

V(A). Planned Program (Summary)

Program # 8

1. Name of the Planned Program

Climate Change

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
104	Protect Soil from Harmful Effects of Natural Elements	25%			
111	Conservation and Efficient Use of Water	25%			
112	Watershed Protection and Management	25%			
125	Agroforestry	25%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	4.0	0.0	0.0	0.0
Actual Paid Professional	5.2	0.0	0.0	0.0
Actual Volunteer	2.6	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
198626	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
99313	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

- Capacity building workshops
- Technical training meetings
- Mass media use to disseminate information
- Collaboration with local government agencies
 - Stage 1 (2010-2011) Curricular Guide was prepared
 - Stage 2 (2011-2012) Personnel training using lessons and information in the curricular guide (train-the-trainer)

2. Brief description of the target audience

Farmers, communities, government professionals, county Extension personnel, agronomists

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	1631	413	47	7

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

Patent Applications Submitted

Year: 2012
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2012	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of people who received capacity development (workshops, seminars, conferences) on climate change.

Year	Actual
2012	154

Output #2

Output Measure

- Number of people who received capacity development (workshops, seminars, conferences) on water quality, watershed protection, and maintenance.

Year	Actual
2012	432

Output #3

Output Measure

- Number of people who received capacity development (workshops, seminars, conferences) on water collection, storage and re-use for agricultural purposes.

Year	Actual
2012	0

Output #4

Output Measure

- Number of people who received capacity development in agroforestry, soil erosion, and storm water runoff control.

Year	Actual
2012	620

Output #5

Output Measure

- Number of people who received capacity development on soil erosion and water environmental regulations.

Year	Actual
2012	381

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of people who adopted recommended practices for the adoption or mitigation of climate change in their farms.
2	Number of people who established watershed protection practices.
3	Number of people who adopted practices to improve water collection, storage, and reuse efficiency.
4	Number of people who adopted agroforestry practices.
5	Number of people who adopted/implemented soil erosion control measures.
6	Number of people who comply with environmental soil erosion and water requirements.

Outcome #1

1. Outcome Measures

Number of people who adopted recommended practices for the adoption or mitigation of climate change in their farms.

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Number of people who established watershed protection practices.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	302

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Agriculture is the second water user in Puerto Rico. The availability, as well as the quality of water, are paramount to obtain good yields. Sound agricultural practices, which protect the environment and are in harmony with the environment, are a priority.

What has been done

Besides workshops, demonstrations, presentations and other educational methods, PRAES agricultural agents developed good working relationships with state government agencies. Such is the case of the Department of Natural Resources and Environment (DNRE), which has a forestation program to provide farmers with seedlings to protect the watersheds. The agricultural agents work closely with DNRE selecting and providing education to interested farmers. They also work closely with the USDA-NRCS on the implementation of practices like contour grass strips using vetiver grass, and have been actively working on pesticides application and solid waste management.

Results

Three hundred and two (302) farmers are implementing recommended practices such as: composting, contour ditches and farming; runoff management, followed by recommended

distances from water bodies when applying pesticides.

4. Associated Knowledge Areas

KA Code	Knowledge Area
104	Protect Soil from Harmful Effects of Natural Elements
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
125	Agroforestry

Outcome #3

1. Outcome Measures

Number of people who adopted practices to improve water collection, storage, and reuse efficiency.

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

Number of people who adopted agroforestry practices.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	179

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
104	Protect Soil from Harmful Effects of Natural Elements
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
125	Agroforestry

Outcome #5

1. Outcome Measures

Number of people who adopted/implemented soil erosion control measures.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	247

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Most of our soils are clay and great part of our farming is conducted in the central mountain area where soil erosion is a big concern; therefore, affecting farm production and soil health since most of the organic matter is already lost.

What has been done

Through many years, both Extension agents and USDA-NRCS personnel have joined efforts to work with the farmers to help them understand the benefits of soil conservation and soil erosion control. Much effort has been dedicated to educate farmers and rural communities on brush fires and their effects on our environment, one of which is an increase in soil erosion.

Results

Extension agents report that in recent years they have observed an increase in the number of farmers participating in EQIP, and that farmers are more aware that by implementing the recommended soil erosion measures, they don't require as much fertilizers as before, with 247 adopting/implementing soil erosion control measures.

4. Associated Knowledge Areas

KA Code	Knowledge Area
104	Protect Soil from Harmful Effects of Natural Elements
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
125	Agroforestry

Outcome #6

1. Outcome Measures

Number of people who comply with environmental soil erosion and water requirements.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	93

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Maintaining water quality, requires complying with regulatory agencies, such as the State Environmental Quality Board (SEQB), which regulates solid waste management in farms, as well as Soil Erosion and Sedimentation Control regulations. A high phosphorus value in the water has been reported, as well as evidence of nitrogen, which could come from fertilizer applications, animal feeding or waste.

What has been done

The PRAES Engineering unit assists farmers in developing a waste management plan to be submitted to SEQB. Prior to this, they inform the farmer and offer training to the local Extension agent to follow-up with the proposed plan compliance.

Results

Results: (10 To 12 Lines Max)

Ninety-three (93) persons comply with environmental soil erosion and water requirements. Several farmers have improved their animal structures and are properly applying fertilizers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
104	Protect Soil from Harmful Effects of Natural Elements
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
125	Agroforestry

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Government Regulations
- Competing Public priorities

Brief Explanation

Most of the farms on the Island are small scale operations. They often struggle to continue in operation, and it is becoming increasingly troublesome to comply with government regulations since they often require investment in structures and other sorts of equipment.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

We are in the third stage, training farmers. Our evaluation results should be developed by 2015, as stated in our 2012 Plan of Work.

Key Items of Evaluation