

Lightning Talks: P2 Innovations
Thursday, 11:00 a.m.-12:00 p.m.
Atrium Ballroom

Organizing and Managing Toxic Chemicals: Internal Corporate Structure and Community Contexts

Juyoung Lee, Presenter

This study examines how large multi-establishment firms organize and manage toxic chemicals in response to institutional pressures for corporate environmentalism. Using data on the 71 largest US-headquartered chemical manufacturing firms and their 23,000 establishments in the US, I investigate (1) which types of establishments carry out environmentally hazardous activities and (2) which types of industrial establishments pose greater environmental hazards. As large firms have business operations at numerous locations and structure them in a multi-tiered hierarchical form, I shed light on the hierarchical and geographic positions of establishments within the firms, as well as geographic variations in environmental expectations from host communities. My statistical analysis demonstrated that firms assign environmentally hazardous activities to establishments that are hierarchically and geographically distant from the headquarters (i.e., lower-level and non-local establishments), as well as that are located in loosely populated and socioeconomically disadvantaged neighborhoods. Particularly in communities where firms experience greater pressures to be environmentally responsible, lower-level and non-local establishments are more likely to perform industrial activities generating negative environmental externalities than higher-level and local establishments.

With respect to the actual degrees of environmental hazards, my data provide no evidence that, net of other variables, the hierarchical and geographic positions of establishments are significantly associated with the environmental performance of industrial establishments. However, lower-level and non-local industrial establishments are less attentive to institutional demands from host communities and, consequently, pose greater environmental hazards than higher-level and local establishments in strong environmental states. I also found that industrial establishments operating in densely populated and socioeconomically affluent neighborhoods and under the jurisdiction of strong environmental states create fewer environmental hazards. I suggest the heterogeneous environmental outcomes among establishments within the firms as the consequences that firms take advantage of their corporate structure to defend themselves from nationwide and local institutional pressures.

Reducing Toxic Releases in Company Supply Chains

Richard Kashmanian, Presenter

As companies move along their sustainability paths, a key challenge for them is how to embed sustainability across their supply chains. This will become a more complicated endeavor as their supply chains become more complex and global. However, benefits can be forthcoming to companies through this expanded sustainability focus by reducing their business risks and providing business value; in addition, a company's supply chain can often represent a large percent of its environmental footprint, e.g., over 40% of its greenhouse gas emissions. Companies are being asked by their stakeholders for greater transparency and accountability for their operations as well as for their supply chains. To assist its suppliers reduce their environmental impacts, it is important for a company to engage with them. An initial opportunity for doing this is through a supplier code of conduct, which states a company's expectations of its suppliers, including tier 1 suppliers but can also extend deeper into supply chains. These codes cover a range of environmental topics, including materials restrictions and hazardous substances. To improve the effectiveness of the code of conduct, the company or a third party would audit suppliers to assess their conformance and identify issues of concern. In addition to engaging with its suppliers through the code of conduct, a company can also assess or measure supplier performance through a scorecard and provide technical assistance, awards, incentives, etc., to help suppliers improve their performance. For example, companies could extract and analyze relevant TRI data to better understand or benchmark the TRI profile of their U.S. suppliers and/or to provide technical assistance. Use of TRI data, particularly the Pollution Prevention tool, may represent an unrealized opportunity for companies to help their suppliers achieve higher compliance rates and improve environmental performance.

Supporting Sustainable Manufacturing

Keith Litz, Presenter

The MTC provides VA manufacturers with assistance in improving their environmental performance through environmental assessments, workshops, reduced greenhouse gas emissions, and by conducting E3 Technical Assessments. Implementation assistance and tracking successes of all previous E3 assessments also occurs. E3 Technical Assessments are completed and include a Lean and Green review of the entire plant. They are conducted by MTC and GENEDGE staff as clients are identified and reports generated suggesting improvements in process efficiencies, pollution prevention and energy conservation. These reports provide cost justification for capital investments to assist plant management when pursuing funding for improvement projects. Experts in Lean manufacturing methodologies, energy conservation and pollution prevention techniques conduct the assessments. All service providers have many years of actual industrial experience. E3 Peer Events are conducted for industry representatives and training is provided in accessing best practices. Examples are presented to industrial clients that reflect activities relevant to area processes. This is an effective means in which to gain access to manufacturing staff to share what we have learned during our

assessment history and where they can access information and most importantly resources to improve their operation.

During all activities opportunities are sought for reductions in hazardous waste. This has occurred through capture and reuse or reduced usage. Each of the almost 60 assessed sites have received this review and at multiple sites opportunities have been found.

Environmental On-Site Assessment Integrating E4 Wastes-Economy, Energy, Environmental-Ergonomics

Kurt Middelkoop, Presenter

The University of Texas at Arlington's TMAC program has been partnering with EPA for over 13 years and has become a leader for building the capacity of EPA Region 6's pollution prevention programs to support both national and regional priorities. The programs has reported over 40% of the regional totals for pollution prevention (as reported on the SRA). TMAC is currently providing E4 Assessments that offer practical strategies and techniques for organizations to learn how to improve results—waste elimination, energy reductions, quality enhancement, ergonomic safety improvements, delivery of value to customers—while achieving environmental performance goals. Hidden wastes—sometimes buried in facilities and support functions—can be significant, as can the costs associated with them. Environmental wastes are often a sign of inefficient production, and they frequently indicate opportunities for saving cost and time. Both lean, environmental, ergonomics and energy metrics are introduced into a current state value stream map to help identify a roadmap to process improvement efforts. This training teaches people without an environmental or energy background how to “see” new wastes for the first time.

Using National Pollutant Inventory Data for Load-Based Licensing in South Australia

Naomi Struve, Presenter

The equivalent of the Toxics Release Inventory in Australia is the National Pollutant Inventory (NPI). The NPI program was established in 1998 and now has 17 years of published data available. It is run cooperatively between the Commonwealth/Federal government and the States and Territories. The NPI provides the community, industry and government with free information about substance emissions in Australia. It has emission estimates for 93 toxic substances and the source and location of these emissions. The South Australian Environment Protection Authority (SA EPA) uses a licence fee system (LFS) based on ‘user pays’ and ‘polluter pays’ principles, where licence fees reflect the EPA’s regulatory effort as well as the amount and type of pollutants discharged to the environment. The LFS enables the EPA to: recover, in an efficient and equitable manner, the costs we incur due to the assessment and environmental management of licences; provide an economic incentive to reduce

pollution. Benefits of using NPI data for load based licensing include: no extra effort is required by licensees to calculate emissions for load based licensing substances included the NPI; awareness of the NPI has been raised within the EPA and with industry new reporters have been identified; data is more accurate. Some of the challenges of using NPI data for load based licensing include: different thresholds for load based licensing and the NPI; the necessity to calculate a sub-set of emissions for facilities are also licensed by another regulator for their mining activities; data can sometimes be outdated, depending on when the licence is renewed. Areas of further research include: further analysis on whether load based licensing has impacted awareness of and impacted change in emission levels; determination of whether the policy objectives of cost recovery and polluter pays have been successful.

The U.S. Environmental Protection Agency's Toxics Release Inventory, Green Chemistry, and Environmental Justice

Sheryl Mebane, Presenter

For decades, the U.S. Environmental Protection Agency's Toxics Release Inventory (TRI) has been a resource for groups and individuals seeking reliable access to information. Flowing from TRI data on chemical releases and on pollution prevention activities of inorganic pigment and dye manufacturers, this work identifies green chemistry options that may inform the efforts of environmental justice organizations in areas near the manufacturing facilities. The work of at least one Presidential Green Chemistry Challenge awardee may be appropriate for application to other companies.