

# WOMEN AND WASTE MANAGEMENT

OCTOBER 1993

# TABLE OF CONTENTS

## ABOUT THIS MODULE

### SUBMODULE I

#### INTERNATIONAL COMMITMENT TO WOMEN IN DEVELOPMENT AND WASTE MANAGEMENT

- 1.1 A Gender Perspective in Development
- 1.2 Theoretical Approaches to Gender Development
- 1.3 International Commitment to Women in Development and Gender Equity
  - 1.3.1 The UN Decade for Women and the IDWSSD
  - 1.3.2 The New Delhi Statement
  - 1.3.3 The Dublin Statement
  - 1.3.4 Agenda 21

### SUBMODULE II

#### WOMEN, WASTE MANAGEMENT AND ENVIRONMENT

- 2.1 Introduction
- 2.2 Definition of Waste Management
  - 2.2.1 Sanitation
  - 2.2.2 Solid Waste Disposal
  - 2.2.3 Liquid Waste Disposal
  - 2.2.4 Gaseous Wastes
  - 2.2.5 Industrial Wastes
  - 2.2.6 Hazardous and Toxic Wastes
  - 2.2.7 Waste Reuse
- 2.3 Involvement of Women in Waste Management

### SUBMODULE III

#### WOMEN, WATER AND ENVIRONMENTAL SANITATION

- 3.1 Introduction
- 3.2 An Integrated Approach to Environmental Sanitation
  - 3.2.1 Disposal of Human Wastes
  - 3.2.2 Use and Protection of Water Sources
  - 3.2.3 Water and Personal Hygiene
  - 3.2.4 Food Hygiene
  - 3.2.5 Domestic and Environmental Hygiene
- 3.3 Women's Roles in Environmental Sanitation

# TABLE OF CONTENTS

## SUBMODULE IV

### LESSONS LEARNED FROM EXPERIENCES OF WOMEN IN PROGRAMMES AND PROJECTS

- 4.1 Introduction
- 4.2 Integration of Environmental Sanitation in Water Supply Projects
- 4.3 Integration of Women in Project Activities
  - 4.3.1 Adding Difficulties to Women's Lives
  - 4.3.2 Women and Volunteer Work
  - 4.3.3 The Role of Men
  - 4.3.4 The Role of Children
  - 4.3.5 Women's Status and Well Being
  - 4.3.6 Health Benefits are Sufficient
  - 4.3.7 Success of Hygiene Education

## SUBMODULE V

### WOMEN AND WASTE MANAGEMENT POLICIES, PROGRAMMES AND PROJECTS

- 5.1 Linking Women, Policies, Policies, Programmes and Project: Macro and Micro Considerations
- 5.2 Need to Establish Organizational and Institutional Arrangements to Facilitate Women's Integration
- 5.3 Need to Sensitize Decision Makers to Include Women in Development Projects and Programmes
- 5.4 Women and the Project Cycle: Information and Actions Needed for Effective Women's Participation
- 5.5 Integration of Women into Projects
  - 5.5.1 Constraints
  - 5.5.2 Opportunities and Positive Actions

## LIST OF CASE STUDIES

## CASE STUDIES

## SLIDE SOUND MODULES, FILMS, VIDEOS

## BIBLIOGRAPHY

## ABOUT THE MODULE

The overall objective of the module is to sensitize and make decision makers, government officials, external support agencies, trainers, engineers, and non-governmental organizations aware of the need to more fully involve women in every stage of the waste management process. The module discusses the principle gender related issues in waste management and emphasizes the linkages between women, water, hygiene, sanitation, waste management and the environment. The central role that women occupy in waste management is stressed together with the need to expand women's participation.

The module is a resource package designed to assist and guide trainers. As such it is structured to be as flexible and as adaptable as possible in order to allow trainers to present the material in the way that best suits the participants and the locale.

The resource package is also designed to be easily upgradeable. As new materials become available they can be included in the module. Additional case studies, particularly if they are from the areas where the training is taking place, new visuals and reference materials will help keep the module dynamic and prevent it from becoming time dated.

The module is divided into 5 submodules. The module can be presented in its totality or trainers may elect to use certain submodules. This will depend on the specific agenda of the training course and the themes trainers wish to emphasize.

Each submodule is designed to be presented in a two hour period. This includes an allowance for discussion, presentation of one or two case studies, etc. However, depending on trainer objectives, the submodule could be expanded in time through the use of visuals, discussions, exercises, etc. The objective in developing the submodules is to give trainers guidance as to the issues, themes and concepts but to leave maximum flexibility for the specific teaching approach and time period. Some trainers may find the case studies more appropriate, others the transparencies or the visuals.



## ABOUT THE MODULE

The themes for the submodules are:

- I International Commitment to Women in Development and Waste Management
- II Women, Waste Management and Environment
- III Women, Water and Environmental Sanitation
- IV Lessons Learned from Experiences of Women in Water, Sanitation and Waste Management
- V Women and Waste Management Policies, Programmes and Policies

Submodule I is an introductory module and aims to sensitize the participants on the conceptual and theoretical nature of women in development objectives, and emphasizes the international commitment to women in development. It is designed as an introductory submodule and can be presented in a shorter period than the other submodules; perhaps one hour.

Each submodule consists of:

- 1. Training material;
- 2. Transparencies; and
- 3. Questions for discussion (except Submodule I)

The training materials prepared for each submodule are primarily for the guidance of the trainers. However, trainers at their discretion may elect to make copies available for participants. The materials discuss the concepts and issues involved with each submodule and provide a framework upon which trainers can base their presentations.

The transparencies are derived from the training materials and are designed to assist the trainers in making presentations.

## ABOUT THE MODULE

The module is accompanied by 22 one-page case studies from around the developing world. The case studies cover a wide variety of topics. However, all are instances where women are the prime movers and initiators of projects and programmes. The case studies will provide the trainer with concrete examples to show how women's local knowledge and experience can be integrated into planning and implementing initiatives. Trainers can select case studies from regions or countries which are most appropriate to the participants. The case studies are success stories and illustrate how and what women have accomplished in the field of waste management. Transparencies are included which highlight the most important aspects of each case study.

The module includes an extensive bibliography which trainers or participants may wish to consult or obtain in order to develop a deeper appreciation of the topic.

The module is accompanied by a list of visuals. A great number of visuals, including films, videos, and slide sound shows are available for purchase or loan from various sources. These visuals provide additional resource material for the trainers to use to expand on a particular theme or to use as a focal point for discussion. For example, a slide sound show on technology selection, or a film on water and sanitation related diseases may be useful when exploring a theme more fully. Details are included as to where and how each visual may be obtained.

Included with submodules II, III, IV and V are a series of questions. These questions can be used by trainers to generate discussion about the concepts and issues presented. A prime objective of the questions is to encourage the participants to relate the contents of the submodules to their own country, job situation and experiences.

**SUBMODULE 1**

**INTERNATIONAL COMMITMENT TO WOMEN IN  
DEVELOPMENT AND WASTE MANAGEMENT**

## **TABLE OF CONTENTS**

### **Training Material**

- 1.1 A Gender Perspective in Development**
- 1.2 Theoretical Approaches to Gender Development**
  - \* Women's Triple Roles**
  - \* Practical and Strategic Gender Needs**
  - \* The Empowerment Approach**
  - \* WID, WAD, GAD**
  - \* Gender Development Principles**
- 1.3 International Commitment to Women in Development and Gender Equity**
  - 1.3.1 The UN Decade for Women and IDWSSD**
  - 1.3.2 The New Delhi Statement**
  - 1.3.3 The Dublin Statement**
  - 1.3.4 Agenda 21**

### **Transparencies**



---

## **1.1 A Gender Perspective in Development**

Women are one of the most poverty stricken, oppressed and disadvantaged of all groups. In the past women were often ignored and marginalized within the development process. However, development policies, programmes and projects have gradually recognized the necessity of integrating women more fully into the development process both for humanitarian reasons and for project sustainability. Women are increasingly being integrated not just as passive beneficiaries or as cheap sources of labour in top-down projects, but also as planners and decision makers in a participatory process of development.

A development perspective from the vantage point of women can be a powerful tool for examining the effects of development programmes for a number of reasons. First, if the goals of development include improved standards of living, alleviation of poverty, access to dignified employment, and reduction in societal inequality, then it is natural to start with women. They constitute the majority of the poor, the underemployed, and the economically and socially disadvantaged in most societies. Second, women's work, despite being underrenumerated and undervalued, is vital to the survival and ongoing reproduction of human beings in all societies. In food production and processing, in responsibility for fuel, water, health care, child-rearing, sanitation, and the entire range of so-called basic needs, women's labour is dominant. Thus if we are to understand the impact of development on these needs, the viewpoint of women as the principal producers and workers is an obvious starting point. The vantage point of poor women thus enables us not only to evaluate the extent to which development strategies benefit or harm the poorest and most oppressed sections of people, but also to judge their impact on a range of sectors and activities crucial to socio-economic development and human welfare.

## **1.2 Theoretical Approaches to Gender Development**

Theoretical approaches to gender development contain numerous perspectives which differ widely in their underlying assumptions about women and their relationship to men, the community and society, as well as in the types of strategies implemented at the project level. The following represents a brief summary of the many concepts which comprise the theoretical approaches to gender development.

---

Women's Triple Roles: Women's lives in developing countries are characterized by long, hard days, engaged in repetitive, poorly paid, and physically exhausting work. Women perform triple roles in their everyday existence. The reproductive role involves not just childbearing, but all of the associated care and maintenance of children and the family. Women also take on a productive role to provide income for their family, either as secondary or primary breadwinners. Women are also involved in community development and management work, taking responsibility for the provision of items for collective consumption.

Programmes need to recognize that women are severely constrained by the burden of simultaneously juggling all three roles on a daily basis. Programmes intending to help women but which add to the burdens of their already heavy workload undermine real development and do not address women's real needs.

Practical and Strategic Gender Needs: Practical gender needs are those which meet the immediate perceived necessities of women within a specific context. Strategic gender needs are those needs which are required to create a more equal organization of society and which challenge the nature of female-male relationships. While practical gender needs do not in themselves challenge unequal gender relations within society, they may be used in conjunction with an overall strategic gender needs policy to this effect. However to implement practical gender needs programmes in isolation of the overall goal of creating a more equal society is very difficult as such programmes do not empower women and can in fact work against the long term needs of women by overshadowing the necessity of making fundamental changes in the structure of patriarchal society.

The Empowerment Approach: There are many different approaches to Women in Development (WID) which have been formulated in response to changes in macro-level economic and social policy approaches to Third World development; from modernization policies, through the basic needs approach, to social programmes tacked onto structural adjustment policies. These approaches include the welfare, equity, anti-poverty, efficiency and empowerment approach. Of the five approaches, the empowerment and equity approaches are the only two which recognize the need for major structural change to occur before the position of women can be truly improved. Both approaches acknowledge the triple role burden of women, and the necessity of

72

working for the realization of long term strategic gender needs utilizing a variety of practical gender approaches, and short term strategies. While the equity approach has its genesis within a western feminist perspective, and advocates state, top-down intervention to reduce female-male inequities in social, economic and political spheres, the empowerment approach is grounded in the feminist writings and grassroots organization experience of Third World women and relies on the empowerment of women through bottom-up mobilization around practical gender needs. Both approaches fall outside of mainstream development theory and practice, are thought to be threatening, and are largely unsupported by governments and agencies alike.

WID, WAD, GAD: There are three distinct gender development perspectives; WID (Women in Development), WAD (Women and Development), and GAD (Gender and Development). WID refers to the process whereby women are integrated into mainstream, development thinking and projects which are based on the modernization paradigm that with increased economic growth, development would trickle down to all segments of society. The WID perspective places primary emphasis on egalitarianism and on the development of strategies and actions which will minimize the disadvantages of women in the productive sector. It does not question the acceptability of the existing unequal social/gender structure and focuses solely on how women can be better integrated into ongoing development initiatives. WID programmes typically focus on income generating projects, with the assumption that greater access to income and skills will allow women to become more equal to men. Women's reproductive roles are not taken into account and women trying to participate in WID programme activities frequently experience stress while trying to manage their already overburdened schedule.

The WAD approach is grounded in a combination of neo-Marxist, feminist and dependency theory and begins from the assumption that women's position in society will not improve until oppressive global political and economic structures become more equitable for women and men alike. The WAD approach argues that women have always been a central part of development processes, but to integrate women into a structure which holds women and men alike in conditions of inequality will not solve the problems of poverty and women's oppression.

GAD finds its theoretical roots in socialist feminism and links women's productive and

reproductive capabilities. Socialist feminism questions the validity of the sexual division of labour and why women have been systematically assigned inferior and/or secondary roles. Unlike the WAD and WID approaches, the GAD approach does not focus singularly on women but rather on the social construction of gender and the assignment of specific roles, responsibilities and expectations on women and men. The GAD approach welcomes the potential contribution of men who share concerns for issues of equality and social justice and that women and men need to work together to fundamentally change power structures.

The majority of mainstream development programmes have strategized for the equality of women from a WID or WAD perspective, and rarely from a GAD perspective. Development programmes have sought to solve identified problems for women by applying a specific intervention strategy such as appropriate technology, family planning, or credit and extension services. However, no programmes have questioned the fundamental inequalities of an international system that perpetuates dependency of the South on the North, or of the social construction of gender that subordinates women to men. Projects formulated from a GAD perspective would be designed to empower women and to give them an equal voice by recognizing the full spectrum of their knowledge, experience and activities, including both productive and reproductive labour. They would question traditional views of gender roles and examine how the sexual division and responsibility of labour places both physical and psychological stress on women.

Gender Development Principles: A number of principles characterize the theoretical approaches to gender development. These include:

A focus on women alone is not sufficient. Instead, it is crucial to take on a holistic approach where the relationship between women and men becomes the focus, and where women's and men's roles are seen to be traditionally defined and not immutable. The gender perspective thus sees that traditional attitudes must change so that the responsibilities and burdens of family maintenance are shared more equally between women and men. The value of women's work must also be recognized.

Society is constructed from unequal economic, politic, social and gender structures. Fundamental changes to these structures are required if equality for women and all



peoples is to be achieved.

Existing development processes have not been used to effect fundamental change in society. However, development processes developed within a CAD or empowerment approach can be used to work towards women's equality.

Development processes which maintain the status quo will not only perpetuate women's subordination, but will further reduce women's access and control over resources, opportunities and income.

The effectiveness of traditional development approaches to "integrate women into development" is challenged. Including women into a process which is inherently unequal does not address why women are in a subordinate position in the first place.

Strategies to meet short-term/practical gender needs can be used as an entry point to meet long-term/strategic gender needs. Planners must have an understanding of global feminist goals and be aware of whether their programmes and policies are inhibiting or encouraging these goals.

Women's knowledge and experience need to be legitimized, documented and translated into a language that development planners and practitioners can no longer ignore and marginalize. Women's knowledge, views and experience must become an important component of national decision making processes.

Gender initiatives which take on a strongly feminist orientation are often considered too threatening by state and development agencies. They are criticized as being "exported Western feminism" and as an unacceptable interference into domestic and cultural sovereignty. These agencies must be made aware that Third World women have long organized around issues within a feminist consciousness. They must also be made aware that the activation of women's organizations is key to the potential betterment of all the poor, for women and men alike. Thus women must be given the opportunity to gain access to and control over the resources and decisions which affect their lives. The creation of a truly equal society benefits all.

---

### 1.3 International Commitment to Women in Development and Gender Equity

#### 1.3.1 The United Nations Decade for Women and the IDWSSD

The International Women's Year (1975) was devoted to intensified action to promote equality between women and men, to ensure the full integration of women in the total development effort and to increase women's contribution to the strengthening of world peace.

The General Assembly of the UN proclaimed 1975-1985 the United Nations Decade for Women. The agenda for the Decade was centred on equality, women's rights, development, the alleviation of poverty and peace. The UN World Conferences at Mexico (1975), Copenhagen (1980), and Nairobi (1985) consolidated the growing awareness of the importance and centrality of women in the development process into concrete statements, policies and strategies.

The *Nairobi Looking Forward Strategy for the Advancement of Women* sets forth the measures needed to overcome the obstacles to the Decade's goals and objectives for the advancement of women to the year 2000 and reaffirms the commitment by the international community to the advancement of women and the elimination of gender-based discrimination. The strategy provides a conceptual foundation for the need for women's equality and outlines strategies and measures needed in the education, food and agriculture, water, industry, and employment sectors in order to effect the changes necessary to promote sustainable development.

During the Women's Decade, attention was given to the serious conditions of work, exhaustion and physical injury women were experiencing due to their responsibility for the collection of domestic water supplies. Research on women's health uncovered the serious physical injuries women were experiencing as a result of their role in water collection. Women were being disfigured from carrying heavy loads of water, they were experiencing severe energy drain and chronic fatigue from the long hours spent in collecting water from distant sources, and pregnant women were in grave danger of miscarriages due to heavy loads and fatigue.

The Plan of Action of the UN Conference on Women in Mexico (1975) states:

Improved, easily accessible, safe water supplies (including wells, dams catchments, piping, etc.) sewage disposal and other sanitation measures should be provided both to improve health conditions of families and to reduce the burden of carrying water which falls mainly on women and children.

At the UN Habitat Conference in 1976, participants of a Water Day Symposium raised global consciousness to the situation of women and water. The Action Plan of the Mar del Plata Conference (1977) which laid the ground work for the International Drinking Water Supply and Sanitation Decade (1981-1990), stated that special emphasis needed to be given to the situation and role of women.

Thus activities in the Women's Decade laid the foundations for the strong ties that women and water were to receive in the IDWSSD and linked women's needs and interest in safer and more convenient water supplies with the objective of the Water Decade.

During the earlier part of the Water Decade, however, the concept of women's participation was met with resistance. Women were considered to be the passive beneficiaries of improved services. Presently, however, water projects and women are synonymous. The importance of involving women is accepted at the highest levels of government and by all international agencies working in the water sector.

The IDWSSD offered an opportunity for planners and policy makers to involve women in reaching their own goals and at the same time show the importance of having women as an integral part of the human resource base needed to increase coverage of sustainable systems and to participate in the development process. The *Nairobi Looking Forward Strategies for the Advancement of Women* builds on the concept that without women, IDWSSD objectives would not be reached. In the Strategy it is written:

- \* Governments should integrate women in the formulation of policies, programmes and projects for the provision of basic shelter and infrastructure.
- \* Women and women's groups should be participants in and equal beneficiaries of housing and infrastructure construction projects. They should be consulted in the choice and design of technology construction and should be involved in the management and maintenance of facilities. Special attention must be given to the provision of adequate water to all communities, in consultation with women.
- \* Efforts to improve sanitary conditions, including drinking water supplies, in all communities should be strengthened, especially in urban slums and squatter settlements and in rural areas, with due regard to relevant environmental factors. These efforts should be extended with the participation of women at all levels of the planning and implementation process.

The promotion of the need to involve women in water supply and sanitation projects was greatly facilitated by the UNDP Promotion of the Role of Women in Water and Environmental Sanitation Services (PROWWESS) which was established to provide information and demonstrate how women could be involved in community participation and why such participation made a difference. Their publications, have resulted in the dissemination of much needed know how in regards to gaining more effective women's participation in water supply and sanitation projects.

INSTRAW has been an important part of the international effort to strengthen the connection between women, water supply, sanitation and waste management. INSTRAW has been involved in three fields - research, training and information - in order to raise global awareness of the importance of involving women fully into water supply, sanitation and waste management activities. INSTRAW has sponsored numerous seminars, meetings and training workshops and has published several books and articles in an effort to disseminate much needed information. INSTRAW has produced a multi-media modular training package on women, water supply and sanitation and sponsored several training workshops (Thailand, The Gambia, Ethiopia,



Sudan, Kenya, and Somalia) which have provided a valuable forum for local, regional, national and international organizations and agencies to share experiences and begin to collaborate on the most appropriate strategies for ensuring that women take on a central role in water supply, sanitation and waste management projects.

### 1.3.2 The New Delhi Statement

The New Delhi Global Consultation confirmed renewed support of the objectives of the Water Decade. The need to more fully integrate women into water supply and sanitation programmes was strongly emphasized in the Statement in the second and third principles on people and institutions and community management. In emphasizing the need for strong institutions and well trained human resources to ensure sound management of the environment, it is written that:

Women must be trained and guaranteed equal employment opportunities at all levels of staff and management. Community management is seen to be the key for sustaining services for the rural poor and poor urban settlements. Communities should have prominent roles in planning, resource mobilization and all subsequent aspects of development and within these strategies, women should be encouraged to play influential roles in both water management and hygiene education.

### 1.3.3 The Dublin Statement

From January 26 - 31, 1992, 500 participants attended the International Conference on Water and Environment (ICWE) in Dublin, Ireland. The Conference participants saw the emerging global water resources picture as critical and called for fundamental new approaches to the assessment, development and management of freshwater resources. In its closing session, the Conference adopted the Dublin Statement on Water and Sustainable Development and commended it to the world leaders assembled in Rio de Janeiro in June 1992.

The third governing principle of the Dublin Statement states:

Women play a central part in the provision, management and safeguarding of water. This pivotal role of women as providers and users of water and guardians of the living environment has seldom been reflected in institutional arrangements for the development and management of water resources. Acceptance and implementation of this principle requires positive policies to address women's specific needs and to equip and empower women to participate at all levels in water resources programmes, including decision-making and implementation, in ways defined by them.

#### 1.3.4 Agenda 21

Agenda 21 which comes out of the United Nations Conference on Environment and Development (UNCED), June 1993, is the strongest statement yet for the need to involve women in environmental issues. The critical roles that women play in environmental issues and the need for full women's participation in national and international ecosystem management and control of environmental degradation is emphasized.

Principle 20 of the Rio Declaration states:

Women have a vital role in environmental management and development. Their full participation is therefore essential to achieving sustainable development.

Most of the activities endorsed at Rio are to be implemented at the national level but several call for action at the international and regional levels.

---

Agenda 21 proposes the following environment and gender related objectives for national governments:

- (a) To implement the Nairobi Looking Forward Strategies for the Advancement of Women, particularly with regard to women's participation in national ecosystem management and control of environmental degradation.
- (b) To increase the proportion of women decision makers, planners, technical advisers, managers and extension workers in environment and development fields.
- (c) To consider developing and issuing by the year 2000 a strategy of changes necessary to eliminate constitutional, legal, administrative, cultural, behavioural, social and economic obstacles to women's full participation in sustainable development and in public life.
- (d) State parties to the Convention on the Elimination of All Forms of Discrimination Against Women should be reviewed and suggest amendments to it by the year 2000, with a view to strengthening those elements of the Convention related to environment and development giving special attention to the issues of access and entitlement to natural resources, technology, creative linking facilities and low cost housing, and the control of pollution and toxicity in the home and the workplace.
- (e) Countries should take urgent measures to avert the ongoing rapid environmental and economic degradation in developing countries that generally affects the lives of women and children in rural areas suffering drought, desertification and deforestation, armed hostilities, national disasters, toxic waste and the aftermath of the use of unsuitable agro-chemical products. In order to reach these goals, women should be fully involved in decision making and in the implementation of sustainable development activities.
- (f) Countries should develop gender-sensitive databases, information systems and participatory action-orientated research and policy analysis with the collaboration of academic institutions and local women researchers on:

1. The impact on women of environmental degradation, particularly drought,

- desertification, toxic chemicals and armed hostilities.
2. Knowledge and experience on the part of women of the management and conservation of natural resources for incorporation in the databases and information systems for sustainable development.
  3. Analysis of the structural linkages between gender relations, environment and development.
  4. Measures to develop and include environmental social and gender impact analysis as an essential step in the development and monitoring of programmes and policies.

(g) To design, implement and evaluate projects and programmes that are both economically efficient and socially appropriate within clearly defined strategies based on an approach to full public participation including that of women, indigenous people, and local communities in water management policy making and decision making.

(h) Establishing and strengthening education and training programmes on water related topics within an environmental and developmental context for all categories of staff involved in water resources assessment activities, using advanced education technology, where appropriate and involving both women and men.

Chapters 19, 20 and 21 of Agenda 21 particularly focus on waste management.

Chapter 19, Environmentally Sound Management of Toxic Chemicals Including Prevention of Illegal Traffic in Toxic and Dangerous Products recommends:

International organizations, with the participation of government and non-government organization should launch training and education programmes involving women and children, who are at greatest risk in order to enable countries and particularly developing countries, to make maximum national use of international assessments of chemical risks.

Chapter 20 on Environmentally Sound Management of Hazardous Wastes Including Prevention of Illegal International Traffic in Hazardous Wastes includes a number of



articles which specifically single out women. It recommends for example that:

Governments, in collaboration with international organizations, should conduct research in the health effects of hazardous wastes in developing countries including the long term effects on children and women.

Chapter 21 deals with the environmentally sound management of solid wastes and sewage related issues and recommends specifically that countries should launch campaigns to encourage active community participation involving women's and youth groups in the management of waste, particularly household waste.

## A GENDER PERSPECTIVE

- WOMEN ARE ONE OF THE MOST SOCIALLY, ECONOMICALLY, POLITICALLY, AND LEGALLY DISADVANTAGED GROUPS.
- WOMEN'S WORK IS VITAL FOR THE SURVIVAL OF HUMAN KIND.
- IN FOOD PRODUCTION, HEALTH CARE, CHILD REARING, HOUSEHOLD SANITATION, WASTE DISPOSAL AND WATER, WOMEN'S ROLE IS DOMINANT.
- IT IS ESSENTIAL TO LOOK AT DEVELOPMENT FROM WOMEN'S VIEWPOINT.

## THEORETICAL APPROACHES TO GENDER

- WOMEN TRIPLE ROLES
- PRACTICAL GENDER NEEDS
- STRATEGIC GENDER NEEDS
- THE EMPOWERMENT APPROACH.
- WID, WAD, GAD.

## GENDER DEVELOPMENT PRINCIPLES

- THE RELATIONSHIP BETWEEN WOMEN AND MEN IS KEY IN DETERMINING WOMEN'S RELATIVE POWER TO MEN.
- SOCIETY IS CONSTRUCTED FROM UNEQUAL ECONOMIC, POLITICAL, SOCIAL AND GENDER STRUCTURES.
- DEVELOPMENT PROCESSES WHICH MAINTAIN THE STATUS QUO WILL PERPETUATE WOMEN'S INEQUALITY.
- PROJECT PLANNERS NEED TO BECOME AWARE OF HOW THEIR PROGRAMMES ARE AFFECTING WOMEN'S POSITION IN SOCIETY.
- WOMEN AND WOMEN'S GROUPS AT THE GRASSROOTS LEVEL NEED TO BE SUPPORTED TO WORK FOR THE BETTERMENT OF ALL PEOPLE.

## INTERNATIONAL COMMITMENT TO GENDER EQUITY

- UN DECADE FOR WOMEN
- UN CONFERENCES ON WOMEN IN MEXICO,  
COPENHAGEN AND NAIROBI
- NAIROBI LOOKING FORWARD STRATEGY FOR THE  
ADVANCEMENT OF WOMEN
- THE IDWSSD
- PROWESS
- INSTRAW

## INTERNATIONAL STATEMENTS

- NEW DELHI STATEMENT
- DUBLIN STATEMENT
- AGENDA 21



### SOME KEY STATEMENTS FROM AGENDA 21

- INCREASE THE PROPORTION OF WOMEN DECISION MAKERS, PLANNERS, TECHNICAL ADVISORS, MANAGERS AND EXTENSION WORKERS.
- DEVELOP LOCAL GENDER-SENSITIVE DATABASES, INFORMATION SYSTEMS AND PARTICIPATORY ACTION-ORIENTED RESEARCH AND POLICY ANALYSIS.
- CONSIDER DEVELOPING AND ISSUING BY THE YEAR 2000 A STRATEGY OF CHANGES NECESSARY TO ELIMINATE CONSTITUTIONAL, LEGAL, ADMINISTRATIVE, CULTURAL, BEHAVIOURAL, SOCIAL AND ECONOMIC OBSTACLES TO WOMEN'S FULL PARTICIPATION IN SUSTAINABLE DEVELOPMENT AND PUBLIC LIFE.

SUBMODULE 11

WOMEN, WASTE MANAGEMENT AND  
ENVIRONMENT

## TABLE OF CONTENTS

### Training Material

#### 2.1 Introduction

#### 2.2 Definition of Waste Management

##### 2.2.1 Sanitation

##### 2.2.2 Solid Waste Disposal

##### 2.2.3 Gaseous Wastes

##### 2.2.4 Liquid Waste Disposal

##### 2.2.5 Industrial Wastes

##### 2.2.6 Hazardous and Toxic Wastes

##### 2.2.7 Waste Reuse

#### 2.3 Involvement of Women in Waste Management

### Questions for Discussion

### Transparencies

---

## 2.1 Introduction

The population of the planet is increasing explosively. World population since 1950 has more than doubled and is now increasing at the rate of 91 million per year. This increase in population is stressing the planets resources for food, water, energy sources and various forms of manufactured goods. The exploitation of our water sources, forests land and minerals to produce goods we need unfortunately results in waste products. Even humans and animals generate waste products when converting food and water to energy.

Waste products are accumulating at an accelerating rate and seriously degrading the environment. Much of this degradation could be retarded or even reversed through better management of our resources exploitation. However, at present, this is not happening or is occurring at an imperceptible rate.

The wastes which we generate must be disposed of safely. If not they pollute the environment and may destroy the very resource base which is needed to support human activity.

Acid rain, depletion of the ozone layer, global warming, pollution of surface and groundwater sources, desertification and species extinction are some examples of environmental deterioration at the macro level.

At the micro level, the problem is just as acute. As the number of people increases and greater congestion occurs, household, human and animal wastes need to be disposed of safely to protect the local environment of families and communities. The consequences of not disposing of these wastes safely can be just as devastating as pollution at the macro level. The accumulation of these wastes facilitates the transmission of life threatening diseases and creates environments which can lead to epidemics and pandemic.

A basic requirement for human survival is the safe disposal of human wastes.

Sometimes the method of disposal of wastes is also life threatening. In many areas of the developing world, burning of garbage is prevalent. However, a recent World Health Organization study has pointed out that acute respiratory diseases resulting mainly from smoke inhalation is a more serious cause of infant mortality than diarrhoeal

disease.

Human and other wastes, if not disposed of safely often find their way into water sources, thus perpetuating and intensifying the cycle of disease transmission.

Waste disposal and environmental degradation are closely interlinked. The Rio Declaration and Agenda 21 recognizes the relationship between resource exploitation, waste disposal and the environment and proposes a comprehensive set of activities to attempt to halt environmental deterioration.

The Rio Declaration and Agenda 21 as discussed in submodule I also recognizes that women have a vital and central role to play in environmental management and development and their full participation is essential in achieving sustainable development.

Women as the family member most concerned with child raising, care giving and safeguarding of the health of the family have a central and pivotal role to play in protecting the local family environment.

At the global level women, because of their concern for their children's future have a special interest in improving the global environment and retarding degradation.

This submodule focuses on defining and describing waste management and the constraints and opportunities for women's involvement.

A number of case studies are included which detail the important contributions that women have made to waste management. These can serve as guidelines for planning future initiatives.

## 2.2 Definition of Waste Management

Waste management is an all embracing term and covers the management of all forms of waste produced by human activity. As such it includes household wastes, agricultural wastes and industrial and commercial wastes. It is important to appreciate the comprehensive nature of waste management as all forms of waste, if not disposed of correctly can lead to environmental pollution and degradation and contribute to increased health risks.

Waste management refers to the process by which wastes are disposed of safely or are transformed into new products for reuse. In both cases, proper waste management involves rendering the wastes harmless and disposing of them in such a way that they do not cause environmental damage now or in the future.

Waste management and the waste management process can be divided as follows:

1. Sanitation
2. Solid Waste Disposal
3. Liquid Waste Disposal (greywater)
4. Caseous Wastes
5. Industrial Wastes
6. Hazardous and Toxic Wastes
7. Waste Reuse: composting, biogas production, aquaculture and recycling.

The term environmental sanitation is used to refer to those aspects of waste which directly affects human health and disease transmission. Environmental sanitation therefore includes the disposal of human wastes (sanitation), disposal of animal wastes, disposal of gaseous wastes, the disposal of liquid household wastes (greywater) and the disposal of household solid wastes. The improper disposal of these forms of waste can promote the transmission of the various water and sanitation-related diseases which account for 80% of the diseases encountered in the developing world.

#### 2.2.1 Sanitation

Many of the diseases which affect the population of the developing world are transmitted through human wastes. The pathogens are passed in the urine or faeces of infected persons and if not safely disposed of may infect another person and spread the disease. The transmission routes are many and varied. Table 2.1 presents a classification of the major water and sanitation-related diseases. It divides the diseases by the mode of transmission ie whether faecal-oral, by insect vectors, or by water and identifies the pathogenic agent.

The faecal pollution of water sources which are used for drinking is a major transmission route for diseases, such as diarrhoeal diseases, enteric fevers and others. Other diseases such as schistosomiasis and guinea worm are spread as a result of infected excreta entering water bodies but in both cases the transmission cycle



Category	Infection	Pathogenic Agent
1. Faecal-oral (water-borne or water-washed)	Diarrhoeas and dysenteries	
	Amoebic dysentery	P
	Balantidiasis	P
	Campylobacter enteritis	B
	Cholera	B
	E. Coli diarrhoea	B
	Giardiasis	P
	Rotavirus diarrhoea	V
	Salmonellosis	B
	Shigellosis (bacillary dysentery)	B
	Yersiniosis	B
	Enteric fevers	
	Typhoid	B
	Paratyphoid	B
	Polioomyelitis	V
	Hepatitis A	V
	Leptospirosis	S
	Ascariasis	H
	Trichuriasis	H
2. Water-washed:		
(a) skin and eye infections	Infectious skin diseases	M
	Infectious eye diseases	M
(b) other	Louse-borne typhus	R
	Louse-borne relapsing fever	S
3. Water-based:		
(a) penetrating skin	Schistosomiasis	H
(b) ingested	Guinea worm	H
	Clonorchiasis	H
	Diphyllobothriasis	H
	Fasciolopsiasis	H
	Paragonimiasis	H
	Others	H
4. Water-related insect vector		
(a) biting near water	Sleeping sickness	P
(b) breeding in water	Filariasis	H
	Malaria	P
	River blindness	H
	Mosquito-borne viruses	
	Yellow fever	V
	Dengue	V
	Others	V
B = Bacterium    R = Rickettsia    H = Helminth    P = Protozoan    S = Spirochaete V = Virus        M = Miscellaneous		

Table 2.1 Classification of Water-Related Infections Source: Calvercross & Feachem 1983

requires an intermediate aquatic host.

People coming in contact with faecally contaminated soil and vegetables may also become infected with faecal-oral diseases.

The proper and safe disposal of human wastes is essential if the transmission routes of the diseases are to be broken. The wastes must be rendered harmless. There are many different forms of sanitation technology in practice in the world today. These range from high technology water borne piped sewerage with treatment plants, through septic tanks and soakaways, to small bore sewers, to the modest and low cost pit latrine. All of these technologies if properly engineered and constructed are effective in properly disposing of human wastes. A well designed pit latrine such as the VIP or pour flush can dispose of excreta as safely and effectively as a sophisticated pipe borne system.

In selecting a sanitation technology in a community the key requirement is that the technology must be socially and culturally acceptable and affordable by the community. Affordability will include consideration for the long term operation and maintenance of the system.

In poor rural communities or in peri-urban squatter settlements, the inhabitants may elect for the simple pit latrine as the affordable and most appropriate sanitation solution while in wealthier urban areas, septic tanks with soakaways or full water borne piped sewerage may be the community's choice.

A case study accompanying this module describes a very successful sanitation programme initiated by a group of women in Botswana to control diarrhoeal disease in the Kgalagadi district.

### 2.2.2            Solid Waste Disposal

Solid wastes include household garbage and other materials discarded by people. If solid waste is not disposed of properly it rots and decays in situ and becomes a breeding ground for disease. Flies are attracted to the decaying wastes and are primary agents in spreading disease. The solid wastes residues may also contaminate water sources and contribute in this way to disease transmission. The hygienic disposal of solid wastes in properly planned and constructed sites is a key requirement for

environmental protection.

The construction of landfill sites are the primary method of solid waste disposal in both developing and developed countries. If properly planned, sited and managed they are an effective and appropriate means of solid waste disposal. Several of the case studies accompanying this module describe how women have successfully implemented programmes to dispose of solid wastes.

The case study from Nepal describes how a local Nepalese women's organization Women in the Environment (WE) initiated an innovative programme to dispose of solid wastes in the squatter settlements at Balaju.

On a larger scale, the case study from Taiwan describes how the women's organization Homemakers' Union and Foundation (HUF), a group with over a thousand members, initiated a programme to reduce and recycle solid wastes.

### 2.2.3            Liquid Waste Disposal

Households generate considerable volumes of wastewater (greywater). If the household is connected to a sewer system, then these liquid wastes are disposed of properly. However, in many parts of the world, families do not have pipe borne sewerage and the greywater is simply discarded on the ground outside of the house. In some instances, if the volumes are small it is safely absorbed. However, in other cases, the greywater collects in ponds and becomes a breeding site for insect vectors of diseases such as filariasis. These polluted ponds are a major health hazard and need to be eliminated in an effective waste management process.

A common problem in developing countries is that sometimes an improved water supply is made available to a household but no concomitant improvement is made in waste water disposal. The provision of readily available water may substantially increase the per capita use of water and result in a major increase in the volume of greywater generated. Previously when the per capita use of water was low, the liquid wastes may have been absorbed by the soil or may have been used to water gardens. Planners and communities, when implementing a programme to increase water supply, must make provision for the disposal of the increased volumes of greywater which will be generated.

---

#### 2.2.4 Gaseous Wastes

In addition to polluting water bodies and the land, human beings also pollute the atmosphere. This pollution results in serious environmental degradation and health risks.

Pollution of the air occurs both at the macro and micro level. At the macro level, human activity produces gaseous wastes which are spewed into the atmosphere. Air pollution from coal fired and to a lesser extent oil fired power stations are major emitters of toxic oxides of sulfur and nitrogen. The toxic gases are converted to sulfuric and nitric acid which give rise to acidic precipitation far from the emission points. As a result, water in streams and lakes have become acidified in large areas of the northern hemisphere and poorly buffered soils have been chemically altered with adverse consequences to vegetation. Acid rain and the resulting forest dieback is a serious problem in parts of Europe.

Another serious cause of air pollution is from automobile emissions. These have increased the carbon dioxide content of the air, thus contributing to global warming as well as putting other toxic gases (sulfur and nitrogen oxides) into the atmosphere which causes respiratory health problems. One of the videos included in the list of visuals at the end of the module describes the shocking results of air pollution in Mexico City.

At the micro level, the burning of wood and animal wastes to provide heat and energy in poorly ventilated households produces gases which cause acute respiratory diseases especially in women and children. A recent WHO report documents respiratory diseases associated with smoke filled dwellings as a larger killer of children than diarrhoeal diseases.

Waste management and health initiatives at the household level need to include provision for tackling gaseous wastes and household air pollution. More efficient stoves, improved combustion of the wood and organic wastes and better ventilation should be objectives of the project or programme.

#### 2.2.5 Industrial Wastes

As by-products of industrial and commercial activity, a number of dangerous wastes

are produced. The safe disposal of these materials is a serious concern. Governments throughout the world have instituted to varying degrees, stringent laws regarding the disposal of hazardous wastes. In the developed world the laws have become more and more stringent and rigorously enforced. The concept that the polluter pays is now firmly entrenched. Unfortunately in the developing world the disposal of industrial wastes is not so strictly controlled. Governments in developing countries, in their efforts to stimulate industrial growth may take a relaxed attitude to the environmental and other impacts of industrial wastes. They are often placed in the unenviable position of having to choose between investments which will further their country's development or enforcing firm environmental protection measures which will lead to potential investors going elsewhere.

Women, particularly poor women in urban and peri-urban areas are affected by the improper disposal of industrial wastes. Liquid wastes, often toxic, are discharged into water courses where they contaminate water which may be the only source of supply for households. Solid industrial wastes, again toxic or dangerous, are dumped into garbage dumps. Here women and children who scavenge these dumps to earn a living come into contact with them. As squatter settlements grow in the cities of the developing world and as governments encourage industrial activity, the problem becomes more and more acute. Stringent legislation controlling the disposal of industrial and commercial wastes needs to be enacted and rigorously enforced.

#### 2.2.6 Hazardous and Toxic Wastes

Another area of concern is the disposal of toxic wastes and their accumulations in the environment. Pesticides, insecticides and fertilizers which are used in agriculture often leave residues which are toxic and represent health risks. In addition, the improper application of these products and their handling is a major health risk. Toxic residues find their way into the environment and contaminate the soil, water and air. Any waste management plan must include provisions to monitor, control and safeguard people and the environment from toxic wastes and residues.

A case study from Naugatuck, Connecticut accompanying this module describes how a group of concerned women through legal action extending over several years forced the cleanup of a landfill site from which toxic chemicals and leachate were flowing out and contaminating local surface and groundwaters.

A specific form of wastes which poses a severe threat to the environment and to human health are the hazardous wastes resulting from military weapons production and nuclear activity. In addition, with the end of the Cold War and the various disarmament agreements, other dangerous materials now need to be disposed of. These include nuclear wastes and chemical and biological weapons. The safe disposal of these wastes is not easy and governments are working to develop safe and adequate disposal technologies including deep burial or incinerators. Attempts have been made to simply dump these wastes in remote areas of the world. This form of uncontrolled disposal represents a serious health and environmental risk.

A case study accompanying this module describes how a local women's organization NARIPOKKA in Bangladesh successfully campaigned against and resisted attempts by a ship originating in the United States to dump nuclear wastes and toxic materials in the Bay of Bengal. One of the videos listed in the visual materials describes the dumping of nuclear wastes in the Irish Sea.

### 2.2.7      Waste Reuse

As the pressure on resources increases with population growth, it has become an urgent priority in waste management to reuse to the greatest degree possible, discarded material. Waste reuse is an effective way to dispose of refuse and protect the environment as well as conserving global resources.

A key consideration in any form of reuse is to ensure that the new products are safe and present no risks to human health. Many forms of reuse are in practice throughout the world. These include composting, generation of biogas, and aquaculture.

Composting of waste material is a very effective way of rendering organic material harmless and available for reuse as a fertilizer. Many rural residents and communities in areas where the soil is thin or sparse practise composting as a method to sustain the fertility of the soil. In addition, excreta which has been contained in latrine pits for 1 or more years becomes pathogen free and is a useful form of fertilizer. In some areas of India and Nepal, where double pit latrines are in use, when one pit is full it is allowed to compost for one year while the other fills. After a year or so, the composted excreta can be safely removed and is a valuable source of fertilizer.

An interesting example of composting comes from Indonesia and is described in a case



---

study accompanying this module. Gambong village is located in an area where the land is very infertile. The PKK, an Indonesian women's non-governmental organization, implemented a project to show people how to compost human wastes into manure which could be applied to fertilize the land. This manure has resulted in greatly increasing agricultural yields. An additional benefit has been the proper disposal of human wastes, thus contributing to an improvement in health.

Human, animal and organic wastes can be used to generate gas in biogas digesters which forms a valuable energy source. Biogas production is practised in both developed and developing countries. In the United States, many rural farms use livestock wastes and farm wastes to generate gas to provide an energy supply. Biogas production has always been an important method of energy production in China using animal and human wastes.

Aquaculture or fish farming has been practised since the earliest times in many parts of the developing world, particularly in Asia. Animal wastes, night soil and garden wastes are dumped into ponds and provide nutrients for organisms that in turn feed fish. In China from time to time, tea leaves are added to disinfect and sterilize the ponds. The fish represent a valuable source of protein for the farmers to supplement their diet.

Recycling is another form of reuse which allows waste products to be safely reused. Garbage delivered to landfill sites contains a very high percentage of paper and paper products. In many landfills, paper represents a third to one half of the refuse. This represents a very considerable wastage of materials as paper can be easily recycled. The environmental consequences too are profound as much of the deforestation which is occurring is to satisfy the demands of the pulp and paper industry. Many other materials such as glass, metals and cans can also be successfully recycled.

In many developing countries, an informal recycling industry subsists on landfill sites. In Mexico City and Jakarta for example, scavengers and pickers earn a livelihood by collecting materials from the garbage dumps and selling them to companies who recycle and reuse these materials. There are, however, health risks associated with this form of subsistence.

Any plan for waste management in developing countries will need to incorporate the activities of this informal recycling process. As women and children generally

---

constitute the majority of the scavenger workforce, informal recycling is a critical gender issue.

A valuable lesson can be learned from the waste disposal and recycling project initiated by the Ladies Auxiliary Committee of the Catholic Women's League, a non-governmental organization in Metro Manila. This group transformed vacant lots into sanitary landfills where organic waste could be converted into fertilizer and set up a programme to recycle or reuse dry wastes such as plastic containers, newspapers, old tires, etc. As a result of their efforts the dumping of wastes into local creeks and the burning of domestic wastes decreased.

In South Africa, as described in the case study accompanying this module, a team of women initiated a project to educate the local population of women about the benefits of home gardens and the ways waste items can be recycled and utilized in the gardens.

The case study from Barbados gives an example of how women initiated a project to stop indiscriminate dumping in gulleys.

### 3.3 Involvement of Women in Waste Management

Women as the family members most involved with safeguarding the health of family members have a deep concern to ensure the safe disposal of wastes to reduce the risks of disease and to provide safe and liveable environments for their children.

Women have often taken care of household waste disposal through ancient and environmentally sound methods. For example in South-east Asia and China women have used human and animal waste as fertilizers. In Java, Indonesia, fish ponds have been used for the disposal of excreta and refuse. In Nepal and parts of India, women allow pigs and poultry to scavenge human waste. A task common to women in dry areas in the Middle East, Africa and in southern Asia is the processing of animal dung for household fuel or to sell. In India, poor women who have no cattle of their own are permitted to collect dung from the cattle of wealthy landowners. Cow dung is also used for plastering walls and floors to keep them smooth and clean. This is usually the task of women. In India women have also been employed as night soil collectors and as private sweepers in wealthy households. The India government has now set up programmes to replace this conservatory system with latrines and to reeducate women

46

for other employment. An analysis of a waste management project in Mexico states:

The SIRDO (Integrated System for Recycling Organic Wastes) mobilized women to control their environment through an age-old tradition devised by women: the conservation and recycling of waste.

Decision makers, both at national and international levels, must appreciate women's interest in waste management and recognize that because of their immediate concerns and familiarity with the family's well being, they should be involved at all levels in the waste management process.

Women's insights and know how will ensure that appropriate and sustainable waster management activities are implemented. Consequently they must be involved in the conceptualization, design, planning and implementation of waste management initiatives affecting their household and community.

Women as heads-of-households and as the primary maintainer of households, are the individuals who will assume the major burden of implementing household waste disposal, sanitation and hygienic food handling practices. As such, they need to be well informed about waste management technologies in order to take a lead role in selecting and implementing the ones most appropriate to their needs and situations. Constraints exist to the involvement of women in the waste management process. These include time, lack of knowledge, finances and other commitments and priorities. The design of successful waste management projects will need to include mechanisms to overcome these constraints and find ways to facilitate women's involvement. As mentioned in submodule IV, Lessons Learned, there also needs to be more attention paid to expanding men's roles in household and family care and maintenance. Unless men take on more responsibility for these chores, women will continue to be overworked and find it difficult to carry out safe environmental sanitation and waste disposal measures.

Training programmes for women is one technique that has proven very successful in raising the awareness and knowledge on waste disposal. Two very interesting training programmes were carried out by UNIFEM in Argentina and UNHCS-HABITAT in Bolivia. These are described in the accompanying case studies.

In Buenos Aires, working class women were instructed on the control of insects and the benefits of proper garbage disposal and environmental sanitation.

In Bolivia, women in low income communities were sensitized and assisted through a training programme to improve hygiene, maintain clean water supply systems, obtain regular waste disposal and improve their living environment.

Opportunities exist for women to become involved in waste management through a variety of roles. Women can be involved as:

- family leaders;
- members of women's organizations;
- members of non-governmental organizations;
- working professionals;
- government agents; and
- individual activists.

Women can and have made major contributions to waste management in all of these roles. The case studies on Pollution Control in Lake Maruit, Egypt and Alternative Methods of Waste Collection in Peru and of Waste Management in Merida, Mexico, illustrate how individual women have spearheaded groups to realize waste management improvements in their communities.

Similarity in Manilla, a non-governmental organization, the Metro Manilla Council of Women Balikatan Movement (INC) planned a recycling programme to improve waste disposal for major towns.

The case studies accompanying this module detail the many ways that women have successfully affected waste management improvements for the better health and living conditions of their families and communities. These case studies show how women have taken the lead in waste management problem identification and in planning and implementing programmes to solve for these problems.

### QUESTIONS FOR DISCUSSION

1. What are the main problem areas of waste management in in your country? Is it for example with solid waste or human waste, etc?
2. What are the traditional forms of waste management used by women and families in your country?
3. Are these traditional waste management systems effective or do they pose environmental health risks? What are the main problems, if any, with these systems?
4. Are you familiar with any waste management projects in your country in liquid waste, human waste, solid wastes, industrial wastes, gaseous wastes, and waste reuse?
  - a. Were women involved in these projects? In what capacities?
  - b. What constraints, if any, did women and communities face in obtaining improved waste management systems? How were these overcome?
  - c. Were women and communities involved in the selection of the technology used in the project?
5. What positive impacts have waste management projects in your country had on women and children?
6. What negative impacts have waste management projects in your country had on women and children?

## 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

## SOLID WASTE DISPOSAL

- HOUSEHOLD GARBAGE AND OTHER DISCARDED MATERIAL, TIRES, PLASTICS, PAPER, CANS, BOTTLES.
- SOME OF THIS WASTE IS REUSABLE.
- PEOPLE MAY DUMP OR BURN
- RESULTS IN ENVIRONMENTAL POLLUTION AND DISEASE TRANSMISSION: FLIES, RATS, ETC.
- SAFE DISPOSAL BY EITHER;
  - PROPERLY CONSTRUCTED LAND FILLS
  - INCINCERATION.
- REUSABLE WASTES SHOULD BE RECYCLED.

## LIQUID WASTES

- GREYWATER FROM HOUSEHOLD
- LIQUID WASTES POND AROUND HOUSEHOLDS AND BECOME HEALTH HAZARD AND BREEDING GROUND FOR INSECT VECTORS.
- NEED TO PLAN FOR WASTE WATER DISPOSAL WHEN PROVIDING IMPROVED WATER SUPPLY.

## GASEOUS WASTES

- GASEOUS WASTES PRODUCED BY HUMAN ACTIVITY.
- MACRO LEVEL: ACID RAIN, OZONE DEPLETION, GLOBAL WARMING.
- MICRO LEVEL: IMPROPER VENTILATION IN HOUSE AND SMOKE BUILD UP.
- FOR CHILDREN, RESPIRATORY DISEASES IDENTIFIED BY WHO AS LARGER KILLER OF CHILDREN THAN DIARRHOEAL DISEASES.

## INDUSTRIAL WASTES

- ③ BY PRODUCTS OF INDUSTRIAL AND COMMERCIAL ACTIVITY, OFTEN DANGEROUS.
- ③ GOVERNMENT REGULATIONS IN DEVELOPED WORLD USUALLY STRINGENT AND ENFORCED.
- ③ DEVELOPING COUNTRY GOVERNMENTS LAWS OFTEN RELAXED.
- ③ INDUSTRIAL WASTES PARTICULARLY IMPACT POOR WOMEN IN PERI URBAN AND URBAN AREAS.
- ③ TOXIC EFFLUENTS DISCHARGE INTO WATER COURSES.
- ③ SOLID INDUSTRIAL WASTES DUMPED IN GARBAGE DUMPS WHERE WOMEN AND CHILDREN SCAVENGERS.
- ③ NEED STRINGENT ENFORCED LEGISLATION.

## HAZARDOUS AND TOXIC WASTES

- HAZARDOUS AND TOXIC WASTES SERIOUS RISK TO ENVIRONMENT AND HEALTH.
- TOXIC RESIDUES FROM INSECTICIDES, PESTICIDES, ACCUMULATE IN SOIL AND WATER SOURCES.
- NUCLEAR WASTES
- BIOLOGICAL AND CHEMICAL WEAPONS DISPOSAL.
- TOXIC WASTES AND LEACHATES IN LANDFILL SITES.
- OFTEN ATTEMPTS TO DUMP IN REMOTE AREAS.
- BANGLADESH CASE STUDY.
- NUCLEAR DUMPING IN IRISH SEA.

## WASTE REUSE

- WASTE REUSE.
- MANY MATERIALS REUSABLE OR RECYCLABLE.
- 30 - 50% OF LANDFILL MATERIALS, PAPER AND 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 NGOS, AS WORKING PROFESSIONAL, GOVERNMENT AGENTS, INDIVIDUAL ACTIVISTS.
- CASE STUDIES SHOW HOW WOMEN INVOLVED IN PLANNING AND IMPLEMENTING WASTE MANAGEMENT PROJECTS.

SUBMODULE III

WOMEN, WATER AND ENVIRONMENTAL  
SANITATION

## TABLE OF CONTENTS

### Training Material

#### 3.1 Introduction

#### 3.2 An Integrated Approach to Environmental Sanitation

##### 3.2.1 Disposal of Human Wastes

##### 3.2.2 Use and Protection of Water Sources

##### 3.2.3 Water and Personal Hygiene

##### 3.2.4 Food Hygiene

##### 3.2.5 Domestic and Environmental Hygiene

#### 3.3 Women's Roles in Environmental Sanitation

### Questions for Discussion

### Transparencies

### 3.1 Introduction

This submodule focuses on the interrelationship between women, water and environmental sanitation. Environmental sanitation as pointed out in the previous submodule relates to the disposal of household wastes and hygienic practices in and around the home. As such, environmental sanitation is key with respect to controlling the water and sanitation related diseases and creating a safer and more fulfilling living environment for families and communities.

The main goal of water supply and sanitation interventions is to improve the health and well being of women and their families. It is only through the hygienic use of facilities, however, that improved water supply and sanitation systems can deliver the health benefits for which they are designed. Thus human behaviour is the key to achieving improved health. And because women are central to all aspects of water management, sanitation, and personal and household hygiene, women's roles in influencing and changing family hygiene behaviour patterns are crucial.

### 3.2 An Integrated Approach to Environmental Sanitation

Environmental sanitation can be defined as all aspects of water, waste disposal and hygiene which are essential for health improvements. As such, environmental sanitation encompasses:

1. water hygiene and consumption of safe water.
2. human waste disposal;
3. safe wastewater (grey water) disposal and drainage
4. solid waste disposal (including household wastes);
5. proper personal hygiene; and
6. food hygiene.

For health improvements to be realized hygiene education programmes need to encompass all aspects of environmental sanitation. In an integrated approach to environmental sanitation hygiene education is defined as all activities aimed at encouraging behaviour and conditions which help to prevent water and sanitation-related diseases.

---

The International Reference Centre (IRC, The Hague) has researched new approaches to hygiene education in the water sector and has developed an approach to water sector projects which balances the need for water, with its associated technological interventions, with hygiene education programmes, where hygiene behaviour encompasses all aspects of water, sanitation, food handling and waste management activities.

Health and hygiene interventions can be grouped into five main domains of hygiene behaviour. These are:

1. Disposal of human wastes.
2. Use and protection of water sources.
3. Water and personal hygiene.
4. Food hygiene.
5. Domestic and environmental hygiene.

Within each of these domains, there are a number of behaviours which, if performed hygienically, are likely to prevent the transmission of diseases (Table 3.1).

### 3.2.1 Disposal of Human Wastes

The choice of a place for defecation is the first item under this domain. The choice will differ according to culture, opportunity and personal preference. Common places include toilets or latrines, compounds, bushes, open fields, river banks, above water, above drains, in or on the roof of the house. The place of defecation may thus be inside the house, in the immediate surroundings of the house, or quite far away, and this also applies to the location of the latrine or toilet. Sometimes women and men do not, or cannot, use the same place or there may be restrictions as to the use of the same place by certain family relations (ie father and daughter-in-law). The place of defecation may also depend on the time of day or the fitness of the person. A latrine is sometimes not used at night, or not during illness, or sometimes only during illnesses.

At the worksite, for example, the agricultural field, shop, workshop or factories, and at school, an alternative place has to be used. In some cultures, women and men are

<b>A. Disposal of human faeces</b>	
- choice of place for defecation	- maintenance of the toilet/latrine
- disposal of faeces	- other activities related to faecal matter
- anal cleansing	* use of faeces as fertilizer
- disposal of cleansing material	* use of faeces for fish production
- handwashing	* animals eating faeces
<b>B. Use and protection of water sources</b>	
- choice of water source	- water source protection and maintenance
- water collection	- other activities related to water source
- water transport	* water conservation by prevention of water pollution
- water use at the source	* water conservation by prevention of ecological degradation
- water disposal and drainage	
- water treatment	
<b>C. Water and personal hygiene</b>	
- water hygiene in the home	- personal hygiene
* water handling	* washing of hands/cleaning of nails
* water storage	* washing of face
* water treatment	* body wash/bathing
* water re-use	* hygiene after defecation
* wastewater disposal	- personal hygiene during natural events such as menstruation, birth, death
<b>D. Food hygiene</b>	
- handling practices	- storage practices
* cleaning of kitchen/food preparation area	* temperature/length of storage
* handwashing/use of clean hands	* location and coverage of stored food
* use of clean work-top and kitchen utensils	* storage of eating/kitchen utensils
* use of safe water	- eating and feeding practices
* disposal of wastewater and garbage	* handwashing/use of clean hands
- preparation practices	* use of clean eating utensils
washing of raw food and fruits	* feeding of babies and small children
* temperature/length of cooking	* times of eating and feeding
* temperature/length of re-heating	* washing of eating/kitchen utensils
* speed of cooling	
* time of preparation	
<b>E. Domestic and environmental hygiene</b>	
- household hygiene	- environmental hygiene
* wiping of surfaces	* street cleanliness
* sweeping and cleaning of floors/compounds	* wastewater disposal and drainage
* removal of shoes before entering the house	* solid waste disposal
* removal of shoes before entering the house	* hygiene at public places
* cleaning of children's play objects	- animal management
* insect control	* control/corraling of animals
	* safe disposal of animal faeces

Table 3.1: Overview of main behaviour in the five behavioural domains. Source: Actions Speak p.36

not supposed to show they have bodily functions, and thus have to defecate during the dark hours, or to find a secret place in the day time. Children, especially boys, often just do it anywhere that suits them. Also children often do not like to use a latrine, because they are afraid of the dark or the defecation hole, or they dislike the smell.

The method of excreta disposal will partly depend on the place of defecation. If the house itself is used but has no latrine, the faeces are packed and thrown away. On the roof, the faeces may be left to dry in the sun and swept afterwards, or also packed and thrown away. After open air defecation, the excreta can be left uncovered, or may be dropped into water or a public drain. In some countries, animals, especially pigs and dogs, may clean away the uncovered excreta. If a latrine is used, the excreta can be disposed of either on-site or off-site. On-site disposal is a bucket, pit or septic tank, and these have to be emptied when full or a new pit dug. The contents of the bucket and septic tank are likely to contain pathogenic organisms, unless they have been left for more than a year to decompose. Off-site disposal means that excreta are transported through a channel or piped system and will enter the environment either after treatment in a plant, or may be left untreated.

In many cultures the faeces of babies and toddlers are thought to be harmless and children are allowed to defecate anywhere. Care needs to be taken to ensure their faeces are disposed of safely.

Anal cleansing materials are usually disposed of in the same way as faeces, except where families or communities are conscious of the need to prevent latrines from being blocked, or from filling up too quickly. In this case, the materials need to be disposed of hygienically, by collecting them in a waste bin and burning or burying them regularly. Babies, toddlers and young children need their parents' help to be cleaned.

Handwashing after defecation is a key preventative measure for disease transmission. Water availability is a precondition for handwashing. Hands may be washed with water only, or with water and soap, ash or mud. Studies have indicated that mothers who only used water had higher levels of pathogenic organisms on their hands. Handwashing facilities need to be available near defecation places, however, some cultures and population sub-groups ie children may need more reinforcement to make handwashing a regular practice.

---

Latrines and toilets require regular cleaning and maintenance. Latrine cleaning is usually seen as a woman's duty and thus sanitation programmes often add to women's workload with an uninviting activity. Occasional maintenance of the latrine is also needed ie changing the fly screen of a VIP latrine, emptying of the pit or septic tank, and repairs after blockage, breakdown or failure.

### 3.2.2 Use and Protection of Water Sources

This behavioural domain relates to the choice of water sources for the various personal and domestic water needs and all hygienic activities at the source, including water collection, water use and source protection.

The choice of a particular water source or point can be governed by a number of factors (Table 3.2). A general characteristic is that people make a reasoned choice of a particular water source for a specific water need, but that prevention of water and sanitation-related diseases is only one factor, if any, in their choice. Women are usually the main decision makers with respect to water source selection.

The quality of water from unprotected sources is suspect unless treated first. Water from improved sources can be safe if the source is well protected and used properly. Contamination of protected water sources can occur if for example, animals are not kept at a distance, or when dirty things fall into the source. Containers used for collection need to be kept clean as do hands.

### 3.2.3 Water and Personal Hygiene

Water hygiene at the domestic level is concerned first with the quality of water for drinking and food preparation. If water has been taken from an unprotected source, it needs to be treated. There are various methods at the household level for treatment, including boiling, purification with herbs or chlorine tablets, filtration, exposure of the water to sunlight, and storage for more than 24 hours. After water treatment, hygienic behaviour can keep the water safe during storage and use. Preferably water for drinking and food preparation should be kept covered and in an elevated place to prevent pollution from dust, domestic animals and small children. Dippers used to draw water out of the storage container also need to be kept clean.



Possible water sources	Choice factors
<ul style="list-style-type: none"> <li>- rain - pond - bucket pump</li> <li>- river - dam - handpump</li> <li>- canal - bafr - engine-driven pump</li> <li>- lake - open well - tap</li> <li>- spring - protected well - water vendor/supplier</li> <li>- private/shared/public</li> <li>- within/outside household area</li> </ul>	<ul style="list-style-type: none"> <li>- availability of water sources</li> <li>- reliability of water sources: <ul style="list-style-type: none"> <li>+ functioning of facilities</li> <li>+ sufficient water over the day/year</li> </ul> </li> <li>- distance to water sources</li> <li>- physical accessibility: <ul style="list-style-type: none"> <li>+ terrain</li> <li>+ opening hours</li> </ul> </li> <li>- social accessibility: <ul style="list-style-type: none"> <li>+ age/gender/socio-economic restrictions</li> <li>+ ethnic/religious barriers</li> </ul> </li> <li>- cost of use and ability to pay</li> <li>- convenience: <ul style="list-style-type: none"> <li>+ energy and time to draw water</li> <li>+ waiting time</li> </ul> </li> <li>- perceived water quality: <ul style="list-style-type: none"> <li>+ suitability for consumption</li> <li>+ physical appearance</li> <li>+ taste/smell</li> </ul> </li> <li>- water characteristics: <ul style="list-style-type: none"> <li>+ suitability for cooking</li> <li>+ suitability for washing clothes</li> </ul> </li> </ul>
Possible water use needs	
<ul style="list-style-type: none"> <li>- drinking</li> <li>- cooking</li> <li>- food processing</li> <li>- washing utensils</li> <li>- washing hands/feet/face</li> <li>- bathing</li> <li>- washing clothes/laundry</li> <li>- play/recreation</li> <li>- religious functions</li> <li>- animal watering/washing</li> <li>- irrigation of garden/fields</li> <li>- brickmaking</li> <li>- .....</li> <li>- .....</li> </ul>	

Table 3.2: Choice Factors Related to Water Source and Water Use

Source: Actions Speak p. 40

Water for personal and domestic hygiene should also be kept covered to avoid attracting mosquitoes. Personal hygiene includes the washing of hands, face and body, cleaning of nails, cleaning after defecation, and the regular cleaning of clothes and bedding. Frequent handwashing is probably the most important personal hygiene behaviour in terms of preventing disease transmission. Hands need to be washed after defecation, after contact with children's faeces, before food handling, before eating and child feeding, after work and before collecting water.

The times, frequencies and nature of bathing and washing clothes is dependent on a

number of cultural and socio-economic factors. For example, for cultural and religious reasons, people may or may not bathe on particular days of the week or at certain times during the day. Water shortage may limit frequencies of baths and clothes washing, or poverty may influence people to delay doing the laundry so as to prevent them from wearing out too quickly. In some cultures and regions, bathing and/or washing is practised at the water sources, in other places women and children haul water back to the household area. Soap may or may not be used depending on cultural practices, or its availability or affordability.

The use and sharing of clothes, bedding and towels represents a health risk, especially of skin and eye diseases. People may or may not change clothing for sleep, families may or may not share bedding and towels. These practices are mainly influenced by socio-economic conditions.

### 3.2.4 Food Hygiene

Food hygiene includes food handling, preparation, consumption and storage practices. In most parts of the world, women are the main actors in food preparation in the home, but their actual behaviours vary greatly according to culture, personal interest, time, food, and fuel available. Food preparation areas also vary, from open spaces with three stones as a cooking place to a fully equipped kitchen with tap water, sink and fridge.

Hand washing practices are important behaviours in this domain. Hands must be washed not only at the beginning of food preparation, but also when interruptions such as tending to children, occur. Hands also need to be washed after handling high risk food items such as poultry. The way in which hands are washed, however, is also crucial. In some cultures, one bowl is used to wash the hands of those partaking in the meal. The ones washing last, usually children, may have less than clean hands. Also, in many cases, clothing and common towels are used to dry hands. The cleanliness of these will influence the cleanliness of hands.

Food hygiene also includes the use of safe water for washing vegetables and fruit and for the preparation of weaning food. For cooked foods, all parts of the food must reach 70° C and then be consumed immediately or stored safely. Disease organisms multiply rapidly in standing food if left at ambient temperature.

---

Weaning foods should receive special attention as children are more liable to get diarrhoea. Bottles and nipples are notoriously difficult to clean. Breastfeeding should be encouraged up to two years of age, or feeding with a cup and spoon may be a more hygienic alternative to the bottle.

Perishable food is best stored for as little a time as possible, covered and kept in a cool place, outside the reach of young children, domestic animals and insects. Utilities are best kept in a place and in such a way that they cannot get dirty.

General cleanliness of the kitchen is an important aspect of food hygiene. Whether animals are allowed in the kitchen may influence general cleanliness. The type of stove also plays an important role. For example, in many regions the most affordable cooking instrument is three rocks with some sort of fuel (wood or manure) placed in the middle. The amount of smoke produced from this inefficient method dictates the need for open air kitchens which are difficult to keep clean. Households tend to put the least amount of investment into kitchens, which usually have a dirt floor, even when other rooms are cement structures and are washed regularly. Some thought needs to be put into stove design, not just for fuel efficiency, but also as a means of ensuring food hygiene.

### 3.2.5 Domestic and Environmental Hygiene

Domestic and environmental hygiene relates to household cleanliness, garbage disposal and animal management.

Household cleanliness can be ensured by wiping off surfaces, sweeping and cleaning of floors and immediate surroundings of the house, removal of shoes before entering the house, and regular cleaning of toys and play objects for children.

Insect control is another area of household hygiene. It includes food hygiene, as well as the screening of windows to prevent mosquito bites and to control flies.

The safe disposal of household wastes, both liquid and solid is an important

---

a new or improved water system is high and more and more success stories of long term sustainable projects with effective women's participation are being realized every day.

Women also play a pivotal role in environmental sanitation. Women take primary responsibility for the hygienic operation and maintenance of sanitation facilities. Women, as the primary household food preparers are responsible for food hygiene. Women are the first teachers of children and can pass on proper hygiene practices messages at an early age.

Women, because of their traditional roles in family care and household management, have a tremendous influence on the conditions of environmental sanitation within and surrounding the household. It is women's behaviour; in water collection, water storage, water utilization, waste water disposal, human waste disposal, and solid waste disposal, as well as in food handling and hygiene practices which determines the state of health and wellbeing of the family and household.

Women's influence can extend well past the family and household and into the community. Women have been seen to organize communal efforts, user agreements, arrangements by particular women or women's groups for the upkeep of shared facilities, and the exertion of influence on male community leaders.

Women can be involved in project activities in:

Data collection Women need to be involved in the collection of gender disaggregated baseline data. They can identify priority data to be collected, determine the most appropriate means of collecting data and the sample selection, and participate in the analysis and interpretation of the data.

Designers and planners Women should be the ones who decide how best women can be involved in project activities. Women can make selections on available technologies. Women should be involved in detailed design decision. Women can help design the community management system, for example, who sits on committees and boards and what levels and systems of payment need to be instituted.

---

Promotion Women can encourage the acceptance of new or improved systems simply by their own useage of the facilities. Women can also organize education programmes and incentive programmes to promote change in the community.

Construction Women can participate as construction workers or they can manage the construction activity. If community labour is used, women can organize work details. If work is contracted out to skilled craftspeople, women can train or brief them as to local needs and project design.

Operation and maintenance Women can take responsibility for the general care and cleaning of facilities and for essential maintenance tasks. Women can contract out work needed for major repairs and supervise work done.

Education women can teach and motivate others members of the family to use new or improved facilities with proper hygiene habits. Women can also participate in a more formal role as paid or volunteer workers, educating and motivating community members to use, care for and maintain new sanitation facilities or to dispose of wastes safely, regularly and in designated areas.

Managers Women can develop a community based financial programme. Women can organize the collection of tariffs or contributions and enforce agreed upon social sanctions against those who do not pay.

Monitors Women can maintain regular checks on communal or public latrines. Women can organize community inspections or competitions to promote household cleanliness and to ensure that wastes are being disposed of safely and regularly.

These represent a very brief and non-specific summary of the roles that women can play in projects. The specific ways in which women can be involved are best illustrated by case studies. For example in Pakistan, women were involved as promoters of new latrines.

The Baldia slum in Karachi, Pakistan is a conglomerate of 39 neighbourhoods each having its own ethnic identity. A social worker from the university made house-to-house visits to inform women about a new type of soak-pit household latrine and to help arrange for construction (free if households provided their own superstructure and labour). Once initial mistrust had been overcome, the local women went door-to-door to canvass for latrines, allowed their daughters to be employed in social surveys and organized street cleaning. The result was 80% latrine coverage in their community.

A number of case studies which accompany this module can be used to illustrate women's involvement in project activities.

In Indonesia, the PKK, a women's non-governmental organization motivated their communities to build pit latrines, convert human waste into manure, and then use the manure as fertilizer to improve agricultural productivity.

In Manila, a women's organization masterminded a project to recycle wastes. Women designed, planned, implemented and managed the whole project and continue to promote and educate communities as to the need to dispose of household wastes properly. They monitor and hold regular inspections of house surroundings and residents are informed of disposal activities that are not performed properly.

In Taiwan, the Homemaker's Union and Foundation promoted a government recycling project and circulated thousands of pamphlets to educate people how to sort their garbage and where to send recycleables. The women's group sent teams to work with community members to encourage and promote recycling. It also distributes educational materials to adults and children about environmental issues.

In Peru, a non-governmental organization obtained the commitment of 200 women coordinators belonging to the organization to initiate activities to contain a cholera epidemic. The women distributed pamphlets that educated people on the basic measures needed to prevent spreading of the epidemic. They also implemented a public cleanup campaign to eliminate accumulated garbage, fumigate centers where milk was prepared and distributed and organized latrine cleanups.

---

In Thailand, women's participation in education and leadership were promoted in a village-based water supply, sanitation and sustainable development project. Women field workers gathered information, helped villagers identify needs and problems, and worked with them to design solutions. Women in the village were primary targets and were seated in front rows in training sessions to encourage them to present their ideas. Village women's participation in the project's formal decision making structures was greatly enhanced.

In Bangladesh, a women's activist group organized women's organizations, human rights and legal aid groups, scientists, researchers and social activists to put pressure on the Bangladesh government to take steps against toxic waste threats. They conducted a nationwide signature campaign, distributed information leaflets, demonstrated, wrote newspaper articles, and held seminars and press conferences to create public awareness about industrial wastes and its possible effects. Several hundred women participated in these events.

In Argentina, the government in cooperation with UNIFEM, initiated a programme to train urban women in the Greater Buenos Aires area as health promoters. After training, these women organized other women in their communities to solve environmental problems like the lack of garbage collection, the poor access to potable water and the need for improvements in hygiene in order to diminish insects and other disease vectors.

These case studies illustrate how an integrated approach to waste disposal, water and hygiene is needed to realize health improvements and how women and groups of women have successfully implemented a range of initiatives.

### QUESTIONS FOR DISCUSSION

1. What are the main responsibilities that women have in environmental sanitation activities in your country? It may be useful to divide environmental sanitation activities into the five behavioural domains discussed in this submodule.
2. What are the main responsibilities that men have in environmental sanitation activities in your country?
3. What are the main responsibilities that children have in environmental sanitation activities?
4. Describe the roles that women, men and children have in environmental sanitation projects or programmes that you are familiar with. For example, do they deliver health education messages, or provide labour or materials for the construction of facilities, etc.
5. Were there any problems or constraints in implementing these projects and if so, what were they? How were these problems or constraints overcome? What successes were experienced in these programmes and projects? What recommendations would you make to ensure that these successes can be repeated in other projects and programmes?



## 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

- ① DISPOSAL OF HUMAN WASTES
- ② USE AND PROTECTION OF WATER SOURCES
- ③ WATER AND PERSONAL HYGIENE
- ④ FOOD HYGIENE
- ⑤ 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 ONLY ONE AND POSSIBLY NOT THE MOST IMPORTANT FACTOR.
- WOMEN ARE THE MAIN DECISION MAKERS.

## WATER AND PERSONAL HYGIENE

- ① WATER TREATMENT
- ② SAFE STORAGE AND PROTECTION
- ③ CLEAN CONTAINERS
- ④ WATER SHORTAGES
- ⑤ AVAILABILITY OF SOAP
- ⑥ SHARED CLOTHING AND BEDDING

## DOMESTIC AND ENVIRONMENTAL HYGIENE

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

### WOMEN'S ROLES

- ① WOMEN HAVE PIVOTAL ROLE
- ① DATA COLLECTION
- ① DESIGNERS AND PLANNERS
- ① PROMOTION
- ① CONSTRUCTION
- ① OPERATION AND MAINTENANCE
- ① EDUCATION
- ① MANAGERS
- ① MONITORS

#### SUBMODULE IV

### LESSONS LEARNED FROM EXPERIENCES OF WOMEN IN PROGRAMMES AND PROJECTS



## TABLE OF CONTENTS

### Training Material

- 4.1 Introduction
- 4.2 Integration of Environmental Sanitation in Water Supply Projects
- 4.3 Integration of Women in Project Activities
  - 4.3.1 Adding Difficulties to Women's Lives
  - 4.3.2 Women and Volunteer Work
  - 4.3.3 The Role of Men
  - 4.3.4 The Role of Children
  - 4.3.5 Women's Status and Well Being
  - 4.3.6 Health Benefits are Sufficient
  - 4.3.7 Success of Hygiene Education

### Questions for Discussion

### Transparencies

#### 4.1 Introduction

Women are and have been involved in a wide range of water, sanitation and waste management programmes. It is useful to reflect on and analyze this experience in order to understand some of the problems encountered by women and the major gender issues involved. An appreciation of these will assist in the better conceptualization, design, planning and implementation of future programmes. It will also help in designing strategies to more effectively and completely involve women in the future.

#### 4.2 Integration of Environmental Sanitation in Water Sector Projects

Despite recognition that access to safe water alone will not prevent the transmission of water and sanitation-related diseases, primary focus has been given by national and international agencies to water supply interventions. Sanitation and hygiene education components of water sector projects have lagged considerably behind, both in terms of funds committed and efforts taken in designing appropriate project level strategies. This has been due in part both to the relative lack of community interest in sanitation and hygiene (as compared to water), and a lack of know how on the part of external agencies on how to promote and gain effective participation of the community in sanitation and hygiene.

Some of the lessons learned in the International Drinking Water Supply and Sanitation Decade with respect to sanitation include:

- (1) Much more contact with the community needs to occur before technological interventions are introduced. During this time, communities must develop their own sense of felt need for improved environmental sanitation and external agencies must become intimately aware of the community's cultural and socio-economic conditions as well as their preferences and practices in regards to sanitation and hygiene.
- (2) Early in the Decade it was believed that building a latrine solved the sanitation problems. It took a long time to realize that people were not using these latrines. Sanitation was not totally ignored in the 1980's but overly simplistic approaches were used.
- (3) Treating water and sanitation-related diseases is much more expensive than

preventing the occurrence of disease by changing people's hygiene behaviour.

(4) It is a much more sustainable approach to develop local institutions and give them the capacity to look at low cost and appropriate technologies on their own because these things are very site-specific to cultural practices and the availability of local materials.

(5) Ability to pay and willingness to pay are two different concepts. People may be very able to pay for improved sanitation and waste management, but not willing to pay for it, no matter how minimal the cost. When urban projects provide different options and the community has the opportunity to debate and choose what they want to invest their money in, they do not necessarily choose the lowest-cost technology but it will be the most appropriate and therefore sustainable.

(6) It is essential to undertake a social feasibility analysis before sanitation projects are initiated. A social feasibility analysis would cover seven main areas of concern.

**Interest in sanitation improvement:** Communities may have greater interest in other development needs such as water or roads or better food and clothing. Alternatives to latrines such as fields, roads, or special "sanitation lanes" may be available at no cost, and no maintenance and may be considered quite acceptable. Notions of polluted environments which are a threat to health may not have any relevance to poverty stricken families barely able to obtain daily food requirements.

**Ability and willingness to pay:** Communities may feel that governments should take the responsibility for providing and paying for sanitation improvements, especially if the initiative came from external agencies rather than the people. People may be willing to pay for water, roads or other improvements but not for sanitation, especially with their limited resources. The financing arrangements, payments, interest rates, collection system, transparency of arrangements, etc will also affect willingness to pay.

**Willingness and ability to contribute labour, materials:** If communities are expected to contribute labour, questions need to be asked in regards to who will provide the labour or materials, do these people have the time and energy, are they sufficiently motivated or are they being "forced", who will provide the continued operation and maintenance labour inputs, and will they be willing to provide their

service if the latrines are communal or open to the public.

**Technology likes and dislikes:** It is important that people's likes and dislikes are integrated into latrine design. The differences between women's and men's preferences and children's special needs should also be integrated. Such preferences include:

**Privacy:** Privacy is perhaps the key motivating factor for women to participate in the use and promotion of latrines. In some countries, women risk their physical and sexual safety by visiting public latrines or open spaces for defecation. Women have been known to severely restrict their intake of food in order to eliminate bowel movements during the day. Such practices have led to repeated gastric ulcers, insufficient growth of fetuses, and other complications resulting from poor nutrition practices. Women need to be involved in the siting of latrines. They may want latrines to be located in the house, in or out of the household compound, or customs may dictate that latrines be out of sight of guests or from the road. In an East African country, latrines were built alongside the road, but women did not use them because they did not like to be seen entering or leaving.

**Comfort and Design:** Some cultures prefer latrine designs which facilitate squatting, others prefer pedestal toilets. The size of the squatting plate or the appropriateness of the seat need to be considered. In Nepal, women objected to having separate cubicles. Some cultures may be used to taking baths in the latrine compartment and letting the waste water drain into the latrine, thus requiring more space to be included in the design.

**Convenience:** Some of the convenience of river water sources is the ease of doing laundry, bathing and collection of water and animal watering simultaneously. The performance of such tasks also allows women to spend time with other women while working. Latrine facilities may need to be designed with laundry, bathing and watering facilities.

**Distance:** Studies have shown that people are generally only willing to walk a certain distance to use latrines. This differs between women, men, children, and the elderly.

**Prestige and status value:** In some countries, it was found that families owning a latrine gained status in the community. The desire to own a high cost western style

---

latrine because of the prestige involved may be problematic in some areas.

Ease of maintenance: Women are usually expected to take on the primary responsibility for keeping latrines clean. However, women may not participate if the latrines are communal and shared by numerous families, or if the design of the latrines renders them difficult to clean.

Safety: Mothers often worry that children will fall down the large opening or because it is too dark inside. Children may be afraid of the dark and avoid using latrines. People may want reassurance that the pit will not cave in or the superstructure collapse.

Attractiveness: Many latrines have been left unused because of the presence of odours. Designs such as the Ventilated Improved Pit Latrine and well maintained pour flush latrines may assist in this constraint. The external appearance of latrines; materials used, colour, type of roof, etc and the internal features; access to light and air, doorway, whether walls extend down to the ground or are raised, etc may also affect usage of latrines.

Existing defecation practices and related habits: Preferred postures need to be known, and whether there are differences between women, men and children. Have certain parts of the population been exposed to other postures that they now prefer? The materials used for cleaning will determine the type (pour flush or dry pit) and capacity of latrines.

Acceptability of siting arrangements: The location of latrines will greatly affect usage. In one town in Nepal, it was found that space in many courtyards and houses was limited and so it would be preferable to locate latrines outside the houses, under public footpaths or roads. However this would not be acceptable in cases where these roads or footpaths were also routes of religious processions. In some cases, it was important to have latrines built in front of the house so that everyone could see that the family had a latrine. In other cases, neighbours objected when the latrine was built too close to their house or fence. If separate female and male latrines are being built, how far should they be from one another?

Acceptability of sharing arrangements: Are communal or private arrangements

preferred? Can various members of the family share latrines? Can teachers share with students? Will women object to cleaning latrines if they are shared between different households, or between a household family and their tenants? In Bangladesh, South Korea, Malawi, Tanzania, and Swaziland, the sharing of household latrines by males and females either in general or in a particular family relationship has been reported as a constraint to use. In some cultures, it is forbidden for fathers and daughters or fathers and son's wives to share latrines.

### 4.3 Integration of Women in Project Activities

During the Decade, women and water, sanitation and hygiene education became synonymous. External support agencies working in the sector developed policies, programmes and projects to integrate women more fully into project activities. In some projects, women were asked to participate in the sanitation and hygiene education components of projects, while water was left to the men. This occurred particularly when technological interventions were considered too complex for women. In other projects, women were involved in the water component but only in a construction or cleaning capacity. More and more projects are, however, moving towards systems of community management in which women's participation takes on an effective and central role. A number of lessons have been learned with respect to how women's lives have been affected by their participation in water sector projects. These include:

#### 4.3.1 Adding Difficulties to Women's Lives

The work burden of women increases when women are expected to maintain their traditional responsibilities as well as take on new responsibilities as educators, mechanics, collectors, etc. Women have complained that they often need to hire extra help to assist them in their household chores.

Projects often ask women to participate in water or sanitation committees. However, in some cultures, women are not encouraged to participate actively in community meetings and depend on representation by a male member of the household. Other times, women cannot attend meetings because they clash with their other responsibilities during the day or husbands may be reluctant to allow their wives to attend gatherings that they feel are a waste of time or an interference with their wives'

other duties. Thus, water or sanitation committees may not be the most appropriate strategy for projects wishing to key in on women's central roles.

Women are less mobile than men. Women may be culturally forbidden to travel outside of their home area, or be constrained due to fears for their physical and sexual safety. Projects however, often expect women to be able to travel from village to village, just like men. They may also be expected to work alone rather than in pairs for mutual support.

#### 4.3.2 Women and Volunteer Work

While male project workers are usually paid for their work, women are often expected to work on a volunteer basis. Women often agree to work without pay because of the stake they have in maintaining access to a safe and convenient water supply or sanitation facilities. Not paying women undermines the status of women in the community for it gives the message that women's work is not of equal value to that of men.

#### 4.3.3 The Role of Men

Men have traditionally taken on two roles; the productive income earner, and the community leader. Men generally do not have a defined reproductive role. However, this is not to say that men do not have a role in family care and household maintenance. In some cultures more than others, men take strong responsibility for childcare, and assist women in domestic work around the house. They contribute part of their income towards children's schooling and for home improvements.

Men may have deep feelings of pride and responsibility for the welfare of the family and household. This should not be ignored in project planning and implementation.

Interviews with men in rural and urban Zimbabwe showed that hygiene education was just as important to them as to the women interviewed. A household survey in five rural and two urban areas in Zimbabwe, in which 575 men and 1029 women were

interviewed, revealed that 49% of the men expressed a need for hygiene education. Yet there is little explicit recognition of this in most health training or educational programmes, and seemingly few ideas about, or great interest in how hygiene education might be made accessible to men.

The fact that women may be powerless to initiate any changes in hygiene behaviour without the support of men should also not be ignored. In a number of cases husbands have rejected an improved water supply and hygiene improvements for their family or community because they feared reduction in water collection time would make women and children idle and provide opportunities for undesirable behaviour. If husbands are not involved, some improvements advocated by hygiene education programmes for women, such as latrine and kitchen improvements, may be unrealistic, when traditionally these decisions and work have been the responsibility of men.

In West and East Africa, latrine construction and kitchen improvements are often carried out by women. But essential tasks, such as pit digging or roofing, which are important to prevent non-use and collapse of clay slabs in the rainy season, and other building activities are men's tasks, as also pointed out by the women themselves. In Tanzania the lack of involvement of men was lamented by the women who needed their financial support to buy water storage tanks.

However, hygiene education programmes have almost always been targeted only at women. This has resulted in extra burdens to be placed on women's workload, as well as creating potential conflict situations between women and men who may not appreciate being "educated" with respect to their personal hygiene behaviour.

#### 4.3.4 The Role of Children

Children are generally seen to be passive beneficiaries of improved water supply and sanitation systems. However, it is well known that children, particularly girls are involved at a very early age in the care and maintenance of family and household. Children often assist their mothers with the collection of water, especially when water sources are close and are exposed to all the dangers of disease transmission and skeletal disfigurement that their mothers are. Girls particularly are expected to assist their mothers in caring for family members ill with water and sanitation-related diseases. Girls are often pulled out of school so that they can assist their mothers for



the long term. This inevitably dictates a future life of poverty as education remains the key to life improvement. Thus, girls have a vested interest in improving environmental sanitation conditions in the home and community.

Children are also eager to learn new skills and to teach them to their families. One study in Indonesia found that children learned proper hygiene behaviour in formal schooling and then became the main teachers of hygiene in the family. When asked what their children should be learning about hygiene, mothers answered that they did not know and in fact fathers had a better idea of what proper hygiene behaviours should be.

In this situation, hygiene education programmes targeted solely at women would be inappropriate.

There is an increasing recognition that women should not be solely responsible for the promotion of hygiene education programmes nor for the state of environmental sanitation in the household. Formal schools represent one mechanism for the dissemination of hygiene education programmes. For children who cannot attend formal school, "out-of-school" programmes such as the Child-to-Child Programmes in Indonesia, Jamaica, Mexico and Brazil can be useful. Activities focused on rehydration and prevention of diarrhoea, clean-up campaigns, school gardens, and investigation of health behaviour and conditions in their own homes. In India, an out-of-school programmes taught children aged 8-12 years, how to take care of younger children.

In 16 urban slums in Thirupathi, India, ten of 300 out-of-school children in the age group 8-12 years, were selected and trained in the basic principles of health and how to take care of younger children. The school-going children helped them to read and write, and they conducted a survey to detect vaccination drop outs. In another programme for out-of-school children, special learning packages centre on improvement of the village environment including disposal of human excreta. (IRC #27, p. 20)

Much more information is needed on the effectiveness and impacts of programmes targeted at children. They do, however, represent a means to disseminate

hygiene education from a multi-target approach, while easing some of the responsibility and work away from women.

#### **4.3.5 Women's Status and Well Being**

While women are often expected to take on these new responsibilities, they are usually not accorded recognized status or accompanying authority. Often they are placed in a dependent position whereby they must report to a higher (usually male) authority, and frequently have to turn over collected funds to (all-male) community decision making bodies with no direct control over these funds.

In most societies, women tend to be less confident than men and typically have a low self-esteem, a product of societal stereotyping about the value of girls and women. Projects sometimes expect women to take on non-traditional roles, such as technical handpump maintenance or repairs but do not assist these women in coping with negative feelings coming from members of the community who feel that these roles are not appropriate for women. Awareness raising programmes for boys and men, as well as confidence building support for women are not typical project activities.

In a handpump project in Kenya, both women and men gained confidence in themselves and in each other as a result of their participation in problem solving activities. Men gained increased respect for women in leadership and decision-making roles. Young female extension workers gained acceptance and were listened to with respect even by older men and women.

In a water supply and sanitation project in Indonesia, before the project was implemented, women were very shy and men did not consider women to have any leadership or decision-making skills. During the project, women leaders emerged and men began to appreciate the abilities of women to solve problems for the community. Women gained new confidence and started speaking out in front of their husbands. Men did not feel threatened by this behaviour, but actually admired their wives' new abilities.

#### **4.3.6 Health Benefits are Sufficient**

Some projects assume that women will put a lot of time into project activities because

of the expected increased health benefits. However, often women's perceptions of the project are more influenced by the economic benefits they can derive from the project. Projects do not often study how women's time schedules are related to their economic potential and how projects can assist women in turning increased time and health benefits into economic benefits.

Women may be expected to pay water tariffs equal to men, without recognizing that female headed households exist, or that women may not have control over the household cash income. Even when women are appointed a smaller nominal contribution, they are likely to spend a relatively greater proportion of their income than men. Women almost always have a lower cash income generation potential than men. Income generating projects for women are not often included in water supply projects<sup>1</sup>. Women may be expected to make contributions to latrine construction from income generated from activities engaged in because of greater water availability (ie vegetable growing). If there is no perceived need for improved sanitation, women may discontinue income generating activities or refuse to make contributions. Even if they willingly contribute to latrine construction, they may not use the facilities.

#### 4.3.7 Success of Hygiene Education

Hygiene education programmes have typically been added on to water supply and sanitation projects but received very little emphasis in comparison to the more technological components of such projects. They have also usually been targetted solely at women and often represent the only or main area where women are integrated into project activities. In addition to the problem of adding additional burdens onto women's workload, this approach to hygiene education has presented problems for women who take on the full burden of changing people's hygiene behaviour patterns.

Hygiene behaviour is usually a very private matter and people may find this threatening and thus resist any efforts on the part of women health educators.

---

<sup>1</sup> However, income generating projects in themselves are often problematic for women. They frequently aim to increase women's productivity in activities traditionally undertaken by women instead of introducing them to new skills and areas of work. More often than not, they are small-scale with limited funding, tacked onto integrated rural development projects, or poor designed in terms of production capacity and viable and profitable marketing strategies.

---

The typical approach of projects has been to provide generic hygiene education programmes and to train women to educate other community members. This approach is generic in that the main objective of these programmes is to create a general awareness of proper hygiene practices with the content of the programmes not being location or problem specific. Such an approach has not been very successful as people have simply listened politely to the hygiene messages but have not seen the relevance of such messages to their own lives.

A new approach to hygiene education is thought to be one where communities are assisted in identifying location specific environmental sanitation problems for which they decide on, and design needed interventions. During this process, communities gain an awareness of the need for other hygiene behaviour changes and thus greater hygiene awareness is achieved in a non-threatening, more sustainable manner.

### QUESTIONS FOR DISCUSSION

1. What is the level of awareness in your country with respect to the need for proper hygiene practices, sanitation facilities and proper waste disposal systems?
2. What measures would you recommend be undertaken to increase this level of awareness?
3. What is the relative success of the sanitation, hygiene education and waste disposal components of projects (in relation to water) in your country?
4. What have been the main methods used to deliver hygiene education and training programmes to women and communities? Were these programmes successful? If not, what improvements can be made?
5. What lessons can be learned from experiences of projects and programmes you are familiar with respect to:
  - a. Achieving greater women's participation in all of project activities and in the various stages of the project cycle.
  - b. Difficulties or achievements that women have experienced as a result of their participation.
  - c. Integrating sanitation, hygiene education and waste management into water sector project and programmes. For example, problems in community motivation, institutional arrangements or in technology adoption.
  - d. Selecting and adapting technological interventions and the role that women played in this activity.
  - e. The participation of men and children and the roles that they have taken on or not taken on.

**SUBMODULE V**

**WOMEN AND WASTE MANAGEMENT POLICIES,  
PROGRAMMES AND PROJECTS**

## TABLE OF CONTENTS

### Training Material

- 5.1 Linking Women, Policies, Policies, Programmes and Project: Macro and Micro Considerations
- 5.2 Need to Establish Organizational and Institutional Arrangements to Facilitate Women's Integration
- 5.3 Need to Sensitize Decision Makers to Include Women in Development Projects and Programmes
- 5.4 Women and the Project Cycle: Information and Actions Needed for Effective Women's Participation
- 5.5 Integration of Women into Projects
  - 5.5.1 Constraints
    - \* Attitudes
    - \* Time and Energy
    - \* Finances
    - \* Skills and Training
  - 5.5.2 Opportunities and Positive Actions
    - \* Political Commitment and ESA Support
    - \* Community Support
    - \* Substantive Recognition of Women's Contribution
    - \* Training and HRD Programmes
    - \* Effective Delivery Mechanisms for Training Programmes
    - \* Tying Together Economic and Health Benefits
    - \* A Participatory Approach

### Questions for Discussion

### Transparencies



## LESSONS LEARNED FROM ENVIRONMENTAL SANITATION

- COMMUNITY INTEREST.
- ABILITY AND WILLINGNESS TO PAY.
- TECHNOLOGY LIKES AND DISLIKES.
- EXISTING PRACTICES AND HABITS.
- ACCEPTABILITY OF SITING.
- ACCEPTABILITY OF SHARED ARRANGEMENTS.



IMPACTS OF WOMEN'S INVOLVEMENT IN  
ADDING DIFFICULTIES TO WOMEN'S LIVES

- INCREASED WORK BURDEN.
- DIFFICULTIES OF PARTICIPATING IN WATER AND SANITATION COMMITTEES.
- LESS MOBILITY FOR WOMEN.
- FEARS OF PHYSICAL AND SEXUAL SAFETY.
- NONPAYMENT OF WOMEN.

### MEN AND CHILDRENS ROLES

- MEN HAVE DUAL ROLES AS INCOME EARNER AND COMMUNITY LEADER.
- MEN'S PRIDE IN FAMILY.
- MEN MAY HAVE A DEEP INTEREST IN HYGIENE.
- CHILDREN HAVE ACTIVE ROLES.
- GIRLS ASSIST MOTHERS IN HOUSEHOLD.
- CHILDREN EAGER TO LEARN CAN INFLUENCE PARENTS TO CHANGE.

### WOMEN'S STATUS AND WELL BEING

- WOMEN OFTEN NOT ACCORDED INCREASED STATUS WITH NEW RESPONSIBILITIES.
- WOMEN OFTEN REPORT TO MEN.
- WOMEN NEED COMMUNITY AND MALE SUPPORT IN UNDERTAKING NONTRADITIONAL ROLES.
- NEED FOR AWARENESS PROGRAMS FOR MEN AND BOYS.

### TARGETING WOMEN

- NEED TO APPRECIATE WOMEN'S PERCEPTIONS OF PROJECT BENEFITS.
- PROJECTS MUST ASSIST WOMEN TURN INCREASED TIME AND HEALTH INTO ECONOMIC GAINS.
- WOMEN'S LOWER ECONOMIC STATUS MUST BE RECOGNIZED.
- NEW APPROACH NEEDED TO HYGIENE EDUCATION.
- COMMUNITY MUST IDENTIFY WASTE MANAGEMENT PROBLEMS AND DESIGN SOLUTIONS.

---

### 5.1 Linking Women, Policies, Programmes and Projects: Macro and Micro Considerations

Despite the length of time development programmes have been in effect research shows that the socio-economic status of the great majority of Third World women has worsened considerably. While development policies, programmes and projects have increasingly targeted women in an effort to assist women in their roles as primary providers of family welfare, global institutional structures at the macro-level have continually eroded gains made by women at the local, micro-level.

Global food policies have continued to foster the dependence of Third World countries on developed country grain production and increasingly protectionist markets. Despite increases in national and international production of food, distribution of nutritionally rich foods to the poor has not improved.

The debt crisis and poor balance of payments of the Third World countries represents a major macro-level structure which works directly against the provision of basic needs for the poor. Unmanageable debt burdens and balance of payment deficits are but symptoms of a larger crisis in global financial, monetary, international trade and capital flows system. In the Bretton Woods system, the onus of adjustment to imbalances in international payments falls entirely on deficit countries. Most of these countries have chosen to expand export capacities to keep up with payments. However with the slowing down of the world economy and world trade, deficit countries face severe shortages of investment and capital flow.

Faced with the state of global economics, developed countries have, through the IMF and World Bank, placed considerable pressure on debtor nations to "structurally adjust". Structural adjustment packages have a detrimental impact on human survival because of the cutbacks in consumer good imports, in domestic subsidies for items like food and fuel, and in expenditures on health and education.

Women, because of their role as the primary providers of family welfare, will suffer the most from structural adjustment programmes. Women's employment opportunities will probably increase, but only in the poorly paid, sweatshop like sectors of the formal economy and in the unstable conditions of the informal sector. Cutbacks in social service expenditures will mean women's work burden will increase as, for

---

example when lower expenditures on health services cause women to take up more and more of the responsibility for health care in the home, or when the provision of water systems is cut and women end up spending more time collecting supplies. Girls' educational opportunities may also dwindle as they are pulled out of school to assist their mothers. Boys will also suffer as family income needs force them to take on work. The ways in which poor people will suffer as a result of macro-level economic policies is too numerous to describe here. Women are the ones who try to mitigate the negative effects of such policies by giving to their families the only resources they have left at their control, their time, labour and energy.

Increasing militarization represents another macro-level condition which affects the everyday lives of women and their families. In the last two decades the world has spent (at 1988 prices) about \$ 17 trillion on military activity. In current dollars, the annual global military expenditure reached more than \$1000 billion US dollars in 1990. Although military spending has decreased slightly globally and in industrialized countries, it has increased in most developing countries. Arms expenditures have contributed considerably to balance of payment crises and to the diversion of resources from more productive uses. It is common for per capita public expenditures in defense to be double that spent on health. The share of GNP developed countries spend on foreign assistance as compared to military expenditures is continually falling. A cut in military spending in developed countries may not reduce the gap between rich and poor countries unless accompanied by structural economic and social change, but it would improve the standard of living in the poor countries.

Short-term strategies in the economic, political, legal and cultural spheres need to be enacted to help the Third World poor to survive and improve their well being. Short-term, ameliorative approaches are ineffective, however, unless they are combined with long-term strategies to reestablish peoples, especially women's control over the economic decisions which shape their lives. Long term systematic strategies must be aimed at challenging prevailing structures and building accountability of governments to people for their decisions. Without measures leading to global conservation measures, reform of the international monetary system and the IMF and demilitarization, micro-level strategies will only serve as a bandaid in the face of huge and ever increasing gaps in wealth, resources, and power between women and men, and rich and poor countries. Women's voices must enter the definition of development and the making of policy choices.

---

## 5.2 Need to Establish Organizational and Institutional Arrangements to Facilitate Women's Integration

Women's participation in development programmes and projects has largely been facilitated by the efforts of dedicated individuals on a more or less adhoc, project by project basis. Projects have been responsible for establishing institutional and organizational arrangements which would facilitate greater women's integration. For example, projects have often established temporary linkages between the ministries responsible for water sector work such as public works, health and rural development. Projects have also worked out contracting arrangements to allow women's NGO's to work alongside government agencies. In most projects, committees have been established to facilitate the management, operation and maintenance of water supply, sanitation and waste management systems and women have participated in these to varying degrees.

However, these institutional and organizational arrangements have generally been established on an experimental and piecemeal basis. Women participating in projects have experienced many negative effects such as those discussed in submodule IV. There is a growing recognition that there must be guidelines on the types of strategies that can be used to integrate women into projects.

Countries have started to formulate national water sector policies which provide guidelines on technology choice, spare parts distribution, private sector involvement, and government and community roles in provision, management and servicing. Professionals working with women have realized a concurrent need for national gender policies which would bring together the collective experiences of as many projects and programmes as possible in presenting guidelines for effective women's participation in water, sanitation and waste management projects.

A gender policy should include:

1. An analysis of the national situational analysis of women pertaining to their legal, economic, political, social and cultural position in society.
2. A confirmation of women's critical roles in an integrated approach to environmental sanitation and waste management.

- 
3. A description of the ways in which women are involved in water supply, environmental sanitation, and waste management on a local, region by region basis.
  4. Identification of measures needed to increase the proportion of women as decision makers, planners and managers in the design, development and implementation of projects.
  5. Identification of measures needed to strengthen and empower women's non-governmental organizations, women's bureaux and women's groups working in the water and waste management sectors.
  6. Identification of mechanisms needed to facilitate a collaborative process to be undertaken by all agencies, organization, bureaux and groups working with women in the country.
  7. Identification of measures needed to reduce the workload of women and girl children at home and the role that Government will play in this.
  8. A presentation of possible programmes which can be used to eliminate negative images, stereotypes, attitudes and prejudices against women.

### 5.3 Need to Sensitize Decision Makers to Include Women in Development Programmes and Projects

There is an increasing awareness worldwide that women are too rich a potential to be left untapped both for the sake of global preservation and development.

However, there still remains many deeply engrained attitudes in people's minds, and organizations, departments, and agencies at all levels, that women are of secondary importance to men, and lack the necessary strength, skills, intellect etc, to participate fully in development efforts and to benefit equally from these activities.

One study in Zambia looked into the reasons why women were so underrepresented in the water sector. Women were severely underrepresented in government ministries



working in the water, sanitation and waste management sectors. If women were present, typically they occupied the lowest profile jobs which offered the least responsibility and opportunities for promotion into decision making positions. The study concluded that attitudes towards women which discourage women to work in technical occupations was a key reason. Negative gender attitudes discouraged girls from attending technical institutions resulting in very few women qualified in technical occupations. Government staff, usually male, and most likely very much partisan to stereotypical gender attitudes regarding normal and acceptable jobs for women, simply did not look for women to fill technical positions or justify the overrepresentation of male staff by referring to the very real fact that there were very few qualified female applicants.

There is an urgent need for decision makers in government and external support agencies involved in projects and programmes to realize that it is essential that women be integrated into projects and programmes at all stages, to devise strategies, and put into place policies which will achieve this. Decision makers, particularly men, need to be made aware of and sensitized to the necessity of involving women and how best they can facilitate the process. To assist in this, training programmes in gender development need to be introduced at all levels in national government agencies, external support agencies and for staff involved in programmes and projects in the waste management sector.

Concurrently, women need to be trained to assume leadership and decision making positions in all sectors of global activity. Women need to gain the self-confidence needed to work in potentially threatening environments. Men need to be trained to ensure that they, as planners, administrators and decision makers acquire the necessary sensitivity, information and know how to afford women these opportunities. Women will not be able to use their full potential and jump into high level positions unless men in the upper echelons of the national hierarchy are willing and able to support these women. In today's patriarchal societies, this will require a major leap in awareness, attitudes, perceptions, and behaviour towards women.

Training programmes need to focus on imparting an understanding of the conceptual background of gender development as discussed in submodule I. They also need to focus on providing decision makers and planners with the know how of how to integrate gender development approaches and strategies into their development

programmes and projects.

However training programmes need to emphasize that although participants are gaining an enhanced awareness of the need for gender development and that they may in fact be learning techniques for integrating women into projects and programmes, that gender development is a professional component of a project or programme equal to other components such as engineering or financial analysis.

Thus, it is important to make planners and decision makers recognize the importance of including a professional WID or gender specialist on teams responsible for the identification, conceptualization, design, implementation and monitoring and evaluation of programmes and projects.

#### **5.4 Women and the Project Cycle: Information and Actions Needed for Effective Women's Participation**

Projects and programmes are the delivery mechanisms used by governments and donor agencies to effect development changes. The objectives of these are to improve various aspects of water supply, sanitation and waste management systems.

These projects and programmes must be conceptualized, designed, planned and implemented correctly if they are to be successful and sustainable and scarce financial resources are not to be wasted.

Because of the key role women play in water and waste management, it is crucial they be fully involved in all phases of the project cycle.

The project cycle generally includes 6 principle phases:

1. Project Identification
2. Project Conceptualization
3. Project Planning and Design
4. Project Implementation
5. Project Operation and Maintenance
6. Project Monitoring and Evaluation

---

### Project Identification

The project identification stage is of key importance for the role and involvement of women in project delivery. The decisions at this stage have a direct influence, not only on the nature and scope of women's participation, but also on the project's foreseeable impact on their living conditions.

At the project identification stage, project planners need to have available disaggregated baseline data. The purpose of collecting data about women at this stage is to be able to identify at a very preliminary level, whether there are special needs, problems or issues which women experience and that the project may or may not have to take into consideration in its design.

A draft logical framework analysis (LFA) is an important component of the identification stage. It identifies target groups, project goals and purpose, expected outputs, necessary inputs, and the criteria to be used in the monitoring and evaluating of project activities. If women are not identified explicitly as a target group in the LFA and no inputs and outputs are planned that specify their integration in the project, then there is a danger that women will go unnoticed in all later stages of the project.

### Project Conceptualization

Prefeasibility and feasibility studies are carried out in the project conceptualization and preparation stage. Prefeasibility studies are used to screen and rank individual development projects according to need and other criteria. A feasibility study is a detailed investigation of a potential project. At the prefeasibility stage such information as official government policy on women, institutions and organizations responsible for women's well being, and gender differentiated data on the use of existing water supply, sanitation and waste disposal systems and problems experienced with these systems is needed. At the feasibility stage, much more detailed data will be necessary. The purpose of collecting gender data is to ensure that if the project is approved, detailed data about women's needs, preferences, attitudes and potential roles can be integrated into project design.

### Project Planning and Design

Too often, women have been taken out of mainstream project designs and placed under the general heading of special considerations. WID initiatives, however, need to be integrated thoroughly in the project design. Project planning and design documents need to describe in detail, how women will be included in the project at every stage, what constraints there may be for women's participation, how these may be overcome, and have detailed knowledge on what impacts project activities will have on women. Strategies to overcome obstacles to women's participation should identify needed support mechanisms within the target group and what measures the implementing agency is expected to undertake.

### Project Implementation and Operation and Maintenance

It is all too common for women and their needs to be taken into account in project planning and then be left out of project implementation, particularly when there is no fulltime WID specialist assigned to the project executing agency. Women can be involved in the implementation stage in a number of ways; in data collection to identify gender differentiated needs and preferences, in the promotion of project objectives, in construction and provision of materials, and in operation and maintenance strategies. However, if women do not have a proportionate share of the decision-making power that enables them to change components of the project found to be unsuitable, women's participation is not effective and will only serve to add further to their already overburdened workload.

To ensure that women are effectively integrated into project activities, project documents in the implementation stage should emphasize the ways in which women need to be involved in project activities and the mechanisms to be established and coordinated by the implementing agency in order to ensure their involvement.

In order for women to be effectively integrated into all stages of the project cycle, it is important to include a WID specialist as one of the team members of project identification missions, of plan of operations and logical framework analyses, of terms of references and in the selection of project implementing agencies.

---

### Project Monitoring and Evaluation

Regular monitoring of projects allows responsible agencies and communities to determine if project objectives are being achieved. Project monitoring is needed to ensure that the project is doing what was planned to involve women and to determine if the project is actually benefitting women. The monitoring process needs to ask:

- 1) What is the role of women in the project? Is the project reaching women? If not, can it be reoriented to do this better?
- 2) What is the project's impact on women, If it is positive, can this be sustained and multiplied? If negative, can the project be reworked?

Project evaluations need to ask questions related to WID objectives regardless of whether there was a strong WID component in the project. For example, would the project have benefitted from greater women's involvement? Was WID an explicit objective of the project's original design? If not, why not, and if so, was the design of WID initiatives and the integration of them into the project adequate?

Systems to monitor and evaluate the impact of projects on women are still very much in an exploratory and project specific stage. There is much to be learned about what needs to be included as criteria for monitoring and evaluating, particularly in regards to what happens to the construction of gender relations and the distribution of power between women and men in the community.

## 5.5 Integration of Women into Projects

### 5.5.1 Constraints

#### Attitudes

Traditional attitudes within communities and those held by external support agency staff as well as national government agencies is identified as perhaps the primary constraint to women's effective participation in water, sanitation and waste

---

management projects. Both women and men tend to believe that women's work, knowledge and abilities are inferior to those of men.

### Time and Energy

The added responsibilities involved with women's participation in projects detract from the limited time and energy available to women. Women's work days are already long and difficult and their enthusiasm to participate in project activities, particularly if they receive little or no remuneration or if they are confronted by negative attitudes on the part of men is quickly dissipated.

### Finances

The construction of new or improved facilities may mean less work for women in collecting water or walking long distances to find safe places to defecate, but work in management, maintenance and financing may be increased. Women have complained that their work as caretakers, mechanics, educators and tariff collectors have forced them to hire extra help to do household work. This has strained their financial resources. Additionally, because water and other domestic needs are seen to be women's responsibility, women are often expected to take care of the family contributions to community funds needed for systems operation and maintenance. If economic opportunities are not included in project activities, women may find that their finances are thinly stretched as a result of their participation in the project.

Women also face major hurdles in obtaining access to credit. Financial institutions require borrowers to present adequate collateral, usually in the form of land. Women in many societies cannot own land legally or are simply excluded when land titles are deeded to their husbands, rendering women illegible for credit. In other cases, the terms of payment are far too hard for women, who may end up paying more to finance the loan than in providing adequate food, clothing and other basic necessities for their families.

Where women have been given access to soft loans to start up new businesses and income generating activities, it has been repeatedly shown that not only do women succeed in making enough money to provide for their families, but also to pay back the loans and then establish revolving funds so that other women in the community

---

can have access to credit in the future.

It is ironic that women, who represent in many cases the best chance for community improvement, as well as being the primary providers for their family, are denied access while men who typically use more of the money gained from financial schemes for personal purposes and to a more limited degree than women, for family needs and community development are considered to be more credit worthy.

In development programmes, much more attention needs to be paid to women's financial management skills and women's abilities to tie social services to economic benefits. Access to credit is a critical ingredient in enabling women to do this.

### **Skills and Training**

Involvement in project activities may require women to learn new skills. Training programmes may be directed at women, however there are a number of problems associated with women's participation. For example, women's husbands or parents may object to their absence from the home for a number of reasons, such as they fear for their sexual or physical safety, or because they do not want household chores to be neglected. The women themselves may object to being away from the home because they are already overworked and do not want to fall behind in their household work. Training programmes also may not be geared for illiterate women.

### **5.5.2 Opportunities and Positive Actions**

#### **Political Commitment and ESA Support**

Political support and political action at the national and international levels is essential if women are to take on leadership and decision making roles.

While the international community advocates the full participation of women in projects, women's involvement in many countries is not as comprehensive as would be desirable. This is due to a large variety of socio-economic, political, legal and cultural factors which place many constraints on women's ability to participate more fully in public life.

---

However, experience with projects and programmes has shown that a necessary precondition for women's involvement is political commitment by government to provide an enabling environment for women to take on central and visible roles. External support agencies can provide the support necessary to facilitate change at the community level and to the individual women who spearhead such change.

### Community Support

Cultural attitude is perhaps the key factor in determining the effectiveness of women's participation in projects. While it may be appropriate for women to participate in their traditional capacities or in roles which are non-threatening to men and gender relations within the community, women may meet with considerable resistance, from both men and women themselves if projects desire women to take on leadership roles or to sit on committees with an equal say to men. In nearly all cases, projects will gain community support for women's participation only when the permission and support of male leaders and men in general is gained.

Programmes can initiate projects which can help change restrictive attitudes. Women and girls can gain more self confidence if they are involved in programmes which teach new skills which may or may not be related directly to the work they undertake in the management of new water supply and sanitation systems. Once women gain more confidence, and bring new skills which improve the well being of family and community, boys and men will begin to recognize the value of women and women's work. Deliberate consciousness raising techniques can also be integrated into community mobilization activities. For example, education and promotion materials can show women in primary roles as leaders and decision-makers.

It not only takes a great deal of time to change deeply engrained attitudes, but change also needs to occur within a non-threatening environment. Gaining the support of men is key to the more effective participation of women.

### Substantive Recognition of Women's Contribution

Women, like all workers, need sustained recognition of their contributions if they are to remain motivated to carry out their tasks on a long term basis. Symbols of



performance and appreciation can be given to women to show community and project appreciation. Giving project workers items which are rare, relatively expensive, difficult for other villagers to obtain, or which symbolize an increased status is one method that has been used and is an important way of assigning internal status and of encouraging long term involvement. In Nigeria, India and Honduras health promoters were given a basic medicine kit. In other projects, for example, in Ghana, bicycles are given.

Remuneration is another important factor in sustaining motivation and job appreciation. Women have often complained that working in a volunteer capacity for projects has strained their time, energy and financial resources. In one case, communities were willing to pay male mechanics but did not see the need to pay female caretakers. These women finally brought up their grievances to the water and sanitation board whose members did not realize that these women were putting so much time and energy into project work.

Payment for project workers needs to be compatible with the financial community management systems established within the project.

### **Training and HRD Programmes**

The provision of human resource development for women and women's groups at the community level is essential if women are to gain improved skills and abilities to work for the improvement of family, household health and well being. This would encompass training in leadership, managerial, organizational, technical and financial skills. Such programmes should not be limited to enhancing women's participation just in project activities, but should extend to any activity women are involved with.

### **Effective Delivery Mechanisms for Training Programmes**

Better delivery mechanisms for training need to be developed to enable women to participate in project activities with less difficulties. It has been shown that women cannot afford the time to attend traditional day and week long workshops. Their husbands and fathers may object to their long absences from the household and neglect of household duties, or women may be reluctant because of child care difficulties or other reasons.

One project in Ghana has found that radio programmes show great promise in terms of reaching as many women as possible, literate and illiterate in the home.

Likewise, television soap operas which teach hygiene behaviour have proven to be extremely successful in Mexico and other Latin American countries.

### **Tying Together Economic and Health Benefits**

Women will often agree to participate in project activities because it would be impolite to refuse. However, their participation may not be sustained or effective. In the context of poor rural or peri-urban communities, where women are working long hard days just to provide for their families on a subsistence level, participation in any extra activities will be weighed carefully as to the possible benefits they can give to the women and their families. Health benefits alone may not provide enough motivation for taking on more work, particularly where awareness of the relationship between environmental sanitation and health is low or is not perceived to be a high priority. However, if economic benefits are tied to participation in project activities, women may gain a new perspective and can weigh the costs of taking on more work against the new economic benefits. A project in Nepal serves as a good example.

In Nepal, Women in the Environment (WE), a women's non-governmental organization initiated a squatter settlement programme in an effort to provide education, health, sanitation, waste disposal and drinking water facilities to members of the squatter community. Piles of solid wastes had gathered around the settlement, posing a major health threat to the community. The community, however, did not perceive this to be a health risk. WE organized lectures on the risks posed by improper solid waste disposal but the people remained unmotivated to change their habits. WE then changed tactics and provided a bucket and offered a cash prize of 500 rupees to the household which disposed of their solid wastes most effectively and kept their house clean. Within two months, every household was disposing of their waste at a WE-recommended site and no one wanted the cash reward. After living in a clean environment, families wanted to keep their homes that way.

---

### A Participatory Approach

Participation can be defined and measured on four levels. At its most basic level it involves people as passive recipients or beneficiaries. At this level, projects are only sustainable as long as the donor continues to give. At the next level, beneficiaries are asked to contribute to the project in the form of labour or materials. People can only make changes to the project by refusing to participate. At a third level, communities are consulted about their problems and needs but still do not have control over ultimate project design. They do not develop a sense of ownership or responsibility for implementing interventions. At the fourth level, participation becomes equal to empowerment. Communities are able to plan solutions to problems and take responsibility for them, allocate resources among themselves, decide how to cope with new problems that arise, and allocate benefits.

Thus effective participation is about an increase of power to the disadvantaged and can be defined as the organized effort on the part of marginalized groups to increase their control over resources and structures/organization. Where there is increased participation which results in a more democratic sharing of power, there will also be increased commitment to particular outcomes and objectives and thus longer term social sustainability of the project. The participatory approach recognizes the abilities of individuals and communities to identify, make decisions and solve problems in the home and community.

A participatory approach facilitates the integration of women into project activities because of its recognition that all members of the community must be consulted and be included in decision making processes before real and sustainable development can be achieved.

As long as project staff include women and realize that women are a heterogeneous group with different needs and interests, the participatory approach allows women to bring up their special concerns and have them heard on an equal basis to that of men's.

Women's knowledge in water, sanitation, hygiene and waste management can be brought into the problem identification and solving process.

## MACRO CONSIDERATIONS AFFECTING WOMEN

- GLOBAL INSTITUTIONAL POLICIES HAVE ERODED WOMEN'S EFFORTS AT THE MICRO LEVEL
- GLOBAL FOOD POLICIES
- DEBT CRISIS AND BALANCE OF PAYMENTS
- IMF AND STRUCTURAL ADJUSTMENT
- INCREASED MILITARIZATION
- WOMEN TRY TO MITIGATE NEGATIVE EFFECTS OF GLOBAL MICRO LEVEL INSTITUTIONAL STRUCTURES

### NEED FOR NATIONAL GENDER STRATEGIES

- WOMEN'S PARTICIPATION PIECEMEAL AND AD HOC
- PROJECTS ESTABLISH TEMPORARY LINKAGES BETWEEN GOVERNMENT MINISTRIES
- COMMITTEES ESTABLISHED FOR WOMEN'S PARTICIPATION
- NATIONAL SECTOR POLICIES ON WATER, SANITATION AND WASTE MANAGEMENT FORMULATED BY MANY COUNTRIES
- RECOGNITION OF THE NEED FOR NATIONAL GENDER POLICIES TO FOSTER WOMEN'S PARTICIPATION IN WATER, SANITATION AND WASTE MANAGEMENT PROJECTS

## NEED TO SENSITIZE DECISION MAKERS ON THE IMPORTANCE OF INCLUDING WOMEN

- RESISTANCE REMAINING TO FULL PARTICIPATION OF WOMEN
- URGENT NEED TO MAKE DECISION MAKERS AWARE OF THE IMPORTANCE OF INVOLVING WOMEN
- NEED FOR AWARENESS RAISING AND SENSITIZATION TRAINING COURSES IN GENDER DEVELOPMENT
- TARGET AUDIENCE FOR COURSES: ALL LEVELS OF GOVERNMENT AGENCIES, EXTERNAL SUPPORT AGENCIES AND PROGRAMME STAFF IN WASTE MANAGEMENT SECTOR

## WOMEN AND THE PROJECT CYCLE

- PROJECT AND PROGRAMME DELIVERY MECHANISMS TO EFFECT DEVELOPMENT CHANGES
- WOMEN MUST BE FULLY INVOLVED IN ALL STAGES
- SIX PHASES OF PROJECT CYCLE:
  - IDENTIFICATION
  - CONCEPTUALIZATION
  - PLANNING AND DESIGN
  - IMPLEMENTATION
  - OPERATION AND MAINTENANCE
  - MONITORING AND EVALUATION

### PROJECT IDENTIFICATION

- DECISIONS AT IDENTIFICATION STAGE INFLUENCE SCOPE AND NATURE OF WOMEN'S PARTICIPATION
- NEED FOR GENDER DISAGGREGATED BASELINE DATA
- LOGICAL FRAMEWORK ANALYSIS



## PROJECT CONCEPTUALIZATION

- PREPARATORY STUDIES
- FEASIBILITY STUDIES
- PROJECT DESIGN AND PLANNING NEEDS TO INTEGRATE WOMEN COMPLETELY AND NOT INCLUDE WOMEN ONLY AS A SPECIAL CONSIDERATION
- NEED FOR STRATEGIES TO OVERCOME OBSTACLES TO WOMEN'S PARTICIPATION

## PROJECT IMPLEMENTATION AND OPERATION AND MAINTENANCE

- WOMEN HAVE KEY ROLE IN:
  - DATA COLECTION TO IDENTIFY GENDER DIFFERENTIATED NEEDS AND PREFERENCES
  - PROMOTION OF PROJECT OBJECTIVES
  - PROVISION OF MATERIALS
  - OPERATION AND MAINTENANCE
  - FINANCIAL MANAGEMENT

## PROJECT MONITORING AND EVALUATION

- IS PROJECT BENEFITTING WOMEN
- WHAT IS THE ROLE OF WOMEN
- PROJECT IMPACTS ON WOMEN
- EVALUATION OF PROJECT DESIGN OF WOMEN'S INITIATIVES

## CONSTRAINTS TO WOMEN'S PARTICIPATION

- ATTITUDES
- TIME AND ENERGY
- FINANCES
- SKILLS AND TRAINING

### OPPORTUNITIES AND POSITIVE ACTIONS

- POLITICAL COMMITMENT AND ESA SUPPORT
- COMMUNITY SUPPORT
- SUBSTANTIVE RECOGNITION OF WOMEN'S CONTRIBUTION
- TRAINING AND HRD PROGRAMMES
- EFFECTIVE DELIVERY MECHANISMS FOR TRAINING
- PARTICIPATORY APPROACH

### QUESTIONS FOR DISCUSSION

1. Identify women's organizations in your country which would be appropriate organizations to work in environmental sanitation and waste management projects. Include all government and non-governmental organizations.
2. What role do you see these women's organizations being able to take on in environmental sanitation and waste management projects?
3. What institutional and organizational mechanisms would be needed to enable these women's organizations to work alongside government departments responsible for environmental sanitation and waste management initiatives in your country?
4. Describe an environmental sanitation or waste management project you are familiar with in regards to:
  - a. Were women involved in the project?
  - b. If not, would the project have benefitted from greater women's involvement?
  - c. If so, how were women integrated into project conceptualization, design and planning, implementation, and operation and maintenance stages?
  - d. What constraints were there to involving women in project activities?
  - e. How were these constraints overcome?
5. How would you achieve greater women's participation in environmental sanitation and waste management projects and programmes in your country?

## LIST OF CASE STUDIES

- (1) Pollution Control in Lake Mariut, Egypt.
- (2) Promoting Community Participation to improve Cairo's Public Housing.
- (3) Alternative Methods of Waste Collection in Peru.
- (4) Waste Management in Merida, Mexico.
- (5) Wanita Utama Initiates Waste Management in Gambong, Indonesia.
- (6) Management of Community Waste Disposal Systems
- (7) Barbados Environmental Association's Clean Gully Project.
- (8) Taiwan Homemakers Union Promotes "The Four R" to Reduce Municipal Waste.
- (9) "Women in Environment" Implement a Squatter Settlement Improvement Project.
- (10) Peruvian Women Plan Sanitary Education Against Cholera Epidemic in Comas District.
- (11) Girl Guide Association of Thailand's Water and sanitation Program in Ban Bok Village.
- (12) Sanitary Facilities for the Kgalagardi District of Botswana.
- (13) A Sanitation Project in Kurana Village, Sri Lanka.
- (14) All Pakistans Women's Association (APWA) Sanitation Project.
- (15) Women Members of Naripokkho Mobilize to Resist Toxic Waste Dumping in Bay of Bengal, Bangladesh.



## LIST OF CASE STUDIES

- (16) Local Residents in Naugatuck, Connecticut form Pollution Extermination Group to Close Landfill.
- (17) Training Housewives and Women Leaders in the Safe Use and Handling of Toxic Substances, Thailand.
- (18) "Eco Aides" Help Recycle Wastes for 18,000 Households in Manila.
- (19) Recycling Household Wastes in South Africa.
- (20) Training Programmes Help Women in Bolivia Improve their Environments.
- (21) Seminars Train Urban Women as Health Promoters and Decrease Environmental Problems.
- (22) Women Spearhead Promotion of Environmental Health, Sri Lanka.

All case studies adapted from:

UNEP and Worldwide Network 1991  
Success Stories of Women and the Environment.  
Preliminary Presentation in Anticipation of the Global Assembly  
4 - 8 November 1991, Miami.



## CASE STUDY 1

### POLLUTION CONTROL IN LAKE MARUIT, EGYPT

- Problem:** Lake Maruit was becoming dangerously polluted due to the discharge of industrial pollutants and domestic wastes into its waters. Fish became unfit for human consumption. Fishermen suffered a variety of maladies.
- Solution:** Dr. Saad has been involved in a project to demonstrate the treatment of industrial pollutants, water recycling and possible by-product recovery.
- Impact:** Industries have become aware of the problem and are implementing measures to reduce the amount of waste discharged to the lake. The lake is slowly recovering as the amount of pollution discharged is reduced.

Lake Maruit in Egypt is surrounded by a community of more than half a million people. About 10,000 people are employed as fishermen in the community. A number of industries that generate pollutants such as acids, alkalies, heavy metals and organic wastes are located along the shores of the lake. These include a match manufacturing company, a starch and yeast company, textile companies, petroleum and natural gas industries, and gas liquefaction, recycled paper and salt production industries. No waste treatment facilities existed in the community. Fishermen faced a variety of health problems such as skin infections, allergies, eye diseases, gastrointestinal troubles, liver fibrosis and severe anaemia. Dr. Saad, a member of the Sewage Authority Board, supervised research on lake fish populations such as tilapia nilotica, a species of fish consumed by many people because of its high protein value and low cost. The results indicated that the fish had accumulated pesticides and heavy metals and were unfit for human consumption. A majority of fishermen began to look for work in other fields.

Dr. Saad, in collaboration with the chairpersons of the industries involved, decided to demonstrate the possible treatment of industrial effluents discharged into the lake. Studies were also conducted on the possibilities of water recycling and of recovering by-products from industries. Initially, treatment technology was introduced to an industrial complex at a pilot scale. Management at the complex began to accept the ideas of in-plant control, waste minimization and end-of-pipe treatment as avenues to be pursued to reverse the adverse conditions in the lake.

Fifteen large-scale industries have been implementing in-plant control measures to curb the amount of waste discharged into the lake. The industries will be diverting their discharge to a new waste treatment plant located on the west side of Alexandria. In addition, industry operators have been providing training to their employees on in-plant pollution control measures and the selection of waste treatment technology. The ministries of irrigation, housing and health have been involved in the project as well. As a result, the aquatic environment of the lake is on a slow road to recovery as the sources of pollutants are gradually being reduced.

## CASE STUDY 2

### PROMOTING COMMUNITY PARTICIPATION TO IMPROVE CAIRO'S PUBLIC HOUSING COMMUNITIES

- Problem:** Public housing neighborhoods in Cairo had deteriorated due lack of government facilities for maintaining them. Garbage accumulated in open areas, sewage lines were blocked, sewage mixed with drinking water, etc. This created health hazards.
- Solution:** Wafaa Ahmed Abdalla trained government workers in community participation stimulation methodology. Government, community leaders and community members collaborated to initiate improvement projects based on self-reliance.
- Impact:** Five outdoor environment improvement projects were successfully carried out in five public neighborhoods in Cairo. As a result, sewage and accumulated garbage were replaced by trees and flowers. The areas became cleaner and more attractive and public health threats were diminished, benefiting the 5,000 residents.

In the 1960's, the Egyptian Government established public housing neighborhoods in Cairo, which proceeded to deteriorate due to the lack of government facilities to maintain them. This deterioration reached a peak in the mid-1970s, when blockage of sewage systems, sewage water flooding, and the accumulation of garbage in open areas became widespread problems. In 1978 public housing residents in the Khalafawy neighborhood initiated a self-help project to improve their environment. Their drinking water was contaminated by sewage due to dilapidated sewage and water pipe networks. Heaps of garbage with no system of clearance led to insect and rodent infestations. Health problems had begun to spread. Disgusted by these conditions, residents developed a plan for improving the environment of their 60-family housing block, which the community then carried out using self-financing and volunteer labour. They replaced the broken network of water pipes, unblocked sewage lines, removed the accumulated garbage and established a garden. They also arranged for garbage collection and created a children's garden. Their example stimulated other public housing blocks to initiate similar efforts.

Beginning in 1981, Wafaa Ahmed Abdalla, a senior expert in planning with the Institute of National Planning in Cairo, became involved in providing support to the Khalafawy community's efforts and in evaluating the factors underlying their success. With the knowledge gained from this exposure, Ms. Abdalla developed an applied methodology for stimulating community participation for community improvement. From 1985 to 1987, she conducted a training program for 22 government horticulture engineers. They received training on community participation stimulation methodology for environment improvements in public housing areas. Five successful environment improvement projects based on community self-reliance were subsequently implemented in five housing neighborhoods. These projects were the result of cooperation between the trainees representing the government and community leaders representing neighborhood residents. Residents contributed in the planning phase of the projects through their representatives (community leaders), who participated in problem identification, discussions, solution creation and planning for implementation. Many community members of all ages participated in project implementation through such tasks as clearing accumulated waste.

As a result of the project, 5,000 residents belonging to five public housing communities improved their outdoor environment and consequently improved their health status. Trees and flowers replaced sewage, water and garbage.

### CASE STUDY 3

#### ALTERNATIVE METHODS OF WASTE COLLECTION IN PERU

- Problem:** Conventional methods of garbage collection could not serve Lima's marginal communities. Burning rubbish polluted the air and household waste accumulated in rivers, on the round and in the streets. Disease-carrying insects and rodents thrived.
- Solution:** With the strong participation of local women, the Instituto de Desarrollo y Medio Ambiente in Lima developed and introduced a novel waste collection scheme that used small vehicles (tricycles, motorbikes, etc.) to access marginal communities.
- Impact:** Environmental awareness increased immensely and sanitary conditions improved. The garbage was removed from the streets, and the amount of air and water pollution was drastically reduced. Other institutions and municipalities in Lima adopted the scheme; the 30 micro-enterprises created as a result employ 150 women.

Accumulation of waste is a major problem in Lima, Peru, especially in marginal communities. The conventional method of garbage collection using compactor trucks is ill-suited to these areas, where narrow streets, bad roads and steep inclines often prevent access and shorten the life of the expensive, imported trucks. Consequently, marginal communities often lack regular garbage collection; residents either burn their rubbish, which creates air pollution, or simply throw their garbage into the river, vacant lots, etc. Disease-carrying rodents and insects thrive amidst the accumulated household waste.

Rosa Aquino Portal led a one-year pilot project launched by the Instituto de Desarrollo y Medio Ambiente (Institute of Development and Environment - IDMA) in 1987 to develop and test an alternative method of waste collection for marginal communities in Lima. In the system developed by IDMA, small vehicles (tricycles, motorbikes, etc.) follow micro-routes and collect garbage from street to street, periodically returning to a strategically-located collection center to exchange full containers for empty ones. Workers also carry out recycling activities at the center. Once a day, a municipal garbage truck comes to the center and transports the collected waste to a disposal site. Catholic Relief Services and the Institut für Internationalen Zusammenarbeith helped fund the U.S. \$25,000 collaborative effort by IDMA, the affected communities (in particular, local women's groups) and the municipalities. The project focused on increasing environmental awareness and involved neighborhood organizations, particularly women's groups, in all phases of the project - from preliminary research and system design through project evaluation. The pilot project covered three communities (5,500 people).

The alternative collection scheme works; it has cleaned up the streets in participating communities and reduced air, water and soil pollution. The labor-intensive scheme has many advantages, for example, its low cost (\$8-12/metric ton versus \$9-20/metric ton for the conventional method), easy implementation, minimal initial investment requirements, ability to generate employment, ability to service areas inaccessible to compactor trucks, and promotion of environmental education. Other institutions and municipalities in Lima have adopted and adapted this system.

Thirty ~~garage~~ collection micro-enterprises (each composed of about 10 people and 4 tricycles) currently operate in Lima's marginal communities, using the technology developed by IDMA.

or: garbage

## CASE STUDY 4

### WASTE MANAGEMENT IN MERIDA, MEXICO

- Problem:** Over 325 tons of garbage and 7.5 tons of pathological wastes are generated daily in Merida, a town in the Yucatan with over 650,000 inhabitants. Inadequate pickup and disposal services led to widespread pollution, disease and contamination.
- Solution:** Through workshops and meetings with waste generators, local authorities and ecology groups, a municipal law was proposed and a plan to develop waste disposal facilities including a recycling and composting plant was prepared.
- Impact:** A recycling plant has already been built using technology that was locally developed. The first incinerator for hazardous wastes in Mexico has been built and is being run by the local government. Merida will be the first city in Mexico to have a comprehensive plan for managing waste.

The town of Merida, with over 650,000 inhabitants, generates over 325 tons of solid wastes a day, including hospital, commercial and residential wastes. The town itself lacked adequate disposal services due in part to economic problems and a lack of planning. The garbage collectors were able to collect only 37% of the city's garbage. Local inhabitants were forced to find their own means of disposing of the garbage and resorted to storing it on patios or leaving it around garbage containers located near the highways. This led to an increase in infectious diseases as well as the contamination of air, water and soil.

In 1985, led by Gabriela de Carreto, a group of inhabitants got together to offer workshops to hospital workers and those responsible for producing hazardous wastes in order to educate them on more appropriate methods of hazardous waste disposal. A proposal to build a municipal incineration plan was prepared. Local inhabitants were educated on the need to recycle and dispose of their waste properly. The group also convinced local politicians that the public was ready to recycle and that the town needed a comprehensive waste plan in order to upgrade their standard of living. The conclusions of these workshops, together with several meetings held with the federal and state government and ecology groups, led to the preparation of municipal legislation for solid waste management. *plant?*

The plan was submitted to the World Bank, which, together with the Mexican federal, state and municipal governments, provided funds to build a recycling and composting plant as well as a communal incinerator for hazardous wastes. The municipal government absorbed the taxes and administrative costs for the project and donated 75 acres of land for the recycling and composting plant.

This effort has resulted in Merida being the first city in Mexico to have a comprehensive waste disposal management plan. Merida, a regional center for many communities in southeastern Mexico, has over 80 clinics and hospitals. The addition of the incinerator will greatly reduce the medical waste component and thus the hazards of contamination and the spread of disease; the recycling plant will promote the creation of industries using recycled material; and composting will create new hope for the peasants presently facing poor and depleted soils. A second phase of the project is planned which includes the privatization of waste collection in Merida.

## CASE STUDY 5

### WANITA UTAMA WOMEN'S FARMERS' ORGANIZATION INITIATES WASTE MANAGEMENT SYSTEM IN GAMBONG VILLAGE, INDONESIA

- Problem:** Gambong Village was economically and environmentally impoverished. Most land was barren and infertile. There were frequent outbreaks of contagious disease due to poor sanitation. Poverty was widespread, and most men had abandoned the village.
- Solution:** Seventeen women formed a farmers' organization and embarked on a house-to-house campaign encouraging their neighbors to build simple latrines and to use processed human waste to fertilize crops and improve soil conditions.
- Impact:** Soil conditions improved. As a result, agricultural production, incomes and the standard of living rose dramatically. Sanitation and health conditions have improved.

In the 1970s, Gambong Village in Indonesia suffered from multiple problems. Eighty percent of the people relied on the land for a living, but that land was so infertile that many men had left the village to seek employment elsewhere. Only 3% of the villagers had attended school beyond the primary grades. Improper human waste disposal and water shortages led to frequent outbreaks of contagious diseases.

PKK is a Indonesian social movement devoted to enhancing the role of women in grassroots development activities. In 1981 the PKK team in Gambong conducted several education programs and meetings for women. In the wake of these meetings, 17 village women formed an organization of women farmers called Wanita Utama or the "Honorable Ladies." The 17 "village motivators" then went house to house and encouraged each family to: 1) build two pit latrines; 2) use a simple system to convert the human waste into manure; and 3) use that manure to improve the land's agricultural productivity.

Using this simple, low-cost, environmentally friendly strategy, Gambong's women have raised village living standards without using outside resources. Agricultural yields are higher, especially for horticultural products such as fruits, vegetables, herbs and spices. Poultry and livestock raising has expanded. Increased incomes have transformed the village: the men have returned to these improved conditions; families can afford educational expenses through the high school level; housing has been built using a rotating credit scheme; and more and more villagers can afford radios, televisions and motorbikes. Moreover, sanitation and health conditions have improved. In 1986 the President of Indonesia gave Wanita Utama the KALPATARU Award for their continuous and impressive efforts to preserve and improve the environment.

## CASE STUDY 6

### MANAGEMENT OF COMMUNITY WASTE DISPOSAL SYSTEM

- Problem:** Inefficient waste collection led to the pile-up of domestic wastes in the San Antonio Valley II Subdivision outside Metro Manilla. Residents resorted to dumping and burning the garbage themselves. The waste attracted disease-carrying pests.
- Solution:** Through the Catholic Women's League, the community held meetings to discuss the problems. They sought their own solutions by using local resources to dispose of and to recycle garbage rather than depending on the Metro Manilla Authority.
- Impact:** Dumping of wastes into the local creek and the burning of domestic wastes by residents have decreased. Diseases carried by flies, cockroaches and mosquitoes have been minimized.

The project was initiated in a small community called San Antonio Valley II Subdivision (SAV) located outside Metro Manilla where 1,000 people (about 200 families) reside. The community could not depend on the Environmental Sanitation Center, which is part of the Metro Manila Authority, to pick up their domestic waste on a consistent basis because of the center's limited resources. As a result, garbage piled up, and residents resorted to burying their garbage themselves or to dumping it in a nearby creek.

Through the Ladies Auxiliary Committee of the Catholic Women's League (CWL), the community decided to remedy the problems themselves rather than to reform the Environmental Sanitation Center. They transformed wide vacant lots in the area into sanitary landfills where organic waste could be converted into fertilizer. Dry wastes such as plastic containers, tin cans, newspapers, old tires, etc., were either recycled or sold through junk dealers. Proceeds from the sales are given to maids and "househelps" working in private residences to provide an incentive for them to participate in recycling. Wet wastes such as fish intestines and gills, spoiled rice, fruit peelings and the like were either buried to produce plant fertilizer or put in disposable plastic bags for the garbage collectors. The CWL sent representatives to the local government to ensure garbage collection proceeded two times a week on a regular basis.

As a result of the new waste disposal system, residents burn and dump less garbage, although this activity still goes on. The CWL continues to hold meetings and circulates memoranda regarding the househelps, regarding proper waste disposal methods. Officers and committee members conduct inspections of house surroundings, and inform residents if disposal activities have not been performed properly. Concepcion Ocampo believes the work of her group, the CWL, has increased the role of women in the community. Moreover, CDL's efforts have saved money for the local government and for the Metropolitan Manila Authority since the project reduced collection activity by the local government by as much as 80%.

## CASE STUDY 7

### BARBADOS ENVIRONMENTAL ASSOCIATION'S GULLY CLEAN PROJECT COMBATS ILLEGAL DUMPING OF DOMESTIC WASTE

- Problem:** Massive heaps of garbage were illegally dumped by local residents in many of the country's beautiful gullies. One spot in particular had piles about 30 feet high and 50 feet wide.
- Solution:** The BEA formed a Gully Group consisting of BEA members and other local civic associations to remove an estimated 805 tons of garbage from one of the most notorious illegal dump sites, Jack-in-the-Box Gully.
- Impact:** Now, over a year after this cleanup, the gully is still garbage free and community groups are focusing on educating the public about proper waste management practices.

The gullies of Barbados serve as diverse ecological habitats for flora and fauna. Many Barbadian residents used gullies on the island as dump sites despite a legally mandated penalty for illegal dumping of up to \$5,000 (Bds) or 12 months in jail. Massive dumping may damage the nature of the gullies, endangering plant and animal species, as well as inducing soil erosion, sedimentation and flooding. One of the most notorious sites was Jack-in-the-Box Gully in St. Thomas, where the piles of garbage on both sides of the road were more than 30 feet high and 50 feet wide and extended the length of two cricket pitches. The gully was so filled with garbage that it spilled over the parapet bordering the gully and into the roadway.

- The Barbados Environmental Association (BEA), which is directed by an executive committee (73% women), initiated a gully project and formed a Gully Group consisting of representatives from the Barbados Museum and Historical Society, the Barbados National Trust, the Bellairs Research Institute and the Caribbean Conservation Association. They organized a "National Gully Week", during which a series of activities highlighted the plight of polluted gullies and brought the beauty and significance of gullies to the attention of the public. The Gully Group produced educational posters, gully fact sheets, bumper stickers, radio competitions on gullies, church sermons focusing on the issue, etc. The main message was that illegal dumping was a serious problem and that it was the responsibility of every citizen to practice proper disposal of waste.

The cleanup of Jack-in-the-Box Gully lasted for a three-week period, during which time 805 tons of garbage were removed. All contributions to the cleanup effort were voluntary, and only \$200 (Bds) was actually spent by the BEA on the cleanup. Had services and equipment not been provided voluntarily, the actual cost of the cleanup would have been \$40,000 (Bds). Now, one year after the project, there are many signs indicating that these efforts have positively affected the Barbadian community. The Jack-in-the-Box gully is garbage free and beautiful. Government, school, community and religious groups are all focusing more on environmental issues such as littering, recycling, illegal dumping and water pollution. As a result, there has been a reduction in illegal dumping, and watersheds are now better protected. Plans are under consideration to investigate the cleanup of other gullies.

## CASE STUDY 8

### TAIWAN HOMEMAKER'S UNION AND FOUNDATION PROMOTES "THE FOUR R'S" TO REDUCE MUNICIPAL SOLID WASTE

- Problem:** Rising GNP and the use of disposable goods (as a result of rising affluence and use of convenience products) resulted in a dramatic increase in municipal solid waste. The increase placed a heavy strain on disposal and management operations.
- Solution:** The Environmental Protection Committee of the Homemaker's Union and Foundation carried out activities to educate and motivate citizens to "Reduce, Reuse, Recycle and Regenerate."
- Impact:** The project helped to educate the public about "The Four R's." As a result, the total weight of solid waste was reduced by 20-40%. There was a monetary savings of NT \$.25-.51 on refuse disposal cost per person, per day, and each family recovered NT \$70 per month from recyclable material.

In 1990, Taiwan had a population of more than 20 million people, giving the island a population density of about 560 per square kilometer. Municipal solid waste is one of the most urgent problems. In 1988, municipal solid waste generation reached 5,880,000 metric tons, an increase of 11.3% from 1987 figures. Wai-Jane Ho has identified what she calls the three "highs" and three "lows" that explain why Taiwan is experiencing this problem: High Density - high economic and social indices affecting environmental loading; High Growth - increased pollution following economic growth; High Expectations - people expect a clean environment; Low Funds - low public investment in environmental protection; Low Manpower - few people working in environmental protection; Low Technology - technology often lags behind that of developed countries.

Wai-Jane Ho is a member of the Homemaker's Union and Foundation (HUF), established in 1987. It is one of the most outstanding women's organizations in Taiwan. HUF has over 1,000 members who want to unite to improve the quality of life and is funded by private firms and enterprises. The Environmental Protection Committee (EPC) is one of HUF's seven committees. The EPC planned 11 environmental protection projects during 1988-89. When the group established the Homemakers' Union Environmental Protection Foundation (HUEPF), it declared 1989 "The Year of Waste Reduction."

With a budget of U.S. \$87,000 per year, the HUEPF's 222 members engaged in many activities, such as promoting the "Hsi-Fu" Recycling Project, started by the Government's Environmental Protection Administration (EPA). HUEPF printed thousands of pamphlets to teach people how to sort their garbage and where to send recyclables. Each year, the group targets communities and sends teams to work with community members to encourage recycling. Other HUEPF members have worked through department stores to encourage shoppers to bring their own bags rather than using plastic bags. Another activity distributed educational materials published by EPA to children and adults. "The Little Magic Scouts of Environmental Protection" project involved educating a group of 30 youngsters about environmental issues. It included a field trip to teach children about waste generated and disposal. "The Environmental Protection Mother's Camp" is designed as an eight-week training course for mothers to learn about environmental protection.

HUEPF's efforts have succeeded in reducing the total weight of solid waste by 20-40%.



## CASE STUDY 9

### "WOMEN IN ENVIRONMENT" IMPLEMENT A SQUATTER SETTLEMENT IMPROVEMENT PROJECT

- Problem:** The squatter settlement at Balaju was neglected environmentally. Piles of solid waste created health risks. Many people drank unsanitary river water due to a lack of a potable water supply. The river was unstable.
- Solution:** Women in the Environment undertook an improvement program in the squatter community. They promoted sanitary waste disposal, facilitated the connection of the community to the main water line, assisted in efforts to stabilize the river bank, etc.
- Impact:** Households dispose of their solid waste in a sanitary fashion. A water pipe with three taps connects the community to the main water line. A gabion wall and a greenery line stabilizes the Bishnumati River bank. Kitchen gardens have been established and 20 women participate in a non formal education programme.

On the west bank of Nepal's Bishnumati River at Balaju, lies a squatter settlement of 70 households. The community there, suffered from poverty, poor sanitation, lack of potable water and the insecurity of living next to a river which threatened their homes whenever water levels were high. "Women in Environment" (WE), a Katmandu-based NCO, consists of professional women is committed to creating environmental awareness among Nepalese people, especially women and children, through education and village-based action programs. In 1990, WE initiated a squatter settlement program at Balaju in an effort to provide education, health, sanitation, waste disposal and drinking water facilities to the members of the squatter community. Prior to initiating the project, WE visited Balaju a number of times and spoke with local people to identify problems and issues. WE also arranged a "Training of Trainers Workshop" to equip WE members with knowledge and skills prior to implementing the project.

An action committee of 12 local people was formed to act as a catalyst for the development activities in the settlement. Piles of solid waste had gathered around the settlement, and WE considered poor management of solid wastes, a major health threat to women and children; however, the community did not identify this as a problem. WE organized lectures on the health risks posed by improper solid waste disposal. When the people remained unmotivated to change their habits, WE provided a bucket to each household and offered a cash prize of 500 rupees to the household which disposed of their solid waste most effectively and kept their house clean. Within two months, every household was disposing of their waste at a WE-recommended site, and no one wanted the cash reward. After living in a clean environment, families wanted to keep their homes that way.

WE also facilitated the connection of the community to the main water line. They helped the people liaise with government agencies and provided building materials for the water connection and two taps. Local people contributed their labour; they then added a third tap themselves. The squatter community also planted saplings and established a gabion wall to stabilize the river bank. Kitchen gardens have been established, and more than 20 women participate regularly in the non-formal education program.

## CASE STUDY 10

### PERUVIAN WOMEN PLAN SANITARY EDUCATION AGAINST CHOLERA EPIDEMIC IN COMAS DISTRICT

- Problem:** There was a massive cholera epidemic in the Comas District of Peru due to poor environmental management and lack of sanitation.
- Solution:** Vasco de Leche de Comas (Glass of Milk of Comas), in cooperation with the Association of Social Progress and Development and the local health commission, organized an emergency awareness and prevention program to combat the epidemic.
- Impact:** Not only was the epidemic contained, but the level of environmental awareness also grew as a result of the project. Approximately 20,000 people benefited directly from the anti-cholera program's, various educational and direct action (cleanup and fumigation) activities.

Due to extreme poverty in Lima, Peru's Comas District, 60% of the inhabitants lack potable water and adequate sewage and drainage systems. Hence, the struggle against infectious disease is unending. In January 1991, a severe cholera epidemic broke out which could have spread easily because of the conditions in which the population lived. Large rodent and insect populations were attracted by the garbage which accumulated in the area. Latrines were poorly maintained and water was stored in unhygienic areas.

Vasco de Leche de Comas (Glass of Milk of Comas) is a Peruvian non-governmental organization that works on preventative health, employment and nutrition issues basic to the survival of the poor. The group collaborates with various organizations such as UNICEF, municipal authorities and the Association of Social Progress (APDES), to achieve its goals. For example, under the leadership of Director Rosa Arteaga Sato, APDES provides technical assistance to Glass of Milk. In February 1991, Glass of Milk of Comas and APDES began working the local health commission to implement an emergency cholera awareness and prevention campaign in 62 human settlements of Comas. The campaign was incorporated into the Plan of Sanitary Education, a program for women which had been in place for several years.

Glass of Milk of Comas obtained the commitment of 200 women coordinators belonging to its organization, who then assumed responsibility for initiating activities throughout the district. They distributed 10,000 pamphlets that explained the basic preventative measures to take against the epidemic. They also started a public cleanup campaign, eliminating the accumulated garbage that constituted critical points for the spread of the epidemic, fumigating 5,000 centers where milk is prepared and distributed to beneficiaries, and organizing 3,000 latrine cleanups. Finally, the women placed notices about the epidemic in key public places such as schools, health centers and markets. Approximately 1,500 mothers belonging to the grassroots-level committees of Glass of Milk in Comas participated in the campaign. APDES supported these efforts by providing weekly training focused on hygiene, environment and environmental sanitation to 100 coordinators/directors from the 92 pueblos that participate in Glass of Milk. NCOS of Belgium, TROCARE of Ireland and SIMAVI of Holland provided U.S. \$20,600 in funding for the project.

As a result of the project, the epidemic was prevented from growing to disastrous proportions. In addition, environmental awareness increased in Comas: waste and rubbish are not discarded in the streets as frequently as they were prior to the program. Approximately 20,000 families benefited directly from the anti-cholera campaign.

## CASE STUDY 11

### GIRL GUIDE ASSOCIATION OF THAILAND'S WATER AND SANITATION PROGRAM IN BAN BOK VILLAGE

- Problem:** The village of Bank Bok had widespread dry season water shortages and very few latrines. Diarrhoea and other health problems relating to sanitary conditions were common, as were poverty and high levels of indebtedness.
- Solution:** With support from UNDP's "Promotion of the Role of Women in Water and Environmental Sanitation Service" program, the Girl Guide Association of Thailand implemented a participatory women-focused water and sanitation project.
- Impact:** One hundred percent of households now have latrines, compared to fewer than 10% before the project. Water supplies have been expanded/upgraded, low interest credit is available, diets and incomes have improved, and there is a more positive attitude toward women's participation in development activities.

Between 1985 and 1987, the Girl Guide Association of Thailand (GGAT) implemented the "Promotion of the Role of Women in Water and Environmental Sanitation Service" or PROWWESS program in a number of villages, including Ban Bok. Ban Bok is located in rural northeastern Thailand and has a population of 315 people in 41 households. Rice farming sustains the local economy. There was only one public cement case well used for domestic use and drinking water. The village also has 45, 200-litter cement jars used for storing rainwater. During the dry season, 70-80% of the villagers experienced drinking and domestic water shortages. Latrines were virtually unknown; only 7.3% of the households had them. Common diseases were diarrhoea, common colds and conjunctivitis.

GGAT promoted women's participation, education and leadership in relation to village-based water supply, sanitation and sustainable development projects. Field workers, many of whom were women, lived in Ban Bok gathering information, helping villagers identify needs and problems, and working with them to find solutions, mainly through informal visits and discussions. The project was designed by and focused on women. At training sessions, which were broadcast for the benefit of women unable to attend, women were seated in front rows and encouraged to present their ideas. These factors increased village women's participation in the project's formal decision making structures.

A latrine-building campaign commenced after housewives received training in health and sanitation. GGAT provided construction materials on instalment and households provided labour and the superstructure. Field workers trained people in fish farming and mushroom cultivation. GGAT established a community fund to meet villagers' credit needs, and successful health campaigns were launched. In addition, villagers dug a shallow well, providing 500 baht (local currency) and their labour. Persistent obstacles include: illiteracy among women, the use of Ban Bok's improved water supply by outsiders and the tenacity of negative attitudes toward women's participation at the leadership and construction levels.

One hundred percent of households now have latrines, compared to fewer than 10% before the project. Water supplies have been expanded and/or upgraded, low interest credit is available, diets and incomes have improved, and there is generally a more positive attitude toward women's participation in development activities. Trust between villagers and project staff was the key to success in what is now the district's most developed village.

## CASE STUDY 12

### SANITARY FACILITIES FOR THE K GALAGADI DISTRICT OF BOTSWANA

- Problem:** A severe outbreak of diarrhoea occurred in the Kgalagadi district due to water contaminated with human and animal waste.
- Solution:** Six members of the Kgalagadi District Council started sanitation programs in the district's 28 villages. With money from the Ministries of Health and Local Government and Lands, the Health Council built toilets to demonstrate to villagers.
- Impact:** Three months after the implementation of the project the incidence of diarrhoea decreased. By the end of 1990, 280 toilets had been built.

The Kgalagadi District is a desert area located in the southwestern part of Botswana. In early 1989, there was an outbreak of diarrhoea among both children and adults in the district due to poor sanitation and contaminated water. Out of every 10 patients who went to the local health facility, eight suffered from diarrhoea, vomiting or both. The health care workers in the district suspected water contamination. They took samples in the area and delivered them to Gaborone, the capital city of Botswana, for analysis. The results showed that the water was contaminated with faecal matter from animals and humans, thus explaining the diarrhoea outbreak. There were 28 villages in Kgalagadi, each with populations of 200 or more people. Some villages had more serious cases than others. The Ministry of Health was informed about the situation. The Ministry of Health and the Ministry of Local Government and Lands granted U.S. \$16,625 to the Health Council to address the problem.

Goitsemanang Baebele, along with four other members of the Kgalagadi District Council, started sanitation programs in every village. The district's Health Council, with a staff of 250 people, decided to use the limited amount of money to build toilets for demonstration to villagers. Health workers coordinated the collection of bricks and grass thatching, since other building materials, like corrugated iron sheets, are very expensive in the desert. Using the Council funds, 30 demonstration toilets were built in different villages. The health workers approached the Chiefs in each village and Kgotla meetings (town meetings) were called to inform villagers what the problems were and what they could do to solve them. Health workers also offered seminars for people in different villages. In the next phase of the project, health workers approached women in churches, clubs, etc., to teach them how to store water in the home and to boil water before use. Hand-washing programs were introduced in the schools.

Three months after the implementation of the project, the incidence of diarrhoea decreased. In 1990, more money was solicited, and 60 more toilets were built. By the end of the year, a total of 280 toilets were built. Women's groups in the villages now educate community members about water issues. In 1991, the Council requested additional funding from the Government and U.S. \$192,000 was granted for the project. An incentive program will be initiated in which a free toilet substructure will be given to each household. The District Health Team has been supplied with kits to test water from boreholes on a quarterly basis.

## CASE STUDY 13

### A SANITATION PROJECT IN KURANA VILLAGE, SRI LANKA

- Problem:** Kurana Village lacked sanitary facilities for human waste disposal. This led to environmental pollution and frequent outbreaks of diarrhoea.
- Solution:** With the support of UNICEF, the District Planning Unit implemented a participatory sanitation project which focused on women and developed the skills of the village's Rural Development Society.
- Impact:** As a result of the project, 25 water-sealed latrines were constructed. Increased awareness and adoption of improved water and sanitation practices reduced roadside pollution and the incidence of sanitation-related infections. Village isolation ended as the community established connections with the government.

Inadequate water and sanitation facilities in Kalutara District's outlying areas led to regular rainy season outbreaks of diarrhoeal disease, a major killer in Sri Lanka. In response, UNICEF supported a water and sanitation project for 25 villages in Kalutara District. The project used a process designed to strengthen the government extension system, community participation and institution building, especially women's participation in development projects and activities.

Kurana was selected as one of the project villages. Ninety-five percent of its 460 families were members of a socially-depressed group which as migrated to the village when they were offered Crown land. Kurana lacked both a sanitary waste disposal system and a potable water supply system, suffered from its remote location and a caste-based social ostracism. It had been bypassed by other development efforts. A core group of young people (mainly women) had joined the dormant Rural Development Society to try to improve their conditions.

The objective of the waste disposal project in Kurana was to construct 25 water-sealed latrines within a year. Early achievement of this goal secured UNICEF funds of 750 rupees per latrine and community self-help enabled latrine construction, which was accompanied by sanitation, health and nutrition education. The education emphasizes the ability of the community to effectively control the situation by using sanitary toilets and adopting related health habits. Orientation/training sessions for the Rural Development Society and government extension workers and officials prepared everyone for their roles in the participatory project. The Rural Development Society, especially its Village Development Team (9 of the 12 were women), had major responsibilities. Working closely with government extension workers and officials, they conducted a community survey to assess village needs and resources, and analyzed the data; mobilized village participation; managed the UNICEF funds; and planned, supervised and monitored the construction program.

Twenty-five water-sealed latrines were constructed. Heightened awareness and the adoption of better water sanitation practices reduced roadside pollution and the incidence of sanitation-related infections. The community established connections with the government. This ended its isolation and led to the implementation of other development projects in Kurana.

## CASE STUDY 14

### ALL PAKISTAN WOMEN'S ASSOCIATION (APWA) - SANITATION PROJECT

- Problem:** Absence of sanitation and sewage facilities led to constant health problems for families occupying areas of Karachi. Poor water drainage attracted flies and mosquitoes and caused diarrhoea, malaria, etc., in the population.
- Solution:** The All Pakistan Women's Association helped to introduce sanitation facilities where they were needed in the community. They first introduced simple bucket latrines and then helped community members to build more permanent facilities themselves.
- Impact:** Health in the communities improved, and women who formerly spend much of their time caring for sick children, had more time to pursue other activities. They received training skills such as preserving vegetables and local handicrafts.

During the last ten to fifteen years, thousands of families in search of food and employment have moved to certain areas of Karachi from rural areas of Pakistan and from other countries. They occupied unauthorized land in unplanned settlements. These people suffered from constant health problems due to the absence of sewage systems and sanitation. Poor drainage attracted flies and mosquitoes, causing diarrhoea, typhoid, malaria and dysentery among the population. The focus of the project by the APWA was to improve health through better sanitation practices and facilities in the communities.

Money posed a constraint, therefore the first step was to introduce simple improvements such as bucket latrines and soakpits for human sewage. Open pits were dug for the disposal of wastewater. In order to raise money to build more permanent sanitation structure, APWA introduced income-generating activities. Women were trained in such skills as pickling and preserving vegetables, embroidery and carpet and rug making to help raise money. APWA and other organizations helped communities to save money by helping them build facilities themselves rather than having it done by commercial companies.

Small social welfare organizations developed, and community member approached the Karachi Development Authority and the Karachi Municipal Corporation for further assistance when needed. In some communities, latrines have been constructed inside the houses.

Aside from improved sanitation and health, another social benefit arose from the implementation of the project: the project instilled confidence in the women of the community. Improvements in the health of women and children had freed up women's time to pursue activities that interest them. Previously, women had spent much of their time caring for sick children. Women participate in income-generating activities as well as contribute physical labour to construction projects. More and more women take out loans from cooperatives and women's banks newly operating in Pakistan.

## CASE STUDY 15

### WOMEN MEMBERS OF NARIPOKKHO MOBILIZE TO RESIST TOXIC WASTE IMPORTATION AND DUMPING IN THE BAY OF BENGAL

- Problem:** A ship originating in the U.S. was attempting to dump toxic and other nuclear wastes into the Bay of Bengal. In addition, a proposed manufacturing plant, based on imported toxic waste, jeopardized public health and the environment in Bangladesh.
- Solution:** Women between the ages of 18 and 65 united to resist these environmental hazards. They conducted a public awareness campaign and protested through letters to the Bangladeshi Government.
- Impact:** Pollution which would have resulted from the dumping and importation of toxic waste was averted. The attempt to pollute Bangladeshi coastal waters with toxic and nuclear wastes was thwarted, and the proposed manufacturing plant, based on imported industrial waste, was shelved.

In February 1989, two news reports appeared almost simultaneously in the Bangladeshi press. One pertained to a proposed manufacturing plant in Bangladesh based on imported industrial waste; the other referred to the clandestine movement in the Indian Ocean of a U.S. ship attempting to dump its 15,000 tons of toxic incinerator ash into the Bay of Bengal. The ship Felicia had originated in Philadelphia, changing its name several times in two years to avoid detection. Dumping this toxic waste off the coast of Bangladesh would threaten the fishing industry, the area's main source of livelihood. It would also undermine the health of humans, plants and animals living on the coast.

Starting in March 1989, *Naripokkho* (a Bangladesh women's activist group) mobilized like-minded individuals and organizations - women's organizations, human rights and legal aid groups, scientists, students, researchers and social activists - and undertook a series of actions as the organization "Foreign Waste Resistance Committee." Its prime objective was to build up public opinion to put pressure on the Bangladeshi Government to take steps against these toxic waste threats. They conducted a nationwide signature campaign, distributed information leaflets, demonstrated, wrote newspaper articles, and held seminars and press conferences to create public awareness about industrial waste and its possible effects. Sayyada Ghuznavi and Parvin Hasan jointly coordinated these activities, which cost Bangladesh Taka 20,000. *Naripokkho* provided most of the necessary funding, although member organizations also contributed financing. There was also a strong element of volunteerism in the campaign. Several hundred women participated in the activities.

As a result of the group's campaign, the two toxic waste issues were resolved by October 1989. The proposed industrial waste-based plant was cancelled. The Bangladeshi Government used its resources, including the Navy, to protect its territorial waters. The Indian Navy also joined in the search for the ship, although given the enormity of the problem, neither navy could confirm or deny whether any waste had in fact been dumped in the Indian Ocean. The most dramatic effect of the actions, however, has been the awareness created about the hazards of industrial waste. The group, renamed the "Environment Protection Committee", continues to operate with a wider mandate on environmental matters.

## CASE STUDY 16

### LOCAL RESIDENTS IN NAUGATUCK, CONNECTICUT FORM POLLUTION EXTERMINATION GROUP (PEG) TO CLOSE LANDFILL CONTAMINATING WATER SUPPLY

- Problem:** Laurel Park Landfill in Naugatuck, Connecticut posed an environmental threat to the community. Chemicals contaminated the aquifers that feed the groundwater supply. Noxious odours from chemicals and fires filled the air in the town.
- Solution:** PEG, Inc. was formed when Mary Lou Sharon observed orange leachate oozing toward her backyard. PEG pressed state government authorities to close the landfill, install monitoring wells and supply potable water for bathing, drinking and cooking.
- Impact:** Monitoring wells were installed. A \$20 million cleanup was initiated by the USEPA. A consent agreement has been signed between the Department of Environmental Protection and Uniroyal (potentially responsible party) to implement a waterline to supply approximately 52 families with potable water.

In October 1981, the U.S. Environmental Protection Agency (USEPA) added Laurel Park Landfill in Naugatuck, Connecticut to a list of 114 hazardous waste sites initially designated for cleanup under the \$1.6 billion federal "Superfund" program. The Laurel Park landfill was in the sixth most dangerous group out of 11 groups. The Superfund was established in December 1980 in response to a public outcry over a hazardous waste emergency at the Love Canal site in Niagara Falls, New York. Laurel Park Landfill rises high atop the Andrew Mountain Hillside and can be seen for miles around. It was suspected of causing surface and groundwater contamination. A brook which flowed beneath the landfill was heavily polluted with high levels of toxic chemicals and landfill leachate; this brook traveled downhill through a schoolyard.

The Pollution Extermination Group (PEG) was founded by three women who lived within the vicinity of the 19-acre landfill. Mary Lou Sharon was elected the group's president and was instrumental in PEG becoming incorporated. She urged PEG to intervene in the court system, secured legal representation and lobbied in Washington for the reauthorization of Superfund. The main objectives of the neighbourhood organization were to close Laurel Park and to secure potable water for the residents (approximately 50) within a 1/4 mile radius of the site. The major concerns were installation of monitoring wells on site and petitioning the State Department of Environmental Protection (DEP) to test for dioxin. Both were accomplished. PEG also requested monitoring of the leachate line leaving the site, which eventually empties into the Naugatuck Public Works Treatment Plant. This was accomplished as part of the cleanup plan.

USEPA is suing Uniroyal Chemical Co., Inc. and B.F. Goodrich for the cost of the cleanup. Those companies in turn are suing 200 municipalities, business and individuals arguing about the percentages of responsibility. The estimated cost of the cleanup for two landfills owned and operated by the Murtha companies (including the Laurel Park landfill) is estimated at \$70 million. After three years of litigation with 36 responsible parties, 19 agreed to design and implement a final cleanup plan. This final plan, to cost \$20 million, will involve capping the landfill, lowering the water table and eliminating direct human exposure to waste contamination. PEG Inc. maintains contact with DEP and the EPA concerning the status of the landfill.



## CASE STUDY 17

### TRAINING HOUSEWIVES AND WOMEN LEADERS ON THE SAFE USES AND HANDLING OF TOXIC SUBSTANCES, THAILAND

- Problem:** The dangers of toxic substances in agriculture, food and the household are widespread and increasing, especially in rapidly developing countries such as Thailand.
- Solution:** The Foundation for Life-long Education and UNEP initiated a training program for women on toxic substances in the home and in agriculture. The Department of Non-formal Education organized workshops attended by 166 women.
- Impact:** The 166 women were asked to share the information with at least 10 people, and a follow-up study showed that the program reached 10,267 people with information on toxic substances. In addition, the people who were reached through the program had made improvements in practices related to harmful substances.

Due to concerns over the growing dangers from toxic substances in agriculture, foods and the household, the United Nations Environment Program (UNEP) earmarked funds to train women leaders on the proper use of hazardous substances. Thailand was one of the countries to utilize these funds.

The Thai training program was headed by one of UNEP's Senior Women Advisors, who was also the president of the Foundation of Life-long Education. The Foundation and UNEP provided policy guidelines; the Ministry of Education's Department of Non-formal Education implemented the project. The training program was known as the "Project to Train Housewives and Community Leaders in Safe Uses and Handling of Harmful Substances in Homes and Agriculture", and it ran for two months in 1989. One hundred and sixty-six women (local housewife group leaders, village health workers, volunteer teachers of the Department of Non-formal Education and local leaders) attended one of the five three-day workshops on toxic substances held throughout Thailand (one per region).

The workshops provided information on the proper use of toxic substances through lectures, videotapes, exhibits, models, etc. Equally important, the workshops offered the women skills training and practice which instilled self-confidence in their ability to share knowledge acquired in the workshop with neighbours and friends. The women researched topics individually and in teams and reported back to the group. They also prepared and performed short plays on training themes. On the last day, the women went into the community and practiced the strategies they had learned for providing information on the use of toxic substances.

Within three months, the program's participants had shared their knowledge with over 10,000 people, more than six times the expected number of people. In addition, the people who were reached directly and indirectly through the program had made improvements in practices related to harmful substances. The Thai Government has earmarked its budget for a similar workshop to be undertaken in 25 more provinces for 1992.

## CASE STUDY 18

### "ECO-AIDES" HELP RECYCLE WASTES FOR 18,000 HOUSEHOLDS IN MANILLA

- Problem:** There was a lack of adequate waste disposal, landfill space and effective garbage recycling program.
- Solution:** Households were urged to separate wet and dry wastes. Existing junk shop traders were organized to collect and pay for dry wastes to sell to factories as secondary materials.
- Impact:** The environmental and economic benefits include waste recycling creation of income-generating opportunities, reduction in raw material consumption by factories, and improvements in general health. The project has been so successful that the Metro Manilla Authority is about to experiment with a similar scheme.

Many of the residents in the Metro Manilla area did not have adequate waste disposal systems. Landfill space was scarce, and few residents had thought of recycling household wastes. Land, air and water pollution was a major problem in the city, and many canals were clogged with plastics.

In February 1983, the Metro Manilla Council of Women Balikatan Movement, Inc. planned a garbage recycling program in order to improve waste disposal for the town's 18,468 households. The San Juan Chapter of the Council organized 10 existing junk shop traders to collect and pay for dry waste. A system was set up whereby "eco-aides" collect the community's dry household waste once a week. This waste is then sold to junk shop traders who in turn sell it to the factories and secondary material. The factories then convert the dry waste into new products.

The women also continuously wrote to the households urging them to separate their wet and dry garbage and sell it to the "eco-aides". Seminars, meetings and general assemblies in the villages explained the problem and the proposed solution. The Metro Manilla Council of Women provides an annual subsidy of U.S. \$400 which is used for collection equipment, uniforms and "eco-aide" identification cards. The village councils cooperate by supporting the program.

The project has resulted in many environmental, health and economic benefits. Streets and canals are cleaner. Most community members are becoming more cooperative in separating wastes. There is less air, water and land pollution. Street litter has been reduced. Participating households, "eco-aides" and junk shop traders earn money from the program, and the general health of the community has improved. Factories consume less fuel when they use recycled materials and spend less on imports of raw material, thereby decreasing overall production cost. Fewer government dump trucks are needed to collect the wastes, thereby saving government funds. Less government money is spent on unclogging canals which were previously clogged with plastic. The project has been so successful that both the Metro Manilla Council and the Government of the Philippines are considering replicating it. Ms. Camacho was asked by the Metro Manila Authority to advise them on how to word an ordinance that would compel residents to recycle.

## CASE STUDY 19

### RECYCLING HOUSEHOLD WASTE IN SOUTH AFRICA

- Problem:** Rural people were not using the ground around their huts and homes efficiently. Organic matter that could have been used as compost for home gardens was swept away.
- Solution:** An EarthCare Team with Ecolink initiated a program to educate the local population of women about the benefits of home gardens and the ways waste items can be recycled and utilized in the gardens.
- Impact:** Community members were able to produce chemical-free vegetables economically. The project contributed to improved nutrition and reduced household waste by recycling. It also resulted in cash savings at the household level.

The local population of KaNgwane did not use the ground around their huts efficiently and allowed organic matter that could be used as compost in home gardens to go to waste.

Gladys Khangwayini Mashinni, an EarthCare team leader with Ecolink, a non-governmental organization, initiated a garden/nutrition project in KaNgwane after an assessment of community needs was made. She first attended a training course to observe how a similar project was being conducted in another part of South Africa. Then three team members were chosen. The team began visiting rural communities and meeting with women leaders to discuss what was most needed. From these discussions, the Earthcare team initiated nutrition lessons, food demonstrations and training in the trench garden technique among the local women. The trench garden method uses organic kitchen waste, grass cuttings and crushed glass to produce chemical-free vegetables at low cost.

The team demonstrated the advantages of home gardens and recycling and produced a brochure with illustrations and easy-to-follow instructions that explained how to create a home garden. The key to designing an effective brochure was using simple wording, simple illustrations to complement the words and illustrations that depicted black participants. The team pays daily visits to the community groups participating in the project. Private donors - mainly Nestle South Africa - fund the project, which costs about U.S. \$50,00 annually. One obstacle was that local women had very little money with which to buy the seeds needed for the initial planting, although vegetable sales cover the costs of future plantings.

The home gardens produce cheap vegetables that are free of chemicals. This project improved the nutrition of the township and saved cash formerly used to purchase vegetables for consumption. It also reduced household waste. Community women are the sole participants, although the men are supportive of their efforts.

## CASE STUDY 20

### TRAINING PROGRAM HELPS WOMEN IN BOLIVIA IMPROVE THEIR ENVIRONMENTS

- Problem:** Many low-income communities in Bolivia lack basic services and amenities such as potable water, waste disposal, adequate vegetation and safe play areas. As a result, the residents of these communities are exposed unnecessarily to health risks.
- Solution:** In cooperation with Bolivia's Ministry of Urban Affairs, the United Nations Center for Human Settlements initiated a training program that organized and enabled women and school children to improve their living environments.
- Impact:** To date, the training program has assisted 103 low-income communities to improve the use of their homes and family gardens, install and maintain water supplies, secure rubbish disposal, etc., through self-help and collective action. Women in particular are now better informed and equipped to improve their environment.

Since 1987, the "Community Participation for Human Settlements" training program in Bolivia has helped 103 low-income communities to build or upgrade and maintain their homes. This United Nations Center for Human Settlements-HABITAT program is carried out in coordination with Bolivia's Ministry of Urban Affairs and targets women and young people for participation in self-help building projects. The plots of land where the people have built their homes do not always provide a safe and healthy living environment. They often lack basic services like clean water supplies and refuse disposal. In some areas, a lack of trees and other vegetation exacerbates problems: in the dry season the air is choked with dust; in the wet season, the streets are seas of mud.

Faced with these circumstances, women have organized to improve their environment with the help of the UNCHS-HABITAT training program. This program provides practical skills training and brings together the community and the appropriate authorities for the provision of services. Training activities include sensitization and practical skills training in topics such as the links between hygiene in the home and preventable diseases, the maintenance and safe use of dwellings, the productive use of the family garden, tree-planting for shelter and the reduction of dust pollution, and the protection and maintenance of the water supply. Non-formal educational techniques are used to get the message across. Through a process of group analysis, program participants develop a plan of actions to collectively improve the use of their homes and family gardens, install and maintain clean water supply systems, obtain regular waste disposal, etc. To date, 7,397 community members (49% of them women) have participated in one of 245 training workshops. The program also targets young people, who are effective attitude changers within their families: a 1990 campaign organized through the schools and implemented by 14 women teachers helped 7,000 children to understand the link between health, housing and hygiene practices.

As a result of the project, inhospitable living spaces have been converted to developing communities which have the capacity to maintain their own services. Fifty percent of the new neighbourhoods have obtained a clean water supply and 50% have obtained rubbish collection. Communities have initiated tree-planting campaigns and other neighbourhood improvement activities. Women are better informed and equipped to intervene in the improvement and preservation of their dwellings and immediate environment, and in the control and management of services. This guarantees that services are well maintained and that the planning of the neighbourhood meets women's needs.

## CASE STUDY 22

### WOMEN SPEARHEAD PROMOTION OF ENVIRONMENTAL HEALTH, SRI LANKA

- Problem:** There was a need to promote awareness of and activities on environmental health at the household and community level.
- Solution:** Members of a women's organization, Lanka Mahila Samiti (LMS), organized training courses. They then organized a mass campaign to educate rural women in promotion of a healthy environment.
- Impact:** Rural women and households in the districts where the program was held have become more aware of environmental health issues. The environmental health program has evoked unusual interest and support among rural women. Consequently, it will be carried out again this year in 15 additional districts.

The importance of environmental health to human well-being is now universally recognized. The Lanka Mahila Samiti (LMS) is a well-established non-governmental women's organization which has been working to improve the status of rural women for the past 60 years. In 1990, LMS initiated a one-year program, with the assistance of the Central Environmental Authority and UNICEF, to promote awareness and activities related to environmental health in Sri Lankan villages. Efforts were channelled through rural women's committees already established in the villages.

Ms. Fernando (Vice-President of the Child Protection Society) initiated the Environmental Health Program in Sri Lanka in 1989, and was elected president of LMS in June 1991. The Environmental Health Programme had four components: safe domestic water, food safety, solid waste disposal and vector control. It promoted a variety of good practices, including (among many others) sanitary toilets, compost making, fuel-efficient stoves, home gardening, tree planting and the proper disposal of human waste, garbage and wastewater. As a preliminary activity, officers of the Health Department, the National Water Supply and Drainage Board, the Municipality and the Central Environmental Authority conducted a two-day training program for 25 *Parikshana Sevikas* (Senior Field Coordinators of LMS) on the above issues. From August to October 1990, these *Sevikas*, with the assistance of local authorities and health staff, held 28 training courses for 547 members from 274 rural women's committees (*samitis*) in 14 districts. These 547 women then divided into groups and visited 30 households per *samiti* in the first month to provide environmental health awareness and education on two of the four subjects. In the second month, they revisited the same 30 households and educated these families, especially the women, on the remaining two subjects. In the third month, they obtained the cooperation of whole villages and the officials responsible for their welfare to organize a mass *shramadana* (group free services) campaign to meet their most pressing needs. The program was repeated over the next three months, covering a total of 60 households per *samiti*.

The program shows that high standards of environmental hygiene and education can be implemented in areas of rural poverty, given the right motivation and organization. The Environmental Health Program evoked unusual interest and support among *samiti* members. As a result of this successful education, mobilization and sensitization campaign, the same type of program will be implemented in 15 more districts this year through the Sri Lanka Girl Guides' Association and *Vanitha Karya Samajas* (Rural Women's Societies) by the Women's Bureau.

## VISUAL MATERIALS, SLIDE SOUND MODULES, FILMS AND VIDEOS

### A. SLIDE SOUND MODULES

---

Available from:

International Training Coordinator  
Water Supply and Urban Development Department  
The World Bank  
1818 H Street NW  
Washington DC 20433 USA

or from:

UNDP/World Bank  
International Training Network Centres

---

Module	1.1a	Water, Wastes and Health
	5.1a	Ventilated Improved Pit Latrines
	5.1b	Pour Flush Toilets
	5.1c	Other Sanitation Technologies
	5.1d	Baldia, Pakistan: Urban Sanitation
	5.2a	Septic Tanks
	5.2b	Small Bore Sewerage
	5.2c	Conventional Sewerage
	5.4c	Resource Recovery: Biogas, Aquaculture, Composting



**B. FILMS AND VIDEOS**

---

**Available from:**

**Regional Film Libraries of the United Nations  
(any of the 107)**

**or from:**

**Department of Public information  
Dissemination Division  
Room S - 805A  
New York, USA  
Phone 212 963 6982  
Fax 212 963 6869**

---

**1. Our Water Our Lives (1987) 30 minutes colour Film**

Filmed in six countries this documentary covers a variety of water and sanitation efforts in the developing and industrialized world. It describes the difficulties of laying a water pipeline in rugged Nepal, establishing new oasis along the traditional small caravan route in Mali, combating an acidified water supply in Sweden, providing better sanitation in urban Indonesia.

**2. Making Their Way (1990) 27 minutes colour Video**

Women everywhere still face discrimination in the work place, from unequal pay to restrictive customs and traditions. Filmed in 5 countries: Czechoslovakia, Ecuador, Lesotho, Norway and Singapore, it shows women from different economic and social levels working in a variety of jobs. It emphasizes their need for equality in career opportunities and advancement as well as personal growth.

**B. FILMS AND VIDEOS (cont'd)**

---

**Available from:**

**National Film Board of Canada  
Sales and Customer Services D - 10  
P.O. Box 6100 Station  
Montreal, Quebec  
Canada  
Fax 514 283 7564**

**All videos can be purchased inexpensively under \$ 50 US.**

---

**1. Eight Litres a Minute (1988) 30 minutes colour Video**

This video examines the shocking levels of air pollution which can be found in Mexico and Brazil.

**2. Prescription for Health (1983) 23 minutes colour Film**

This film reviews the water and sanitation-related diseases and shows how improper disposal of human wastes causes disease transmission. The extensive animation in the film greatly aids in understanding disease transmission and the interlinkages between water, waste disposal, hygiene and health.

**3. Adams World (1989) 19 minutes colour Video**

Elizabeth Dodson Gray, feminist theologian, environmentalist and futurist, speaks about the severity of the global environmental crisis. She analyzes its root causes and argues that our predicament stems from the patriarchal system.



## **VISUAL MATERIALS, SLIDE SOUND MODULES, FILMS AND VIDEOS**

### **B. FILMS AND VIDEOS (cont'd)**

#### **4. Waste Management A Time for Action (1983) 10 minutes colour Video**

This fact filled documentary describes the urgent need for safe and effective methods of tracking, treating and disposing of or storing hazardous wastes. The video explains what hazardous waste is, how we have disposed of it in the past and how we must dispose of it in the future to protect our environment and reduce health risks. It describes examples of reduction, recovery, reuse and recycling.

#### **5. The Underlying Threat (1989) 48 minutes colour Video**

This film shot in Atlantic Canada, Quebec and New York is about groundwater pollution and what we can do about it. In describing how four families and two communities responded to the discovery of toxic chemicals in their water, the video brings home the human hardships associated with this form of pollution.

#### **6. Kingdom of the Third Day (1988) 31 minutes colour Video**

This video looks at the dumping of nuclear wastes in the Irish sea.

#### **7. No Spare Parts (1990) 22 minutes colour Video**

A documentary about appropriate or intermediate technology in the Third World focusing on an industrial section of Kumasi in Ghana called Suame Magazine. Interviews are interwoven with the sights and sounds of this community where everything is used and reused, and nothing is discarded.

## **VISUAL MATERIALS, SLIDE SOUND MODULES, FILMS AND VIDEOS**

### **B. FILMS AND VIDEOS (cont'd)**

---

**Available from:**

**World Bank/UNDP  
Water and Sanitation Programme  
Washington**

---

#### **1. People and Solutions (1984) 35 minutes colour Video**

This video reviews the major low cost sanitation and water supply technologies. It describes latrine construction, slow sand filtration, gravity water supply and handpump wells. The video also describes waste stabilization ponds for human waste disposal. The video stresses linkages between sanitation, water, hygiene education and health and the need to adopt appropriate low cost solution in the developing world for the disposal of wastes and the provision of water.

## BIBLIOGRAPHY

A Handbook for Social/Gender Analysis Coady International Institute. A CIDA Publication, Social and Human Resources Development Division.

Agenda 21 Women Environment Development An Easy Reference to the Specific Recommendations of Women. UNIFEM

Archer,A.B. (1993). Solid Waste Management in the Caribbean: Problems, Consequences and Alternative Solutions. Draft

Aziz, K.M.A et al (1990). Water Supply, Sanitation and Hygiene Education. Water and Sanitation Report I. UNDP/World Bank Water and Sanitation Programme, The World Bank.

Bakhteari,Quratul Ain and Wegelin-Schuringa,Madeleen (1992). From Sanitation to Development: The Case of the Baldia Soakpit Pilot Project. IRC International Water and Sanitation Centre, The Hague, The Netherlands.

Boot, Marieke T. (1990) "Making the Links": Guidelines for Hygiene Education in Community Water Supply and Sanitation. International Reference Centre Occasional Paper Series Number 5, The Hague, The Netherlands.

Boot, Marieke T. (1991) Just Stir Gently: The Way to Mix Hygiene Education with Water Supply and Sanitation. Technical Paper No. 29. IRC, The Hague, The Netherlands.

Boot,M., and Caincross,S. (Eds.) (1993) Actions Speak: The Study of Hygiene Behaviour in Water and Sanitation Projects. International Water and Sanitation Centre and London School of Hygiene and Tropical Medicine.

Boserup, Ester. (1989). Women's Role in Economic Development. London: Earthscan Publications.

Burgers,L., Boot, M. and Van Wijk-Sijbesman,C. (1988). Hygiene Education in Water Supply and Sanitation Programmes. Technical Paper No. 27. International Water and Sanitation Centre, The Hague, The Netherlands.



## BIBLIOGRAPHY

- Carr, M & Sandhu, R. (1988). Women, Technology and Rural Productivity: An Analysis of the Impact of Time- and Energy-Saving Technologies on Women. UNIFEM Occasional Paper No.6. New York, N.Y. USA, United Nations Development Fund for Women.
- Chachage, C.S.L., Nawe, J. & Wilfred, L.L. (1990). Rural Water and Sanitation Programme in Morogoro and Shinyanga Regions: A Study on Women Involvement in the Implementation of the Programme. Dar es Salaam University, Dar es Salaam, Tanzania.
- CIDA Women and the Project Cycle: A Workbook. Internal document for the Canadian International Development Agency.
- CIDA (1986). Guidelines for Integrating WID into Project Design and Evaluation. Program Evaluation Division, Policy Branch, Canadian International Development Agency.
- Cross, Piers. (1983). Community-Based Workshops for Evaluating and Planning Sanitation Programs: A Case Study of Primary Schools Sanitation in Lesotho. TAG Technical Note Number 7. UNDP/World Bank.
- Donnelly-Roark, P. (1987). New Participatory Frameworks for the Design and Management of Sustainable Water supply Projects. WASH Technical Report Number 52/PROWESS Report Number 50.
- Edwards, Peter (1992). Reuse of Human Wastes in Aquaculture. Water and Sanitation Report 2 UNDP/World Bank Water and Sanitation Programme. The World Bank.
- El-Katsha, S. et al. (1989). Women, Water, and Sanitation: Household Water Use in Two Egyptian Villages. *Cairo Papers in Social Science, Social Research Centre Research series No. 1, Volume 12, Monograph 2.*
- Elmendorf, Mary (July 1990). The IDWSSD and Women's Involvement. Prepared for the World Health Organization with support from UNDP on behalf of the Steering Committee for Cooperative Action for the International Drinking Water Supply and Sanitation Decade.

## BIBLIOGRAPHY

- Kamminga, E. (1991). Economic Benefits from Improved Rural Water Supply: A Review with a Focus on Women. Occasional Paper Series, No.17. The Hague, The Netherlands, IRC International Water and Sanitation Centre.
- Karp, A., Martin, P., & Guild, S. (1990). Final Evaluation for CARE/Bolivia Child Survival and Rural Sanitation Project. WASH Field Report, No. 312. Arlington, VA, USA.
- Lessons Learned Forum: Information for Action from the Water and Sanitation for Health Project (WASH) Diane Bendahmane (Ed.) "Playing Catchup with Sanitation". September 1992.
- McCommon, C., Warner, D., and Yohalem, D. (1990). Community Management of Rural Water Supply and Sanitation Services. Water and Sanitation Discussion Paper Series. WASH Technical Report Number 67 DP Number 4. UNDP/World Bank Water and Sanitation Program.
- Melchior, S. (1989). Women, Water and Sanitation or Counting Tomatoes as Well as Pumps. PROWESS/UNDP Technical Series: Involving Women in Water and Sanitation - Lessons, Strategies, Tools.
- Melchior-Tellier, Siri. (1992). "A Lesson in Listening" In *Waterlines Vol.11 No.2*, p. 5-8.
- Mills, Cate (1992). Women, Water and Sanitation: Report of a WHO Internship, August 18 - November 6, 1992 Geneva.
- Moser, Caroline (1989). "Gender planning in the Third World: meeting practical and strategic gender needs". In *World Development*, vol.17 no. 11, p. 1799-1825.
- Narayan-Parker, Deepa. (1989). PEGASUS: A Planning and Evaluation Framework in Partnership with People. PROWESS/UNDP Technical Series.

## BIBLIOGRAPHY

Narayan-Parker, Deepa. (1989). Goals and Indicators for Integrated Water Supply and Sanitation Projects in Partnership with People. PROWESS/UNDP Technical Series: Involving Women in Water and Sanitation - Lessons, Strategies, Tools.

Narayan-Parker, Deepa. (1989) Case Study on Indonesia. An Analysis of PKK/Ministry of Health Activities in West Timor, PROWESS/UNDP.

Narayan-Parker, Deepa (1988). People, Pumps and Agencies: The South Coast Handpump Project. PROWESS/UNDP Technical Series.

National Colloquium on Role of Women in Water Resources Management Report. 16 - 18, August, 1990, India International Centre, New Delhi, India.

New Delhi Statement Some for All Rather than More for Some. (1991). In *Water International*, 16, p. 115-118.

Otis, R.J. and Mara.D. (1985). The Design of Small Bore Sewer Systems. TAG Technical Note 14, The World Bank.

Pasha, H.A. and McGarry,M.C. (1989). Rural Water Supply and Sanitation in Pakistan: Lessons from Experience. World Bank Technical Paper Number 105. The World Bank, Washington, D.C.

Perrett, Heli E (1981) Social Feasibility Analysis in Low-Cost Sanitation Projects Technical Advisory Group, UNDP/World Bank Technical Note No. 5.

Perrett, Heli E (1983). Involving Women in Sanitation Projects. TAG Discussion Paper Number 3. UNDP/World Bank Interregional Project INT/81/047.



## BIBLIOGRAPHY

Perrett, Heli.E (1984). Monitoring and Evaluation of Communication Support Activities in Low-Cost Sanitation Projects. TAG Discussion Paper Number 11. UNDP/World Bank Interregional Project INT/81/047.

PROWESS/UNDP (1987). Nepal: Participatory Training-of-Trainers Workshop: Alternative Strategies for Involving Women in the Water Decade. A PROWESS/UNDP Publication.

Raditloaneng, Wapula Nelly. (1991). Women and Men's Participation in the Water Sector: An Evaluation Study with Special Emphasis on Rural Village Water Supply. Final report to SIDA.

Rathgeber, Eva (1990). "WID, WAD, GAD: Trends in research and practice". In *The Journal of Developing Areas* 24, p. 489-502.

Ryan, M. (1993). LA vs. New York: Which Has the Recycling Edge. *World Watch Volume 6 No 2*, p. 18-21.

Sen, Gita and Grown, Caren (1987). Development Crises and Alternative Visions. For Development Alternatives with Women for a New Era (DAWN). London, England: Earthscan Publications Limited.

Shannon, E. (1988). Volunteers Against Diarrhoea: A Case Study. PROWESS/UNDP Technical Series: Involving Women in Water and sanitation - Lessons, Strategies, Tools.

Simpson-Hebert, Mayling. (1989) Theme Paper - Women and Water. Women and Water: Domestic Shallow Well Water Supplies, The Family Handpump Scenerio. Proceedings of a Regional Seminar on Women and Water - The Family Handpump, August 29 - September 1 1989, Manilla, Phillipines, p. 55 - 69.

## BIBLIOGRAPHY

The Dublin Statement on Water and Sustainable Development.

Theis, J. and Grady, H.M. (1991). Participatory Rapid Appraisal for Community Development: A Training Manual Based on Experiences in the Middle East and North Africa. International Institute for Environment and Development and Save the Children Federation.

United Nations Environment Programme (1992). Saving Our Planet Challenges and Hopes The State of the Environment (1972-1992). Nairobi.

UNEP and Worldwide Network (1991). Success Stories of Women and the Environment. Preliminary Presentation in Anticipation of the Global Assembly, 4 - 8 November 1991, Miami.

Van Wijk-Sijbesma, C. (1985). Participation of Women in Water Supply and Sanitation Roles and Realities. Technical Paper 22. International Reference Centre for Community Water Supply and Sanitation, The Hague, The Netherlands.

Van Wijk, Christine. (September 1992). State of the Art Review. "Drinking Water Supply and Sanitation: Impacts on Women". Women, Water, Sanitation Annual Abstract Journal, No. 2, p. 1-5. IRC PROWWESS/UNDP NORAD.

Van Wijk, Christine. (May 1991). State of the Art Review. Women, Water, Sanitation Annual Abstract Journal, No. 1, p. 1-7. IRC PROWWESS/UNDP NORAD.

Versteylen-Leyzer, D. (1991). "Integrating women in development: the experience of nine EDF rural development projects". In *The Courier*, no.125, p.14-18.

Yacoob, M. and Rosensweig, F. (1991). Community Management: Process for Scaling Up. WASH Technical Report No. 000

Yacoob, M & Walker, J. (1991). "Community Management in Water Supply and Sanitation Projects: Costs and Implications. In *Aqua*, Volume 40, No. 1.



## BIBLIOGRAPHY

WASH Report. (1990). Lessons Learned from the WASH Project. Water and Sanitation for Health Project, Washington.

World Health Organization. (1992). Our Planet, Our Health. Report of the WHO Commission on Health and Environment, Geneva.

World Health Organization. (1990). Tropical Diseases. WHO Division of Control of Tropical Diseases (CTD) and UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases (TDR).

Women and the Project Cycle: A Workbook. CIDA Publication, WID Division.