

Is it Time for a National Stormwater Testing & Evaluation Program for Products & Practices? (aka STEPP)

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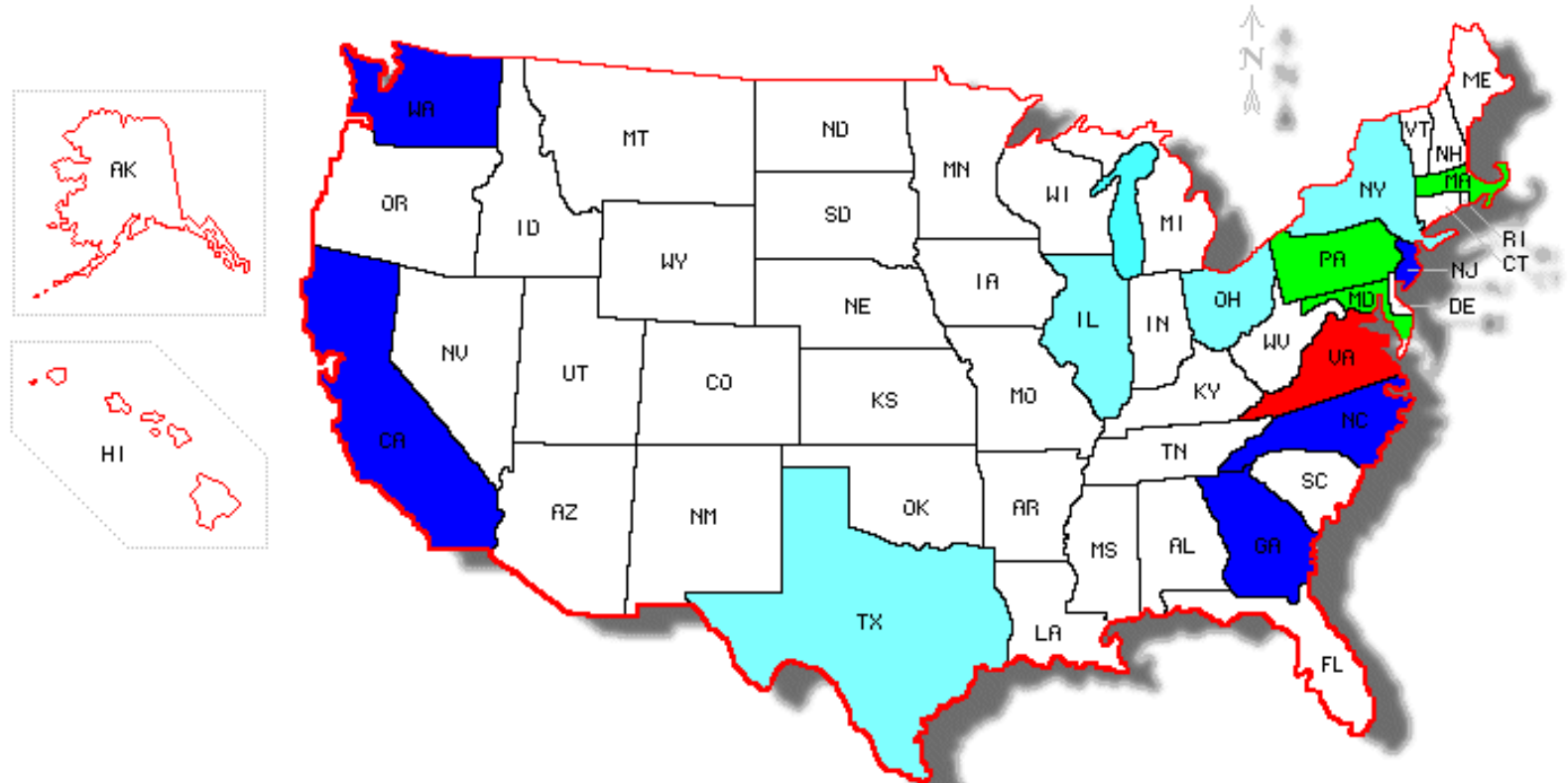
**Southeast Stormwater Association (SESWA) 11th Annual Conference
Birmingham, Alabama
October 19-21, 2016**

The Need for STEPP

- ❖ STEPP Initiative Seeks to address lack of national stormwater Control measure (SCM) testing and verification program
- ❖ A number of independent state and local government-led initiatives have inconsistent test protocols and data analysis techniques that have been developed over the past 15 years.
- ❖ Lack of a national program limits innovation of emerging technologies
- ❖ A key goal of STEPP would be to meet the growing need for affordable and effective stormwater management infrastructure and to overcome the hurdles in the sector that restrains innovation in stormwater product and practice technology development.

Distribution of State/Regional Stormwater Testing/Evaluation Programs

- - Active Programs
- - Part of TARP
- - Recognition of TARP
- - Under Development





Infrastructure



FINAL
REPORT



Framework for a National Testing and
Evaluation Program Based Upon the
National Stormwater Testing and Evaluation for
Products and Practices (STEPP) Initiative



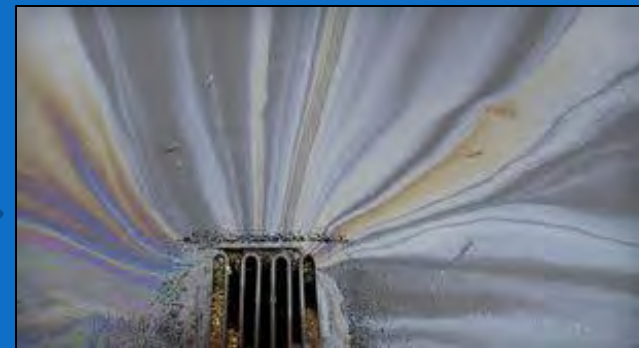
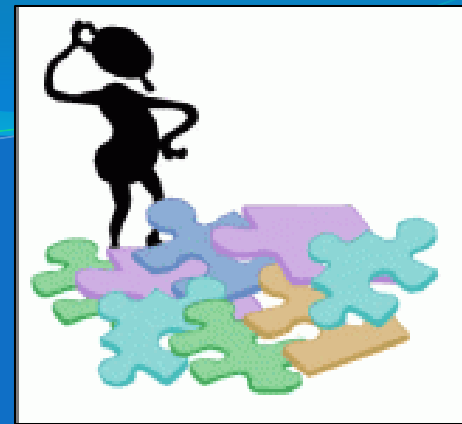
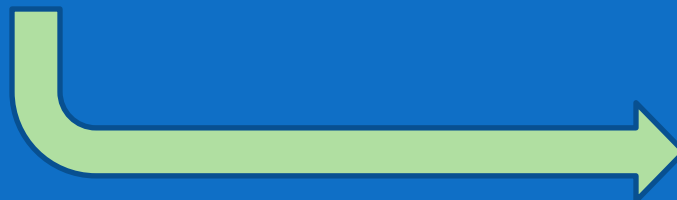
From 2016

Nature of the Problem

Depends upon point of view...

- **Manufacturer:** Product/practice approval process is a barrier
 - Can be challenging and a barrier to innovation and competition
- **Consumer:** Lack of independent testing
 - Reduces confidence in product/practice performance/efficacy
- **Regulator:** Uninformed product/practice stakeholders
 - May lead to under-performing stormwater programs

Ultimately impacts water quality.....



National Stormwater Testing and Evaluation for Products & Practices (STEPP)

Purpose

STEPP Initiative seeks to improve water quality by accelerating the effective implementation and adoption of innovative stormwater management technologies.

National Stormwater Testing and Evaluation for Products & Practices (STEPP)

It will attempt to:

Accomplish this goal by establishing practices through highly reliable and cost-effective stormwater control measure (SCM) testing, evaluation & verification services.

National Stormwater Testing and Evaluation for Products & Practices (STEPP)

It will also attempt to:

- Aim to remove barriers to innovation.
- Minimize duplicative performance evaluation needs.
- Increase confidence that regulatory requirements are met by creating consistency among testing and evaluation protocols.
- Establish equity between public domain and proprietary SCM evaluation approaches.

Origin of STEPP

- ❖ **Kickoff...** the Stormwater Testing & Evaluation for Products & Practices (STEPP) initiative originated @ WEFTEC 2012 during a meeting amongst stakeholder groups (manufacturers, regulators, consultants, developers and Water Environment Federation (WEF). Initiative triggered in part by the now defunct EPA's Environmental Technology Verification (ETV) program, the only national evaluation program for stormwater technologies.
- ❖ **Investigatory...** in 2013, given the nation leadership void, WEF formed the STEPP Initiative and assembled a workgroup to investigate the feasibility and need for a national testing and evaluation program for stormwater products and practices.
- ❖ **Investigatory Findings...** summarized in a WEF February 2014 white paper which concluded that a national program was both feasible and desired by stakeholders.

<http://www.wef.org/STEPP/>

Investigatory WEF 2014 report identified critical elements that needed to be addressed:

- **Consistent protocol development**
- **Sustainable funding source**
- **Transparent and streamlined development**
- **Widespread stakeholder engagement**
- **Strong national leadership**

In response to the white paper, unsolicited letters of support from:

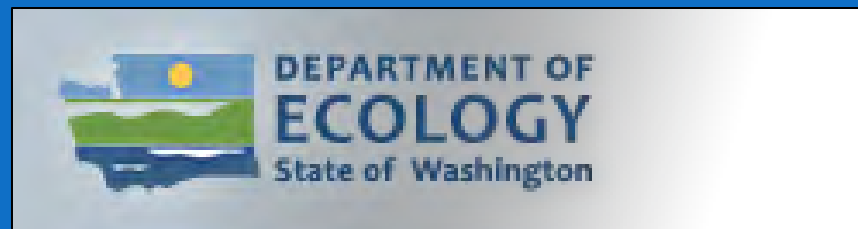
- ✓ Michigan Dept. of Environmental Quality



- ✓ New Jersey Dept. of Environment Protection



- ✓ Washington State Dept. of Ecology




STEPP IS:

A nationwide stormwater management process to follow for both public domain practices and proprietary manufactured treatment devices (MTDs) to be approved for use within a regulatory jurisdiction.

STEPP IS NOT:

A new set of laboratory and/or field testing protocols for both public domain practices and MTDs, although modifications to existing testing protocols may evolve during evolution of the program.



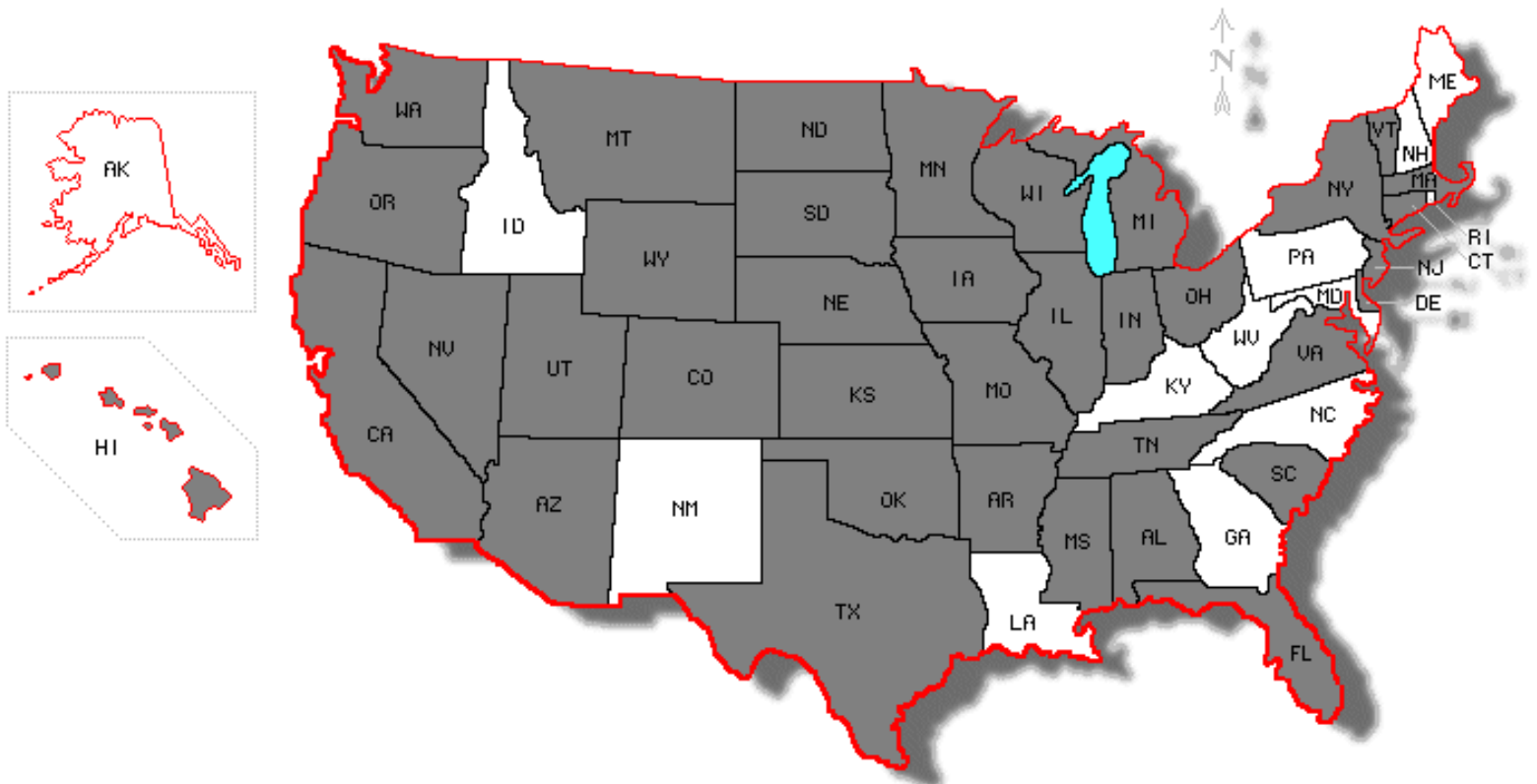
STEPP draws on existing New Jersey laboratory and Washington State field testing, evaluation and verification programs of MTDs as initial models.

Phase 1 – STEPP Advisory Committee

- ❖ With EPA support in 2015, information was synthesized from:
 - ❖ Technology Assessment Protocol – Ecology (TAPE)
 - ❖ New Jersey Corporation for Advanced Technology (NJCAT)
 - ❖ National Transportation Product Evaluation Program (NTPEP)
 - ❖ Interstate Technology & Regulatory Council (ITRC)
 - ❖ Sustainable Technologies Evaluation Program (STEP, Canada ETV)
- ❖ Two informal surveys sent to States and MS4s to determine their needs and how they might use a national program.

State Survey Responses

38 State Survey Responses

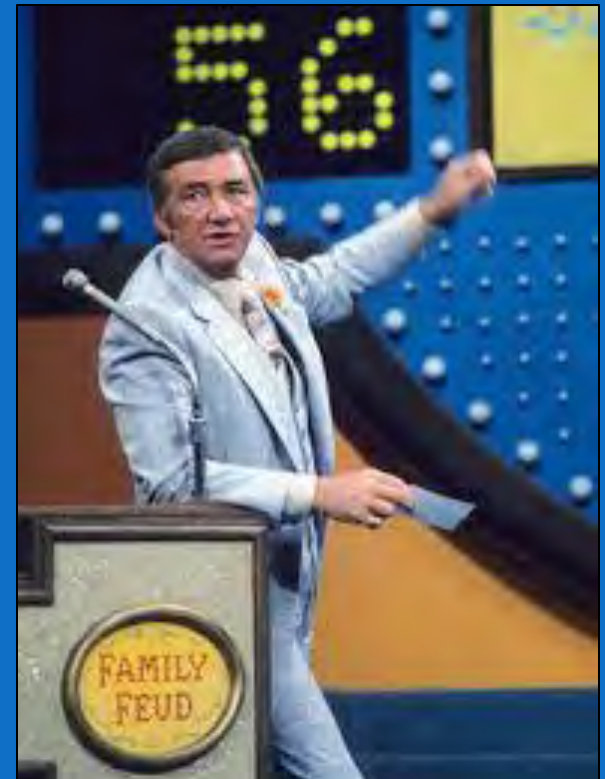


State Survey

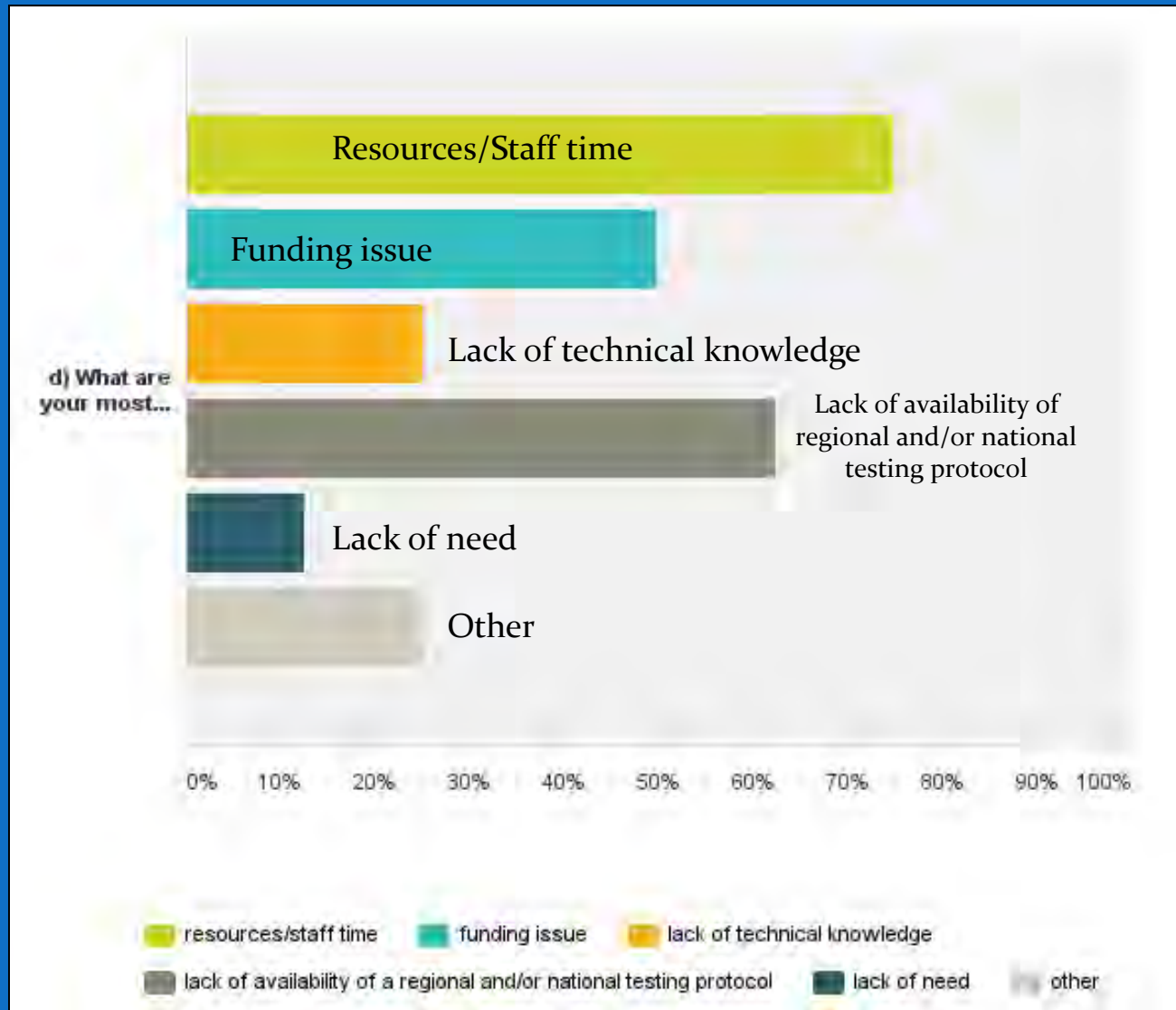


38 responses

- ❖ ~ 80% believed in benefit from STEPP
- ❖ ~ 60% did NOT have:
 - An approved products list
 - A database of products
 - A testing/evaluation program
 - Verification/Certification program



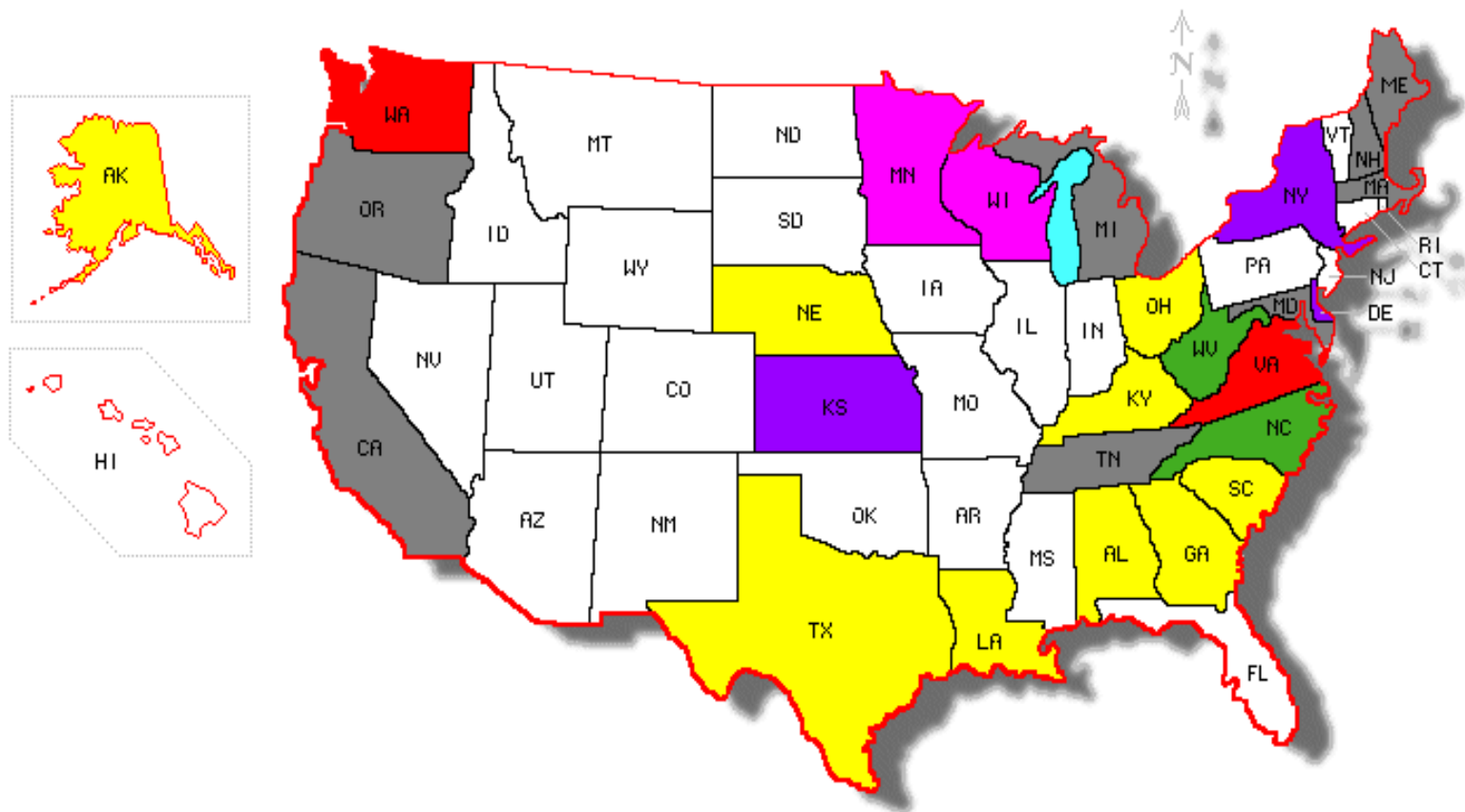
Most significant challenges to States administering their own program



MS4 Survey – Number of Responses



118 MS4 Responses from 26 States



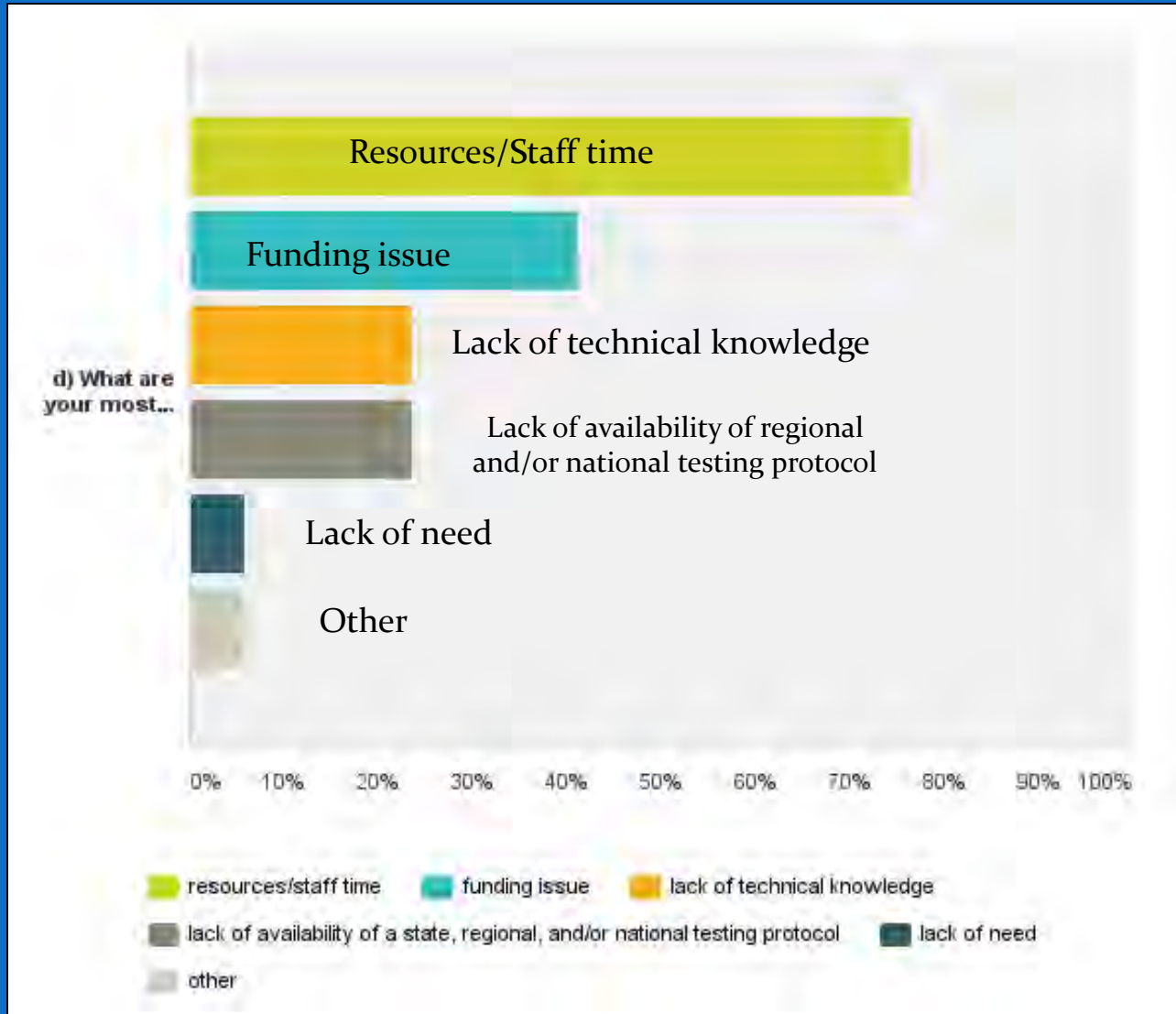
MS4 Survey



**118 responses from 26 states, most from VA, WA, WI, MN
(remember, there are 7,500 MS4s)**

- ❖ **>70% believed in benefit from STEPP**
- ❖ **>50% did not have the four above-cited items**
- ❖ **Only 23% indicated willingness to consider providing funding to explore further the conditions under which state and local agencies would be willing to support a national program**

Most significant challenges to MS4s administering their own program



*Well, aren't we
"Special?"*



Some Key issues

- ❖ Regional concerns – Pros and cons of lab (NJ) vs. field (WA) testing and how do they relate to regional issues/conditions?
- ❖ Stakeholder recruitment – benefits are recognized but will enough stakeholders adopt it in a timely manner (ex. TARP)?
- ❖ SCM equity – how will it be achieved and who will fund testing of land based SCMs since MTD testing is by the vendor?
- ❖ Sustainability – How will it be funded and administered?

General Programmatic Area Findings & Rationales

❖ Overall Program #1 - Recruitment

- ✓ Focused effort to recruit NPDES delegated state programs, MS4s, EPA and the land development and industrial communities.
- ✓ Ultimate success will be to gain a critical mass of state and local acceptance.

❖ Overall Program #2 - Equity

- ✓ Goal is to move to a “more equitable program” between public domain practices and proprietary products.
- ✓ Common use public domain practices have “presumptive performance” for approval while MTDs must undergo lab and/or field testing which necessitates an evaluation by stakeholders.
- ✓ Need to raise effort of testing/evaluation of public domain practices.

General Programmatic Area Findings & Rationales (cont'd)

❖ Overall Program #3 – Café Plan Approach

- ✓ Agencies will have the option to choose which test setting (lab or lab and field) and constituents to require/propose for testing, evaluation and verification.
- ✓ Lab tests provide controlled conditions to allow for side-by-side comparisons. Field testing relies on real world, random conditions.

❖ Overall Program #4 – Continual Improvement

- ✓ National program supports the expectation that testing protocols and design standards will and should evolve over time.
- ✓ Program will build in flexibility and responsiveness to adapt to regulatory changes, improved science and engineering, innovation and administrative challenges.
- ✓ Stormwater sector is relatively young, the program will respond to new and creative ways to address pollution for MTDs and public domain practices.

Key Aspects of NJDEP Lab & WaDOE Field Testing



- Test sediment PSD 1-1,000 μm of high purity silica (50% $<75 \mu\text{m}$)
- Target influent @ 200 mg/L
- TSS Removal Efficiency @ 25, 50, 75, 100 and 125% MTFR
- Scour test at 200% MTFR for on-line use
- Weighted annual TSS removal $\geq 50\%$ for HDS, $\geq 80\%$ for filters
- SSC Method for TSS
- Allows for independent observer for in-house lab testing
- NJCAT verification followed by NJDEP certification
- Site must be in Pacific NW
- At least 12 TAPE-qualifying storms of ≥ 0.15 inch
- Multiple sites allowed of similar nature
- Use autosamplers for influent, effluent and bypass flow
- Performance based on instantaneous removal (per storm)
- If TSS influent ≥ 100 mg/L, RE% must be $\geq 80\%$
- If TSS influent < 100 mg/L, effluent must be ≤ 20 mg/L
- Must use independent field testing organization

Individual Program Aspect Findings & Rationales

❖ Individual Aspect #1 – Mission & Objectives

- ✓ Purpose seeks to improve water quality by accelerating the implementation and adoption of innovative stormwater treatment technologies and practices through highly reliable, credible and cost effective BMP testing, evaluation and verification services.
- ✓ STEPP Program intends to:
 - Remove barriers to innovation
 - Minimize duplicative performance evaluation needs
 - Increase confidence that regulatory requirements are met
 - Create consistency among testing and evaluation protocol
 - Establish greater equity between public domain and MTD approaches
- ✓ Current patchwork of state and local testing, evaluation, verification and certification programs for BMPs has limited innovation and led to barriers to entry for innovative practices and products, and a lack of confidence that deployed BMPs will perform as needed/desired.
- ✓ Disjointed nature of testing programs are costly and time-intensive.

Individual Program Aspect Findings & Rationales (cont'd)

❖ Individual Aspect #2 – Program Services

- ✓ National Program will provide for lab and field testing, evaluation and verification of public domain and proprietary BMPs as its core service areas.
- ✓ The National STEPP Program will enhance the availability of highly credible BMP performance information and close the gap between current testing and evaluation of public domain practices and proprietary products.

❖ Individual Aspect #3 – Organizational Relationships

- ❖ Three core elements of moving STEPP forward:
 1. Draw on existing New Jersey and Washington State testing, evaluation and verification programs as models for national laboratory (NJ) and field (WA) testing services.
 2. Utilize existing private, not-for-profit organization to “incubate” and manage the National Program.
 3. Development of partnership relationships with states and key federal agencies (e.g., EPA, DOD, DOT, HUD).

Individual Program Aspect Findings & Rationales (cont'd)

❖ Individual Aspect #4 – Operational Structure

- ✓ Role of independent 3rd parties, transparency, and affiliations of individuals in technical committees play an important role in ensuring program credibility and avoidance of conflicts of interest.
- ✓ National Program would provide for a series of Program Functions.
 - ✓ Testing Protocol Function
 - Protocol Testing Protocol Committee to support the development, adoption and evolution of testing protocol protocols.
 - ✓ Testing Function
 - 3rd party aspects for testing and/or oversight.
 - Pre-approved field test sites
 - Draw upon NJDEP lab and WaDOE field testing programs.
 - ✓ Evaluation Function
 - Initially modeled after NJDEP (public comment) and WaDOE (state disclosure rules) using separate Technical Evaluation Committee.

Individual Program Aspect Findings & Rationales (cont'd)

❖ Individual Aspect #5 – Governance

- ✓ Board of Directors from wide range of sectors to:
 1. Set overall policy and strategy
 2. Approve annual budget
 3. Evaluate program (not product/practice)
 4. Direct executive staff on day-to-day administration

❖ Individual Aspect #6 - Funding

- ✓ Three Stages of Funding
 1. STEPP Advisory Committee Continued Operations (current)
 2. STEPP National Program Startup Period
 3. STEPP National Program Operations

Each stage will have a different amount of funding that will potentially come from different sources.

Individual Program Aspect Findings & Rationales (cont'd)

❖ Individual Aspect #6 – Funding (cont'd)

✓ Potential Sources of Funding

1. Federal Agencies (EPA, DOD, DOT, HUD)
2. Grants from foundations, research-focused groups and other NGOs
3. Host organization
4. In-kind donations of staff time from public sector program participants (states, MS4s) in lieu of monetary contributions
5. Fees assessment
 - a) Fee for services – BMP proponents acquiring product testing/evaluation
 - b) State and/or MS4 subscription fee
 - c) Subscription model for companies wanting to test products
 - d) Workshops/training on BMP evaluation, verification, maintenance, longevity, etc.
 - e) A hybrid of multiple options listed above.

Individual Program Aspect Findings & Rationales (cont'd)

❖ Individual Aspect #7 – Stakeholder Engagement & Transparency

- ✓ Essential for Board of Directors and Technical Committees to have multi-stakeholder complexion that reflects the full range of relevant stakeholder perspectives.
- ✓ Need to avoid conflicts of interest at the same time.

❖ Individual Aspect #8 – Testing Purpose & Scope

- ✓ Current regulatory landscape focuses on TSS but will seek to support a full range of pollutants including Phosphorus, metals (total & dissolved), oil & grease and for the future nitrogen and bacteria.
- ✓ Aspects of BMP testing over time:
 1. BMP performance relative to specified pollutants.
 2. Whether full treatment of the design storm or early bypass occurs.
 3. Operational and maintenance requirements.
 4. Life cycle performance.

Individual Program Aspect Findings & Rationales (cont'd)

❖ Individual Aspect #9 – Testing Setting

- ✓ States will continue to decide what their demands are for performance information to approve BMP use.
- ✓ As a start, National Program adopts WaDOE (TAPE) field testing protocol and NJDEP lab testing for TSS (for HDSs and filtration), recognizing that additional constituents may be desirable (implies evolving protocols).

❖ Individual Aspect #10 – Reciprocity

- ✓ Voluntary participation by individual states with certain expectations established for “membership” in the program.
- ✓ Will regional concerns cause an agency to initially distrust a National Program until confidence in the program’s viability is established?

Path Forward

Three Phases

1. Continued operations of the Advisory Committee (6-9 months)
2. Startup period of the National Program (24-36 months)
3. Established program operations (sustained)



Phase 1 – Continued Advisory Committee Operations

1. Engage the NJCAT and TAPE Programs
2. Structure & Organize a Board of Directors
3. Engage EPA
4. Create a shareholder strategy
 - EPA, DOD, DOT, HUD, GSA
 - States
 - Municipalities
 - Non-municipal MS4s
 - Military facilities
 - Development associations and industry
 - Manufacturers/Proponents
 - Academics
 - Labs
 - Environmental NGOs
 - Academics
 - Consultants/Practitioners

Phase 2 – Startup Period (24-36 months)

1. Develop business plan including funding
2. Establish clarity on EPA support
3. Execute the shareholder strategy
4. Continue to engage the NJCAT and TAPE programs
5. Recruit a non-profit host organization that has demonstrated experience

?




- ❖ Interstate Technology Regulatory Council (ITRC) has formed committee in 2016 (14-15 states have committed).
- ❖ White paper for ITRC Proposal, *Stormwater BMP Pollution-Reduction Determinations and Performance Verification*

<http://www.itrcweb.org/Team/Public?teamID=72>

<http://www.itrcweb.org/Documents/planning/2015/BMPProposal4-1-15.pdf>

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Stormwater BMP Performance Verification Team



Team Registration Now Open



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[Team Public Page](#)
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The goal of this project is to identify best methods for evaluating the pollution-reduction capabilities and verifying the performance of stormwater best management practices (BMPs) for Clean Water Act compliance purposes (to see full project proposal, [click here](#)). Facing a diversity of stormwater management laws, regulations and other mandates, regulators have no national consensus on how best to determine the pollution-reduction capabilities of Best Management Practices (BMPs) that reduce the flow of stormwater and associated pollutants into the nation's waterbodies. In addition to ensuring appropriate design and effectiveness, regulators must ensure that stormwater practices are properly installed, maintained and reducing pollution loading over their lifetime. Federal and state environmental regulators, DoD installations, agricultural entities, other large land owners, municipalities, builders, businesses, and a host of stakeholders share a strong interest to develop and implement such a consensus. The ITRC will assemble a team of experts who could produce a variety of products, including a technical/regulatory guidance document, case studies, a compendium, and/or an Internet-based training course.

For more information about the Stormwater BMP team, please review the [Stormwater BMP Team Brochure](#).

Registration for the Stormwater BMP team now open – [click here to register](#).



ITRC Remediation-Plus Project Proposal

Stormwater BMP Pollution-Reduction Determinations and Performance Verification

Project Goal:

The goal of this project is to identify best methods for evaluating the pollution-reduction capabilities and verifying the performance of stormwater best management practices (BMPs) for Clean Water Act compliance purposes.

Effectively utilizing stormwater management controls and practices, including BMPs, in a regulatory scheme to protect water quality typically involves the following steps:

- Developing new BMPs
- Quantifying the expected performance of the new BMPs
- Approving BMPs
- Initially verifying that newly constructed BMPs will operate as designed.
- Verifying that older, existing BMPs are operating as designed.

Two Watershed Challenges:

A. BMPs: Quantifying Their Environmental Effectiveness

Facing a diversity of stormwater management laws, regulations and other mandates, regulators have no national consensus on how best to determine the pollution-reduction capabilities of Best Management Practices (BMPs) that reduce the flow of stormwater and associated pollutants into the nation's waterbodies.

Federal and state environmental regulators, DoD installations, agricultural entities, other large land owners, municipalities, and a host of stakeholders share a strong interest to develop and implement such a consensus. EPA and DoD/Navy in particular have expressed support for better and generally accepted measures of BMP effectiveness, especially for non-point sources of pollution (NPS). The issue of NPS BMP effectiveness also ranked highly among environmental

Framework to identify evaluation tools needed to evaluate post construction BMP performance for regulatory compliance

Data collection and data applicability from existing data bases

Design

Installation

Operation and maintenance

Prediction (model) of post construction controls on site & design-specific basis

Measure actual BMP performance

Define operational elements

Define maintenance elements

Define maintenance responsibility

Design Criteria + Collected Data + O & M results = BMP evaluation results



Some final thoughts...

- ❖ There's a lot of stormwater management program diversity (hinders innovation and market access).
- ❖ Much of that diversity is based on local/regional "priorities" (aren't we "special?").
- ❖ There's lots of duplication of efforts for manufactured SCM approvals, public domain SCMs get a free pass (lack of equity).
- ❖ The pros and cons of lab testing versus field testing will never be resolved (STEPP offers café plan).
- ❖ How will a national program be sustainable in terms of funding? (surveys show that few want to fund STEPP).
- ❖ ITRC is moving forward towards a STEPP product (you can get involved).

Thank you.



INNOVATING GOOD CLEAN WATER

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