



# Beyond-Compliance Sustainability

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Roundtable on Science and Technology for Sustainability  
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**Penn Law**  
UNIVERSITY of PENNSYLVANIA LAW SCHOOL

# “The New Environmental Regulation”

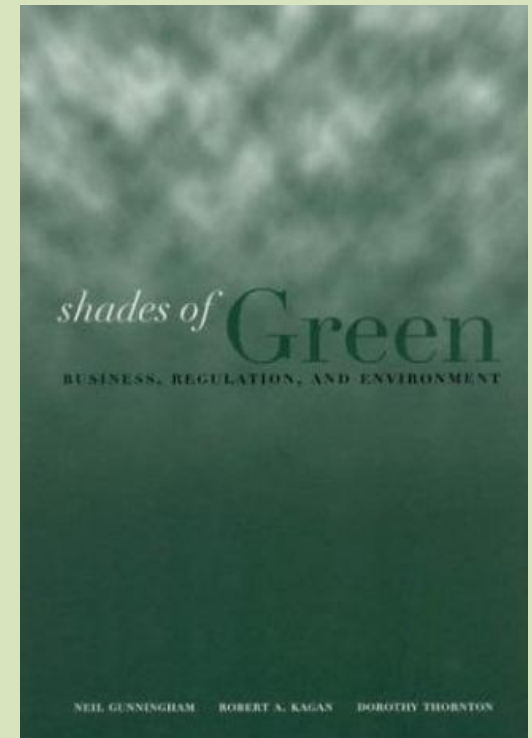
## Voluntary Approaches to Sustainability



**labs for the  
21st century**

# **“Shades of Green”: Differentiated Business**

- **Environmental Laggards**
- **Reluctant Compliers**
- **Committed Compliers**
- **Environmental Strategists**
- **True Believers**



(Gunningham, Kagan & Thornton 2003)

# Why Do Companies Go Beyond Compliance?

## *Selected Literature*

Forest Reinhardt, *Down to Earth: Applying Business Principles to Environmental Management* (2000)

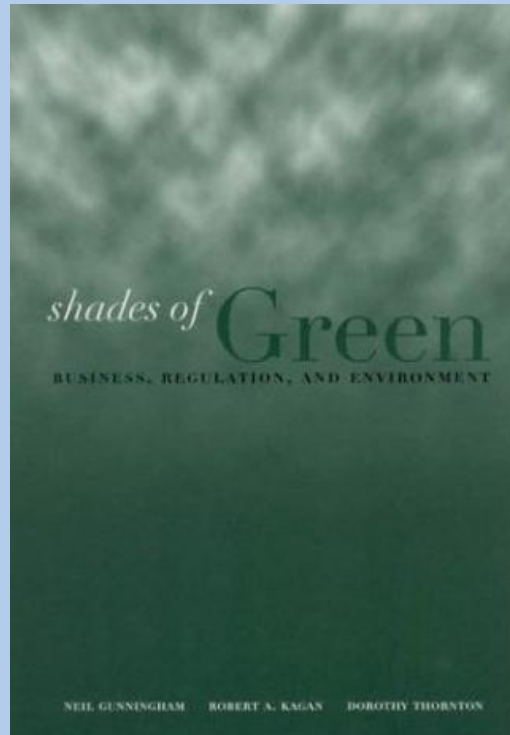
Neil Gunningham, Robert A. Kagan, & Dorothy Thornton, *Shades of Green* (2003)

Thomas Lyon & John Maxwell, *Corporate Environmentalism and Public Policy* (2004)

Aseem Prakash & Matthew Potoski, *The Voluntary Environmentalists* (2006)

Andrew Hoffman & Tima Bansal, *Oxford Handbook on Business and the Natural Environment* (2011)

# “License to Operate”: External Drivers



- **Regulatory**
- **Economic**
- **Social**

# Are External Factors All that Matter?

- **Matched Case Studies of 10 Facilities**

- 5 Randomly Selected Facilities in EPA's Performance Track Matched with 5 Comparable Facilities Not in Performance Track

(Howard, Nash & Coglianese)

- **Survey of 525 Facilities**

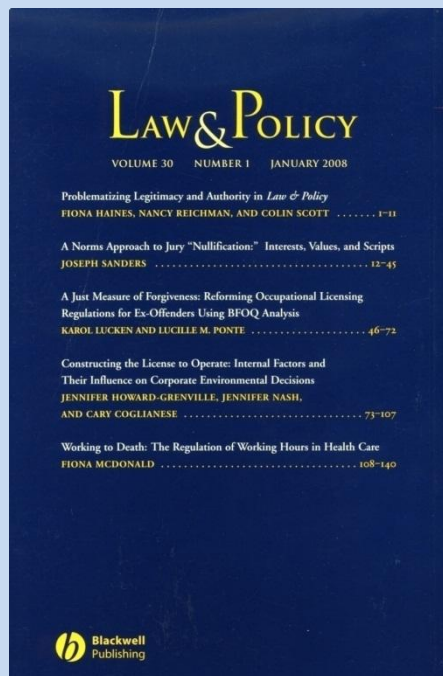
- Random sample from 4 sectors
  - Pulp & Paper
  - Organic Chemicals
  - Electronics
  - Motor Vehicle Assembly

(Borck & Coglianese)

# Performance Track Matched Case Studies

- *Matched facilities all from the same EPA region*
- *Interviews with key plant environmental managers*

| Facility Pseudonym                     | Number of Employees | Annual Sales (\$ in millions) | % Community Designated "Urban" * |
|--|---------------------|-------------------------------|----------------------------------|
| Aero Inc.<br><i>Matched Facility</i>   | 500                 | 75                            | 48                               |
|  | 700                 | 60                            | 82                               |
| Chem Co.<br><i>Matched Facility</i>    | 750                 | 858                           | 98                               |
|  | 620                 | 200                           | 100                              |
| Glue Co.<br><i>Matched Facility</i>    | 63                  | 33                            | 99                               |
|  | 100                 | 33                            | 100                              |
| Rubber Inc.<br><i>Matched Facility</i> | 900                 | 50                            | 99                               |
|  | 700                 | 50                            | 72                               |
| Tech Co.<br><i>Matched Facility</i>    | 6,000               | 1,000                         | 99                               |
|  | 8,000               | 5,000                         | 98                               |



| Facility Pseudonym                     | Subject to Recent Enforcement Action | Trend in TRI Releases | Hazardous Waste Permit | Air Permits | Recent Government Inspection |
|--|--------------------------------------|-----------------------|------------------------|-------------|------------------------------|
| Aero Inc.<br><i>Matched Facility</i>   | No                                   | Down                  | Yes                    | No          | No                           |
|  | No                                   | Down                  | Yes                    | Yes         | No                           |
| Chem Co.<br><i>Matched Facility</i>    | No                                   | Down                  | Yes                    | No          | Yes                          |
|  | No                                   | Down                  | Yes                    | Yes         | Yes                          |
| Glue Co.<br><i>Matched Facility</i>    | No                                   | Down                  | Yes                    | Yes         | No                           |
|  | No                                   | Up                    | Yes                    | Yes         | Yes                          |
| Rubber Inc.<br><i>Matched Facility</i> | No                                   | Down                  | Yes                    | Yes         | Yes                          |
|  | No                                   | Down                  | Yes                    | Yes         | No                           |
| Tech Co.<br><i>Matched Facility</i>    | No                                   | Down                  | Yes                    | Yes         | Yes                          |
|  | No                                   | Down                  | Yes                    | Yes         | Yes                          |

Source: Jennifer Howard-Grenville, Jennifer Nash, Cary Coglianese, Constructing the License to Operate: Internal Factors and Their Influence on Corporate Environmental Decisions, Law & Policy 30:73 (2008)

# Findings: Organizational Extroversion

- **NEPT facilities:**

- “if we can get in the newspaper having received some [state agency] or EPA award or some recognition . . . it plays well.”
- “all of these programs are advertising. ... every little thing can help in public relations and marketing.”

- **Matched facilities:**

- “as long as we get it done, that’s what matters, not necessarily that we get recognized for it.”
- “at the end of the day it’s how many losses did you have, and did you have fewer injuries, fewer spills, fewer incidents.”



# Why Do Businesses Vary?

## External Factors

Economic

Regulatory

Social

## Internal Factors

**Managers' incentives**

**Organizational identity**

**Extroversion / Self-Monitoring**

Organizational culture

Professional orientations

(Howard-Grenville, Nash & Coglianese 2008)

# Survey of 525 Facility Managers

|  |   |
|--|---|
| Ownership of facility  | 51.6% privately held<br>46.9% publicly traded<br>0.6% government<br>1.0% blank or other   |
| Is facility owned by a parent company?   | 85.6% yes<br>14.1% no<br>1.3% blank or other  |
| If owned by a parent company, does it have operations outside the United States? | 86.5% yes<br>12.8% no<br>0.7% blank or other  |
| Age of physical facility (buildings and equipment) (median)                      | 30 years<br>(n = 515)   |
| Annual sales (median)  | \$80 million<br>(n = 309)   |
| Customers  | 58.9% sell to intermediary organizations<br>9.3% sell directly to consumers<br>26.1% sell to both<br>5.7% blank, other, or not applicable |
| Full-time-equivalent employees (FTEs) (median)                                   | 270 FTEs<br>(n = 516)   |
| Full-time-equivalent employees responsible for environmental management (median) | 1.5 FTEs<br>(n = 516)   |
| Has the facility implemented an EMS?   | 68.8% yes<br>12.0% started<br>8.0% considering<br>8.4% no<br>2.8% blank or other  |

# Correlates of Beyond Compliance (BC)

## Dependent Variables

|                                   | BC in >4<br>areas | # of Areas<br>of BC<br>Behavior |
|-----------------------------------|-------------------|---------------------------------|
| FTEs (log)                        |                   | <b>Yes</b>                      |
| Envtl FTEs                        |                   | <b>Yes</b>                      |
| Top Level<br>Support              | <b>Yes</b>        | <b>Yes</b>                      |
| Seek Out<br>Comm/Enviros          | <b>Yes</b>        | <b>Yes</b>                      |
| Aware of<br>Impending Regn        | <b>Yes</b>        | <b>Yes</b>                      |
| Customer<br>Influence             |                   | <b>Yes</b>                      |
| Importance if<br>costs > benefits | <b>Yes</b>        | <b>Yes</b>                      |

# Simulated Effects of Changes in Statistically Significant Explanatory Variables in Logit Model of Frequent Beyond-Compliance Behavior

| Statistically Significant Explanatory Variable in Logit Model of Frequent Beyond-Compliance Behavior | Change in Variable  |                                       | Change in Expected Probability of Participation |
|--|---|---------------------------------------|---|
|  | Description of Change   | Approximate Numerical Value of Change |   |
| level of support from top-level management for participating in voluntary programs                   | One standard deviation below the mean to one standard deviation above the mean. | 2.7 to 4.8                            | 18.4  |
| frequency of seeking opinions of community or environmental advocacy groups                          | One standard deviation below the mean to one standard deviation above the mean. | 1.2 to 3.5                            | 16.8  |
| facility is aware of a proposed, new regulation that will affect it                                  | Facility is not aware to facility is aware.                                     | 0 to 1                                | 16.6  |
| importance if costs exceed benefits  | One standard deviation below the mean to one standard deviation above the mean. | 2.7 to 4.8                            | − 9.9   |

Source: Borck & Coglianese (forthcoming)

# Remaining Frontiers in the Science of Corporate Sustainability Behavior

- *Outside pressures matter but so do internal factors, such as organizational “extroversion”*
- *Important avenues for future research*
  - *Developing reliable metrics of different corporate “personalities”*
  - *Assessing the relative contributions of internal and external drivers*
  - *Understanding the interaction between internal and external drivers*



## ***Collaborators:***

*Jennifer Nash, Harvard University*

*Jonathan Borck, Analysis Group*

*Jennifer Howard-Grenville, University of Oregon*

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- *Mossavar-Rahmani Center for Business and Government*
- *Harvard Kennedy School's Corporate Social Responsibility Initiative*
- *University of Pennsylvania Law School*

## **BEYOND COMPLIANCE**

**Business Decision Making  
and the US EPA's  
Performance Track Program**

**Cary Coglianese  
Jennifer Nash**

**Regulatory Policy Program  
Mossavar-Rahmani Center for  
Business and Government  
John F. Kennedy School of Government  
Harvard University**



## **Appendix: Survey Questions**

### **Dependent Variables (Beyond-Compliance Behavior)**

•In recent years, federal and state governments have created voluntary environmental programs. Through these voluntary programs, government tries to encourage facilities to take actions that go beyond compliance with existing laws. Below is a list of a few voluntary programs run by federal agencies.

Please tell us if you know about or have participated in any of these programs. [Indicate: Never Heard of Program, Know a Little about it, Considered Joining, Applied to Program, Active Member]

- Climate Leaders
- Energy Star
- National Environmental Performance Track
- Project XL
- WasteWise
- 33/50 Program
- Voluntary Protection Program

•Have you participated in any other voluntary environmental programs not listed above? Please include programs administered by local/state/federal government, environmental advocacy groups, or trade associations.

•In the past 3 years, has your facility taken action to go beyond what is required by existing environmental regulations in any of the following areas? (Check all that apply)

- Air emissions
- Solid waste
- Land and habitat use
- Discharges to water
- Toxics
- Water or energy use
- Hazardous waste
- Material use
- Other (specify)

## Independent Variables

### *Respondent Characteristics*

- What is your job title?
- On a weekly basis, approximately how much time do you usually devote to environmental management activities? [Indicate Hours/week]
- How many years of experience do you have in environmental management? [Indicate years]
- What is your gender? [Indicate: Male, Female]

### *Facility Characteristics*

- What best describes the ownership of your facility? [Indicate: Privately held, Publicly traded, Government, Non-profit]
- Is your facility owned by a parent company or organization that owns more than one facility? [Indicate: Yes, No]
- [If Yes] Does this parent company or organization have operations outside the United States? [Indicate: Yes, No]
- Approximately how many people (full time equivalents, or FTEs) are employed at your facility?
- An environmental management system (EMS) can be any set of internal rules or procedures that help people identify potential environmental issues, develop plans for managing those issues, and check to make sure that plans are implemented. Understood this way, has an environmental management system been implemented in your facility?

Yes, we have implemented an EMS [Indicate year]

We have started implementing an EMS, but are not finished

We are considering implementing an EMS

We have no plans to implement an EMS at this time

Don't know



•Please indicate whether your facility has any of the following permits or legal obligations [Indicate: Yes, No, Don't know]

- Has an air pollution permit
- Has a water discharge permit
- Has a hazardous waste discharge number
- Is a PRP at a Superfund or similar site
- Is required to report to EPA's Toxics Release Inventory

Do you sell or provide your facility's products or services directly to consumers, or to intermediaries? [Indicate: Directly to consumers, To intermediary organizations (such as distributors or manufacturers), Both, Not applicable]

What is the approximate age of your facility's physical plant (buildings and equipment)? [Indicate years]

What is the approximately annual sales/output volume of your facility (US\$)?

### *External Factors*

Outside of a facility's own managers, other actors may influence decisions about environmental management in a facility. How important are the following in affecting your facility's environmental management? [Indicate: Not Important, Slightly Important, Somewhat Important, Very Important, Extremely Important]

Competitors

Customers

Suppliers

Government agencies (federal/state/local)

Environmental advocacy groups

Community organizations

Other (Please specify)

•Regardless of whether your facility has participated in a voluntary environmental program, we are interested in the factors you would find important in deciding whether to participate in one. How important would the following potential benefits be to you and your facility? [Indicate: Not Important, Slightly Important, Somewhat Important, Very Important, Extremely Important]

- Exempts us from routine government inspections
- Allows us to report information less frequently
- Gives us flexibility to manage environmental issues
- Recognizes us as a top performer
- Shortens time for receiving permit approvals
- Helps if we ever have a compliance problem
- Provides a single point of contact with regulators
- Other (please specify)

•We are also interested in how potential costs would affect your participation in a voluntary program. How important would the following potential costs be to you and your facility? [Indicate: Not Important, Slightly Important, Somewhat Important, Very Important, Extremely Important]

- Information about our operations becomes available to the government or the public
- Government scrutinizes our facility more closely
- Benefits do not outweigh costs
- Other (Please specify)

•Are you aware of a proposed, new government environmental regulation that will likely affect your facility?  
[Indicate: Yes, No]

•In your view, how likely is it that your facility will be subject to significantly more stringent environmental regulation in the next five years? [Indicate: Extremely Unlikely, Not Likely, Possibly, Very Likely, Extremely Likely]

•Approximately how often does your facility seek the opinions of community or environmental advocacy organizations about environmental issues? [Indicate: Never, Seldom, Sometimes, Often, Very Often]

•How important is government recognition to your facility? [Indicate: Not Important, Slightly Important, Somewhat Important, Very Important, Extremely Important]

*Internal Factors*

- Outside of a facility's own managers, other actors may influence decisions about environmental management in a facility. How important are the following in affecting your facility's environmental management? [Indicate: Not Important, Slightly Important, Somewhat Important, Very Important, Extremely Important]
  - Corporate or organizational headquarters
  - Shareholders
  - Other (Please specify)
- Regardless of whether your facility has participated in a voluntary environmental program, we are interested in the factors you would find important in deciding whether to participate in one. How important would the following potential benefits be to you and your facility? [Indicate: Not Important, Slightly Important, Somewhat Important, Very Important, Extremely Important]
  - Boosts employee morale
  - Other (please specify)
- We are also interested in how potential costs would affect your participation in a voluntary program. How important would the following potential costs be to you and your facility? [Indicate: Not Important, Slightly Important, Somewhat Important, Very Important, Extremely Important]
  - Completing the paperwork takes time
  - Participating takes us away from other work
  - Top management has other priorities
  - Benefits do not outweigh costs
  - Other (Please specify)
- How would you rate the support of your company or organization's top-level management for participating in a voluntary environmental program? [Indicate: Very Unsupportive, Slightly Unsupportive, Neither Supportive nor Unsupportive, Slightly Supportive, Very Supportive]
- How does the level of human resources available for environmental management at your facility compare to the level at other similar facilities you know? [Indicate: My facility has significantly fewer resources, My facility has somewhat fewer resources, My facility has about the same level of resources, My facility has somewhat greater sources, My facility has significantly greater resources]