Getting To Implementation:
Program Options for Puerto Rico
Puerto Rico is Not Alone!

Implementation is Difficult
$738,500,000

Statewide activity
10,000 sites

Approximately
110,000 ac. disturbance

Soil loss @150 tons/ ac/ year
16,500,000 tons
15,670,000 cu. yd.

State of MD
Effect of Erosion and Sediment Control Measures On Suspended Sediment Concentrations From Piedmont Construction Sites

Storm Median Sediment Concentration (mg/l)

<table>
<thead>
<tr>
<th>Construction Site Condition</th>
<th>Median Concentration (mg/l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncontrolled</td>
<td>4,145</td>
</tr>
<tr>
<td>Erosion</td>
<td>680</td>
</tr>
<tr>
<td>Sediment</td>
<td>283</td>
</tr>
<tr>
<td>Urbanized</td>
<td>50</td>
</tr>
<tr>
<td>Natural</td>
<td>25</td>
</tr>
</tbody>
</table>

Uncontrolled = No Erosion or Sediment Control
Erosion = Erosion Control Only
Sediment = Erosion and Sediment Control
Urbanized = Post Construction Sediment Levels (NURP, 1987)
Natural = Predevelopment, Prior to Construction

Source: Schueler and Lugbill, 1990
Erosion Control Implementation?

- Staff & Resources
- Politics (Enforcement)
- Conventional Way of Doing Things
- Agency Coordination
Why Implementation is Important!
Selected Program Options for ESC
(Derived From 1/29/06 Meeting)

• Private Certifications & Licensing
• Performance Bonds
• Training for Inspectors
• Conditions in Contracts
• Incentives Through Review Process (Streamlining)
• Enforcement (Civil Penalties)
• Demonstration Projects (Caguas)
• Others?
ESC Implementation Tool #1

Private certifications and licensing

Source: Delaware Sediment and Stormwater Program
1. Private Certification and Licensing

What It Is:

– Training program for contractors, private inspectors, and plan preparers
– Attend training session, take exam and receive official sanction
– Maintain an official list
– List tied to certain requirements – plan approval, weekly inspections, onsite presence, etc.
1. Private Certification and Licensing: Delaware Sediment & Stormwater Program

- State requires a Certified Construction Reviewer (CCR) to provide inspection duties
- State provides certification
- CCR must become familiar with site plan
- Reports prepared by CCR on weekly basis throughout duration of project
- ESC controls must be in accordance with approved plan and Handbook; non-compliance must be reported to State
- State pursues enforcement actions
- State has ability to revoke certification
Virginia DOT: Contractor Certification

Required for Contractor to Get State Contract for Road Work
1. Private Certification and Licensing

PROS
- Tied to economic incentive
- Simple administration from centralized agency
- Provides consequences for bad actors

CONS
- Self-policing seldom adequate as stand alone enforcement tool
- Bad actor consequences can be hard to enforce
2. Performance Bonds

What It Is:

– Financial Surety Posted Prior to Plan Approval and/or Grading Permit
– Motivator for Compliance
– Usually Required in Code
– Allows Program Authority to Cash Bond & Conduct Work if Applicant is not in Compliance
2. Performance Bond Example: Albemarle County, VA

- Bond posted for Erosion & Sediment Control & Stormwater Management prior to plan approval
- Bond estimate based on cost + 25%
- Partial bond reductions based on inspection – retain 20% until complete
- Annual renewal fee – extensions beyond 1 year discouraged
- Bonds tracked in data base
- Bonds cashed in rare instances
- Administration – 20% of FTE (60 bonds annually)
2. Performance Bonds

**PROS**
- Economic incentive for compliance
- Good complement to other enforcement tools

**CONS**
- Administrative burden (compute bonds, inspections, data base)
- Politically & administratively difficult to cash bonds & perform work
- Bonds need a life span
ESC Implementation Tool #3

Training for Inspectors

Source: MDE Stormwater Management Program
3. Training for Inspectors

What It Is:

- Training for those involved in carrying out or complying with inspection aspects of ESC
- Can be tied into private certifications
- Can consist of a one-day course covers minimum standards and specifications for conservation practices, basic soil mechanics and inspector skills
- Require recertification every 3 years or so
3. Training for Inspectors Example: Virginia DCR

- Erosion and Sediment Control Training and Certification
  - Localities are required to have a certified inspector
  - Initial certification requires an Erosion and Sediment Control 101 course and one specifically geared at inspection
  - Inspectors must be recertified every 3 years
  - Recertification can be completed through online course
  - Maintains a list of certified inspectors on
3. Training for Inspectors

**PROS**
- Simple
- Builds motivation
- Keep inspectors up-to-date on technologies
- Help provide consistent enforcement

**CONS**
- Turnover?
- Uncertain results
ESC Implementation Tool #4

Conditions in Contracts
4. Conditions in Contracts

What It Is:

– Contracts for government work (roads, municipal projects, etc.) specify training, preparation of plans, and compliance

– May be coordinated with training and/or certification program
4. Contract Example: CalTrans

- Storm Water Management Enforcement Guidance Manual – **Standard Specs**
  - Contractor develops water pollution control program
  - State not liable for delays due to lack of program
  - Temporary or permanent stabilization for each 70,000 square meters (17.3 acres)
4. Contract Example: CalTrans

- **Storm Water Management Enforcement Guidance Manual – Special Provisions**
  - Storm Water Pollution Prevention Plan as per State Manual
  - Retention of funds for noncompliance (25%) (most effective compliance tool)
  - Training for water pollution control manager (annual certification)
4. Contract Example: CalTrans

  - Special rainy season plans (max. disturbed)
  - Inspections & Maintenance
  - Scheduling
  - Removal of temporary BMPs
  - Suspension of work/contract termination
4. Contract Conditions

**PROS**
- Highlights Erosion Control Early in Process (contract)

**CONS**
- Often forgotten during construction, except if there is conflict
- Difficult to Enforce (legal action)
Incentives Through Review Process
5. Incentives Through Review Process

What It Is:

• Review and Approval process for site plans is sometimes time consuming and results in lengthy delay
• Use a ESC checklist to verify complete plan
• If plan is complete and meets checklist, it becomes a fast-track priority
5. Incentives Through Review Process

**PROS**
- Carrot
- Leads to better plans
- Encourage interagency coordination

**CONS**
- Delays in approval usually a symptom of several issues (lack of staff, etc.) – may not be as simple as moving to top
- Only applies to review stage, does not ensure good implementation
- Result in inadequate
ESC Implementation Tool #6

Enforcement:
Civil Penalties
6. Enforcement: Civil Penalties

What It Is:

– Specified in Code
– Civil Fines for Specified Violations (like a traffic ticket)
– Requires Trained Inspection Staff
Existing PR Regulation:
Regulation for the Control of Erosion and Prevention of Sedimentation (EQB)

- Rule 1240.D
- Rule 1260
  - Cease & Desist
  - Show Cause Orders
  - Revoke Permits
  - Administrative Fines up to $25,000 per day
  - Contumacy Fines up to $50,000 per day
  - Criminal Penalties
6. Civil Penalties
6. Civil Penalties Example: Roanoke County, VA Ticket Book

<table>
<thead>
<tr>
<th>Violation Description</th>
<th>Penalty</th>
<th>X Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAND DISTURBING WITHOUT A PERMIT</td>
<td>$1000/DAY</td>
<td></td>
</tr>
<tr>
<td>STD 3.01 Safety Fence</td>
<td>$100/DAY</td>
<td></td>
</tr>
<tr>
<td>STD 3.02 Construction Entrance</td>
<td>$100/DAY</td>
<td></td>
</tr>
<tr>
<td>STD 3.03 Construction Road Stabilization</td>
<td>$100/DAY</td>
<td></td>
</tr>
<tr>
<td>STD 3.04 Straw Bale Barrier</td>
<td>$100/DAY</td>
<td></td>
</tr>
<tr>
<td>STD 3.05 Silt Fence</td>
<td>$100/DAY</td>
<td></td>
</tr>
<tr>
<td>STD 3.06 Brush Barrier</td>
<td>$100/DAY</td>
<td></td>
</tr>
<tr>
<td>STD 3.07 Storm Drain Inlet Protection</td>
<td>$100/DAY</td>
<td></td>
</tr>
<tr>
<td>STD 3.08 Culvert Inlet Protection</td>
<td>$100/DAY</td>
<td></td>
</tr>
</tbody>
</table>
6. Civil Penalties

<table>
<thead>
<tr>
<th><strong>PROS</strong></th>
<th><strong>CONS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Effective Compliance</td>
<td>• Political Will Needed to Apply Tool</td>
</tr>
<tr>
<td>• Easier to Apply than Criminal Penalties</td>
<td>• Need Control of “Renegade” Inspectors</td>
</tr>
<tr>
<td></td>
<td>• Need Enough Inspectors to Document Conditions at Sites</td>
</tr>
<tr>
<td></td>
<td>• Judges Not Always Sympathetic</td>
</tr>
</tbody>
</table>
ESC Implementation Tool #7

Demonstration Projects
7. Demonstration Projects

What It Is:

– demonstration projects that illustrate the use, design, installation and maintenance of innovative erosion and sediment control practices

– Incorporate into workshops, certifications, tours, websites, etc.
7. Demonstration Projects Example: UVI Cooperative Extension Service

- Installed ESC practices at the CES Home Demonstration Garden
- Demonstrate the proper use and installation of practices not widely used in the territory:
  - erosion control mats, hydroseeding, and triangular dikes
- Demonstrate the proper siting, installation and maintenance of silt fencing;
- Display different native and adapted grasses and ground covers that can be used for erosion control; and
- Provide public education and outreach on effective erosion and sediment control methods
7. Demonstration Project

**PROS**
- Non-threatening but convincing
- Allows govt agencies to set good example and high bar
- Good outreach potential
- Grants/Funding

**CONS**
- Temporary
- Risk factor – some projects fail
- One piece of puzzle
Other?