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**A** methodological approach  
to gender analysis in natural  
disaster assessment: a guide  
for the Caribbean

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## Abstract

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The Caribbean region is highly prone to natural disasters, with the increased occurrence in recent years of hurricanes, storms, floods, storm surges and volcanic eruptions. These bring about the loss of lives, property and employment, and damage to the physical infrastructure and the environment.

The poor are generally the most vulnerable to the impact of natural disasters, and it is the women and children among them who are often the hardest hit. These impacts are likely to be amplified by a country's particular development patterns, with the level of vulnerability of social groups influenced by the socio-economic patterns and conditions existing prior to the natural disaster. These same patterns and conditions affect survival and recovery of the population following the event.

Response to natural disasters in the Caribbean has seen an overemphasis on the replacement of damaged infrastructure at the expense of a closer focus on social aspects of the populations affected. Incorporation of gender analysis into the evaluations carried out in the emergency phase of the disaster cycle can help redress this imbalance to ensure that the differentiated needs of women and men are taken on board during rehabilitation and reconstruction.

This document presents tools and methodologies to conduct gender analysis in this area, including:

- analysis of the socio-economic effects of natural disasters in the Caribbean from a gender perspective;
- a methodological framework for gender analysis.

Among the analytical tools presented in this document are:

- gender analysis of data collection methods;
- evaluation of pre-disaster gender relations;
- incorporation of gender analysis in the evaluation of post-disaster casualties and material loss;
- examination of the gender aspects underlying the division of labour and allocation of resources;
- gender analysis of the impacts on health and social network response.

These strategies can help advance gender equality in the Caribbean during the rehabilitation and reconstruction processes that follow in the wake of natural disasters.

## I. Gender analysis in natural disaster assessment

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The Latin America and Caribbean region is highly vulnerable to natural disasters (ECLAC/IDB, 2000). In the Caribbean, specifically, the past several years have brought more frequent hurricanes, storms, floods, storm surges, earthquakes, volcanic eruptions and other natural disasters. Natural disasters in the Caribbean result in poverty, loss of lives, property and employment, and damage to the physical infrastructure and the environment. In the aftermath, affected populations take action to deal with the trauma and shock, and to improve responsiveness to future natural disasters. Governments and people are faced with the challenge of assessing the impacts and the cost of reconstruction.

The disaster cycle consists of the pre-disaster phase and three post-disaster phases (emergency, rehabilitation and reconstruction), as discussed in the *ECLAC Manual for Estimating the Socio-Economic Effects of Natural Disasters*. (ECLAC, 1991)<sup>1</sup> All require different interventions and strategies for addressing the needs of women and men and determining the types of action to be taken.

In examining the impacts of natural disasters and people's ability and resources to recover, the evaluator must be mindful that people, households, communities and nations do not experience these events uniformly or randomly. Some social groups are more vulnerable than others. Vulnerable groups are at greater risk of sustaining losses

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<sup>1</sup> The UN ECLAC *Manual for Estimating the Socio-Economic Effects of Natural Disaster* is used primarily during the emergency phase to conduct the evaluation of disasters. Analysis and estimation of the socio-economic damage of the disaster serve as a guide for the subsequent rehabilitation and reconstruction phases.

and take longer to recover. Moreover, their vulnerabilities are even more exposed in the aftermath of the event.

Many now agree that the impact of disaster events may be amplified as a direct result of a country's particular development patterns. The way that society is structured, the opportunities available to the population and their resulting actions influence the severity of natural disaster impacts. The level of vulnerability of social groups is influenced by their socio-economic patterns and conditions prior to a natural disaster. These same socio-economic patterns and conditions affect survival and recovery from the event.

There are many types of vulnerability (Delaney and Shrader, 2000).<sup>2</sup> A range of social variables must be examined to understand vulnerability to disasters and the opportunities for disaster response and management. Poverty, in particular, is an important type of vulnerability, as is the marginalisation of certain social groups and inequitable distribution of power. Studies show that poverty is quite prevalent in the region, with more than 15 percent of households and more than 25 percent of individuals considered poor (based on monthly expenditures in relation to the cost of satisfying minimal requirements for food and basic needs) and more than 10 percent of households considered extremely poor or indigent. (CDB, 1996 – 2000).

The social groups hardest hit when natural disaster strikes in the Caribbean are: poor and indigent households, single-headed households, large extended families; children, youth and the elderly; the disabled and sick; indigenous populations; newly immigrant households, squatters and tenants of low-quality housing.

While the poor will be most vulnerable to the toll of natural disasters, it is often the women and children among them who are hit hardest, especially poor (including the 'recent poor') and indigent women, female-headed households, female-headed households with large families, poor elderly women who live alone, women with mental and physical disabilities, indigenous women, and women at risk of violence, including battered women.

## **A. Gender differential response to disasters**

Gender affects all aspects of vulnerability in societies (Kumar-Range, 1999). One needs to measure the difference in gender vulnerability to understand who will be at greater risk in the event of a disaster and evaluate the differential impacts among groups.

One type of differential vulnerability between women and men arises from biological factors. Pregnant and nursing mothers are particularly vulnerable because of their increased need for food and water and their decreased mobility. As the primary caretakers of their homes, women tend to the needs of children, elderly and the disabled. This increases their workload and reduces their mobility in cases where quick evacuations are required.

Gender also influences the allocation of social and economic resources in ways that exacerbate women's vulnerability to natural disasters. Women generally have more limited access to the resources their families need for survival and recovery in the wake of disaster. For example, in Antigua, emergency relief workers report that street vendors (mainly women) are the hardest hit when a hurricane strikes because the sale of snacks and fruits is generally their only source of income. The situation of these women compared unfavourably to that of taxi drivers, who had sufficient skills to seek alternative employment in construction and other industries.

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<sup>2</sup> Delaney and Shrader (2000) identify multiple types of vulnerability: physical vulnerability (land, health, technology, housing, infrastructure); social vulnerability (inequalities, power structure, institutional capacities); motivational/attitudinal (local capacity, religion, self-esteem, confidence).



Cultural patterns may increase both women's and men's vulnerability. For example, women are less likely to work in construction and agriculture, thus limiting their chances of finding jobs in post-disaster rehabilitation. In contrast, men are more involved in search-and-rescue activities during tropical storms and are thus at greater risk of direct injury.

Analysis of data also reveals the importance of gender differentials. For example, overall data on poverty from Grenada and Turks and Caicos showed no statistically significant gender differences. But poverty data from St. Vincent and the Grenadines, St. Kitts and Nevis, and Belize analysed from a gender perspective reveals significantly greater numbers of poor women and poor female-headed households. In addition, more poor women were unemployed than poor men. In St. Lucia, in contrast, there were more poor men and male-headed households.

Since female-headed households were poorer than other families in St. Vincent and the Grenadines, Nevis and Belize, it may be expected that they would be more likely to have been affected by natural disasters than other groups of women and poor men. Interviews with people in these countries showed this to be true. Severely overcrowded living conditions and poor-quality housing without basic amenities were especially common in female-headed households, as demonstrated in St. Kitts, where relief workers noted that, after a storm, women were often forced to split up their families and send their children to other family members willing to take them in.

Kinship and other social networks, community co-operation and access to emergency response networks offer tangible and intangible reactive responses which affect people's long-term recovery in the aftermath of a natural disaster. Experience has shown that households and communities tend to band together immediately after a disaster to assist the injured and homeless, secure property and distribute food and materials.

Involving community and national organisations and establishing community disaster-response committees helped ensure early response and relief to the hurricanes that hit the three countries visited (Antigua and Bermuda, St. Kitts and Nevis, Dominica). Women and their organisations play a major role in disaster-preparedness and relief. Experience in the Caribbean region shows that women are more likely to heed the hurricane warnings and seek shelter than men. Women are less tolerant of risks and thus considered better suited to take part in disaster preparedness planning and community mobilisation. This is important in planning future warning systems, which should target men and women differently.

Women are active and resourceful in disaster response and recovery. They are important actors in co-ordinating and carrying out relief efforts such as food and material distribution, caring for the injured and homeless and operating temporary shelters.

Gender analysis carried out in the rehabilitation and reconstruction phases can help change the direction of development patterns that currently tend to place women at a disadvantage. Recording the differentiated efforts of men and women will make visible their responses to the disaster emergency and the roles they play. Programmes and projects can then be developed to complement and improve these responses.



## II. Why gender analysis?

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Women's position in society and the relationships between women and men affect their lives before, during and after a natural disaster. Experience shows that natural disasters affect women and men in different ways. Gender analysis allows the evaluator to provide answers to the following questions:

- What are the capacities and vulnerabilities of women and men prior to and after the disaster event?
- How differently are women and men affected by a natural disaster and to what extent?
- What are the different roles that women and men play in ensuring the survival of themselves, their families and communities in the face of disaster?

To fully appreciate and record the differential impacts of natural disaster on men and women and thus note any changes in these roles and responsibilities, it is important to first examine gender identities, roles and responsibilities prior to the event.

It is also important to include both tangible and intangible impacts. Certain tangible impacts can be recorded quantitatively, whereas other equally significant impacts are intangible and qualitative. Inclusion of intangible and qualitative analysis brings a deeper understanding of gender relations in natural disaster and points the way for reconstruction and assistance in future responses.

## A. Gender definitions and concepts

The concepts of gender, gender roles and gender needs are defined below (Box 1) to help the evaluator in undertaking gender analysis. Prior understanding of these terms and concepts is necessary in order to develop a true picture of gender relations within the affected area. Present data, even when disaggregated, may not provide a full picture of women's economic and social roles, due to the choice of conceptual categories used in data collection. For example, productive work is usually categorised as economic or wage work done outside the household. This categorisation directly affects record-taking of work undertaken by women, since many women carry out supplemental income-earning activities in their homes (i.e. shop-keeping, farming, sewing) or belong to other sections of the informal sector. Income-generating activities conducted in the informal sector are not usually recorded in national statistical data. Given the large proportion of women who take part in these activities, it is important for the evaluator to gain knowledge of the informal economy in order to record in full the effects of a disaster on the economy.

Box 1

### DEFINITIONS AND CONCEPTS IN GENDER ANALYSIS

#### Sex and Gender

Sex refers to the physical and biological differences between men and women. Gender refers to the socially driven differences between men and women, and identifies the social relations between them in society. Gender refers to the relationship between the sexes that is constructed on the values, beliefs and customs of a society and that influences women's and men's differential roles and responsibilities and their access to knowledge, resources and/or services. Since the roles and responsibilities of women and men in society are socially constructed, they can be changed.

#### Gender Roles

The differences in the roles of men and women, as well as the differential access they have to resources, define the social and economic inequalities between the sexes. These roles are called gender roles.

Men and women undertake reproductive, productive and social roles. Productive roles refer to work done by men and women for pay in cash or kind. This includes both market production and subsistence/home production.

Reproductive roles refer to the child-bearing/rearing responsibilities and domestic tasks undertaken by women and men required to guarantee the maintenance and reproduction of the labour force.

Community roles refer to community-managed and political activities undertaken by men and women. Community-managed activities are undertaken for the good of the community and may be extensions of women's reproductive role. Community and political activities are often undertaken for status and power within the framework of national politics.

In most societies, men have clearly-defined productive and community roles, whereas women have a clearly defined reproductive role, in addition to their productive and community roles.

#### Gender Needs

Women and men tend to have different needs, not only because of women's triple role (productive, reproductive and community), but also because of their often disadvantaged position in society.

Gender needs are comprised of practical gender needs and strategic gender needs:

Practical gender needs are those which, when filled, assist men or women in carrying out the roles they currently have, and might thus be said to ease their burdens and address concerns and/or inadequacies in living conditions. They are practical in nature and often cover employment, water and health care needs, among others.

Strategic gender needs, on the other hand, challenge women's disadvantaged position and help society achieve gender equity. Over the long term, strategic gender needs improve the status of women in relation to men and may address such needs as legal rights, prevention of domestic violence, equal wages and women's right to control their own bodies.

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Source: Adapted from Moser, C., 1993.

### **III. Data collection methods**

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The limited time and resources available for impact assessment and disruption of normal information sources notwithstanding, collection of reliable data is critical to the success of any gender analysis. During the assessment period, the evaluator will need to collect gender-disaggregated, pre-disaster and post-disaster data. The evaluator should seek to ensure the reliability of the source and quality of the data collected. The type of methods used will depend on the type and amount of information required and the level of detail and accuracy needed. In the interest of time and limited resources, it is suggested that the evaluator use as many secondary sources of information as possible. However, some primary data will have to be collected because secondary data seldom provides all the information required, particularly the detailed disaggregated information about people's roles, needs and problems which is required for gender analysis.

#### **A. Secondary data sources**

The table below shows the types and sources of secondary information that may be available and helpful.

Table 1

**TYPES AND SOURCES OF INFORMATION REQUIRED**

<b>POSSIBLE SECONDARY INFORMATION</b>	<b>DATA SOURCE</b>	<b>DOCUMENTS</b>
Demographic	Statistical offices, regional databases	Census reports
Housing, household and family status	Statistical offices	Census reports, household surveys, time and allocation study reports
Economic status	Statistical offices	Poverty assessment reports, status of women reports
Employment	Statistical offices	Census reports, labour force survey reports
Education and literacy levels	Statistical offices	Census reports
Ethnic and cultural patterns	Community and social development departments/division, institutes of higher learning	Community development reports, special study reports
Health status	Statistical offices	Census reports, quarterly statistical reports, health sector reports,
Communications	Public utility departments/agencies	Industry reports
Social and political structure	Government information divisions, institutes of higher learning	Division reports, study reports
Policy framework for gender and development and natural disaster management	Disaster agencies, women's and gender departments, community and social development agencies	Policy documents, legislation, guidelines, State of Emergency legislation and legal guidelines
Disaster impacts	News organisations, disaster agencies, NGOs, Internet	Situational disaster reports, news articles, web pages, hospital records, hotline records

**Source:** Author's elaboration.

One of the drawbacks of data collection for gender analysis under these emergency conditions is that a significant amount of the information required by the evaluator must be collected within the early stages after the disaster, possibly within the first three-to-four weeks. Since the evaluator is usually called upon to undertake the assessment at the end of a three-week period, this information may not be gender disaggregated or may go unrecorded and therefore be unavailable. Nonetheless, the evaluator must disaggregate the data as much as possible and verify the data collected by local disaster agencies and relief organisations. Interviews with people who have collected and compiled the data would be useful. Unless previously disaggregated, much of the data collected at this stage will be qualitative.

## B. Primary data collection

Secondary data is unlikely to provide the detailed disaggregated information about people's roles, needs and problems required for gender analysis. Primary data collection methods should be employed. The main methods of data collection for use at this stage are rapid appraisal (RA) methods. The basic aim of rapid appraisal techniques is to obtain quantitative and qualitative information adequate for use in the assessment process. RA methods use a combination of techniques, including semi-structured interviewing, focus group interviewing, resource mapping, drive-bys, transect walks and participant observation. Key rapid appraisal methods are:

- **Participant observation:** This is the collection of data by people already actively involved in an emergency situation or area in a capacity other than data collection. Such people play a dual role, in that they collect data in addition to conducting their normal day-to-day functions. The evaluator also becomes a participant observer in the affected area during the country visit and will therefore be able to record some impacts.
- **Involvement of stakeholders:** These include disaster and change agencies (disaster agencies, Ministries of Agriculture, Community and Social Development, Women's Affairs Bureaus, health, education, public works and transportation departments, public utility agencies, NGOs, CBOs, volunteers, etc.). It also includes community leaders with first-hand accounts of the disaster and its impacts. Given the traumatic and sensitive nature of a disaster experience, the evaluator must approach interviewees with the sensitivity and understanding that the situation requires.
- **Multiple methods.** Various sources and methods of information gathering should be used. Information should be cross-checked for veracity and to compensate for any inaccuracies or biases inherent in the methods.

More detailed data collection techniques, such as sample household surveys, are best employed during the rehabilitation and reconstruction phase.

The data collected for gender analysis must be disaggregated by sex. Where possible, data should also be disaggregated by age, household headship, ethnicity and religion, among other variables, for a full understanding and recording of the differential gendered impacts.





## **IV. Evaluation of pre-disaster gender relations**

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Analysis of the baseline conditions which existed before the occurrence of a natural disaster is critical to understanding the gender relations of the affected population, the differential vulnerability between men and women, and differences in their coping strategies.

The first task of the evaluator is to define and delimit the affected area. As is often the case in the Caribbean, hurricanes and volcanic eruptions can affect the entire land mass and population. Flooding affects more localised areas. Depending on the type of disaster event, it may be possible to delineate the affected area as zones of direct and indirect impacts. Agreement on the delimitation of the affected area must be done in consultation with other evaluation team members and the local disaster agency. This involves:

- Identification of political and administrative boundaries;
- Discussions with front line emergency personnel and extensive field visits;
- Plotting and revision of map data.

The Gender Baseline Information Requirements list (Box 2) identifies information that can be collected and reviewed prior to the country visit. The evaluator should review both the country's overall socio-economic status and that of the affected population. The evaluator should gain an insight into the status of women and a clear understanding of gender relations within the impacted population of relevance to natural disaster management and the evaluation process.

## GENDER BASELINE INFORMATION REQUIREMENTS

Socio-demographic characteristics of the population by sex, age, ethnicity, religion, distribution/location:

### Socio-economic characteristics of households

- Total households
- Distribution of household headship
- Dependency index: how many very young [under 15 years] and very old [65 years]
- Total and differentiated household income
- Vulnerable groups (numbers and distribution)
- Levels of poverty and indigence, total, by gender, by age
- Relationship between poverty/indigence and household headship
- Relationship between poverty/indigence and age
- Distribution of poverty/indigence and headship
- Distribution of poverty/indigence and headship in ecological zones
- Roles and responsibilities of family members: domestic activities, economic activities and community development activities
- Roles and responsibilities of women in female-headed households
- Roles and responsibilities of men in male-headed households
- Number of senior women and men (over 65 years) living alone. Domestic work contribution to GDP
- Environmental and clean-up activities

### Economic characteristics

- Formal economic activities (job, income, employment and unemployment levels)
- Informal economic activities, by gender
- Access, control and use of resources: who owns (controls) and who has access (uses)
  - Land and land tenure patterns
  - Other natural resources (rivers, forests, etc.)
  - Housing (urban and rural)
  - Living conditions
  - Access to potable water, electricity, telephone, transportation
- Household food security: consumption patterns, responsibility for household food security

### Housing

- Total number of houses
- Percent of poor quality accommodation, by household headship
- Total housing deficit, by gender

### Social and health systems

- Women's fertility rate
- Birth rate, death rate
- Common health problems of women
- Common health problems of men
- Types of health facilities
- Particular programmes for special groups (pregnant women, children, elderly)
- Description and numbers of users of health facilities
- Responsibilities assigned to household (women) for family health care
- Type of social security system
- Description and numbers of users of social network programmes
- Migration patterns by gender, cause

### Description of education systems

- Description and numbers of users of education systems
- Education levels
- Functional literacy levels

### Organisational structures

- Government
- Non-governmental and community-based organisations (NGOs and CBOs)
- Organisations at the national, regional and community levels responsible for prevention, emergency and rehabilitation activities
- Women's organisations

Source: Author's elaboration.

The questions suggested in the Gender Issues List (Box 3) provide a useful guide to examining gender issues in the affected population.

**Box 3**  
**GENDER ISSUES LIST**

**General issues**

- What is the age, ethnic and religious distribution among the total population? Among the female population?
- What is the fertility rate of women in the affected population? Birth rate of the population?
- How transient is the affected population? Do women or men migrate for economic or other reasons?
- What are the policies and laws that govern national gender development and national disaster preparedness, mitigation and response?

**Household and family status issues**

- What proportion of households are headed by women? What is the distribution of these households by economic status and size?
- How many elderly women and men live alone?
- What is the average family size of the affected population and what is the average dependency ratio (under 15 years and older than 65 years)?
- What resources exist for care of children and the elderly, and who uses them?
- What proportion of total households are tenants, squatters and homeowners? What proportion of these are women who head their households?
- What are the housing demands in the affected area and what proportion of that demand comes from women?
- What is the proportion of homeless women, men and children? What access do they have to resources?
- What are the levels of family and sexual violence?

**Economic issues**

- What proportion of women, men and children live below the poverty line? Where are they located? What access do they have to key resources and services?
- What is the differential distribution of men and women in particular jobs in the various sectors of the economy?
- Who does what in the household, on-farm, in the small enterprise and in the community?
- What are the average employment rates of men and women and are there any disparities?
- What proportion of women work outside the home in the formal and informal sectors? What are the seasonal employment rates? How many women work or own home-based businesses?
- What work is done exclusively or predominantly by women? What work is done exclusively or predominantly by men? What are the implications of these divisions during disaster emergency, rehabilitation and reconstruction?
- What proportion of women are involved as employees or volunteers in disaster response?
- What proportion of women are landowners and what access do women have to land and credit through credit-lending agencies (banks, credit union, co-operatives, etc.)?

**Education and communication issues**

- What is the educational status of women and men in the affected population, and what are the differences?
- What is the functional literacy status of women and men in the affected population, and what are the differences?
- What education and training institutes do women have access to?
- What are the main means of communication within the community? What access do women have to information? What are the popular modes of communication for women?

**Box 3 (continuation)**

**Health issues**

- What resources exist for reproductive health care, pre-natal and post-natal care, and infant care? Who has access to these resources?
- What resources exist for women in situations of domestic and sexual violence, substance abuse and for women living with HIV/AIDS?
- How many people are in residential health care facilities?
- How many people are physically and mentally disabled? How many are women?

**Ethnic and cultural issues**

- What are the primary ethnic and cultural communities within the affected population? What is their economic status?
- What formal and informal leadership roles do women play in these communities within the affected area?

**Social organisational issues**

- What role do women play in community, regional and national disaster preparedness and response?
- How visible are women's issues in the affected communities? Who leads on women's issues at the formal and informal levels?
- What formal and informal groups serve community needs in the affected areas? What proportion of these serve women? What community groups serve women's issues and environmental issues?

**Source:** Author's elaboration.

The evaluator can begin to review these issues prior to the in-country visit and can use these questions as a guide for subsequent semi-structured and focus group interviews. The questions can also be used in the drafting of social survey instruments (e.g. questionnaires) for more detailed study during the rehabilitation stage.

## **V. Assessment of post-disaster gender impact**

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### **A. Differential effects on vulnerable groups**

This analysis will help in assessing the populations affected. Natural disasters have a tremendous impact on populations living in precarious conditions, making them more vulnerable than others in the pre-disaster phase and at greater risk of disasters. Within these vulnerable groups, women tend to be the most vulnerable and are subjected to greater risks. The evaluator should therefore determine who these vulnerable social groups are, why they are at great risk and their capacity for survival and recovery. It is therefore important to undertake a capacity and vulnerability assessment of the affected area.

Review of secondary information (poverty and vulnerability assessment reports, social sector reports, among others) and discussions with government departments and non-governmental organisations should help the evaluator identify the vulnerable groups within the affected areas. Sex-disaggregated data on the socio-economic characteristics of each group identified within the affected population can be used to analyse changes in their vulnerability and capacity prior to and after the event (Table 2). The analysis takes into consideration:

- Physical resources. The fragile ecosystems of the Caribbean islands are particularly prone to natural disasters. Indiscriminate land use and environmental damage place many island dwellers in situations of potential vulnerability, especially those living in upper watershed areas or at the fringes of wetlands. In addition, many

Caribbean residents live in poorly built housing, with inadequate water and sanitation facilities.

- Social and economic resources. Many vulnerable groups are functionally illiterate and are either unemployed or employed in low-paying jobs with little scope for improvement. They may have little savings or insurance and limited access to credit.
- Organisational resources. These measure the ability of vulnerable groups to respond to and recover from the natural disaster. They may be vulnerable because they are not organised as groups and are marginalised from the regional and central government decision-making process. Or they may lack the confidence or the ‘can-do’ attitude necessary to effect change.

Analysing each factor would determine the ability of men and women within each group to survive and recover from natural disasters. A differential analysis will indicate any gender differences which may hinder/accelerate their recovery. However, careful defining of groups is required to avoid overlap and over-estimations. Vulnerability analysis can be undertaken on a time series basis to track changes in the size and conditions of groups well into the reconstruction phase. In addition, the evaluator must be mindful that natural disasters can create new vulnerable groups, such as women who are recently widowed, displaced, unemployed and/or made poor and who, as a result, will be more vulnerable to future disaster events.

**Table 2**  
**MATRIX OF CHARACTERISTICS OF VULNERABLE GROUPS**

RESOURCES		VULNERABLE GROUPS *							
		Households with large families		Farm workers		Seniors who live alone		Squatters	
		Female-headed	Male-headed	Women	Men	Women	Men	Female-headed	Male-headed
Physical Resources	Size								
	Location								
	Ecological zone								
	Type of housing								
	Access to public utilities								
	Land tenure pattern								
	Housing tenure pattern								
	Agricultural resources (land, livestock, crop, irrigation)								
Socio-economic Resources	Educational and literacy levels								
	Employment and job skills								
	Income sources, savings, credit								
	Property insurance								
	Time and activity allocations								
	Household and community food security								
	Household headship and power within the household								
	Family size								
	Incidence of family violence								
	Feeling of isolation/powerlessness								
Organisational Resources	Kinship networks								
	Formal and informal social networks								
	Access to emergency response network								
	Level of disaster preparedness								
	Political power and influence								

**Source:** Author's elaboration.

**Note:** \* Groups listed as examples, as these will change according to affected area.

## **B. Casualty and material loss impacts**

This assessment will help provide gender differential analysis of populations affected. The extent of destruction and casualties caused by a natural disaster should be examined from a gender perspective. Such analysis will provide information on the gender-differentiated patterns of mortality and casualty as a direct or indirect result of the disaster event. The evaluator should examine the socio-economic conditions of the victims and determine if their level of vulnerability was primarily responsible for their becoming victims. Examining the cause of injury and mortality would also help the evaluator in establishing gender patterns of casualty and mortality which may be due not only to socio-economic vulnerabilities (such as poverty) but also linked to cultural factors (differential gender roles, cultural norms and taboos) and to differential perceptions of risk between women and men. For example, research has shown that men are more likely to die during the passage and immediately after hurricanes because of their active involvement in search-and-rescue operations and higher tolerance of risks, which may keep them from seeking shelter at an early stage. The information provided from this detailed analysis would assist disaster specialists in setting up or improving future mitigation programmes.

Table 3 outlines the types of information that should be collected on victims within the affected population. Different variables (e.g. location, ethnicity, household headship, religion, etc.) can be used to fully understand gender-differentiated impacts. It is noteworthy that disaster agencies in the Caribbean currently use a similar format, but this information is not initially collected on a sex or age-group disaggregated basis. With few modifications, information can be collected to reflect the requirements for gender analysis. If possible, the evaluator should make contact prior to her/his visit to the affected country with data collection personnel to help guide this process.

**Table 3**  
**INFORMATION NEEDS**

STATUS		
	WOMEN	MEN
<b>Age groups</b> <15 years 15-30 years 30-65 years >65 years <15 years 15-30 years 30-65 years >65 years  Populations affected: Dead - by causes  Missing - by circumstances  Hospitalised - by causes  Sick/injured - by causes  Homeless - in public shelter - with family		
<b>STATUS WOMEN-HEADED HOUSEHOLDS MEN-HEADED HOUSEHOLDS</b>		
Permanent dwelling Destroyed Damaged – but habitable Damaged – but inhabitable		
<b>STATUS FEMALE-OWNED MALE OWNED</b>		
Business Destroyed Damaged – but habitable Damaged – but inhabitable		
<b>STATUS</b>		
Utilities Damaged or destroyed  School Damaged or destroyed		

Source: Author's elaboration.

### **C. Analysis of division of labour/activity**

This analysis helps the evaluator to determine the economic role of women as producers, and assess how the productive, reproductive and community roles of women and men are affected by a disaster event. This analysis is important when estimating the effects of disaster on employment activities, changes in time allocation for undertaking productive activities, and changes in time



spent on voluntary versus paid work. It covers various sector evaluations (i.e. economic, health, housing, education, infrastructure sectors). It also looks at the activities and time allocation for voluntary (unpaid) work, which is an important part of emergency efforts and an area where many women find themselves in the aftermath of disaster. This analysis can assist in evaluating both direct and indirect effects/costs.

Examination of the division of labour of the affected population provides answers to the following questions:

- How does the natural disaster affect the distribution of women and men employed in the various economic sectors?
- To what extent are economic activities (within household, on-farm, small enterprise and community) affected by the event?

It is important to determine the distribution of women and men employed in these various economic sectors. Experience in the Caribbean has shown that many women in the labour force work outside the home. In many cases, women are the main income-earner and head of household. A significant proportion of women are employed in family-owned or self-owned businesses, employed as domestic workers, or working in the informal sector.

Gender activity analysis indicates where men and women are positioned in the various sectors of the economy and helps to determine how they have been affected by the occurrence of the natural disaster. Table 4 provides a tool for gender activity analysis. The first section identifies key issues to be addressed; the second identifies the jobs performed by men and women; the third identifies the tasks in which men/boys and women/girls are involved, how often these tasks are performed and the time taken. This framework can be used to formulate questions for interviews and questionnaires.

**Table 4**  
**FRAMEWORK FOR GENDER ACTIVITY ANALYSIS**

Key issues to be addressed:

- Impact on occupations that are predominantly or exclusively male or female, in terms of income lost and number of people displaced;
- Activities of men/boys and women/girls within women-headed and men-headed households, on-farm, in home-based business, in community;
- Considerations of any seasonality of production, subsistence versus commercial production systems, gender-based responsibilities for different crops, etc.;
- Changes in the workloads of men/boys and women/girls in times of disaster. Changes in task and time allocations in women-headed and men-headed households and in the community. Priority tasks in times of disaster.

Sector:

Occupation:

	<b>Number Salaries/Wages</b>
Women	
Men	
Unskilled:	
Technical:	
Professional/Managerial:	
	<b>Level Activity Women/Girls Men/Boys Time Taken</b>
	<b>Economic (agriculture, small business, etc.)</b>
Household	
Community	
<i>Comment: Note influence of culture and other factors on tasks being performed</i>	

**Source:** Author's elaboration.

The two examples given below examine how gender activity analysis can help the evaluator to conduct a sectoral analysis and incorporate gender-differentiated loss of income, downtime, job displacement and costs of production. These examples have been drawn from research conducted in countries with contrasting economic frameworks.

### **Example N° 1: Business sector/tourism industry**

Recent surveys and registers of industries and sectoral documents would provide the evaluator with the information she/he needs on ownership and employment patterns in these sectors. National disaster agencies generally collect information on damage incurred by businesses, including the number of employees affected, which can be useful in making a preliminary assessment of damage.

Discussion with Ministry of Industry officials and with owners/managers of small, medium and large companies will allow the evaluator to examine where women and men are positioned in the industry, the jobs they hold and how they may be affected as a result of the disaster event.

Hurricanes seriously affect the coastal areas of Caribbean island states, causing damage to beachfront properties and coastal infrastructure (including power and phone lines, jetties, cruise ship piers, hotels and beach resorts), thus adversely affecting the tourism industry. Examination of the distribution of people employed in this industry shows that in hotels and resorts, men are employed predominantly as gardeners, bellboys and maintenance personnel, whereas women are employed predominantly as waitresses, front desk clerks, housemaids, kitchen assistants and cooks.

Once data is supplied on the numbers of women and men employed in damaged hotels, their occupations, salaries/wages, estimated downtime for the closure of business and general conditions of employment during closure, the evaluator can establish losses due to job displacement and lost production time and income (as an indirect loss to the sector). There is also a need to record the socio-economic profile of male and female workers and to highlight implications of downtime and lost income on family life.

### **Example N° 2: Agricultural sector**

If the agricultural sector has been heavily damaged by the natural disaster, the evaluator should determine its impact on the women and men employed in this sector. While permanent government personnel and other public sector staff may be affected by the loss of buildings, infrastructure and equipment, they would most likely be entitled to the same salaries/wages. Temporary workers, however, may be displaced. In such cases, the evaluator should take into account the numbers of men and women affected, their occupations and duration of their contracts in order to estimate lost income (as an indirect cost to the sector).

Agricultural workers in the private sector may also be adversely affected. If considerable damage to livestock and crops has occurred, it will be necessary to record the number and identities of farmers, the number of farms owned by women and men, and their female and male employees. Information on affected farmers may be obtained from the disaster agency, agricultural extension divisions and their frontline officers. It would be important to determine the activities of farmers and workers in crop and/or livestock production cycles to determine any differential impact in lost incomes.

For example, the banana industry is the main agricultural sub-sector in the Windward Islands. Gender activity analysis would reveal that both men and women small farmers employ workers of both sexes to undertake the tasks required by banana production. Many tasks carried out by workers are gender-specific and time-based. Table 5 shows a typical division of labour profile.

**Table 5**  
**BANANA PRODUCTION ACTIVITY PROFILE**

ACTIVITY	WOMEN	MEN
Land clearing		x
Spraying		x
Burning bush		x
Cleaning land		x
Digging holes		x
Sourcing and preparation of plants	x	x
Planting	x	x
Fertiliser application	x	x
Weeding	x	x
De-suckering		x
Trimming plants		x
De-flowering, sleeving	x	x
Building boxes	x	x
Harvesting fruit		x
Selecting fruit in field		x
Carrying fruit to shed		x
Washing fruit	x	
Treating fruit	x	
Sorting and selecting clusters	x	
Packing fruit	x	
Transporting to depot		x
Regional marketing of fruit	x	

**Source:** Author's elaboration.

Further analysis indicates that men conduct most of the activities associated with planting and early crop care, while women perform the tasks associated with harvesting, post-harvest treatment and marketing. Since banana is harvested on a weekly or fortnightly basis, both women and men workers are employed on a continuous basis. Most small farmers (three-acre holdings or less) use family labour or a swap-labour system to carry out farming activities. Additional labour would be hired as required for specific tasks. Both male and female farmers hire male workers to dig holes for planting, while male farmers may hire female and male workers to harvest and prepare bananas for market.

Hurricane Lenny, which struck in November 1999, damaged most of the banana crop on the west coast of the Windward Islands. In Dominica, farmers reported that banana fields (which sustained crop losses of between 70% and 80%) needed from four-to-six months to recover before harvesting operations could resume. Total crop loss meant that entire fields had to be replanted (in which case harvesting would resume after nine months). This meant loss of earnings for women workers for approximately four months (in the case of partially damaged fields) to nine months (in the case of totally destroyed fields). Men, on the other hand, would be less adversely affected, since they are able to earn waged work for field preparation, replanting and early crop care.

In cases where swap or family labour is used, the fields or homes of these workers may sustain damage, forcing farmers to depend on hired labour. Competing activities (taking care of family and home in the aftermath of the storm, and unavailability of swap or family labour during the crisis) may force men and women farmers to pay for hired labour. In this case, women farmers may be more adversely affected.

An understanding of the gender issues in the banana industry may not be visible to the evaluator unless gender activity analysis is performed. This analysis allows the evaluator to examine how banana production activities are distributed according to gender at the production,

household and community levels, allowing for the necessary adjustments in assessing loss of income to labourers and increased cost production to farmers.

## D. Impact on the informal sector

The informal sector is of great importance to Caribbean economies, and particularly to women. However, the limited information available on this sector does not allow for a true estimation of the impacts of natural disaster on women's and men's livelihoods. Interviews with leaders of affected communities, women's groups and community and social development agencies may provide some semi-qualitative information on the types of informal economic activities undertaken in affected communities, by whom, and the impacts suffered. Discussions with the people affected will also prove useful. As in the banana production system, an activity analysis for various micro-businesses will reveal any differential impacts on women and men with respect to income generated or lost and changes in time spent on household and/or business activities.

## E. Short-term voluntary work versus paid work

The emergency and rehabilitation phases tend to create short-term unpaid and paid work opportunities. The evaluator should record the different activities that women and men undertake in response to the disaster event. Activity analysis will allow the evaluator to record the participation of women and men in traditional and non-traditional tasks and determine the gender differential opportunities for paid and unpaid work (See Table 6).

Table 6

**GENDER ACTIVITY ANALYSIS: EMERGENCY AND REHABILITATION**

Type	Activity	Women/Girls	Men/Boys	Time Taken	Cost
Voluntary work	Search and rescue				
	Shelter co-ordination				
	Food distribution				
	Health care				
	Environmental sanitary control				
	Epidemiological control				
	Care of the young				
	Care of the elderly				
	Other				
	Paid work	Construction work			
Environmental sanitary control					
Epidemiological control					
Hauling of debris and garbage					
Other					

**Source:** Author's elaboration.

**Comments:** Note influence of culture and other factors on tasks being performed

## F. Allocation of resources

In examining the effect of the disaster event on resources such as land, housing and water (rivers, streams, etc.), it is important to consider possible dual impacts: on the victims who own the resources, and on those who use (or have access to) these resources. This analysis is important in sectoral evaluations of agriculture, housing and infrastructure. Loss of agricultural land, for example, does not necessarily mean that the landowner is the only victim; the person whose crops have been destroyed must also be taken into account. Household headship, for example, does not necessarily coincide with land or house ownership. Estimates of loss of land, housing and housing/building contents must examine these losses against the profiles of the victims both in

terms of ownership and of access and use. Failure to do so will make some victims invisible and could result in over-estimating the losses of one gender in relation to the losses of the other.

Resource analysis allows the evaluator to look at the distribution of resources between men and women within the population groups most likely to be impacted when these are destroyed or damaged. It also allows the evaluator to examine the relationship between resource ownership and use and household headship.

Box 4 provides a tool for resource analysis that can be incorporated into interviews and other formal data collection instruments.

**Box 4**

#### **GENDER RESOURCE ANALYSIS AND MAPPING**

Issues to be addressed:

- Land tenure patterns for female-headed and male-headed households and changes which occur after natural disaster
- Women's control and access to resources, and impact of natural disaster on these patterns
- Men's control and access to resources, and impact of natural disaster on these patterns
- Quality of the resources that women and men have access to
- Impact of natural disaster on rights of access to resources for men and women
- Changes in workload for women and men with changes in access to resources

**RESOURCE  
CONTROL  
ACCESS  
TIME  
LOCATION**

**WOMEN/GIRLS  
MEN/BOYS  
WOMEN/GIRLS  
MEN/BOYS**

Residential land tenure

House tenure

Infrastructure (roads, etc.)

Community buildings and structures (schools, community centres, etc.)

Agricultural land tenure

Agricultural land

Livestock infrastructure

Crop type

Crop production infrastructure and equipment

Market/distribution centres

Forest resource (fuel wood, food, etc.)

Water sources (rivers, streams, wells)

Others

Credit

Source: Author's elaboration.

## G. Gender differential impacts on health

This section addresses assessment of post-disaster impacts on the health of the affected population.

One of the first observations the evaluating team would make during the country visit is that the entire affected population might be traumatised by the event. While the psychosocial impacts of a natural disaster decrease considerably after the emergency phase, 'post-disaster stress syndrome' may last well into the reconstruction phase, particularly in areas/countries where natural disasters have not occurred in recent memory. While children (who may be terrified by the experience and by the strange circumstances around them) are likely to be most affected immediately after the event, adults may also experience long-lasting effects. Visits to Antigua and St. Kitts and Nevis in the wake of Hurricane Lenny, for example, revealed that some victims were still receiving counselling one year after the disaster.

The effects of post-disaster traumatic stress disorder on the affected population (and including relief workers) needs to be taken into account. Women's and men's responses to traumatic experience may differ. These may include violent/aggressive behaviour, headaches, sleeping disorders, nausea, diarrhoea and alcohol consumption, among others. Instructions for assessment should be both gender and age specific. These must be handled with sensitivity.

The evaluator must also examine from a gender perspective the types of post-disaster first-aid and hospital attention required in the aftermath of the disaster (See Table 7). Post-disaster illnesses may be a result of post-disaster injuries and/or deteriorating sanitary conditions. This may include skin infections, traumatism, conjunctivitis and gynaecological problems. Interviews with disaster relief workers, volunteers and counsellors should provide a source of data for analysis, as will the records of health centres and hospitals. Like other analysis, it is important to link health impacts and the socio-economic vulnerabilities of the victims.

Table 7  
HEALTH IMPACTS

Complaint/Problem	Women		Men		Total Cost
	Number of complaints	Cost of treatment	Number of complaints	Cost of treatment	

Source: Author's elaboration.

## H. Social network response

A natural disaster generates high levels of co-operation not noted otherwise in the affected population. Disaster preparedness and response present a wide variety of differences by gender.

Elements to assess from a gender perspective include:

- Degree of preparedness and involvement at the national, regional and community levels. This would examine the types (women's, men's and mixed groups) and number of groups involved in natural disaster emergency response and the activities they conduct;
- Levels of participation by women and men in emergency and short-term rehabilitation;
- Levels of community response to the displaced and homeless;

- Degree to which skills requirements in emergency and short-term rehabilitation are being met, by gender;
- Extent of production, household and community activities carried out by men/boys and women/girls during the emergency and early rehabilitation stages. A gender activity analysis should be conducted (as per Box 4) to determine the roles/responsibilities of women and men with respect to shelter co-ordination, food distribution, health care, environmental sanitary measures, epidemiological control, care of the young and elderly, etc.;
- Differential responses to disaster preparedness and warnings, including use of shelters and emergency resources.





## **VI. A gendered response to reconstruction**

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In general, the Caribbean has seen an overemphasis on replacement of damaged infrastructure at the expense of a closer focus on the social aspects of the populations affected by natural disasters. The incorporation of gender analysis into the reconstruction process can help correct this imbalance.

Planning for reconstruction must be a participatory and all-inclusive process involving a cross-section of government, non-governmental, private sector and civil society organisations. Focus group interviews with stakeholders and individual interviews are one way of obtaining input. The opinions of organisations representing the interests of women and children are essential in attempting to prioritise needs based on gender. It is important that all sectors involved in the planning process share a common understanding of what is meant by stakeholder participation and prioritisation of needs.

This gendered response should develop two parallel strategies: actions to reduce gender and social vulnerabilities, and actions to improve systems of disaster prevention and response. Institutional assessments must be undertaken to strengthen existing social structures charged with carrying out recommended actions.

The needs assessment methodology involves five main stages:

- i. Identification of problems and deficits rooted in the pre-disaster socio-economic conditions that have made social groups vulnerable in the first place, taking care to address any gender-based vulnerabilities;

- ii. Identification of negative impacts, needs and opportunities brought about by the disaster event;
- iii. Identification of possible actions and strategies for addressing the problems identified;
- iv. Prioritisation and importance of needs based on gender;
- v. Identification of strengths and weaknesses in the local social systems to prevent and/or manage future disasters, and to reduce social and gender vulnerabilities.

This assessment provides an understanding of the post-disaster period and a measure of the differential responses of men and women to the challenges and opportunities that the event brings. The post-disaster reconstruction process cannot be approached in isolation from the emergency response to the actual event, nor from the conditions of risk and vulnerability that existed prior to the disaster.

## **A. Strategies for incorporating gender issues in natural disaster management**

Diverse strategies can be useful in incorporating gender issues in natural disaster management.

- Collect gender-disaggregated data. This would be useful during impact assessment and for planning and decision-making purposes. Collecting sex-disaggregated data is not enough. Because of the pluralism of Caribbean societies, data needs to be further disaggregated by age, household headship, ethnicity and race, religion, location, etc. for a better understanding of existing socio-economic conditions and to improve impact analysis. Improving data collection at the regional and sub-regional levels may require strengthening national data collection agencies, in, for example, the design and preparation of data collection instruments, vulnerability and risks maps, and post-disaster situational analysis;
- Conduct poverty assessment and vulnerability and capacity assessment studies to identify groups at high risk during natural disasters in Caribbean countries where studies have not been done;
- Conduct sectoral studies, case studies and research projects on women's economic activities in the informal economic sector, to increase the visibility of women's presence there and provide the information required for impact assessment;
- Increase gender awareness and reduce gender bias in national natural disaster response systems through multiple approaches, including the development of guidelines, accountability systems, training, etc. This should apply to both public and private support systems;
- Ensure that post-disaster situational analysis and damage estimates are disaggregated by sex and age. This will provide an initial understanding of impacts and help ensure that response actions are gender-sensitive;
- Recognise the differential post-disaster traumatic responses of women and men and make provisions for psycho-social assistance;
- Pay close attention to the female population subject to specific vulnerability (i.e. pregnant women, nursing mothers, elderly women, girls and adolescents, women in abusive situations) while paying attention to those made vulnerable by the disaster itself;
- Promote inclusion of women in the rehabilitation phase and in wage work opportunities during the reconstruction phase;

- Ensure more access for women to credit, land, agricultural inputs (labour, planting material, etc.) and other resources necessary to improve and sustain their livelihoods;
- Ensure that national and regional planning systems address the needs of female-headed households.

In summary, attention to the specific gender needs of women and men in response to natural disaster in the Caribbean must be built upon close and differentiated analysis of a broad range of socio-economic factors. Important tools in this process include gender-disaggregated data, more attention to women's participation in the informal economy and gender awareness training. Incorporation of gender issues will not only enhance the effectiveness of emergency response and rehabilitation, it will also make a valuable contribution to reconstruction period and to the long-term goal of achieving greater gender equality in the Caribbean.



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