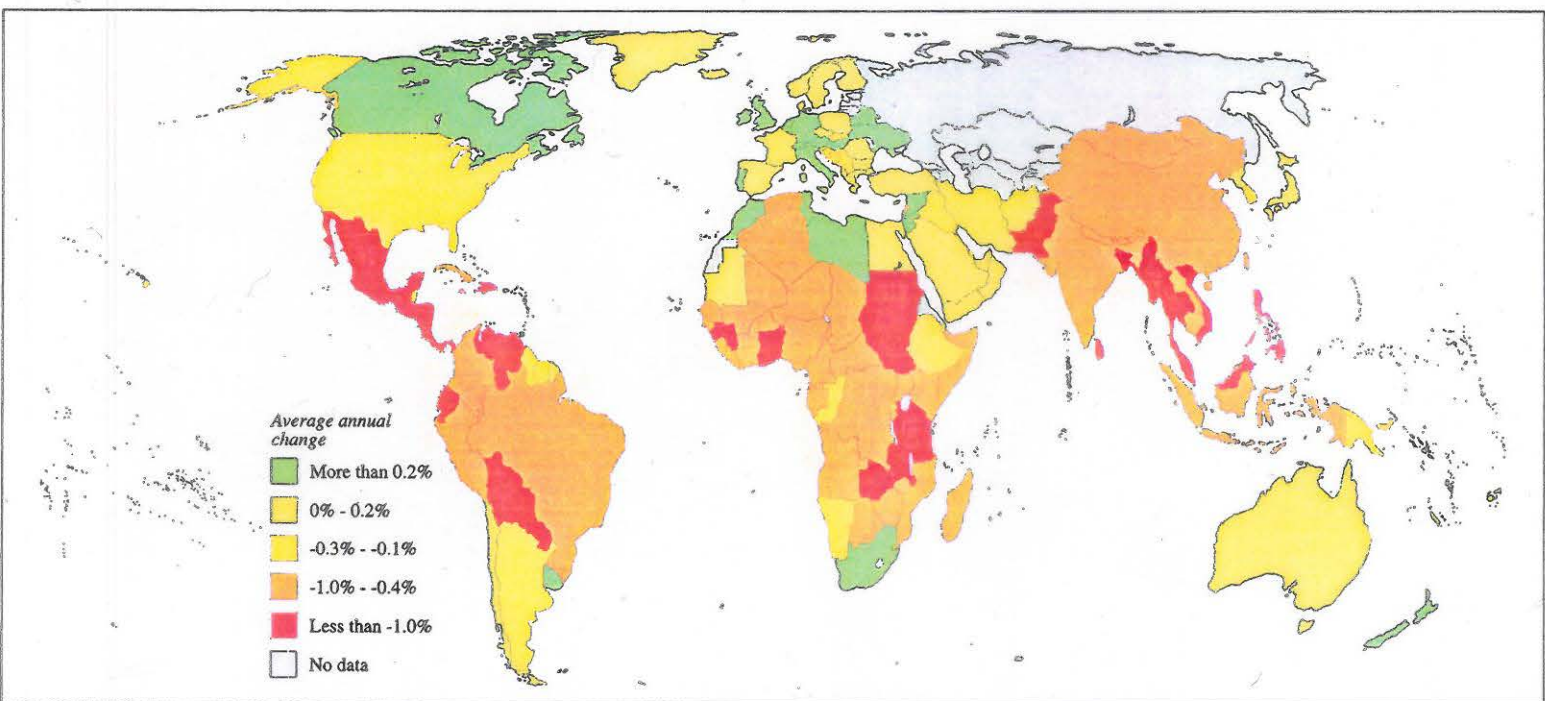
- ➡ WORLD FOOD SECURITY
- ➡ LEAPFROGGING OF HIGH TECHNOLOGY SOLUTIONS
- ➡ RISING POPULATIONS
- ➡ ARABLE LAND DECREASING
- ➡ BIODIVERSITY

FOOD SUPPLY

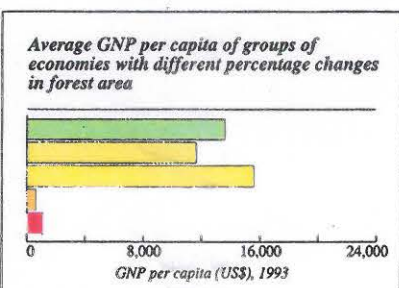


Source: FAO, 1992 - Environmental Data Report 1993-94 p. 137

CHANGE IN FOREST COVERAGE



Change in forest coverage, 1981-90	Number of economies	GNP (US\$000,000) 1993	Population (000,000) 1993	GNP per capita (US\$) 1993
More than 0.2%	29	6,368,000	469	13,580
0% - 0.2%	62	7,488,000	644	11,620
-0.3% - -0.1%	21	7,086,000	455	15,560
-1.0% - -0.4%	43	1,803,000	2,899	620
Less than -1.0%	36	850,000	799	1,060
No data	18	662,000	259	2,560

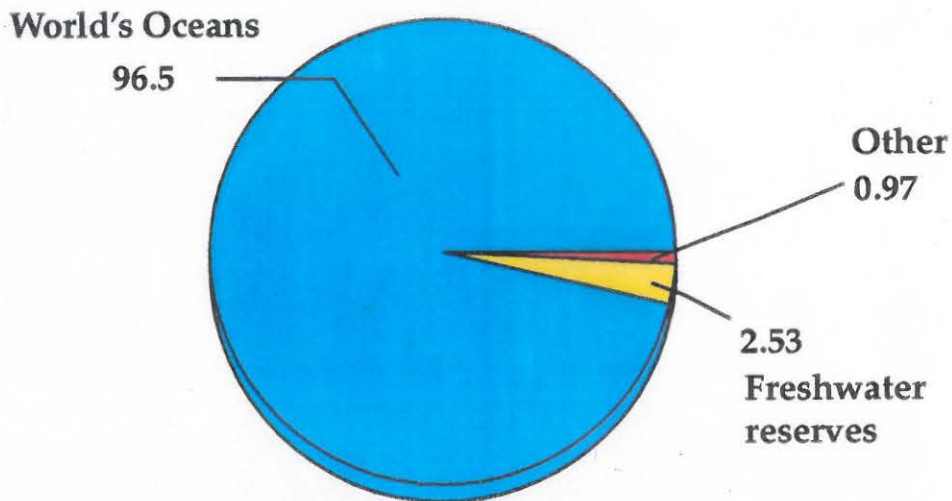


Shares of world population living in economies with different percentage changes in forest area

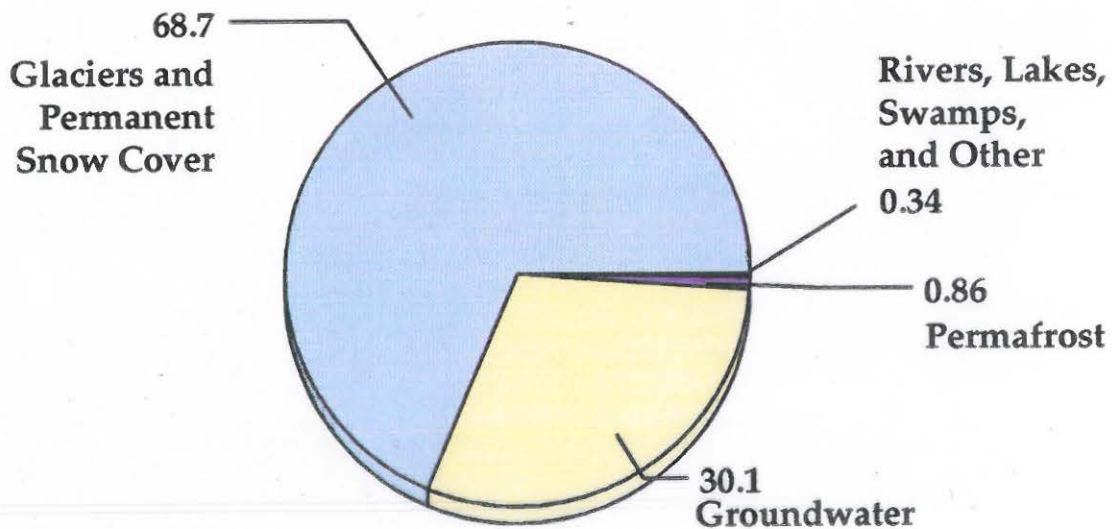


GLOBAL TOTAL WATER AND FRESHWATER RESERVES

Total water Resources

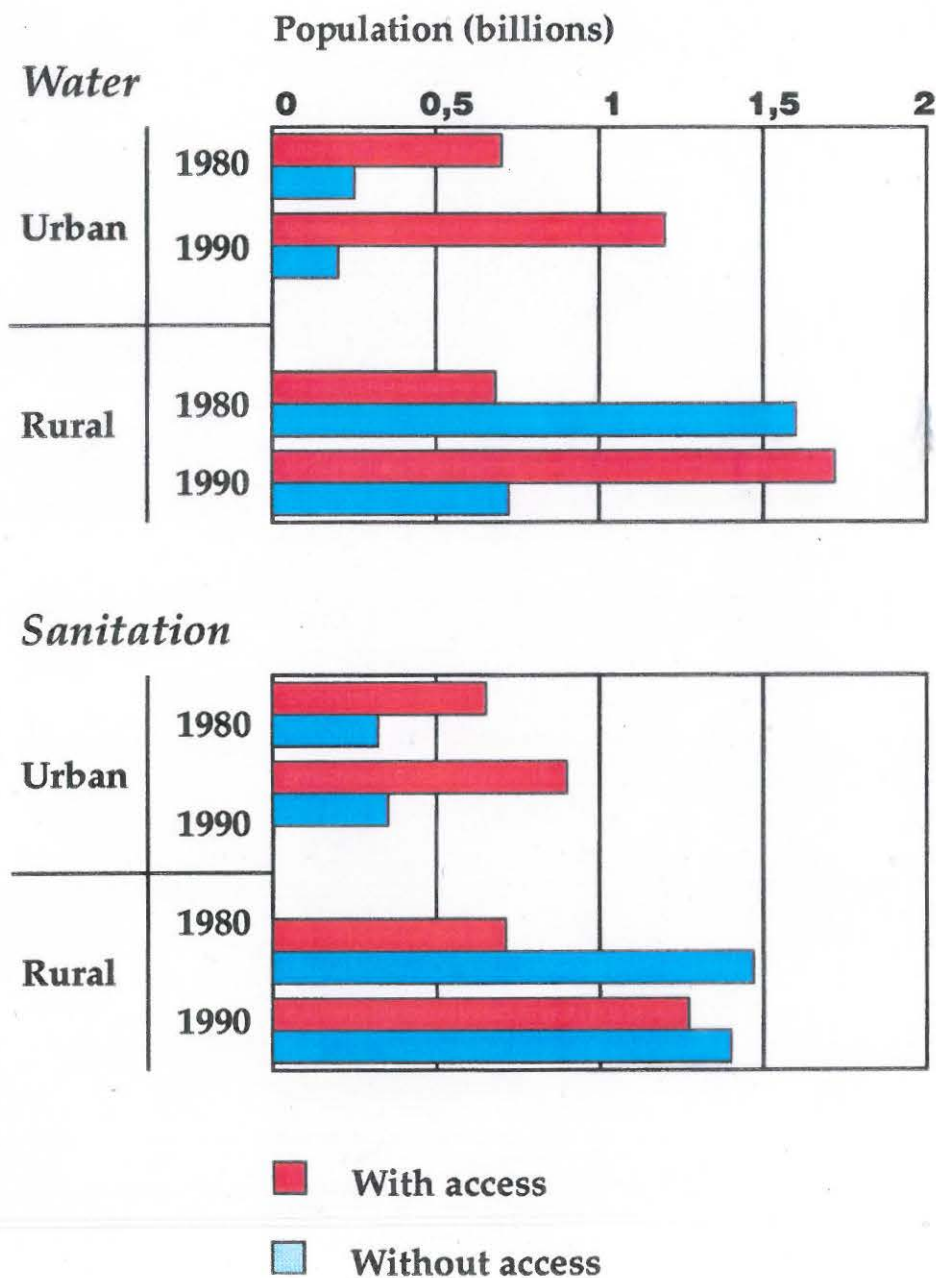


Freshwater Reserves



Source: Igor A. Shiklomanov, "World Fresh Water Resources", in *Water in Crisis*, Peter H. Gleick, ed. (Oxford University Press, New York, 1993), p. 13

ACCESS TO SAFE WATER AND ADEQUATE SANITATION IN DEVELOPING COUNTRIES, 1980 AND 1990



Source: World Health Organization data - World Development Report p. 47

WASTE MANAGEMENT

- ⇒ WORLD URBAN WASTES GENERATED AT VOLUME OF 720 BILLION TONNES ANNUALLY**
- ⇒ MORE THAN HALF OR 400 BILLION TONNES GENERATED IN DEVELOPED COUNTRIES**
- ⇒ SEVERE HEALTH HAZARD**
- ⇒ EXPANDING URBAN POPULATIONS**
- ⇒ INCREASED INDUSTRIALIZATION**
- ⇒ DISPOSAL OF INDUSTRIAL WASTES**
- ⇒ HAZARDOUS WASTES**
- ⇒ WASTE REUSE**
- ⇒ RECYCLING: URBAN-RURAL**

POPULATION

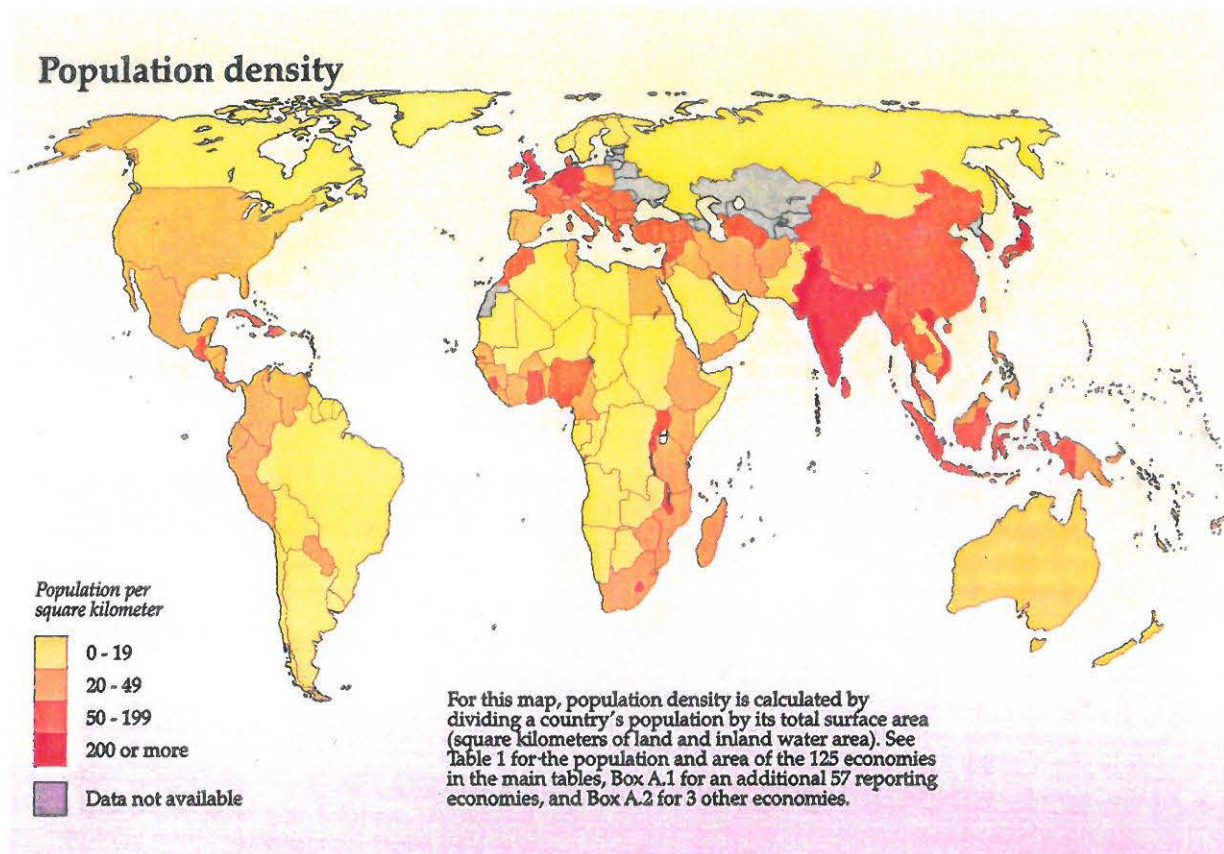
- ➡ **WORLD POPULATION WILL REACH 6 BILLION BY 1998**
- ➡ **8.5 BILLION BY YEAR 2025**
- ➡ **IN 1993, THE ANNUAL ADDITION WAS 93 MILLION**
- ➡ **GROWTH RATES ARE DECLINING**
- ➡ **THE ABSOLUTE NUMBER OF PEOPLE ADDED TO WORLD POPULATION WILL CONTINUE TO INCREASE**
- ➡ **BY THE YEAR 2000, WORLD POPULATION MAY STABILIZE AT APPROXIMATELY 11.6 BILLION**
- ➡ **POPULATION IN DEVELOPING COUNTRIES HAS MORE THAN DOUBLED IN 35 YEARS**
- ➡ **IN 1950 IT WAS 1.7 BILLION**
- ➡ **BY 2000 IT WILL BE OVER 5 BILLION**

Sources: UNFPA 1994; Programme of Action on the International Conference on Population and Development

WOMEN IN THE DEVELOPMENT SECTORS

- ⇒ POPULATION**
- ⇒ HUMAN SETTLEMENTS**
- ⇒ ENERGY**
- ⇒ WATER RESOURCES**
- ⇒ FOOD AND AGRICULTURE**
- ⇒ FORESTRY**
- ⇒ TRANSPORT**
- ⇒ SCIENCE AND TECHNOLOGY**

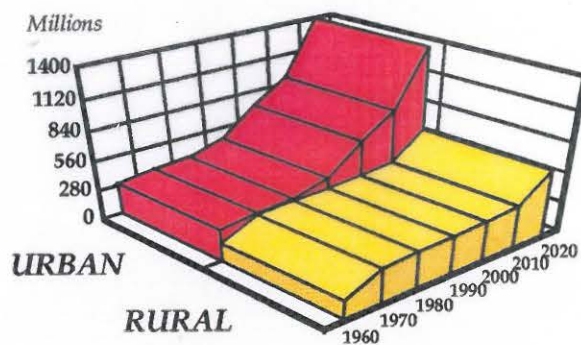
POPULATION DENSITY



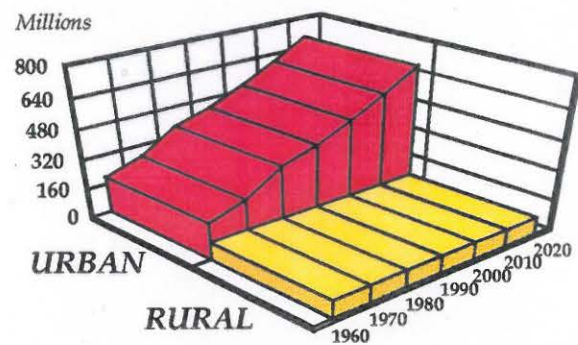
Source: World Development Report 1992 - World Development Report p. 216

RURAL AND URBAN POPULATION IN DEVELOPING REGIONS AND HIGH-INCOME COUNTRIES, 1960-2025

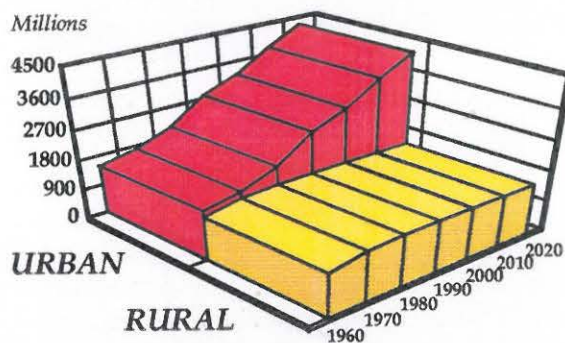
Sub-Saharan Africa



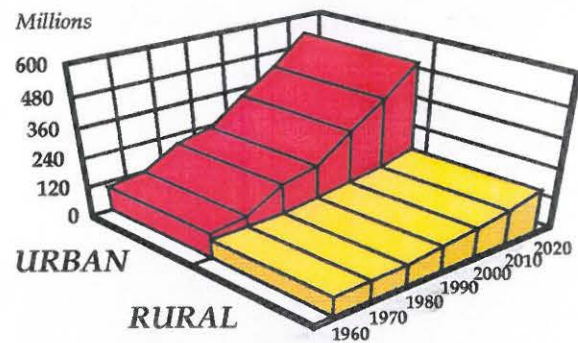
Latin America and the Caribbean



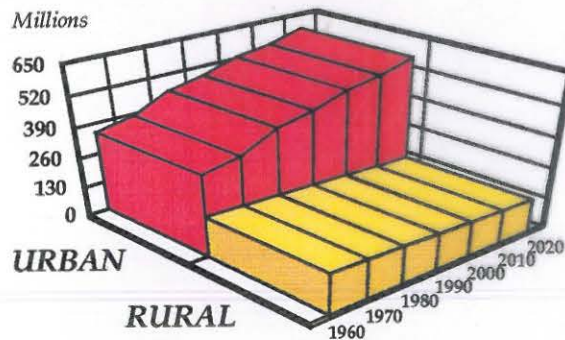
Asia and the Pacific



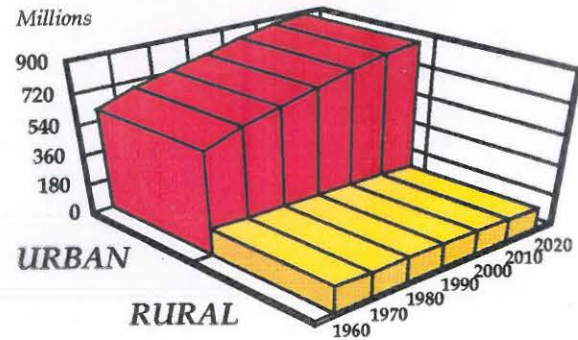
Middle East and North Africa



Europe and former U.S.S.R.



High-income countries

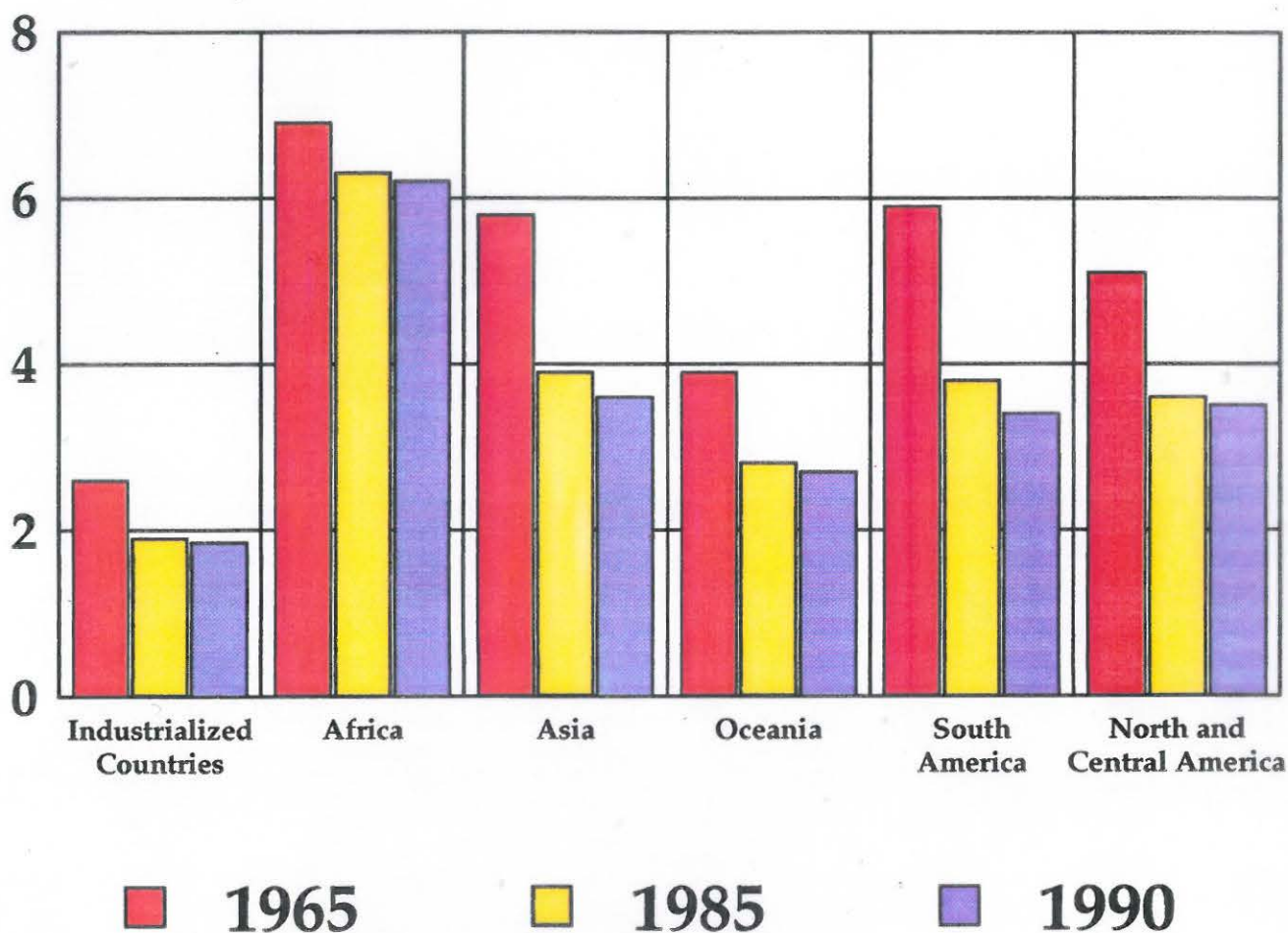


Note: Data after 1985 are projections.

Source: World Bank data; United Nations 1990 - World Development Report 1992 p. 28

TOTAL FERTILITY RATES, 1965-90

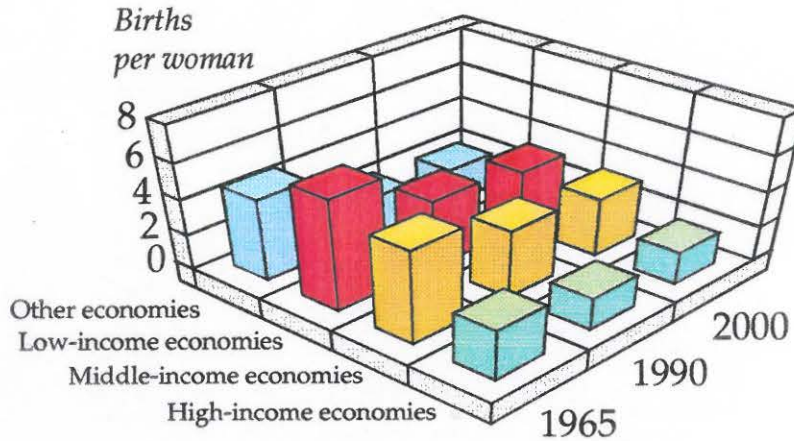
(births per woman)



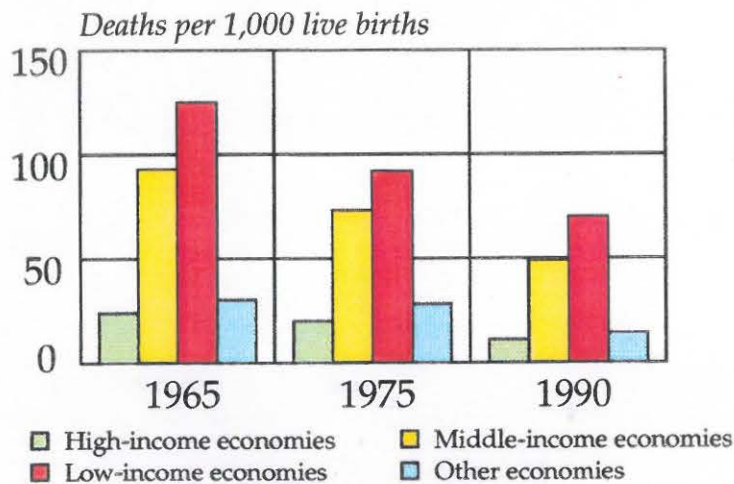
Source: United Nations (U.N.), Demographic Indicators 1950-2025
(The 1992 Revision), on diskette (U.N., New York, 1993).

FERTILITY AND MORTALITY

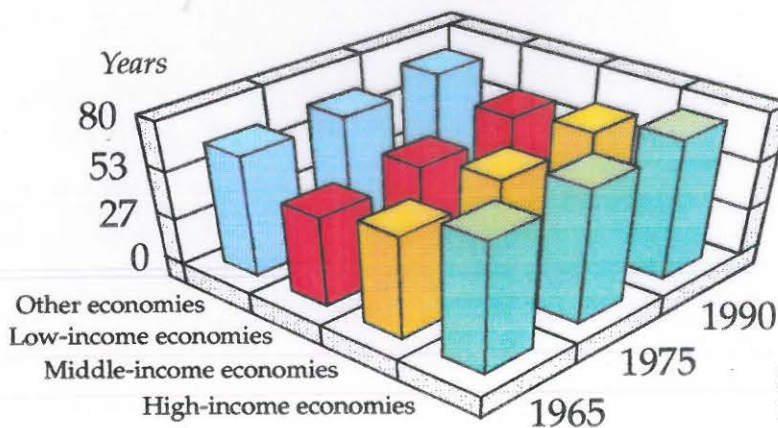
Total fertility



Infant mortality



Life expectancy



Source: World Development Report 1992 p. 216

WOMEN AND POPULATION

⇒ ISSUES:

- **EMPOWERMENT AND STATUS OF WOMEN**
- **THE GIRL CHILD**
- **MALE EDUCATION, RESPONSIBILITY AND PARTICIPATION**
- **SAFE MOTHERHOOD**
- **REPRODUCTIVE PATTERNS AND FAMILY PLANNING**

WOMEN'S AVERAGE EARNINGS AS A PERCENTAGE OF MEN'S, SELECTED COUNTRIES, 1980 AND 1990

Country	In Agriculture		In Nonagricultural Activities	
	1980	1990	1980	1990
Costa Rica	78	90	70	66
Cyprus	57	61	54	61
Egypt			64 ^a	114 ^b
Hong Kong		76 ^{c,d}		70 ^d
Jordan		83		
Kenya	68	84	80	91
Korea, Republic of	74	71	44	54
Paraguay	72 ^e	98	81 ^e	76
Portugal	64			
Singapore		91	63 ^f	71
Sri Lanka	85	92	88 ^g	90 ^g
Swaziland	49 ^{h,i}	55 ⁱ	66 ^h	73 ^b
Turkey	92 ^{c,j}			
United Rep. Tanzania		85 ^j		92 ^b

Source: United Nations (U.N.) Women's Indicators and Statistics Database (Wistat), Version 3 (U.N. Statistical Division, New York).

EMPOWERMENT AND STATUS OF WOMEN

- ➡ **PROGRAMME OF ACTION OF THE INTERNATIONAL CONFERENCE ON POPULATION AND DEVELOPMENT (CAIRO 1994) INCLUDES:**
- ➡ **ESTABLISHING MECHANISMS FOR WOMEN'S EQUAL PARTICIPATION AND EQUITABLE REPRESENTATION;**
- ➡ **PROMOTING THE FULFILMENT OF WOMEN'S POTENTIAL;**
- ➡ **ELIMINATING ALL PRACTICES THAT DISCRIMINATE AGAINST WOMEN;**
- ➡ **ADOPTING APPROPRIATE MEASURES TO IMPROVE WOMEN'S ABILITY TO EARN INCOME BEYOND TRADITIONAL OCCUPATIONS, ACHIEVE ECONOMIC SELF-RELIANCE, AND ENSURE WOMEN'S EQUAL ACCESS TO LABOUR MARKET AND SOCIAL SECURITY SYSTEMS;**
- ➡ **ELIMINATING VIOLENCE AGAINST WOMEN;**
- ➡ **ELIMINATING DISCRIMINATORY PRACTICES BY EMPLOYERS AGAINST WOMEN**

GIRL CHILD

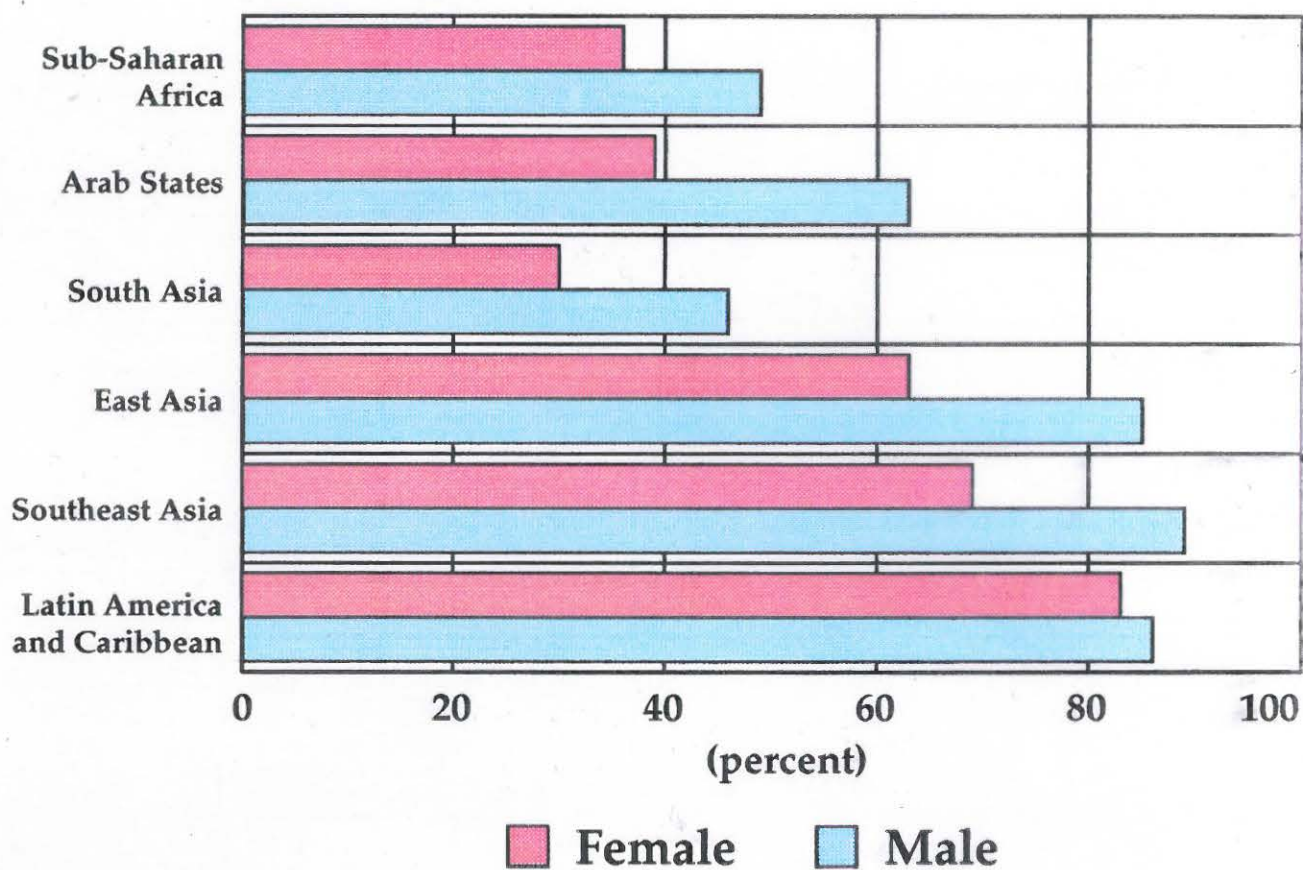
➡ THE PROGRAMME OF ACTION OF THE INTERNATIONAL CONFERENCE ON POPULATION AND DEVELOPMENT CALLS FOR COUNTRIES TO:

- eliminate all forms of discrimination against the girl child and the root causes of son preference;
- increase public awareness of the value of the girl child, and concurrently, to strengthen the girl child's self-image, self-esteem and status;
- improve the welfare of the girl child;

➡ PROGRAMMES NEED TO BE IMPLEMENTED WHICH:

- speak for and broaden the value of girl children;
- promote equitable treatment of girls and boys;
- ensure the widest and earliest possible access by girls and women to secondary and higher levels of education, as well as vocational education and technical training;
- enforce laws to ensure that marriage is only entered into with the free and full consent;
- prohibit female genital mutilation where it exists;
- take necessary measures to prevent infanticide, prenatal sex selection, trafficking in girl children and use of girls in prostitution and pornography.

FEMALE AND MALE ADULT LITERACY RATES, 1990



Source: United Nations Development Programme (UNDP),
Human Development Report, 1993 (UNDP, New York, 1993), p. 213

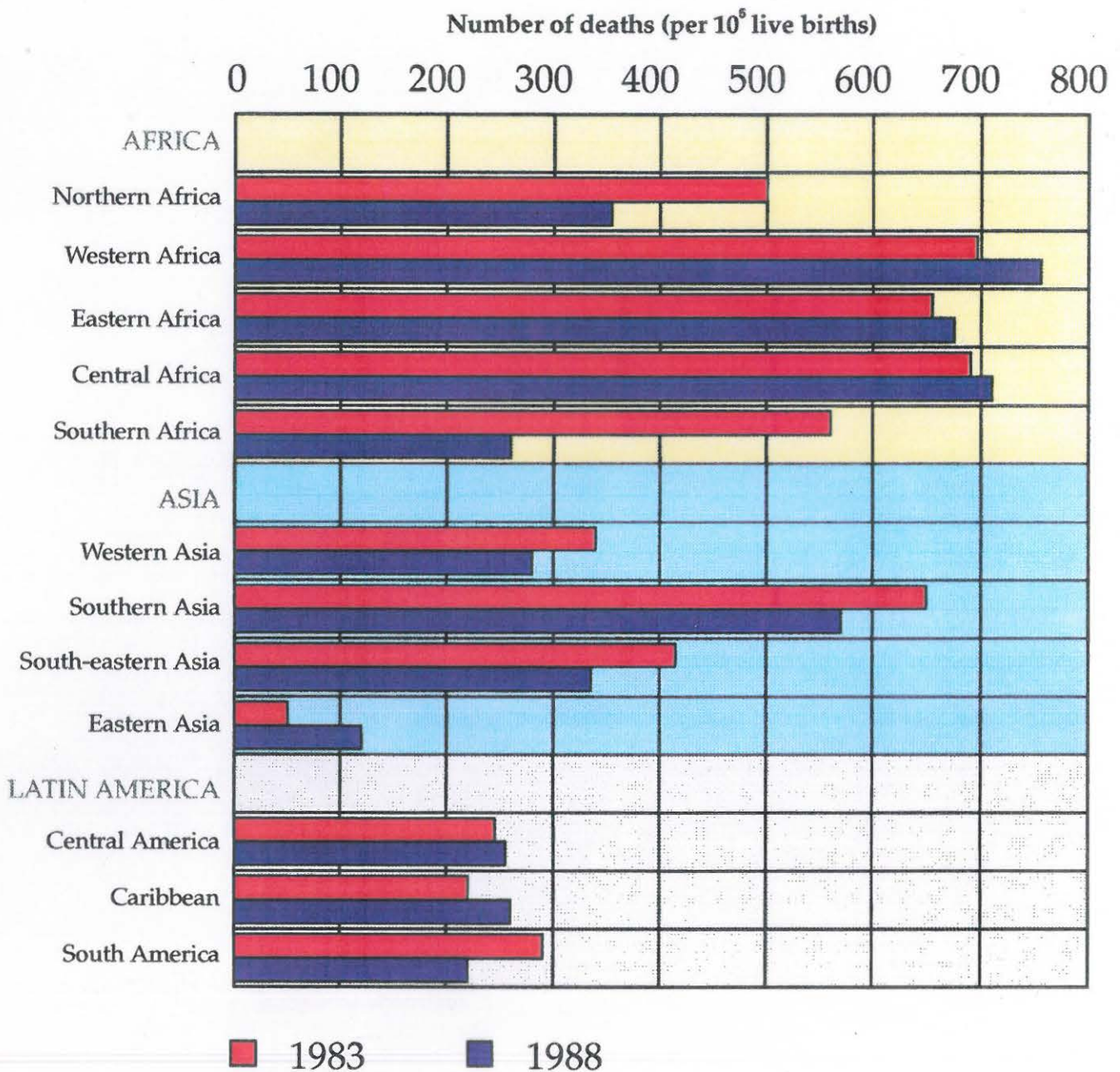
MALE RESPONSIBILITY AND PARTICIPATION - 1

- ⇒ TO ENCOURAGE MALE RESPONSIBILITY AND PARTICIPATION, PROGRAMMES NEED TO BE IMPLEMENTED WHICH:**
- ⇒ ENCOURAGE THE EQUAL PARTICIPATION OF WOMEN AND MEN IN ALL AREAS OF FAMILY AND HOUSEHOLD RESPONSIBILITIES;**
- ⇒ EMPHASIZE MEN'S SHARED RESPONSIBILITY AND THEIR ACTIVE INVOLVEMENT IN RESPONSIBLE PARENTHOOD;**

MALE RESPONSIBILITY AND PARTICIPATION - 2

- ⇒ INCLUDING SEXUAL AND REPRODUCTIVE HEALTH, FAMILY PLANNING, PRENATAL, MATERNAL AND CHILD HEALTH, PREVENTION OF SEXUALLY TRANSMITTED DISEASES, INCLUDING HIV, THE PREVENTION OF UNWANTED AND HIGH-RISK PREGNANCIES, SHARED CONTROL AND CONTRIBUTION TO FAMILY INCOME, CHILDREN'S EDUCATION, HEALTH AND NUTRITION, AND RECOGNITION AND PROMOTION OF THE EQUAL VALUE OF CHILDREN OF BOTH SEXES;**
- ⇒ SPECIAL EMPHASIS MUST BE GIVEN TO THE PREVENTION OF VIOLENCE AGAINST WOMEN AND CHILDREN;**
- ⇒ ENFORCE MEASURES WHICH ENSURE THE APPROPRIATE FINANCIAL SUPPORT OF CHILDREN BY FATHERS**

MATERNAL MORTALITY RISK IN REGIONS OF AFRICA, ASIA AND LATIN AMERICA, 1983 AND 1988



Source: WHO, 1991b - Environmental Data Report p. 235

SAFE MOTHERHOOD - 1

- ➡ **TO PROMOTE SAFE MOTHERHOOD, THE PROGRAMME OF ACTION OF THE INTERNATIONAL CONFERENCE ON POPULATION AND DEVELOPMENT CALLS FOR ALL COUNTRIES TO:**

- ➡ **PROMOTE WOMEN'S HEALTH AND SAFE MOTHERHOOD TO ACHIEVE A RAPID AND SUBSTANTIAL REDUCTION IN MATERNAL MORBIDITY AND MORTALITY AND REDUCE THE DIFFERENCES OBSERVED BETWEEN DEVELOPING AND DEVELOPED COUNTRIES AND WITHIN COUNTRIES, AND TO GREATLY REDUCE THE NUMBER OF DEATHS AND MORBIDITY FROM UNSAFE ABORTIONS;**

SAFE MOTHERHOOD - 2

- ⇒ IMPROVE THE HEALTH AND NUTRITIONAL STATUS OF WOMEN, ESPECIALLY OF PREGNANT AND NURSING WOMEN**
- ⇒ PROMOTE CHILD HEALTH AND SURVIVAL AND TO REDUCE DISPARITIES BETWEEN DEVELOPED AND DEVELOPING COUNTRIES AND WITHIN COUNTRIES**
- ⇒ IMPROVE THE HEALTH AND NUTRITIONAL STATUS OF INFANTS AND CHILDREN**
- ⇒ PROMOTE BREASTFEEDING AS A CHILD-SURVIVAL STRATEGY**

REPRODUCTIVE PATTERNS AND FAMILY PLANNING - 1 -

- ⇒ IN REGARDS TO REPRODUCTIVE RIGHTS AND FAMILY PLANNING, THE PROGRAMME OF ACTION OF THE INTERNATIONAL CONFERENCE ON POPULATION AND DEVELOPMENT URGES COUNTRIES TO:**
- ⇒ STRIVE TO MAKE ACCESSIBLE THROUGH PRIMARY HEALTH-CARE SYSTEMS, PROGRAMMES IN FAMILY PLANNING COUNSELLING, INFORMATION, EDUCATION, COMMUNICATION AND SERVICES;**
- ⇒ ENSURE THAT REPRODUCTIVE AND SEXUAL HEALTH PROGRAMMES ARE DESIGNED TO SERVE THE NEEDS OF WOMEN AND ADOLESCENT FEMALES ...;**

REPRODUCTIVE PATTERNS AND FAMILY PLANNING - 2 -

- ⇒ IMPLEMENT INNOVATIVE PROGRAMMES TO MAKE INFORMATION, COUNSELLING AND SERVICES FOR SEXUAL AND REPRODUCTIVE HEALTH ACCESSIBLE;**
- ⇒ IDENTIFY AND REMOVE ALL REMAINING BARRIERS TO THE UTILIZATION OF FAMILY PLANNING SERVICES;**
- ⇒ ESTABLISH, AT AN INTERNATIONAL LEVEL, ... GLOBAL, REGIONAL AND SUBREGIONAL FACILITIES FOR THE PROCUREMENT OF CONTRACEPTIVE ...;**
- ⇒ PREVENT, REDUCE THE INCIDENCE OF, AND PROVIDE TREATMENT FOR, SEXUALLY TRANSMITTED DISEASES, INCLUDING HIV/AIDS...**

WOMEN AND HUMAN SETTLEMENTS

**⇒ MORE PEOPLE ARE MOVING TO
URBAN AREAS**

ISSUES:

⇒ LACK OF SOCIAL SERVICES

⇒ SANITARY CONDITIONS

**⇒ UNSAFE WORKING
ENVIRONMENTS**

**⇒ INADEQUATE OR INAPPROPRIATE
HOUSING**

POLICY FRAMEWORK - 1 -



CHAPTER 7 OF AGENDA 21:

- **GENERATE EMPLOYMENT FOR THE URBAN POOR, PARTICULARLY WOMEN, THROUGH PROVISION, IMPROVEMENT AND MAINTENANCE OF URBAN INFRASTRUCTURE AND SERVICES AND THE SUPPORT OF ECONOMIC ACTIVITIES IN THE INFORMAL SECTOR...[7.16 B(I)]**
- **INSTITUTIONALIZE A PARTICIPATORY APPROACH TO SUSTAINABLE URBAN DEVELOPMENT, BASED ON CONTINUOUS DIALOGUE BETWEEN THE ACTORS INVOLVED IN URBAN DEVELOPMENT ... ESPECIALLY WOMEN AND INDIGENOUS PEOPLE [7.20 (A)]**
- **ESTABLISH APPROPRIATE FORMS OF LAND TENURE WHICH PROVIDE SECURITY OF TENURE FOR ALL LAND-USERS, ESPECIALLY... WOMEN...[7.30 (F)]**

POLICY FRAMEWORK - 2 -

- **PROVIDE DIRECT ASSISTANCE FOR HUMAN SETTLEMENT DEVELOPMENT AT THE COMMUNITY LEVEL [7.77 9D)]**
- **STRENGTHENING AND PROMOTING PROGRAMMES FOR SOCIAL MOBILIZATION AND AWARENESS RAISING OF THE POTENTIAL OF WOMEN AND YOUTH IN HUMAN SETTLEMENTS ACTIVITIES;**
- **FACILITATING COORDINATION OF THE ACTIVITIES OF WOMEN,... IN HUMAN SETTLEMENTS DEVELOPMENT;**
- **PROMOTING RESEARCH ON WOMEN'S PROGRAMMES AND OTHER GROUPS, EVALUATING PROGRESS MADE WITH A VIEW TO IDENTIFY BOTTLENECKS AND NEEDED ASSISTANCE.**

WOMEN AND ENERGY

- ➡ **ROLE OF WOMEN IN ENERGY SECTOR**
- ➡ **INTEGRATED APPROACH TO WOMEN AND ENERGY**
- ➡ **WOMEN FACED WITH NUMBER OF CONSTRAINTS TO FULL PARTICIPATION IN ENERGY SECTOR**
 - **LACK OF EDUCATION AND TRAINING**
 - **LACK OF PARTICIPATION IN ENERGY PLANNING, PROGRAMMING AND PROJECT DESIGN**
 - **LACK OF INFORMATION AND AWARENESS-RAISING METHODOLOGIES**
 - **LACK OF FINANCIAL MEANS AND ACCESS TO CREDIT**
 - **LACK OF ACCESS TO CHOICE WITH REGARD TO VARIOUS TYPES OF TECHNOLOGIES**
- ➡ **FINDINGS OF RESEARCH ON WOMEN AND ENERGY**

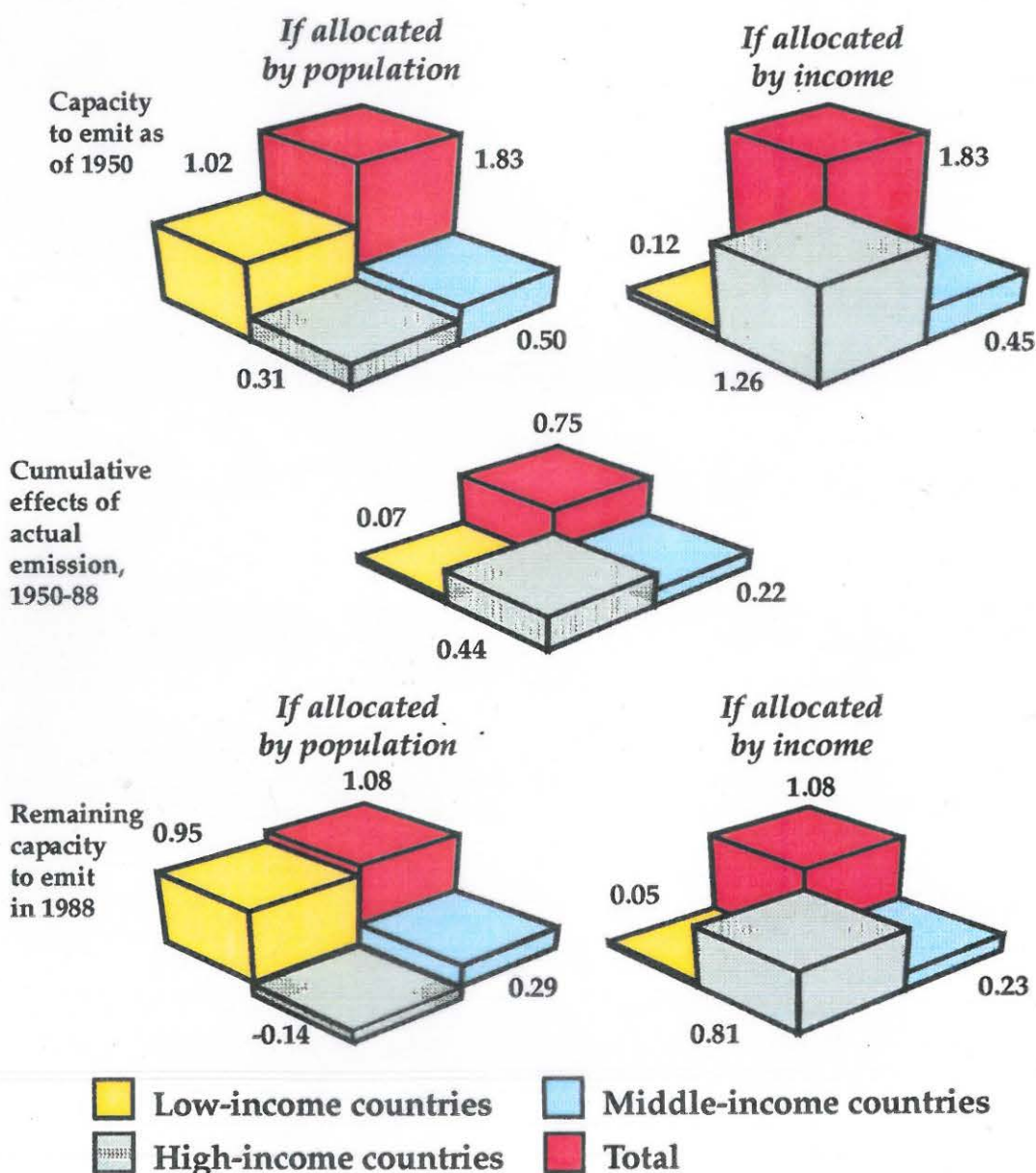
TIME SPENT GATHERING FUEL (EARLY 1980s)

Country	Average Hours per Day	Explanation of Work
Southern India (6 villages)	1.7	Women contribute 0.7 hours; children contribute 0.5
Gujarat, India	3.0	In family of 5, 1 member often spends all her/his time on it
Nepal	1-5	Often 1 adult and 1-2 children do fuelwood collection
Tanzania	8.0	Traditional women's work
Senegal	4-5	Often is carried about 45 km
Niger	4-6	Women sometimes walk 25 km
Kenya	3.5	Women do 75 percent of fuel gathering
Ghana	3.5-4	1 full day's search provides wood for 3 days
Peru	2.5	Women gather and cut wood

Source: Sheila Lewenhak, *The Revaluation of Women's Work* (Earthscan, London, 1989), p. 147.

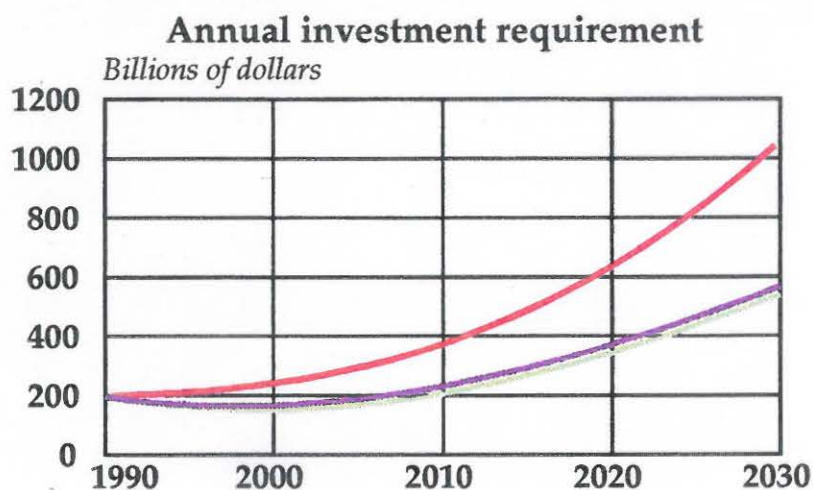
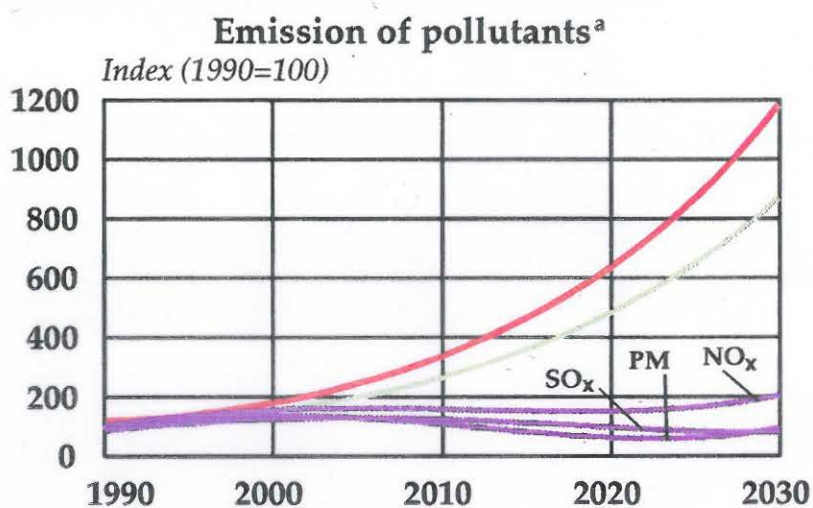
SCENARIOS FOR ALLOCATING CAPACITY TO EMIT CARBON DIOXIDE IF GREENHOUSE GAS WARMING EFFECT IS STABILIZED AT 2xCO₂

(warming effect of emissions in watts per square meter)



Source: World Bank staff estimates - World Development Report p. 165

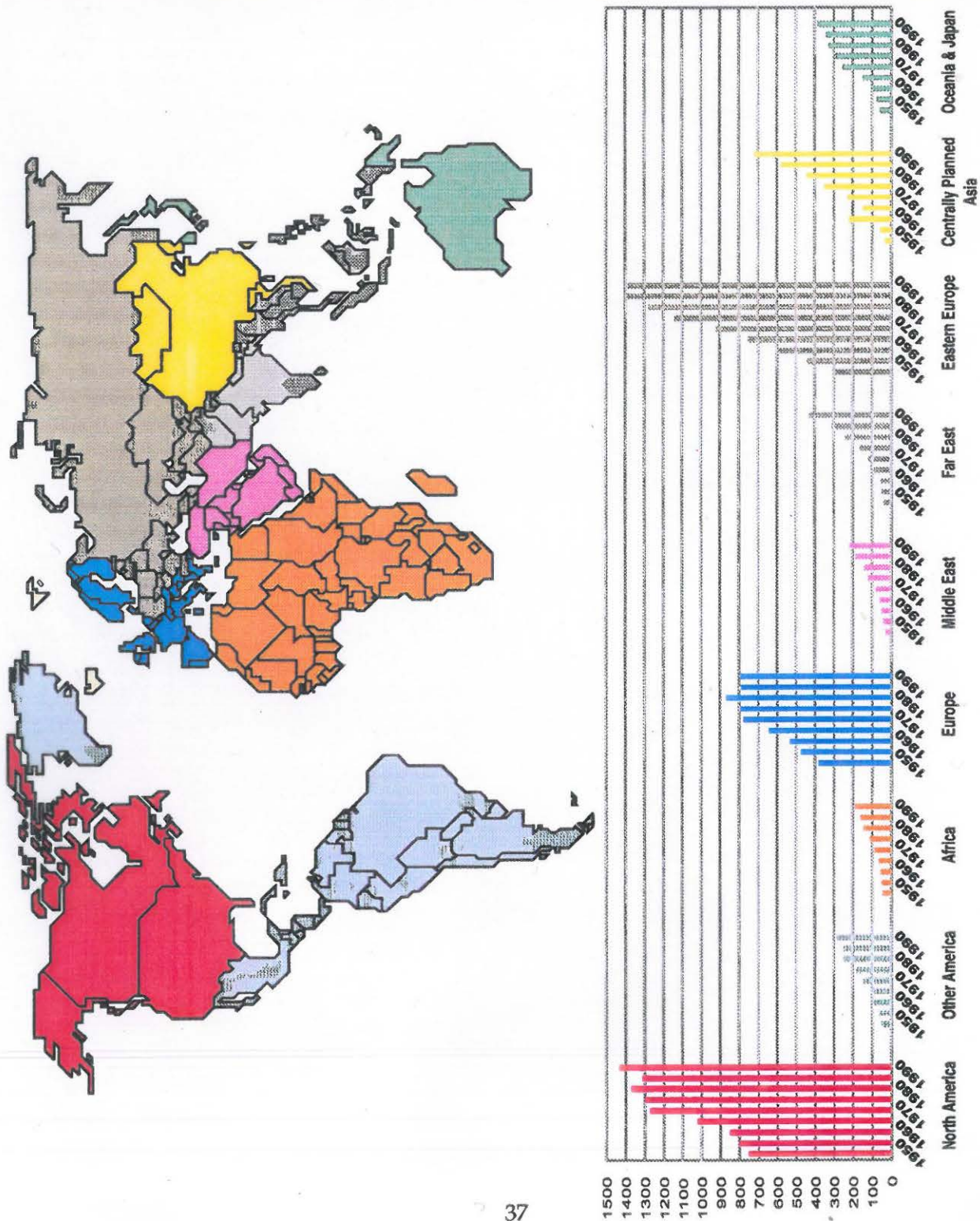
EXPANSION OF ELECTRIC POWER IN DEVELOPING COUNTRIES: POLLUTION EFFECTS AND INVESTMENT REQUIREMENT UNDER THREE SCENARIOS, 1990-2030



- "Unchanged practices" scenario
- Scenario with efficiency reforms^b
- Scenario with efficiency reforms and pollution abatement measures^c

Source: Anderson and Cavendish, background paper - World Development Report 1992 p. 121

TRENDS IN EMISSION OF CO2 FROM INDUSTRIAL SOURCES IN MAJOR WORLD REGIONS, 1950-1990



Source: Data from Table 1.3 - Environmental Data Report 1993-94 p. 9

ISSUES

- ➡ **AVAILABILITY OF ENERGY SERVICES
AND SOURCES AND ACCESS TO
DECENTRALIZED RENEWABLE ENERGY
SERVICES**
- ➡ **COSTS OF ENERGY SERVICES**
- ➡ **IMPACTS OF DEFORESTATION AND
AFFORESTATION ON QUALITY OF LIFE**

NFLS POLICY FRAMEWORK - 1 -

- ⇒ PARAGRAPH 218: ...With a view to women as producers, users and managers of energy sources**
- ⇒ PARAGRAPH 219: ...Women should be integrated as contributors and beneficiaries**
- ⇒ PARAGRAPH 220: The grassroots participation of women in energy-needs assessment, technology and energy conservation, management and maintenance efforts should be supported**
- ⇒ PARAGRAPH 221: Priority should be given to substituting energy for muscle in the performance of the industrial and domestic work of women without loss of their jobs and tasks to men**

NFLS POLICY FRAMEWORK - 2 -

- ⇒ PARAGRAPH 222: ...Innovative programmes, such as farm woodlot development, should be initiated with the involvement of both women and men**

- ⇒ PARAGRAPH 223: The involvement of women at all levels of decision-making and implementation of energy-related decisions including peaceful use of nuclear energy should be enhanced**

WOMEN AND WATER RESOURCES

- ⇒ LACK OF GENDER-SENSITIVE PLANNING IN WATER RESOURCES MANAGEMENT HAVE NEGATIVE EFFECTS ON WOMEN, THEIR FAMILIES AND COMMUNITIES.**
- ⇒ WOMEN ARE THE HARDEST HIT BY ENVIRONMENTAL DEGRADATION**
- ⇒ THE NEED FOR INTEGRATED WATERSHED MANAGEMENT**
- ⇒ ACCESS TO WATER RESOURCES PREREQUISITE FOR WOMEN'S INVOLVEMENT**
- ⇒ MODERN TECHNOLOGIES**

HOURS WOMEN SPEND DRAWING AND CARRYING WATER, 1975-82

Region	Hours per Week
AFRICA	
Botswana, (rural areas)	5.5
Burkina Faso, Zimtenga region	4.4
Côte d'Ivoire, (rural farmers)	4.4
Ghana, (northern farms)	4.5
Mozambique, (villages)	
Dry season	15.3
Wet season	2.9
Senegal, (farming village)	17.5
ASIA	
India, Baroda region	7.0
Nepal, (villages)	
Ages 5-9 years	1.5
Ages 10-14 years	4.9
Ages 15+years	4.7
Pakistan, (village survey)	3.5

Source: United Nations (U.N.), *World's Women, 1970-90, Trends and Statistics* (U.N., New York, 1991), p. 75.

POLICY FRAMEWORK - 1 -

⇒ NEW DELHI STATEMENT

⇒ DUBLIN STATEMENT

⇒ AGENDA 21

- **to improve integrated water resource management, develop public participatory techniques and their implementation in decision-making, particularly the enhancement of the role of women in water resources planning and management [18.12(n)]**
- **...ensuring that women participate equally in the education and training programmes... [18.19]**
- **an enabling environment for the lowest appropriate level management... include... donor support to local levels in developing countries, including... women's groups [18.22]**

POLICY FRAMEWORK - 2 -

- **education and training programmes... involving both men and women [18.33(b)]**
- **action is carried out at the national level to strengthen the managerial capabilities of water-user groups, including women, youth, indigenous people and local communities, to improve water-use efficiency at the local level [18.34(d)]**
- **the key to holistically and integrated environmentally sound management of water resources in the rural context includes the participation of local communities in all phases of water management, ensuring the full involvement of women in view of their crucial role in the practical day-to-day supply, management and use of water [18.68(b)]**

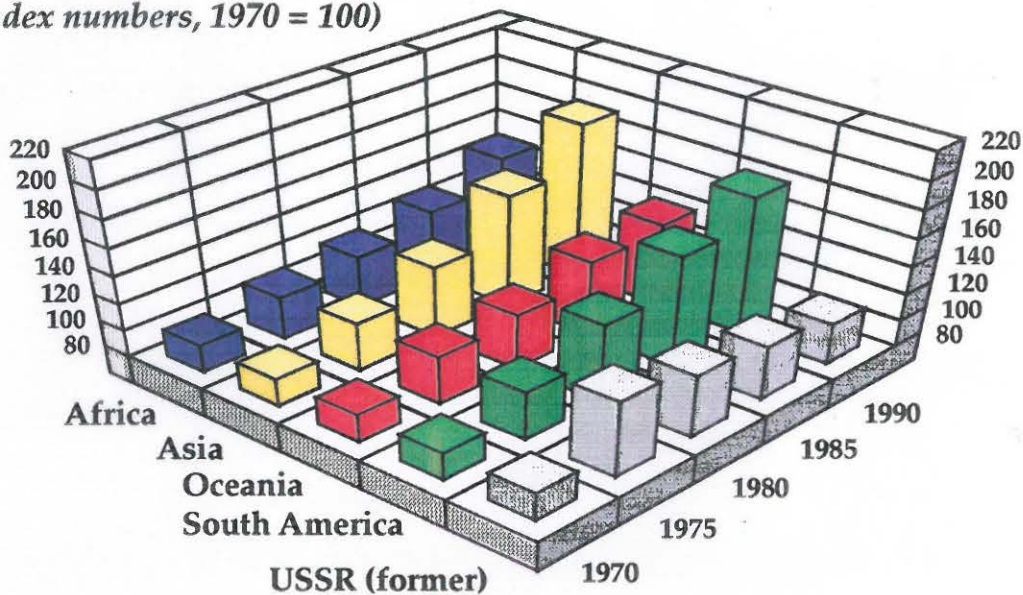
WOMEN, FOOD AND AGRICULTURE

- ➡ **CENTRAL ROLES THAT WOMEN PLAY IN AGRICULTURAL LABOUR FORCE**
- ➡ **EXTENSION SERVICES TARGET MEN INSTEAD OF WOMEN**
- ➡ **WOMEN ARE ENTITLED TO ONLY ONE PER CENT OF WORLD'S LAND YET PRODUCE MORE THAN HALF OF THE WORLD'S FOOD**
- ➡ **WOMEN PARTICIPATE IN NUMBER OF FOOD AND AGRICULTURE RELATED ACTIVITIES, INCLUDING:**
 - **PRIMARY PRODUCTION**
 - **ANIMAL PRODUCTION**
 - **FOOD STORAGE AND PROCESSING**
 - **TRADE AND MARKETING**

FOOD PRODUCTION BY REGION, 1970-92

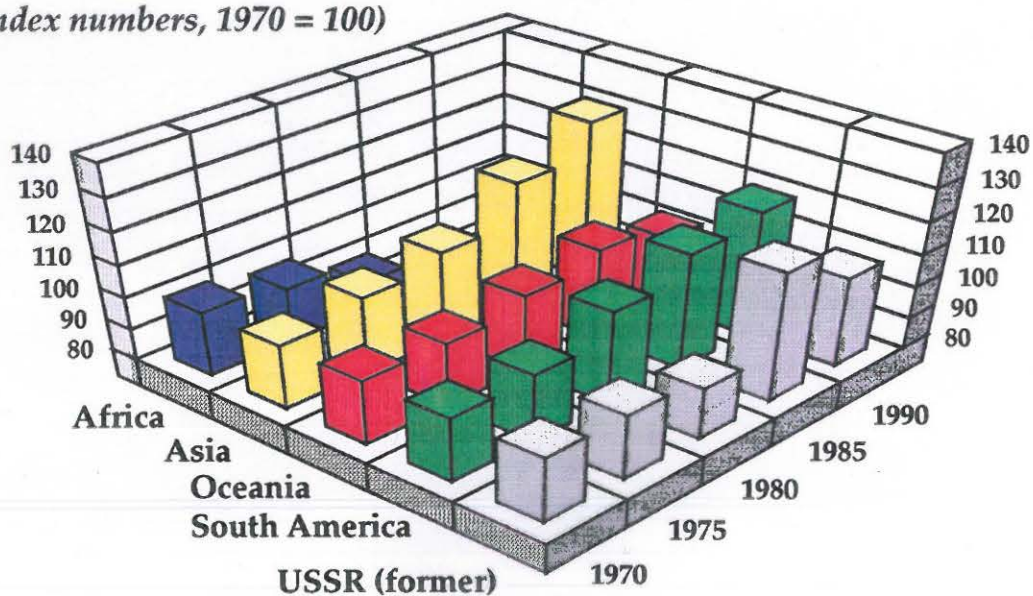
Index of Food Production by Region, 1970-92

(index numbers, 1970 = 100)



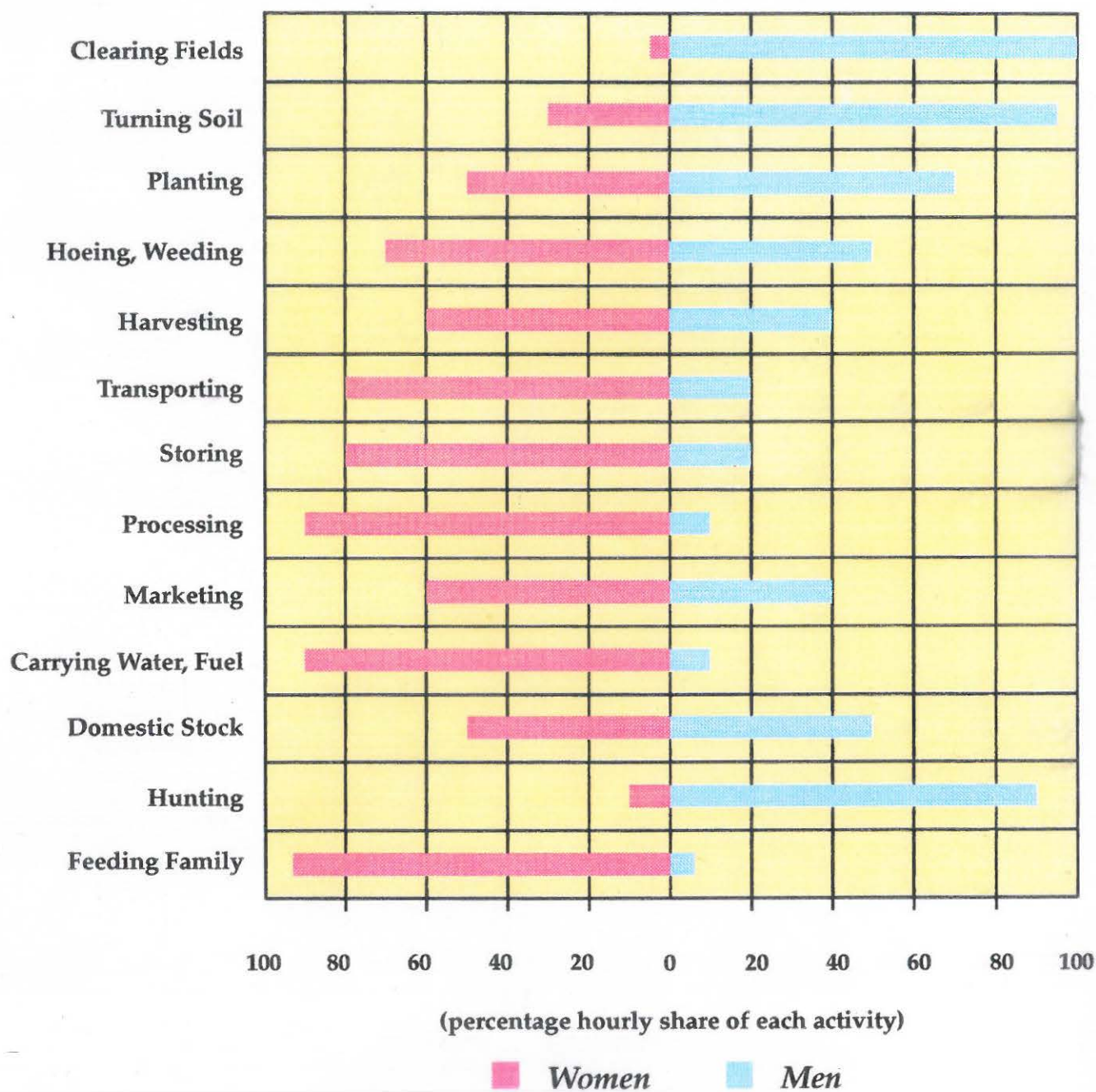
Index of per Capita Food Production by Region, 1970-92

(index numbers, 1970 = 100)



Source: Food and Agriculture Organization of the United Nations (FAO), Agostat PC, on diskette (FAO, Rome, 1993) - World Resources 1994-95 p. 108

GENDER LABOR DIVISION IN AFRICA, EARLY 1980s



Source: Food and Agriculture Organization and Swedish International Development Authority (FAO/SIDA), Restoring the Balance: Women and Forest Resource (FAO/SIDA, Rome, 1988), p. 21.

POLICY FRAMEWORK

➔ AGENDA 21:

- **ESTABLISH LEGAL MEASURES TO PROMOTE ACCESS OF WOMEN TO LAND AND REMOVE BIASES IN THEIR INVOLVEMENT IN RURAL DEVELOPMENT [14.14(B)]**
- **TO PROMOTE GREATER PUBLIC AWARENESS OF THE ROLE OF PEOPLE'S PARTICIPATION AND PEOPLE'S ORGANIZATIONS, ESPECIALLY WOMEN'S GROUPS [14.17(A)]**
- **TO ENSURE EQUITABLE ACCESS OF RURAL PEOPLE, PARTICULARLY WOMEN... TO LAND, WATER AND FOREST RESOURCES AND TO TECHNOLOGIES, FINANCING, MARKETING, PROCESSING AND DISTRIBUTION [14.17(B)]**
- **REVIEW EXISTING MEASURES TO ACHIEVE WIDER ACCESS TO LAND, WATER AND FOREST RESOURCES AND ENSURE EQUAL RIGHTS TO WOMEN...[14.18(B)]**

POLICY FRAMEWORK (CONT'D)

- ⇒ TRAIN EXTENSION AGENTS AND INVOLVE FARMERS AND WOMEN'S GROUPS IN CROP HEALTH AND ALTERNATIVE NON-CHEMICAL WAYS OF CONTROLLING PESTS IN AGRICULTURE [14.81(B)]**
- ⇒ TRAIN FARMERS AND WOMEN'S GROUPS IN PLANT NUTRITION MANAGEMENT, WITH SPECIAL EMPHASIS ON TOPSOIL CONSERVATION AND PRODUCTION [14.91(B)]**
- ⇒ TO SUPPORT AND ENHANCE THE LEGAL CAPACITY OF WOMEN AND VULNERABLE GROUPS WITH REGARD TO ACCESS, USE AND TENURE OF LAND [32.6(B)]**
- ⇒ TO ENHANCE THE PARTICIPATION OF FARMERS, MEN AND WOMEN, IN THE DESIGN AND IMPLEMENTATION OF POLICIES....[32.6(F)]**
- ⇒ PROTECT, RECOGNIZE AND FORMALIZE WOMEN'S ACCESS TO TENURE AND USE OF LAND, AS WELL AS RIGHTS TO LAND, ACCESS TO CREDIT, TECHNOLOGY, INPUTS AND TRAINING [32.7(D)]**

WOMEN AND FORESTRY

- ⇒ GENDER BASED PRACTICES IN REGARDS TO FORESTRY NEED TO BE IDENTIFIED AND DESIGNED FOR**
- ⇒ WOMEN REQUIRE SPECIAL ATTENTION IN FORESTRY PROJECTS**
- ⇒ BANGLADESH EXAMPLE SHOWS HOW LACK OF GENDER ANALYSIS CAUSED WOMEN'S PARTICIPATION TO BE LIMITED**
- ⇒ WOMEN WRONGLY BLAMED FOR DEFORESTATION**
- ⇒ WOMEN INVOLVED IN AFFORESTATION ACTIVITIES**

POLICY FRAMEWORK

- ➔ **CHAPTER 11: "COMBATING DEFORESTATION" OF AGENDA 21 STIPULATES:**
- ➔ **PROMOTING PARTICIPATION OF THE PRIVATE SECTOR, LABOUR UNIONS, RURAL COOPERATIVES, LOCAL COMMUNITIES, INDIGENOUS PEOPLES, YOUTH, WOMEN USER GROUPS AND NON-GOVERNMENTAL ORGANIZATION IN FOREST-RELATED ACTIVITIES...**
- ➔ **ESTABLISHING AND/OR STRENGTHENING INSTITUTIONS FOR FOREST EDUCATION AND TRAINING AS WELL AS FOREST INDUSTRIES, FOR DEVELOPING AN ADEQUATE CADRE OF TRAINED AND SKILLED STAFF AS THE PROFESSIONAL, TECHNICAL AND VOCATIONAL LEVELS, WITH EMPHASIS ON YOUTH AND WOMEN**
- ➔ **GOVERNMENTS, WITH THE PARTICIPATION OF... WOMEN... SHOULD ACT TO MAINTAIN AND EXPAND VEGETATIVE COVER...**

WOMEN AND TRANSPORT

- ⇒ AVAILABILITY OF SAFE AND RELIABLE TRANSPORTATION IN DEVELOPING COUNTRIES IS POOR**
- ⇒ POOR SPEND DISPROPORTIONATE LEVEL OF SALARY ON TRANSPORTATION**
- ⇒ WOMEN ARE LARGEST USERS OF PUBLIC TRANSPORTATION**
- ⇒ IN ABSENCE OF APPROPRIATE TRANSPORTATION, WOMEN CARRY PRODUCE, RESOURCES AND CHILDREN BY FOOT**
- ⇒ HEALTH HAZARDS**

POLICY FRAMEWORK

- ⇒ NAIROBI FORWARD-LOOKING STRATEGIES**
- ⇒ WOMEN SEEN AS PRODUCERS AND CONSUMERS IN TRANSPORTATION POLICIES**
- ⇒ PROMOTE ROLE OF WOMEN AS OPERATORS AND OWNERS OF MEANS OF TRANSPORT**
- ⇒ RURAL TRANSPORTATION PLANNING AIMED AT REDUCING HEAVY BURDEN ON WOMEN**
- ⇒ DESIGN OF VEHICULAR TECHNOLOGY APPROPRIATE TO WOMEN**

WOMEN AND SCIENCE AND TECHNOLOGY

- ⇒ SCIENCE AND TECHNOLOGY DEVELOPMENTS HAVE BYPASSED WOMEN**
- ⇒ WOMEN FACE NUMBER OF CONSTRAINTS TO THEIR EQUAL PARTICIPATION IN SCIENCE AND TECHNOLOGY SECTOR**
- ⇒ UNITED NATIONS RESOLUTION ON WOMEN, SCIENCE AND TECHNOLOGY**

POLICY FRAMEWORK

- ➔ **NAIROBI FORWARD-LOOKING STRATEGIES:**
- ➔ **FULL AND EFFECTIVE PARTICIPATION OF WOMEN IN THE DECISION MAKING AND IMPLEMENTATION PROCESS RELATED TO SCIENCE AND TECHNOLOGY**
- ➔ **WOMEN INVOLVED IN PEACEFUL USES OF OUTER SPACE**
- ➔ **WOMEN EMPLOYED IN MANAGERIAL AND PROFESSIONAL LEVELS**
- ➔ **INCREASE INCENTIVES CREATED TO INCREASE ACCESS OF WOMEN TO SCIENTIFIC AND TECHNOLOGICAL TRAINING AND EDUCATION**
- ➔ **MONITOR IMPACT OF SCIENCE AND TECHNOLOGY DEVELOPMENTS ON WOMEN**
- ➔ **APPROPRIATE TECHNOLOGIES FOR WOMEN DESIGNED TO HIGHEST STANDARDS, PARTICULARLY IN MEDICAL TECHNOLOGY**

TRANSPARENCIES
MODULE THREE

WOMEN AS MANAGERS OF THE ENVIRONMENT

TRANSPARENCIES
MODULE THREE

WOMEN AS MANAGERS OF THE ENVIRONMENT

WOMEN AND NATURAL RESOURCES MANAGEMENT - 1

- ⇒ WOMEN PLAY A MAJOR ROLE IN
MANAGING NATURAL RESOURCES AT
THE HOUSEHOLD AND COMMUNITY
LEVELS**
- ⇒ WOMEN EFFECT AND ARE CLOSELY
AFFECTED BY ENVIRONMENT**
- ⇒ WOMEN ARE ALSO VICTIMS OF
ENVIRONMENTAL MISMANAGEMENT**
- ⇒ WOMEN, ENVIRONMENT AND
SUSTAINABLE DEVELOPMENT (WED)**

WOMEN AND NATURAL RESOURCES MANAGEMENT - 2

- ⇒ INTERESTS OF POOR WOMEN AND THE GOALS OF SUSTAINABLE DEVELOPMENT ARE MUTUALLY REINFORCING**
- ⇒ CASE STUDIES SHOW HOW WOMEN HAVE BEEN INVOLVED IN IMPROVING ENVIRONMENTAL CONDITIONS**
- ⇒ IN KENYA, THE GREEN BELT MOVEMENT**
- ⇒ IN BRAZIL THE ACAO DEMOCRATICA FEMINA GAUCHA (ADGF)**
- ⇒ IN ZIMBABWE , THE ORGANIZATION OF RURAL ASSOCIATIONS FOR PROGRESS (ORAP)**

POLICY FRAMEWORK

- ➡ **WOMEN'S ROLE IN ENVIRONMENTAL AND NATURAL RESOURCES MANAGEMENT NOT GIVEN DUE ATTENTION**
- ➡ **INTERNATIONAL WOMEN'S DECADE**
- ➡ **NAIROBI FORWARD-LOOKING STRATEGIES**
- ➡ **GLOBAL CONFERENCES HELD IN MEXICO CITY IN 1975, COPENHAGEN 1980, NAIROBI 1985**
- ➡ **DISASTERS SUCH AS DROUGHT, FLOODS, HURRICANE, EROSION, DESERTIFICATION, DEFORESTATION PUSHED COMMUNITIES INTO MARGINAL ENVIRONMENTS**
- ➡ **SANITARY CONDITIONS AND DRINKING WATER SUPPLIES SHOULD BE IMPROVED**
- ➡ **WOMEN SHOULD BE RECOGNIZED AS EQUAL PARTICIPANTS IN ECOSYSTEM MANAGEMENT**
- ➡ **GLOBAL ASSEMBLY OF WOMEN AND THE ENVIRONMENT -PARTNERS FOR LIFE**
- ➡ **UNCED: RIO DECLARATION/AGENDA 21**
- ➡ **INSTRAW**

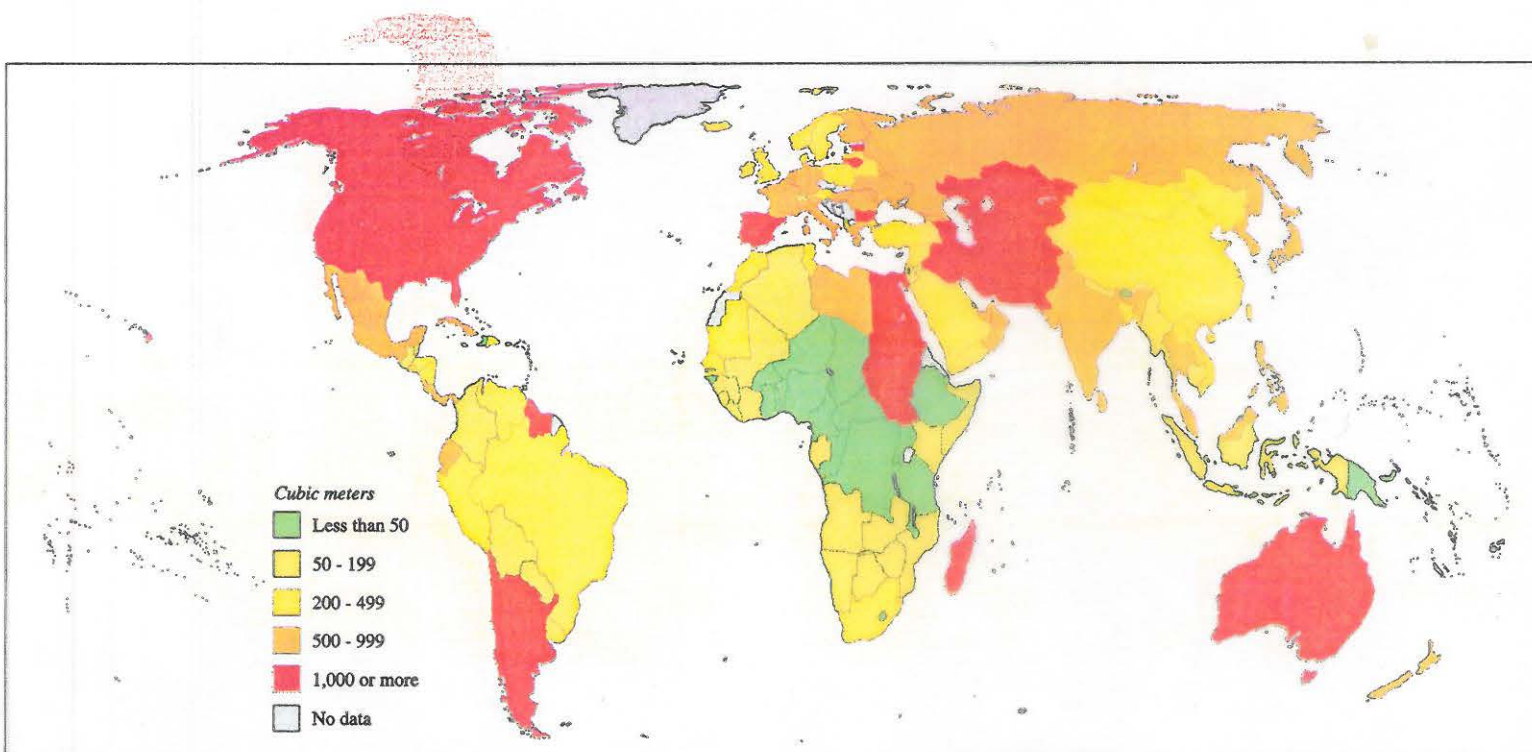
THE STATE OF GLOBAL WATER RESOURCES - 1

- ➡ **WATER IS AN INCREASINGLY SCARCE AND FINITE RESOURCE**
- ➡ **THE WATER STRESS INDEX**
- ➡ **100 LITRES PER PERSON PER DAY OR 36.5 CUBIC METRES PER YEAR**
- ➡ **IN 1990-28 COUNTRIES WITH POPULATIONS of 335 MILLION EXPERIENCED WATER STRESS OR SCARCITY**
- ➡ **THE POPULATION GROWTH RATE WILL DETERMINE WHETHER THE COUNTRY EXPERIENCES WATER STRESS OR WATER SCARCITY**

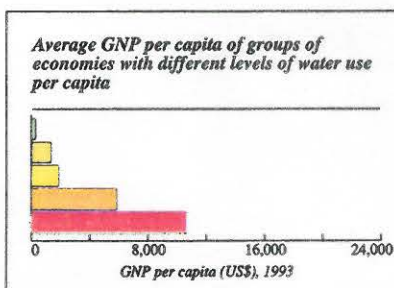
THE STATE OF GLOBAL WATER RESOURCES - 2

- ⇒ INDIA**
- ⇒ CHINA**
- ⇒ LARGE NUMBER OF AFRICAN COUNTRIES
STRESSED BY WATER SHORTAGE**
- ⇒ DESPITE WATER SHORTAGES, MISUSE OF
WATER IS WIDESPREAD**
- ⇒ THE RESULTS OF OVERUSE OF
FRESHWATER SOURCES ARE VISIBLE**
- ⇒ URBAN AND RURAL WATER SOURCES
ARE THREATENED**

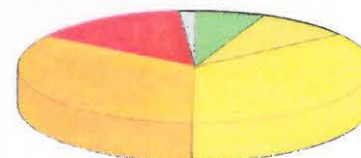
ANNUAL WATER USE PER CAPITA, 1970-92



Annual water use per capita, 1970-92	Number of economies	GNP (US\$000,000) 1993	Population (000,000) 1993	GNP per capita (US\$) 1993
Less than 50	27	103,000	354	290
50 - 199	30	654,000	487	1,340
200 - 499	36	3,627,000	1,936	1,870
500 - 999	31	10,869,000	1,862	5,840
1,000 or more	26	8,497,000	801	10,610
No data	59	507,000	85	5,990



Shares of world population living in economies with different levels of water use per capita



WOMEN AND WATER RESOURCES MANAGEMENT

- ⇒ WOMEN RARELY SEEN OR TREATED AS MANAGERS OF WATER RESOURCES**
- ⇒ TOP DOWN DECISION-MAKING CAN EASILY LEAD TO INAPPROPRIATE WATER RESOURCES MANAGEMENT PROJECTS AND HAVE CRITICAL IMPACTS ON WOMEN AND COMMUNITIES**
- ⇒ WOMEN'S EXPERIENCE AND SKILLS SHOULD BE RECOGNIZED AS A POWERFUL INSTRUMENT**

POLICY FRAMEWORK - 1

- ⇒ **INTERNATIONAL CONFERENCES AND AGREEMENTS HAVE ADVOCATED POLICIES WHICH SPECIFICALLY IDENTIFY THE NEED TO INVOLVE WOMEN IN WATER RESOURCES MANAGEMENT**
- ⇒ **CHAPTER 18 OF AGENDA 21 RECOMMENDS:**
- **TO IMPROVE INTEGRATED WATER RESOURCE MANAGEMENT, DEVELOP PUBLIC PARTICIPATORY TECHNIQUES AND THEIR IMPLEMENTATION IN DECISION-MAKING, PARTICULARLY THE ENHANCEMENT OF THE ROLE OF WOMEN IN WATER RESOURCES PLANNING AND MANAGEMENT [18.12(N)]**
 - **DELEGATE WATER RESOURCES MANAGEMENT TO THE LOWEST APPROPRIATE LEVEL WHICH THEN NECESSITATES EDUCATING AND TRAINING WATER MANAGEMENT STAFF AT ALL LEVELS AND ENSURING THAT WOMEN PARTICIPATE EQUALLY IN THE EDUCATION AND TRAINING PROGRAMMES... [18.19]**

POLICY FRAMEWORK - 2

- **ACTION IS CARRIED OUT AT THE NATIONAL LEVEL TO STRENGTHEN THE MANAGERIAL CAPABILITIES OF WATER-USER GROUPS, INCLUDING WOMEN, YOUTH, INDIGENOUS PEOPLE AND LOCAL COMMUNITIES, TO IMPROVE WATER-USE EFFICIENCY AT THE LOCAL LEVEL [18.34(D)]**

- **THE KEY TO HOLISTIC AND INTEGRATED ENVIRONMENTALLY SOUND MANAGEMENT OF WATER RESOURCES IN THE RURAL CONTEXT INCLUDES THE PARTICIPATION OF LOCAL COMMUNITIES IN ALL PHASES OF WATER MANAGEMENT, ENSURING THE FULL INVOLVEMENT OF WOMEN IN VIEW OF THEIR CRUCIAL ROLE IN THE PRACTICAL DAY-TO-DAY SUPPLY, MANAGEMENT AND USE OF WATER [18.68(B)]**

ISSUES IN WOMEN AND WATER RESOURCES MANAGEMENT

- ⇒ WOMEN ARE HARDEST AND EARLIEST HIT BY ENVIRONMENTAL DEGRADATION IN GENERAL AND WATER SCARCITY IN PARTICULAR**
- ⇒ THE NEED FOR AN INTEGRATED WATERSHED MANAGEMENT APPROACH IN WHICH WOMEN PLAY A CENTRAL ROLE IS INCREASINGLY BEING STRESSED**
- ⇒ ACCESS TO RESOURCES SUCH AS LAND AND LABOUR IS AN IMPORTANT PREREQUISITE FOR WOMEN'S INVOLVEMENT IN THE IMPROVEMENT AND MANAGEMENT OF THE ENVIRONMENT**
- ⇒ THE INTRODUCTION OF MODERN TECHNOLOGIES IN WATER RESOURCE PROJECTS CAN HAVE NEGATIVE IMPACTS ON WOMEN'S ROLES AND POSITION IN THE COMMUNITY, PARTICULARLY IF THEY HAVE HAD NO SAY IN PROJECT DESIGN**

THE ROLE OF WOMEN IN WATER RESOURCE MANAGEMENT

- ➡ **ROLE OF WOMEN IN WATER SUPPLY AND SANITATION PROJECTS WELL DOCUMENTED**
- ➡ **WOMEN'S ROLES IN WATER RESOURCE MANAGEMENT ACTIVITIES :**
 - **FISHERIES**
 - **HYDROELECTRIC DEVELOPMENT**
 - **WATER QUALITY PROTECTION**
 - **WETLANDS CONSERVATION**
 - **GROUNDWATER PROTECTION**
- ➡ **FISHERIES: IN WESTERN KENYA THE JIWRUOK WOMEN'S GROUPS IMPROVED A FRESHWATER FISHERY**
- ➡ **HYDROELECTRIC DEVELOPMENT: THE NEW ZEALAND GOVERNMENT**
- ➡ **WATER QUALITY PROTECTION: IN A VILLAGE IN CENTRAL JAVA, INDONESIA**
- ➡ **WETLANDS CONSERVATION: A SHRIMPING INDUSTRY IN HONDURAS**
- ➡ **GROUNDWATER PROTECTION: IN ANTIGUA, WEST INDIES**

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ENVIRONMENTAL SANITATION

- ⇒ ENVIRONMENTAL SANITATION CAN BE DEFINED AS ALL ASPECTS OF WATER, SANITATION, WASTE DISPOSAL AND HYGIENE WHICH ARE NEEDED FOR HEALTH IMPROVEMENTS**
- ⇒ WATER HYGIENE AND CONSUMPTION OF SAFE WATER**
- ⇒ HUMAN WASTE DISPOSAL**
- ⇒ SAFE WASTE WATER (GREYWATER) DISPOSAL**
- ⇒ SOLID WASTE DISPOSAL (INCLUDING HOUSEHOLDS WASTES)**
- ⇒ PROPER PERSONAL HYGIENE**
- ⇒ FOOD HYGIENE**

DOMAINS OF HYGIENE BEHAVIOUR

- ⇒ DISPOSAL OF HUMAN WASTES**
- ⇒ USE AND PROTECTION OF WATER SOURCES**
- ⇒ WATER AND PERSONAL HYGIENE**
- ⇒ FOOD HYGIENE**
- ⇒ DOMESTIC AND ENVIRONMENTAL HYGIENE**

DISPOSAL OF HUMAN WASTES

- ➡ CHOICE OF DEFECATION PLACE**
- ➡ METHOD OF EXCRETA DISPOSAL**
- ➡ OPEN AIR DEFECATION**
- ➡ ON SITE-DISPOSAL**
- ➡ OFF SITE-DISPOSAL**
- ➡ ANAL CLEANSING MATERIAL**
- ➡ HANDWASHING**

USE AND PROTECTION OF WATER SOURCES

- ⇒ CHOICE OF WATER SOURCE:
AVAILABILITY, RELIABILITY, DISTANCE,
CONVENIENCE, SOCIAL ACCESSIBILITY**
- ⇒ PREVENTION OF DISEASE'S IS ONLY ONE
FACTOR**
- ⇒ WOMEN ARE THE MAIN DECISION
MAKERS AT THE HOUSEHOLD AND
COMMUNITY LEVELS**

WATER AND PERSONAL HYGIENE

- ⇒ WATER TREATMENT**
- ⇒ SAFE STORAGE AND PROTECTION**
- ⇒ CLEAN CONTAINERS**
- ⇒ WATER SHORTAGES**
- ⇒ AVAILABILITY OF SOAP**
- ⇒ SHARED CLOTHING AND BEDDING**

FOOD HYGIENE

- ⇒ FOOD HYGIENE INCLUDES HANDLING, PREPARATION, CONSUMPTION AND STORAGE PRACTICES**
- ⇒ HANDWASHING**
- ⇒ SAFE WATER FOR WASHING FRUITS AND VEGETABLES**
- ⇒ FOOD COOKING - 70C TEMPERATURES NECESSARY**
- ⇒ FOOD STORAGE**
- ⇒ KITCHEN CLEANLINESS**

DOMESTIC AND ENVIRONMENTAL HYGIENE

- ⇒ HOUSEHOLD CLEANLINESS**
- ⇒ INSECT CONTROL**
- ⇒ DISPOSAL OF HOUSEHOLD SOLID
WASTES**
- ⇒ DISPOSAL OF HOUSEHOLD LIQUID
WASTES**
- ⇒ ANIMAL MANAGEMENT**

WOMEN'S ROLES

- ➡ WOMEN HAVE PIVOTAL ROLE
- ➡ DATA COLLECTION
- ➡ DESIGNERS AND PLANNERS
- ➡ PROMOTION
- ➡ CONSTRUCTION
- ➡ OPERATION AND MAINTENANCE
- ➡ EDUCATION
- ➡ MANAGERS
- ➡ MONITORS

EFFECTS OF WATER SUPPLY AND SANITATION IMPROVEMENTS ON MORBIDITY FROM DIARRHOEA

Effects of improved water and sanitation on sickness		
Disease	Millions of people affected by illness	Median reduction attributable to improvement (percent)
Diarrhea	900 ^a	22
Roundworm	900	28
Guinea worm	4	76
Schistosomiasis	200	73

a. Refers to number of cases per year. Source: Esrey and others 1990

Effects of water supply and sanitation improvements on morbidity from diarrhea	
Type of improvement	Median reduction in morbidity (percent)
Quality of water	16
Availability of water	25
Quality and availability of water	37
Disposal of excreta	22

Source: Esrey, Feachem and Hughes 1985.

**CASE STUDIES SHOW HOW WOMEN
AND WOMEN'S GROUPS HAVE
BEEN SUCCESSFULLY INVOLVED IN
ENVIRONMENTAL SANITATION
ACTIVITIES**

- ⇒ **INDONESIA**
- ⇒ **MANILA**
- ⇒ **TAIWAN**
- ⇒ **PERU**
- ⇒ **THAILAND**
- ⇒ **BANGLADESH**
- ⇒ **ARGENTINA**

MACRO AND MICRO CONSIDERATIONS

- ⇒ POPULATION 1993 - 5.3 BILLION**
- ⇒ ANNUAL INCREASE - 91 MILLION**
- ⇒ HUMAN ACTIVITIES PRODUCE WASTES**
- ⇒ ACCUMULATION OF WASTES POLLUTES ENVIRONMENT AND RESULTS IN DISEASE**
- ⇒ MACRO LEVEL: WASTES FROM RESOURCE EXPLOITATION CAUSES ACID RAIN, OZONE DEPLETION, WATER SOURCE POLLUTION, SPECIES EXTINCTION**
- ⇒ MICRO LEVEL OR HOUSEHOLD LEVEL: IMPROPER DISPOSAL OF HUMAN AND HOUSEHOLD WASTES RESULTS IN DISEASE TRANSMISSION**

DEFINITION OF WASTE MANAGEMENT

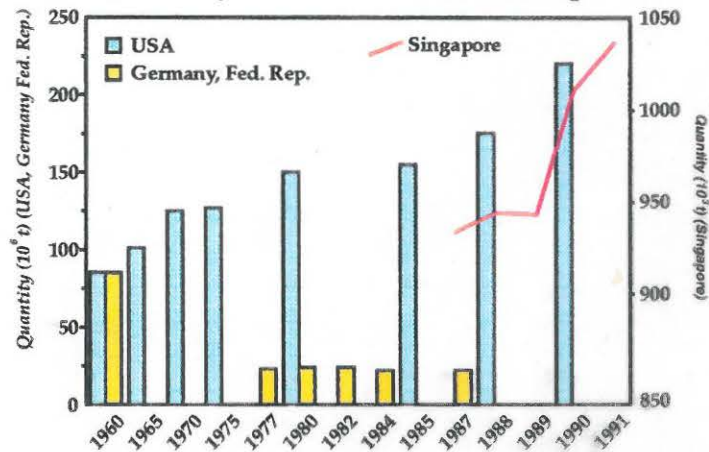
- ⇒ WASTE MANAGEMENT COVERS
MANAGEMENT OF ALL FORMS OF WASTE
PRODUCED BY HUMAN ACTIVITY**
- ⇒ SANITATION**
- ⇒ SOLID WASTE DISPOSAL**
- ⇒ LIQUID WASTE DISPOSAL**
- ⇒ GASEOUS WASTES**
- ⇒ INDUSTRIAL WASTES**
- ⇒ HAZARDOUS AND TOXIC WASTES**
- ⇒ WASTE REUSE: COMPOSTING, BIOGAS
PRODUCTION, AQUACULTURE AND
RECYCLING**

SANITATION

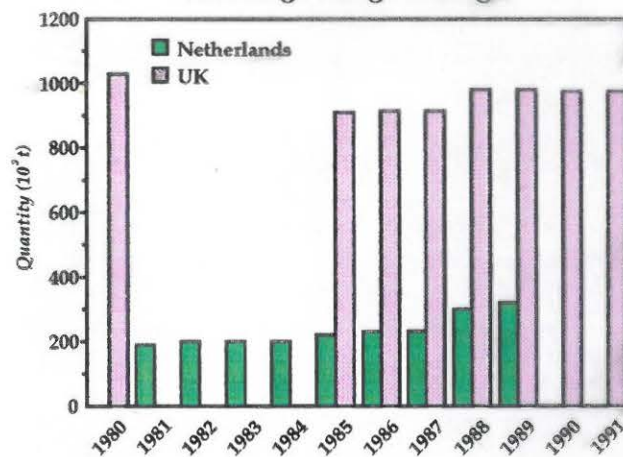
- ➡ **DISEASES TRANSMITTED THROUGH IMPROPER WASTE DISPOSAL**
- ➡ **HUMAN WASTES MUST BE CONTAINED AND NEUTRALIZED**
- ➡ **HUMAN WASTES CONTAIN DISEASE PATHOGENS: BACTERIA, VIRUSES, PROTOZOA, HELMINTHS**
- ➡ **PATHOGENS SPREAD BY DIRECT CONTACT BETWEEN PEOPLE, THROUGH SOIL AND VEGETABLES AND BY CONTAMINATING WATER SOURCES**
- ➡ **MANY FORMS OF EFFECTIVE WASTE DISPOSAL**
- ➡ **CONVENTIONAL PIPE BORNE SEWERAGE, SEPTIC TANKS, SOAKAWAYS, PIT LATRINES**
- ➡ **ALL GOOD IF PROPERLY CONSTRUCTED AND MAINTAINED**

TRENDS IN ARISING OF CERTAIN WASTE STREAMS IN SELECTED COUNTRIES

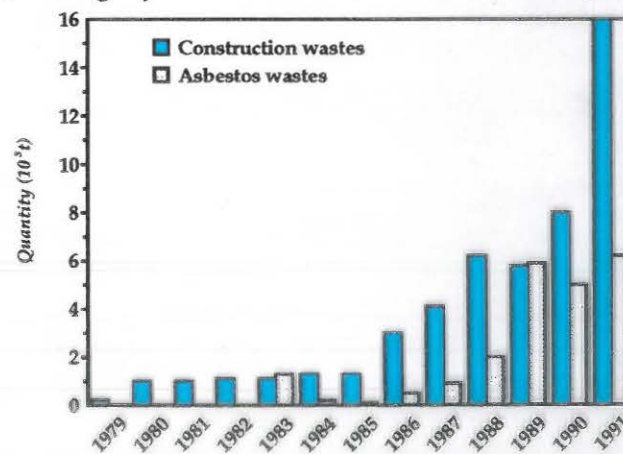
a) Municipal/Household waste arisings



b) Sewage sludge arisings

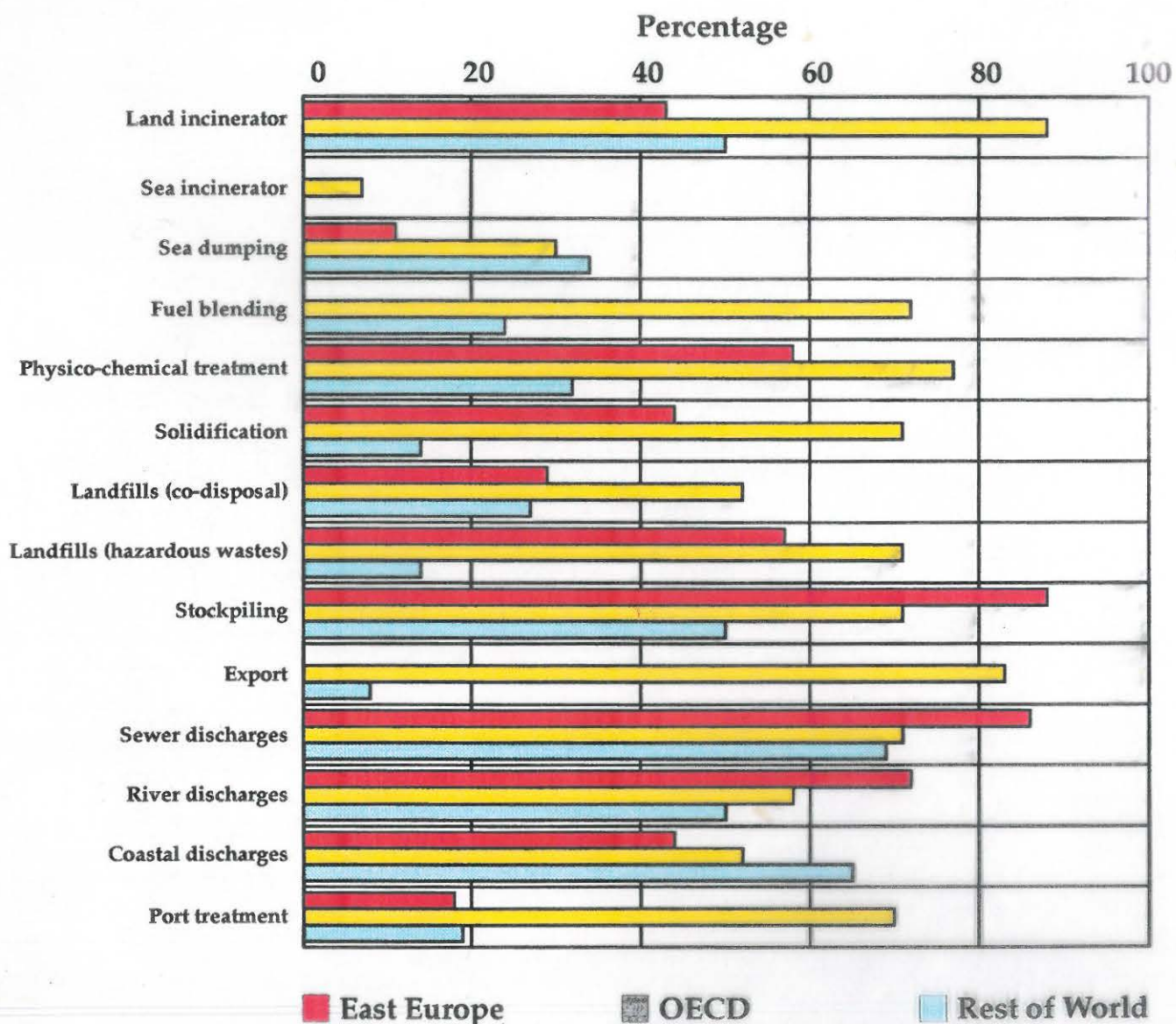


c) Arisings of construction and asbestos wastes, Hong Kong



Environmental
Data Report 1993-94 p. 331

PERCENTAGE OF GWI RESPONDENTS REPORTING AVAILABILITY OF DIFFERENT AND DISPOSAL FACILITIES



Source: IMO, 1992 - Environmental Data Report p. 338

WASTE REUSE

- ⇒ **WASTE REUSE**
- ⇒ **MANY MATERIALS REUSABLE OR RECYCLABLE**
- ⇒ **30 - 50% OF LANDFILL MATERIALS, PAPER AND PAPER PRODUCTS**
- ⇒ **COMPOSTING**
- ⇒ **BIOGAS**
- ⇒ **AQUACULTURE**
- ⇒ **RECYCLING AND REUSE IMPORTANT INFORMAL SECTOR FOR WOMEN AND CHILDREN IN DEVELOPING WORLD**

WOMEN'S INVOLVEMENT

- ⇒ WOMEN'S INVOLVEMENT KEY TO PROPER WASTE DISPOSAL**
- ⇒ WOMEN RESPONSIBLE FOR HOUSEHOLD WASTES DISPOSAL AND ENVIRONMENTAL SANITATION**
- ⇒ ESSENTIAL TO INVOLVE WOMEN AT ALL STAGES IN WASTE MANAGEMENT DISPOSAL**
- ⇒ WOMEN INVOLVED AS: FAMILY LEADERS, THROUGH WOMEN'S ORGANIZATIONS AND NGO'S, AS WORKING PROFESSIONALS, GOVERNMENT AGENTS, INDIVIDUAL ACTIVISTS**
- ⇒ CASE STUDIES SHOW HOW WOMEN WERE INVOLVED IN PLANNING AND IMPLEMENTING WASTE MANAGEMENT PROJECTS**

POLICY FRAMEWORK - 1

- ⇒ **AGENDA 21 INCLUDES SPECIFIC REFERENCES TO THE INVOLVEMENT AND ROLE OF WOMEN IN WASTE MANAGEMENT**
- ⇒ **CHAPTER 19 RECOMMENDS:**
- **International organizations... launch training and education programmes involving women and children, who are at greatest risk in order to enable countries... to make maximum national use of international assessments of chemical risks**
- ⇒ **CHAPTER 20 ON ENVIRONMENTALLY SOUND MANAGEMENT OF HAZARDOUS WASTES RECOMMENDS:**
- **20.26(B) Governments... should conduct research in the health effects of hazardous wastes in developing countries including the long term effects on children and women**
 - **20.27 Governments, should: (B) increase participation in hazardous waste management programmes by the general public, particularly women, including participation at grass-roots levels**

POLICY FRAMEWORK - 2

➔ CHAPTER 21 DEALS WITH THE ENVIRONMENTALLY SOUND MANAGEMENT OF SOLID WASTES AND SEWAGE RELATED ISSUES AND RECOMMENDS:

- 21.19 Governments and institutions and non-governmental organizations, including consumer, women's and youth groups, in collaboration... should launch programmes to demonstrate and make operational enhanced waste reuse and recycling.
- 21.25 ...Governments, in collaboration with United Nations... should undertake to (D) encourage... women's groups... in collaboration with municipal authorities, to mobilize community support for waste reuse and recycling through focused community-level campaigns
- 21.46 (C) Launch campaigns to encourage active community participation involving women's groups and youth groups in the management of waste...

THE ROLE OF WOMEN IN WASTE TREATMENT

- ➡ **WOMEN HAVE SUCCESSFULLY AFFECTED WASTE TREATMENT IMPROVEMENTS FOR THE BETTER HEALTH AND LIVING CONDITION OF THEIR FAMILIES AND COMMUNITIES**

- ➡ **WOMEN HAVE PARTICIPATED IN WASTE TREATMENT ACTIVITIES IN:**
 - **WASTE REUSE AND RECYCLING
(Indonesia/South Africa)**
 - **DISPOSAL OF HUMAN WASTES
(Indonesia/South Africa)**
 - **SOLID WASTE DISPOSAL
(Nepal/Taiwan)**
 - **THE DISPOSAL OF NUCLEAR WASTES**
 - **PREVENTION OF AIR POLLUTION
(U.S.A.)**
 - **THE DISPOSAL OF TOXIC AND HAZARDOUS WASTES
(U.S.A./Thailand)**
 - **SANITATION
(Indonesia/Sri Lanka/Pakistan)**

TRANSPARENCIES
MODULE FOUR

*WOMEN, ENVIRONMENTAL INDICATORS AND CAPACITY
BUILDING PROGRAMMES*

TRANSPARENCIES
MODULE FOUR

*WOMEN, ENVIRONMENTAL INDICATORS AND CAPACITY
BUILDING PROGRAMMES*

NEED FOR ENVIRONMENTAL INDICATORS

➔ TYPES OF ENVIRONMENTAL INDICATORS:

- **INTEGRATED ACCOUNTING SYSTEMS**
- **STATISTICAL FRAMEWORKS**
- **AD-HOC INDICATORS FRAMEWORKS**
- **OVERALL POLICY FRAMEWORKS**

EXAMPLES OF INDICATORS AND INDICATOR FRAMEWORKS

- ⇒ PILOT INDICATORS OF NATIONAL PERFORMANCE**
- ⇒ OECD DEVELOPED A CORE SET OF ENVIRONMENTAL PERFORMANCE INDICATORS**
- ⇒ WORLD WILDLIFE FOUNDATION (WWF) AND THE NEW ECONOMICS FOUNDATION (NEF) COMPILED A SET OF KEY SECTORAL INDICATORS**

OECD Key Indicators of National Performance

A. Critical Elements of Sustainability	B. Financial Resources and Mechanisms	C. Education, Science, Transfer of Environmentally Sound Technologies, Cooperation and Capacity Building
Human Development Index	Overseas Development Assistance given or received as % GDP (US\$)	Net primary and secondary school enrolment rates: total, female(5)
GDP per capita in real terms PPP (US\$)	Debt/service ratio (debt service as % of export earnings)	Mean years of schooling: total, female (%)
Income share: ratio of the highest 20% of households to lowest 20%	Military expenditure as a proportion of GDP (%)	Adult literacy rate (%)
Consumption of energy per capita and per unit of GDP (tonnes of oil equivalent)	Gross domestic savings as a proportion of GDP (%)	Proportion of GDP spent on education (%)
Depletion index of fossil fuels and other mineral resources (% of proven reserves)		No. of vocational (technical) graduates per 100,000 (no.)
Average calorie consumption proportion of minimum requirements (%)		
Annual rate of population growth (%)		
Population living in absolute poverty: total (no.) and proportion of the total (%)		

Source: WWF/NEF 1994 Paper 1 "Indicators for Action", p. 5

OECD Key Indicators of National Performance

D. Decision-making Structures	E. Roles of Major Groups	F. Health, Human Settlements and Fresh-Water
Public employees engaged in environmental protection and social services (% of total)	Human Freedom Index	Index of life expectancy (relative to OECD average)
Global treaties ratified (no.)	Participation in the formal labour market: total, female (%)	Infants and under 5 mortality rates (deaths per 1000 births)
	Elected national and local representatives per 1 million population (no.)	Burden of disease (DALYs per 1000 people)
	Females in national elected office as proportion of total (%)	Maternal mortality rates (per 1000 births)
	Major groups organizations consulted in national reports to the CSD (no.)	Population with access to sanitation: urban and rural (%)
		Water consumption (abstraction as a % of renewable supply)
		Biochemical oxygen demand (BOD) and dissolved oxygen (DO) in surface waters (mg/litre)
		Rate of urban population growth (%)

Source: WWF/NEF 1994 Paper 1 "Indicators for Action", p. 6

OECD Key Indicators of National Performance

G. Land, Desertification, Forests and Biodiversity	H. Atmosphere, Oceans and all kinds of Seas	I. Toxic Chemicals and Hazardous Wastes
Net rate of deforestation (%)	Fossil fuel emission: total and per capita (tonnes)	Hazardous waste and special waste generation per capita (tonnes)
Red data book species as proportion of total species (%)	Emissions of SO _x and NO _x total and per capita (tonnes)	Generation of municipal, industrial, nuclear wastes per capita (tonnes)
Protected areas (IUCN classes II-V) as proportion of total land areas (%)	Excedances of WHO air quality guidelines in major cities (% of days)	Imports and exports of hazardous wastes (tonnes)
Fish catch per available stock: marine and fresh-water (%)	Apparent consumption of CFCs: total and per capita (tonnes)	Recycling rates for paper and aluminium products (%) and glass recovery (%)
Net rate of soil erosion or % of solid degraded		
Fertilizer and pesticide use per Km ² of cultivated land (tonnes)		
Index of agricultural production per capita		
Energy intensity of agricultural production (MJ/\$US Agr GDP)		

Source: WWF/NEF 1994 Paper 1 "Indicators for Action", p. 7

WORLD WILDLIFE FOUNDATION AND THE NEW ECONOMICS FOUNDATION INDICATORS

- ⇒ COMPILED A LIST OF INDICATORS
NEEDING FURTHER DEVELOPMENT**
- **PROPERTY RIGHTS AND ACCESS TO
RESOURCES**
 - **INTERNALIZATION OF SOCIAL AND
ENVIRONMENTAL COSTS**
 - **DEMOCRACY AND PARTICIPATION ON
DECISION MAKING**
 - **INSTITUTIONAL CAPACITY**
 - **TECHNOLOGY TRANSFER**
 - **CONSUMPTION**
 - **ECOLOGICAL AND SOCIAL FOOTPRINTS**

Table of Sectoral Indicators: WWF/NEF

Energy	Transport	Shelter
Total primary energy supply (tonnes of oil equivalent)	Passenger cars (per 1000 people)	House-price-to-income ration
Energy intensity per unit of GDP (tonnes of oil equivalent)	Traffic volume (vehicle-km travelled by road)	Rent-to-income ratio
Consumption of fuel-wood: per capita (tonnes), as proportion of total energy consumption (%)	Road density (km per km ²)	Number of homeless or living in temporary accommodation (no.)
Volume of radioactive waste (tonnes)	Miles travelled by public transport as proportion of total miles travelled (%)	Median usable living space per capita (m ²)
Emissions per unit GDP and per capita (tonnes)	Proportion of transport plans put up for public inquiry (%)	Proportion of housing units with expected lifetime over 20 years (%)
Real end-use prices by fuel type (US\$)	Fuel price and taxation by fuel type (US\$)	Proportion of housing stock in compliance with existing regulations (%)
	Bicycles ownership per capita (no.)	
	Road traffic fatalities (no, per 1000 people)	
	Average fuel efficiency of new cars (km/l)	
	Proportion of public expenditure on public versus road transport (%)	

Source: WWF/NEF 1994, Paper 2 "Driving Forces: Sectorial Indicators", p. 4.

ISSUES

- ➡ **THE ESTABLISHMENT OF INDICATORS AND TARGETS AT THE NATIONAL LEVEL AGAINST WHICH ENVIRONMENTAL AND SUSTAINABLE DEVELOPMENT PERFORMANCE CAN BE MEASURED**
- ➡ **THERE IS A SHORTAGE OF INDICATORS DEALING WITH THE IMPACT OF SPECIFIC SECTORAL ACTIVITIES ON THE ENVIRONMENT AND SUSTAINABLE DEVELOPMENT**
- ➡ **THE INDICATORS IN COMMON USE PROVIDE ONLY PART OF THE PICTURE**
- ➡ **INDICATORS WHICH ARE DESIGNED TO PROVIDE A BROAD ASSESSMENT OF THE AGGREGATE IMPACT DO NOT READILY TRANSLATE INTO MEANINGFUL INFORMATION**

RECOMMENDATIONS TO COMMISSION ON SUSTAINABLE DEVELOPMENT - 1

- ⇒ ADOPT AT ITS 1994 SESSION A CORE SET OF INDICATORS...**
- ⇒ ESTABLISH A PROCESS TO REVIEW AND DEVELOP APPROPRIATE INDICATORS...**
- ⇒ DEFINE INTERNATIONAL POLICY TARGETS...**
- ⇒ HIGHLIGHT BEST PRACTICE IN THE ADOPTION OF NATIONAL LEVEL INDICATORS...**
- ⇒ FORMALLY RECOGNIZE THE NEED FOR SECTORAL INDICATORS AND TARGETS...**

RECOMMENDATIONS TO COMMISSION ON SUSTAINABLE DEVELOPMENT - 2

- ➡ SELECT A CORE SET OF INDICATORS...**
- ➡ ESTABLISH A PROCESS TO REVIEW AND DEVELOP KEY SECTORAL INDICATORS...**
- ➡ ENSURE THAT THE CHAPTER 40 REVIEW PROCESS COVERS INDICATORS...**
- ➡ EXTEND ITS SCOPE OF PRACTICAL RESEARCH AND CONSULTATION...**
- ➡ RECOMMEND THE DEVELOPMENT OF INDICATORS...**
- ➡ REVIEW THE EXTENT OF RELEVANT INDICATORS IN DECISION-MAKING...**

WOMEN, ENVIRONMENTAL AND SUSTAINABLE DEVELOPMENT INDICATORS - 1

- ➡ **NEED FOR GENDER-SENSITIVE INDICATORS HAS RECEIVED LITTLE ATTENTION**

- ➡ **NO ALLOWANCE FOR GENDER DISAGGREGATED DATA IN OECD SET OF INDICATORS OF NATIONAL PERFORMANCE OR IN WWF/NEF SECTORAL INDICATORS**

- ➡ **HUMAN DEVELOPMENT INDEX (HDI)**
 - **NO INDICATOR FRAMEWORK TO INCORPORATE SPECIFICALLY GENDER-SENSITIVE INDICATORS TO MEASURE:**
 - **LINKAGES BETWEEN WOMEN'S DOMESTIC AND UNPAID WORK TO ECONOMIC WELL-BEING (INCOME LEVELS, GDP);**

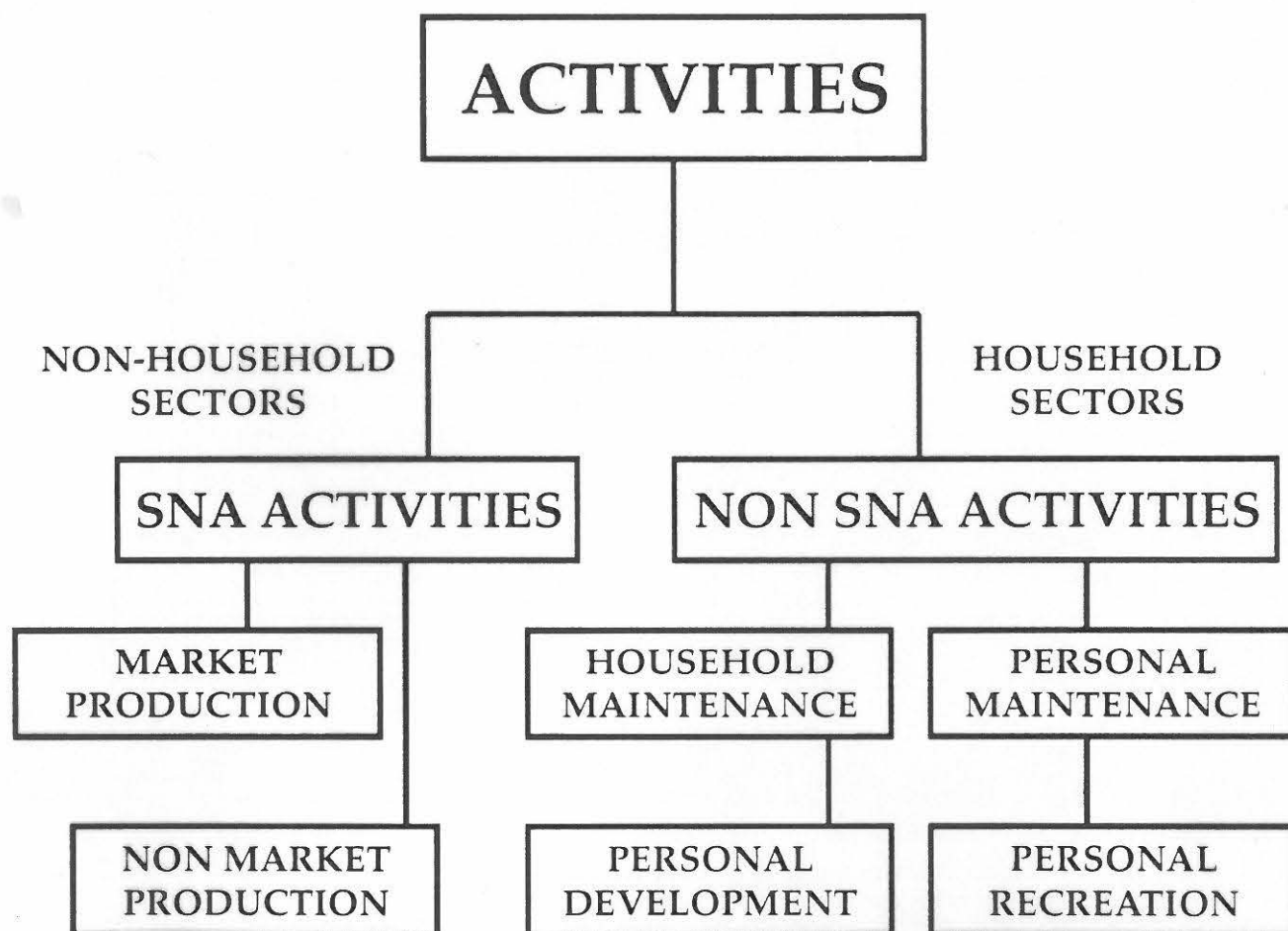
WOMEN, ENVIRONMENTAL AND SUSTAINABLE DEVELOPMENT INDICATORS - 2

- **WOMEN'S ACTIVITIES IN NATURAL RESOURCE MANAGEMENT AND ENVIRONMENTAL CONDITIONS;**
- **WOMEN'S HEALTH AND ECONOMIC PRODUCTIVITY;**
- **WOMEN'S ROLES IN REPRODUCTIVE AND ECONOMIC PRODUCTIVITY; AND**
- **WOMEN'S INPUT INTO DECISION-MAKING AND POLICY-MAKING PROCESSES AND ENVIRONMENTAL SUSTAINABILITY AS WELL AS OVERALL SUSTAINABLE DEVELOPMENT**

MAKING WOMEN VISIBLE

- ➔ **UN SYSTEM OF NATIONAL ACCOUNTS**
- ➔ **IF WOMEN COUNTED:**
 - **THE UN/SNA HAS (ALSO) DECIDED THAT CERTAIN AREAS OF HUMAN ACTIVITY LIE OUTSIDE OF WHAT IT CALLS THE PRODUCTIVE BOUNDARY. THESE AREAS ARE EXCLUDED FROM MEASUREMENT IN THE NATIONAL ACCOUNTS. GENERALLY, THE UN/SNA EXCLUDES HOUSEHOLD ACTIVITIES, THE PRODUCTS WHICH ARE "OBSERVED" AS SELDOM OR NEVER MARKETED. IN OTHER WORDS, THE SERVICE OF HOUSEWIVES AND OTHER FAMILY MEMBERS, HOUSEHOLD MAINTENANCE AND PRODUCTION, AND ILLEGAL TRANSACTIONS ARE ALL OUTSIDE OF THE UN/SNA'S PRODUCTION BOUNDARY (Waring 1988, p. 33)**
- ➔ **INSTRAW REPORT "MEASUREMENT AND VALIDATION OF UNPAID CONTRIBUTION: ACCOUNTING THROUGH TIME USE"**
- ➔ **GROWING CONCEPTUAL AWARENESS AND ACCEPTANCE THAT THERE ARE WORKABLE TECHNIQUES FOR CAPTURING RELEVANT DATA ON NON-MARKET ACTIVITY**
- ➔ **HOUSEHOLD SATELLITE ACCOUNT**
- ➔ **HOUSEHOLD SATELLITE ACCOUNT FRAMEWORK**

INSTRAW, TIME USE MEASUREMENT AND UNPAID WORK PROJECT SNA BASED ACTIVITY CLASSIFICATION FRAMEWORK



GUIDELINES FOR ACTION AT THE PROGRAMME AND PROJECT LEVELS 1

- ➡ **State the role and capacity of women in ESSD as a basis for allocating budgetary and human resources**
- ➡ **Women's traditional, professional knowledge and experience must be incorporated in all phases of project development**
- ➡ **A multisectoral and integrated approach to women's participation should be fully supported**
- ➡ **A consultative process with women at all stages of project cycle established**
- ➡ **Information and exchange network set up within UN System**
- ➡ **Women knowledge of database systems established at national, regional, international level**

GUIDELINES FOR ACTION AT THE PROGRAMME AND PROJECT LEVELS 2

- ⇒ Environmental Impact Assessments should be based on gender specific data**
- ⇒ Training and education must address women's roles and gender issues and include women participants**
- ⇒ "North" and "South" should make concerted efforts to reduce wasteful consumption of resources**
- ⇒ Support women's right to family planning**
- ⇒ Technological options that are environmentally clean and sound should be identified, introduced and promoted with the participation of women.**
- ⇒ Utilize the potential of women entrepreneurs in the management of programmes/projects**
- ⇒ Programme and guidelines should be action-oriented, allowing time for reflection, consultation, monitoring, evaluation, consolidation and diffusion of lessons learned**

WORKING GROUPS ON:

- ⇒ NATURAL RESOURCES**
- ⇒ POPULATION**
- ⇒ MANAGEMENT AND DECISION
MAKING**

WOMEN'S PARTICIPATION IN ALL STAGES OF PROJECT CYCLE

IDENTIFICATION

MONITORING AND EVALUATION

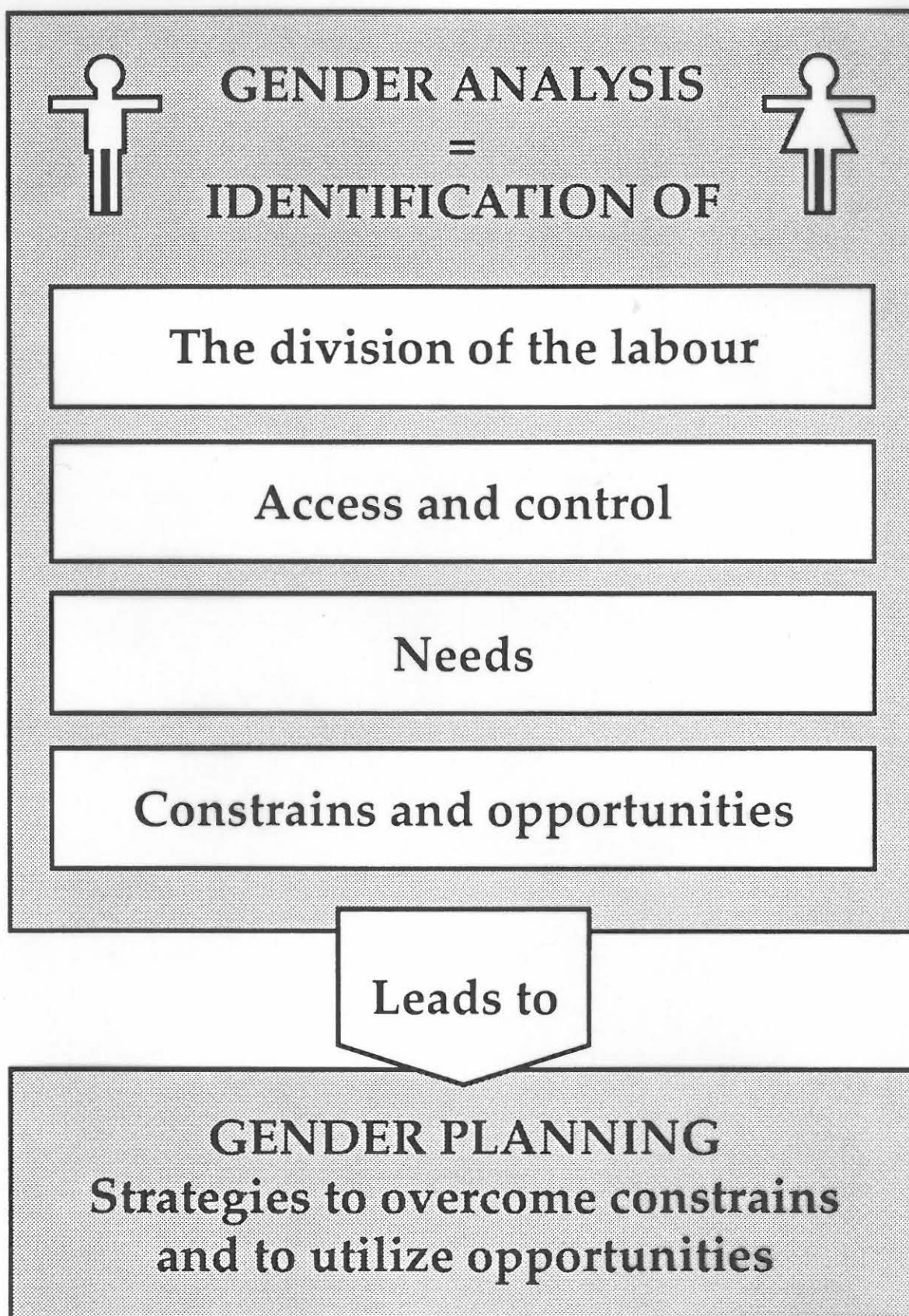
CONCEPTUALIZATION

OPERATION AND MAINTENANCE

PLANNING AND DESIGN

IMPLEMENTATION

From gender analysis to gender planning



Gender analysis

➤ Is a tool to identify

- What women do and why
- Who has access to and control over resources or benefits
- What needs men and women have and why
- Linkages of above factors with the larger social, economic, political and environmental context providing opportunity/constraints to ensure equality of opportunity

Gender planning

➤ Addressing participation patterns and assistance requirements of men and women at all steps of policy and programme development

CONSTRAINTS

- ⇒ ATTITUDES
- ⇒ TIME AND ENERGY
- ⇒ FINANCES

SKILLS AND TRAINING

CAPACITY BUILDING: A DEFINITION

- ➡ **CAPACITY BUILDING, WITHIN THE CONTEXT OF ENVIRONMENTAL MANAGEMENT AND SUSTAINABLE DEVELOPMENT, REFERS TO THE ABILITY OF PEOPLE AND INSTITUTIONS TO MANAGE NATURAL RESOURCES, TECHNOLOGY AND INVESTMENT WITHIN POTENTIALLY SOLVING DIFFICULT AND COMPLEX SITUATIONS. IT INVOLVES BOTH THE INSTITUTIONAL FRAMEWORK WHICH PROCESSES CAPACITY BUILDING PROGRAMMES AND POLICIES, AND THE DEVELOPMENT OF THE HUMAN RESOURCES TO DEFINE POLICIES, TO OPERATE INSTITUTIONS AND PROCESSES, TO IMPLEMENT AND ENFORCE POLICIES, TO CONDUCT RESEARCH, TO INTERNALISE AND USE THE KNOWLEDGE THUS GAINED, AND TO ENSURE GENUINE PUBLIC PARTICIPATION AND ACCOUNTABILITY THROUGHOUT**
- ➡ **MAKING CAPACITY BUILDING A REALITY**
- ➡ **AGENDA 21 THE FIRST INTERNATIONALLY CREATED FRAMEWORK**

AGENDA 21

- ⇒ **SOCIAL AND ECONOMIC DIMENSIONS**
- ⇒ **CONSERVATION AND MANAGEMENT OF RESOURCES**
- ⇒ **STRENGTHENING THE ROLE OF MAJOR GROUPS**
- ⇒ **MEANS AND IMPLEMENTATION**

AGENDA 21

- ⇒ SOCIAL AND ECONOMIC DIMENSIONS**
- ⇒ CONSERVATION AND MANAGEMENT OF RESOURCES**
- ⇒ STRENGTHENING THE ROLE OF MAJOR GROUPS**
- ⇒ MEANS AND IMPLEMENTATION**

CAPACITY 21

- ➡ MAJOR NEW INITIATIVE OF THE UNITED NATIONS
- ➡ OBJECTIVES OF CAPACITY 21:
- ➡ ASSIST COUNTRIES TO INCORPORATE THE PRINCIPLES OF SUSTAINABLE DEVELOPMENT INTO THEIR DEVELOPMENT PLANS AND PROGRAMMES
- ➡ ASSIST COUNTRIES TO INVOLVE ALL PEOPLE INTO DEVELOPMENT PLANNING AND ENVIRONMENTAL MANAGEMENT
- ➡ CREATE A BODY OF EXPERIENCE AND EXPERTISE IN SUSTAINABLE DEVELOPMENT AND CAPACITY BUILDING THAT WILL BE OF CONTINUED MATERIAL VALUE TO (AND INFLUENCE THE OPERATION OF) DEVELOPING COUNTRIES, UNDP, SPECIALIZED AGENCIES, NGOs AND OTHER DONORS
- ➡ CAPACITY 21 HELPED ESTABLISH PROGRAMMES IN DEVELOPING COUNTRIES

MANAGING CAPACITY 21



COMMISSION ON SUSTAINABLE DEVELOPMENT MANDATED TO:

- **SERVE AS POLICY ARENA FOR BUILDING AGREEMENT ON PRIORITIES FOR IMPLEMENTATION OF AGENDA 21**
- **HELP COORDINATE AND RATIONALIZE INTERGOVERNMENTAL PROGRAMMES ON ADVANCING SUSTAINABLE DEVELOPMENT**
- **DEVELOP REPORTING GUIDELINES FOR UN SYSTEM AGENCIES AND NATIONAL GOVERNMENTS**
- **PROMOTE THE REDIRECTION AND EXPANSION OF INTERNATIONAL FINANCE RESOURCES FOR AGENDA 21**
- **SET NEW STANDARDS FOR MEANINGFUL CONSULTATIVE RELATIONS**

HUMAN RESOURCES DEVELOPMENT

- ⇒ INTERNATIONALLY COORDINATED
FRAMEWORK FOR CAPACITY BUILDING:**
- **EDUCATION AND TRAINING**
 - **POPULAR PARTICIPATION**
 - **MONITORING CAPACITY BUILDING
PROGRAMMES**
 - **SHORT-TERM INDICATORS**
 - **LONG-TERM INDICATORS**

WOMEN AND CAPACITY BUILDING

⇒ NEED TO PROMOTE THE FULL, EQUAL AND BENEFICIAL PARTICIPATION OF WOMEN IN ALL DEVELOPMENT ACTIVITIES:

- **AGENDA 21: CHAPTER 8 INTEGRATING
ENVIRONMENT AND DEVELOPMENT IN
DECISION-MAKING**
- **ENSURING EQUAL OPPORTUNITIES FOR
WOMEN IN CAPACITY BUILDING**
- **CASE STUDY IN SENEGAL**
- **INSTRAW**