

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Climate Change: Water Quality Program

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
101	Appraisal of Soil Resources	10%			
104	Protect Soil from Harmful Effects of Natural Elements	10%			
111	Conservation and Efficient Use of Water	10%			
112	Watershed Protection and Management	10%			
133	Pollution Prevention and Mitigation	60%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	1.9	0.0	0.0	0.0
Actual Paid Professional	0.0	0.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
80000	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
80000	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Train local government agency personnel, maintenance professionals, community groups and non-governmental organization representatives, and volunteers to deliver information on water quality protection to their respective audiences and the general public utilizing the V.I. Home & Farm Water Quality Assessment (VI*A*Syst) program.

Develop and disseminate locally-oriented outreach materials related to water conservation, drinking water protection, wastewater disposal and best management practices for pollution prevention for delivery through the VI*A*Syst program, with particular emphasis on materials targeted towards youth and under-served audiences.

Educate homeowners and renters about residential environmental management including use of least-toxic household products and non-point source pollution control to protect aquatic ecosystems utilizing VI*A*Syst materials.

Develop publications, workshops, and presentations that relay information on the issues of watershed protection, non-point source pollution control, drinking water protection, and wastewater disposal and best management practices to reduce impacts to the general public.

Utilize the media to promote Water Quality programs through various methods, including, but not limited to, radio and television PSAs, television video spots, local talk shows (radio & TV), and videotapes of workshops, presentations, and symposia.

Identify and/or develop technical materials related to water conservation, drinking water protection, watershed planning, and non-point source pollution control practices and systems for use by policymakers and regulatory personnel, and disseminate information related to these topics through the V.I. Non-point Source Newsletter, NPS Update.

Provide technical assistance on a variety of topics, including but not limited to, erosion, sediment, and stormwater control; xeriscaping - incorporating native, drought-tolerant plants into the landscape; watershed planning; water quality assessment; drinking water protection; and environmental assessment, to government agencies, community groups, various areas of the private sector, and the general public.

Conduct watershed studies utilizing oceanographic and GIS technology to Investigate Effects of Land-based Pollutants on Water Quality and Marine Resources in cooperation with other UVI components Conservation Data Center (CDC), V.I. Experimental Program to Stimulate Competitive Research (VI EPSCoR) and Center for Marine and Environmental Studies (CMES). Project goals are to further scientific research, promote educational outreach and improve natural resource management programs.

2. Brief description of the target audience

Policy-makers and regulatory personnel, community groups, teachers and students, business community, non-governmental organizations, and the general public.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	400	1600	150	300

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2013

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	2	0	2

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Education/Classes/Training in water quality protection and VI * A * Syst Program

Year	Actual
2013	1

Output #2

Output Measure

- Workshops / Presentations about water quality protection, less toxic household products and NPS BMP's through the VI * A * Syst Program, on-site wastewater treatment, cistern care, and

watershed protection.

Year	Actual
2013	31

Output #3

Output Measure

- One-on-one consultations with residents, government employees, students

Year	Actual
2013	320

Output #4

Output Measure

- Tours of VI natural areas with students, community groups and others to raise awareness about watersheds and water quality protection.

Year	Actual
2013	4

Output #5

Output Measure

- Educational/research publications, articles, posters, newsletters, GIS maps related to non-point source pollution, on-site wastewater treatment, watersheds, VI * A * Syst, and protection of VI native plant communities.

Year	Actual
2013	3

Output #6

Output Measure

- PSAs

Year	Actual
2013	0

Output #7

Output Measure

- Fairs

Year	Actual
2013	8

Output #8

Output Measure

- TV/Media

Year	Actual
2013	6

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Awareness of the health risks associated with water quality impairment and water and wastewater treatment systems will increase, and one hundred fifty (150) homeowners will learn how various household substances (i.e. Fat/Oil/Grease & Pharmaceuticals and Personal Care Products, etc.) can potentially negatively affect onsite wastewater treatment systems (OWTS), water resources, marine life and human health.
2	Thirty five (35) VI OWTS designers, wastewater practitioners and regulatory personnel will learn about OWTS designs and management practices recommended in CES training classes.
3	Requests for site visits and VI*A*SYST assessments and presentations will increase. 75 clients or more will each adopt at least one VI*A*SYST recommended practice such as the use of non-toxic household products, etc.
4	Fifty (50) homeowners will improve cistern water quality by following CES recommendations.
5	Over 250 VI youth will become aware of the vital connections between human activities and water quality, how land-based activities affect coastal water quality, and why watershed protection is important to them and their well-being. Youth and volunteer involvement in water quality protection and resource conservation will increase.

Outcome #1

1. Outcome Measures

Awareness of the health risks associated with water quality impairment and water and wastewater treatment systems will increase, and one hundred fifty (150) homeowners will learn how various household substances (i.e. Fat/Oil/Grease & Pharmaceuticals and Personal Care Products, etc.) can potentially negatively affect onsite wastewater treatment systems (OWTS), water resources, marine life and human health.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	16

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Nutrication and contamination of surface, groundwater and coastal waters from leaking septic systems is considered to be a major problem in the VI. Nonpoint Source Pollution from defective septic systems impacts human health and marine resources.

What has been done

Technical assistance continued to be provided to a St. Thomas condominium homeowners association to facilitate the replacement of a defective septic system with a package onsite wastewater treatment plant (OWTS).

Results

An alternative package OWTS was successfully installed at a condominium with follow-up inspections by CES.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation

Outcome #2

1. Outcome Measures

Thirty five (35) VI OWTS designers, wastewater practitioners and regulatory personnel will learn about OWTS designs and management practices recommended in CES training classes.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Developers and architects seek technical information from CES about alternative OWTS systems. The Virgin Islands Department of Planning and Natural Resources (DPNR) referred architects, businesses, developers to CES for specific technical assistance with alternative OWTS installations.

What has been done

CES provided developers and architects with alternative OWTS information during site visits.

Results

Based on CES technical assistance a developer and architect are adopting CES recommendations regarding the installation of an alternative OWTS in an office complex construction site near a coastal territorial park. Property owners were provided with information about septic system design based on guidelines developed by CES WQ Regional Project partners from the URI Onsite Wastewater Treatment Demonstration Center.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation

Outcome #3

1. Outcome Measures

Requests for site visits and VI*A*SYST assessments and presentations will increase. 75 clients or more will each adopt at least one VI*A*SYST recommended practice such as the use of non-toxic household products, etc.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	10

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Custodial professionals, business owners, school students, the general public and the natural environment can be exposed to negative effects caused by the use of toxic household products. Many residents rely on maintaining healthy cistern catchments for their water supplies.

What has been done

Through its VI*A*SYST program, CES continues to make numerous presentations to the VI population promoting the use of non-toxic household products for protecting human health and the environment. Presentations were made to school groups, church congregations, scouts, businesses, maintenance professionals, government agencies and environmental groups. Cistern care also is promoted in these presentations and during individual consultations.

Results

The VI*A*SYST presentations continue to be very popular with all segments of the VI community. After attending VI*A*SYST presentations, many individuals indicated that they would start using non-toxic household products. Several attendees have referred others to CES for information on non-toxic household products also after the airing of the TV shows persons requested more information. Persons have been buying much more of the non-toxic products as many of the stores have run out from time to time.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation

Outcome #4

1. Outcome Measures

Fifty (50) homeowners will improve cistern water quality by following CES recommendations.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
133	Pollution Prevention and Mitigation

Outcome #5

1. Outcome Measures

Over 250 VI youth will become aware of the vital connections between human activities and water quality, how land-based activities affect coastal water quality, and why watershed protection is important to them and their well-being. Youth and volunteer involvement in water quality protection and resource conservation will increase.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	170

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

VI youth and their instructors need basic scientific information about the unique connections between land and sea and how human activities affect water quality. With the rapid urbanization in the VI, the youthful population will be the most affected by land-use impacts degrading water quality.

What has been done

CES provided graduate students in environmental management programs with technical assistance and information relating to research projects. Publications co-authored or co-researched CES publications continued to be used for instruction by educators and librarians. CES designed educational displays to appeal to younger students.

Results

UVI's Marine and Environmental Management Program and Yale's Coastal and Watershed Management Program graduate students continue to utilize information provided by CES in watershed research projects on St. Thomas, focusing on water quality monitoring in impacted St. Thomas guts and watershed analysis pertaining to the effects of watershed activities on near-shore resources, mainly coral reefs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
101	Appraisal of Soil Resources
104	Protect Soil from Harmful Effects of Natural Elements
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

Turnover is high in some VI Government agencies, mainly due to political elections and recent fiscal constraints at the governmental level. It is difficult to establish very effective long-term relationships that can result in policy changes or effective training. Employees in these agencies acknowledge the need for more comprehensive enforcement of environmental laws, but they are overextended and need additional staff support to effectively enforce existing regulations. They also acknowledge the need to produce new regulations regarding the onsite wastewater system installation and protection of various native forest communities in watersheds. Political pressures can impede with enforcement and the development of new regulatory policies. DPNR-DFW, DEP, and CZM have developed long-term partnerships with CES resulting in workshops, grants, client referrals and resource management initiatives. CES continues its productive association with the local EPA office.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

CES communicated closely with VI governmental partners, NGOs, environmental groups and the business community. These clients responded favorably to the informal, mostly verbal, evaluation methods used by CES during all stages of program implementation. Post workshop evaluations were distributed, and evaluations were favorable. Research project reports and publications are peer-reviewed.

Key Items of Evaluation

All key items of evaluation were used.