A New Environmentalism:
The Need for a Total Strategy for Environmental Protection

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What Has Changed?

• Government composite
  – State progression
    • 35 year+ programs anchored in federal baselines
  – The rise of big cities

• Private sector orientation

• Technology
  – Control
  – Assessment and monitoring
  – Communication

• Knowledge base
Moving towards environmental protection enterprise with increasingly distributed roles and accountability

• Big data driven
• Social media-reinforced
• With redefined, realigned and redistributed roles within government
Ecosystem of Drivers and Governance Mechanisms
Law-Based Frameworks

- Workable Laws
- Access to Information
- Public Participation
- Auditing/Oversight
- Regulatory Coherence
- Enforcement
- Dispute Resolution

Environmental Rule of Law

Appendix E
Ecosystem of Drivers and Governance Mechanisms
Quadrant 2: Emergence of Private Environmental Governance

• Compliance culture
• Evolved, enculturated values
• Shareholder initiatives and demands
• Customer and supply chain manager requirements
• Investor, lender, insurer demands
• International regulation
Quadrant 2: Emergence of Private Environmental Governance

What most companies are increasingly about:

• Reputation and financial risk management
• Brand enhancement and protection
• “Regulating”
  – Internal operations
  – Supply chains
Ecosystem of Drivers and Governance Mechanisms

Appendix E
Quadrant 3: Autonomous Systems

Technology-enabled monitoring and adjustment/correction systems

- Enhanced sensor networks
- Algorithmic decisionmaking
- AI/machine learning
Ecosystem of Drivers and Governance Mechanisms
Proliferation of low-cost sensor technology putting science in the hands of citizens
Access to exploding amounts of environmental data from citizen monitoring, space and drone monitoring, etc.
Growing capacity to integrate data streams to tell stories about source, fate and transport
Growing capacity to share those stories through online communities in ways that shape behavior
All of which is allowing citizens increasingly to engage
- As lay scientists
- As consumers with teeth
- As “police” and “judge” in the court of public opinion
Ecosystem of Drivers and Governance Mechanisms
Environmental law needs to “stay in shape”

Law needs grow in some new directions -- to accommodate other quadrants. Some examples:

– Allow for and catalyze private sector parallelism
  • Market-based systems can work, in some cases without government stimulus

– Ensure integrity in algorithm development – Need a “code for code”

– Address privacy/access issues as well as abuse potential in big data/online community space
• Lessons learned from Quadrant 1 should inform the architecture of the other quadrants
  – Importance of transparency
  – Value of stakeholder engagement in framing normative expectations
  – Importance of integrity and accountability systems
  – Value of challenge vehicles or dispute resolution mechanisms

• Architecture should be designed to:
  • Produce better decisions by allowing for input and subjecting decisions to testing
  • Cultivate buy-in and compliance through perceived fairness
Challenges: Trust Issues

- **Hierarchies (Top Down)**
  - Private Environmental Governance
  - Technologies: Big data, algorithmic decision making, sensor systems, blockchains
  - Networks (Bottom up)
  - Public Environmental Governance

- **External Drivers**
  - Citizens
    - Scientists
    - Consumers
    & Communities

- **Internal Drivers**
  - Trust Level
    - Low
    - High

Appendix E
CHALLENGES: PACING PROBLEM

Individuals are relatively quick and adept at adopting new innovations (compared to businesses and public policy)
DO YOU WANT TO DESTROY THE ENVIRONMENT WITH A PLASTIC STRAW OR KILL A TREE WITH A PAPER STRAW?
Some Vehicles for Re-Imagined Law?

- “Soft law” mechanisms
  - Voluntary standards regimes with the teeth of market accountability
- Systematizing and normalizing supply chain management
  - Best practices in contracts and purchasing restrictions
- State and local lawmaking
- Sub-statutory lawmaking
- Case law
- Settlement practice
- Experimentation via
  - Negotiated rules
  - Enforcement Discretion