

---

***APPENDIX C***

*Questionnaire Including Covering Letter  
from Jan Vermeiren*



**Organización de los Estados Americanos**  
**Organização dos Estados Americanos**  
**Organisation des États américains**  
**Organization of American States**

17<sup>th</sup> and Constitution Ave., N.W. • Washington, D.C. 20006

Date: 02/21/01  
Code: USDE/DivI

*Ref: Training and Capacity Building for Coastal Infrastructure Strengthening in Countries Affected by Hurricane Lenny –  
Antigua & Barbuda, Dominica, Grenada and Saint Lucia*

Dear Participant:

In response to the damages suffered from Hurricane Lenny in several of the Eastern Caribbean countries, the Caribbean Regional Program of the U.S. Agency for International Development (USAID) is funding an assistance program aimed at helping participating countries with the reconstruction of sea defenses and coastal roads, and with improving their capacity to design, construct and maintain coastal infrastructure, so as to reduce losses from similar events in the future.

In July 2000, USAID signed an agreement with the OECS Secretariat for the overall management of the assistance program. Subsequently, USAID signed an agreement with the General Secretariat of the Organization of American States GS/OAS through its Unit for Sustainable Development and Environment to prepare and organize the capacity building and training component of this assistance program. The training program is aimed at engineers in the government and private sector in participating countries, and will address critical aspects of design of common coastal and marine structures, the importance of maintenance of coastal infrastructure, and the understanding of coastal processes and wave forces.

As a basis for designing the training program, the OAS has contracted the services of two well known coastal engineering consulting firms with experience in the Caribbean: Selpeco Westmar Consultants of the USA and Smith Warner International of Jamaica. These firms are tasked with preparing a needs assessment that will identify gaps among the engineering community in the region in the understanding of coastal processes, and in coastal design, construction and maintenance.

It is envisioned that the training program will consist in a small number of specialized short courses, and will also include concrete opportunities for on-the-job training in connection with actual reconstruction works financed under the OECS-USAID program. The Faculty of Engineering of the University of the West Indies in Trinidad and Tobago will be involved in the organization and administration of the training program.

You have been identified as a knowledgeable informant for the coastal engineering needs assessment in the Eastern Caribbean. By filling out the attached questionnaire in a timely manner, you have an opportunity to provide valuable information that will be used in designing a training and capacity building program that will ultimately contribute to the strengthening of coastal infrastructure in your country and in the region.

I want to thank you in advance for your efforts and your contribution to this very important endeavor.

Sincerely yours

Jan C. Vermeiren  
Chief, Caribbean Region  
Unit for Sustainable Development and Environment

## OAS NEEDS ASSESSMENT

This questionnaire has been prepared to evaluate the needs of the participating countries in regards to Coastal Design, Maintenance and Construction (CDMC). The questions herein have been developed to address a broad range of professional organizations, both within the Governments and in the private sector. You do not need to answer questions that are beyond the scope of your profession and/or services.

**The following general questions should be answered first:**

1. What aspect of CDMC is your organization involved in? (please check one or more)

- Private or Publicly Owned Coastal Infrastructure
- Financial Institution
- Government Agencies (environmental, public works, planning, finance or industry)
- Architecture
- Consulting Engineering
- Environmental Consulting
- Materials Supplier (cement, piles, steel, etc.)
- Contractor
- Quarry Operator
- Transportation (trucking, tug and barge, etc.)
- Testing Agency or Service (ASTM or other standard tests on rock, aggregate, cement, welds, etc.)
- Surveying

2. Would you consider one or more individuals from your organization as candidates for the proposed training programs?

Please provide names, title, telephone and e-mail address for each:

---

---

---

**After answering the above questions please provide responses to any of the following questions that apply to your area of expertise.** For e-mail respondents, please enter your responses directly into this document and e-mail it back to the sender. For fax respondents, please provide your responses on a separate piece of paper, indicating the section and question number.

### **Section 1** – Understanding of Hurricane Trends in the Leeward and Windward Islands

1. Does the Department of Public Works or Planning have a recognized design criteria or code that it requires, or uses, in the approval or design and construction of coastal infrastructure?

2. Has a Coastal Zone Management Plan been developed for the island, such that nearshore design wave climates are known on an island-wide basis? If not, then how is nearshore design wave data arrived at for coastal infrastructure?

### ***Section 2*** – Mapping of Coastal Infrastructure

1. Does mapping exist for the coastline of the island, in digital format?
2. If not, are there survey maps at a scale of 1:2500 or at the very worst 1:5000?
3. Has mapping of coastal infrastructure been carried out, such that length of roadway adjacent to the shoreline is known? In addition, what about extent of tourism infrastructure as well as beach areas?
4. Are there development plans in existence that indicate the future uses that the coastline is to be put?

### ***Section 3*** – Coastal Processes that Result in Damage to Coastal Infrastructure and/or Shorelines

1. Is there an inventory of nearshore wave climate data?
2. Is there knowledge of benthic substrates, i.e. layers of seafloor sediments?
3. Have tides been measured for any long-term period? Are there operating tide gauges mounted? If yes, has this data been analyzed by harmonic analysis?
4. Are there any estimates of storm surge for extreme events such as hurricanes?
5. Has the OAS/USAID model TAOS/L been used for predicting storm surge?
6. Are there any estimates of global sea level rise that are applicable to the islands in question?
7. What information is known, if any, on coastal processes such as sediment transport characteristics?
8. Are EIA (Environmental Impact Assessment) procedures used or called for in the design of coastal infrastructure or coastal design?
9. Are set-backs used as a form of coastal protection? If so, what are these and how were they derived?
10. What hazard event return period is used for the design of coastal infrastructure?

### ***Section 4*** – Design and Construction of Coastal Defense Works

1. Are there approved/certified surveyors that are used to carry out shoreline surveys?
2. Who does bathymetric surveying for coastal projects? What sort of equipment is used?
3. In the past, who has designed coastal protection works? How have these performed? What are the most common forms of coastal protection/sea defenses that have been used?
4. Is there a list of approved quarries? If so, have these operators presented material testing information for both aggregate and armour stone? Where were these tests carried out?
5. Are there known local reserves of sand that may be used for beach nourishment? What are the sources of sand that have been used in the past (Barbuda, Guyana, etc.)? Are the characteristics of this sand known (sieve analysis, percentage fines, etc.)?
6. Is there a list of approved contractors that have known capability in the construction of sea defense works? What is the barge capacity of these contractors?

7. If there is a need for physical modeling, where is this usually carried out? What is the capability for numerical modeling of processes?
8. What form of contract is usually used?
9. Who usually ensures compliance with environmental requirements during construction?

***Section 5*** – Maintenance of Coastal Defense Works

1. Is there any follow up action taken after sea defense works are constructed?
2. What is the mandate of a Coastal Zone Management Unit if existing?
3. Are developers required to submit follow up monitoring reports after coastal works have been constructed?
4. Does the Public Works Dept. carry out routine inspection and maintenance of coastal works?
5. When sea defense works are designed either in the public or private sector, are estimates of “life of structure” made and included as a part of the design?