

Screening Approaches for Assessing Overburdened Communities

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May 12, 2012

Outline

- Background/History
- Methods Issues and General Approaches
- Recent work
- Next steps

Goal 3 – Restoration and Enhanced Protection in Environmentally Overburdened Communities

Develop a new paradigm for the protection of communities overburdened by environmental stresses through a multimedia approach focusing on human health and the environmental impacts; ensure that we work in concert to address issues related to air, water, preservation, acquisition, and affordable access to parks.

- Continued development and utilization of the Cumulative Impact Method.
- Ensure cross program coordination to achieve the greatest net-environmental gain or the least possible negative effect impacting the public's quality of life.
- Expand the number of DEP staff dedicated to working in and with communities to ensure a thorough understanding of issues and potential solutions.

History/Background

Date	Action	Key Issues
February 2002	NJDEP Proposed Environmental Equity Rule	<ul style="list-style-type: none"> -Enhanced public participation in permit process -Screening model used to estimate future impacts
January 2004	NJ Governor Executive Order 96	<ul style="list-style-type: none"> -Established petition process for communities to self identify -Re-created EJAC
February 2009	NJ Governor Executive Order 131	<ul style="list-style-type: none"> -Created current EJAC -DEP will review EJAC recommendations for policy and regulatory to consider and incorporate cumulative impacts into its decision-making
March 2009	EJAC Report and Recommendations on Cumulative Impacts	<ul style="list-style-type: none"> - Recommend DEP develop a screening tool to identify “vulnerable and burdened” communities to help guide various policies and actions
July 2009	NJDEP response to EJACs Recommendations	DEP has developed a preliminary geographic information system-based screening tool
June 2010	Ironbound Community Corp. EPA CARE Grant	DEP approves ICC to use draft method on a pilot basis as part of grant activities
April 2011	Clean Air Council Public Hearing	Focus area: Cumulative Impacts
Fall 2011	DEP Announces Goal 3 – Protection of Overburdened Communities	As part of Goal 3 efforts, DEP works to develop its Cumulative Impacts Method

Background

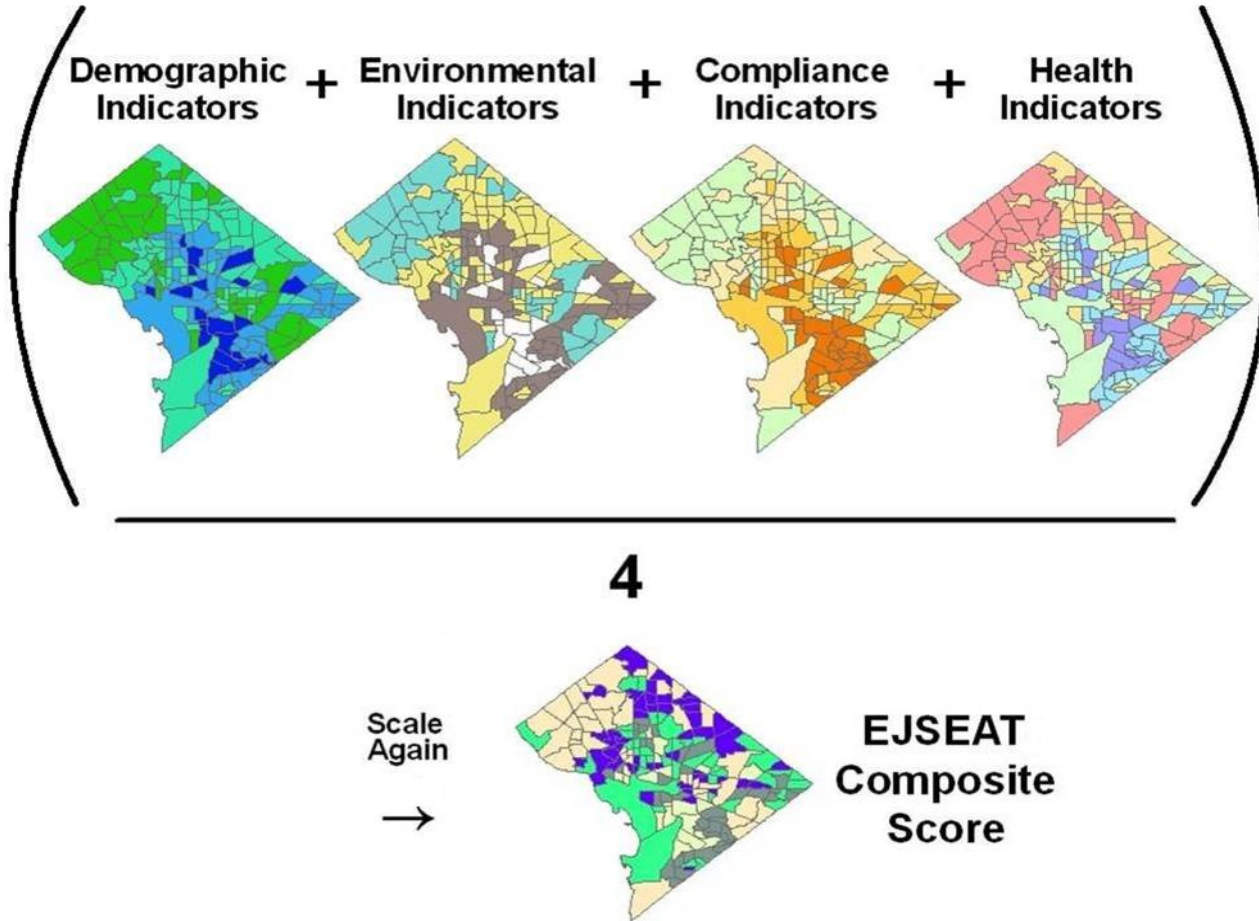
What the Cumulative Impact Method <u>Is</u>	What the Method is <u>NOT</u>
A state-wide screening approach	A facility-specific or community level risk analysis
Uses simple indicators of multiple environmental hazards to estimate overall “impact” or “burden”	A scientific risk assessment that quantifies probability that damage to life, health, and/or the environment will occur as a result multiple hazards (e.g. one chance in a hundred)
Compares relative impacts of different geographic areas	Calculates absolute risk to compare to health based standards
“Bias for action”	Caution and certainty

Methods: Indicators

- Categories of indicators
 - 1) Environmental/exposure
 - Air exposures, Traffic, contaminated sites,
 - 2) Social/vulnerability
 - Environmental Justice (race, income)
 - 3) Public health
 - Asthma, low birth weight
- Current NJDEP method focuses on Environmental Indicators
 - We **compare** environmental to other indicators (correlation)
 - EPA and other states **combine** with social, and public health

EPA EJ SEAT

Strategic Enforcement Assessment Tool



- a tool for the EPA Office of Enforcement and Compliance Assurance to consistently identify areas with potentially disproportionately high and adverse environmental and public health burdens.

- EJSEAT is currently a draft tool in development, intended for **internal EPA use only.**

California

Environmental hazards and social vulnerability indicators.

INDICATOR	GIS SPATIAL UNIT	SOURCE/DATE
Hazardous Facilities and Land Uses		
Air Quality Hazards		
Facilities in California Community Health Air Pollution Information System (CHAPIS)	Point locations	CA Air Resources Board (CARB) 2001
Chrome-platers	Point locations	CARB 2001
Hazardous Waste sites	Point Locations	CA Dept. Toxic Substances Control 2004
Hazardous Land Uses		
Railroad facilities	Land use polygons	SCAG 2005
	Line Features	National Transportation Atlas Database (NTAD)
Ports	Land use polygons	SCAG 2005
Airports	Land use polygons	SCAG 2005
	Line Features	NTAD 2001
Refineries	Land use polygons	SCAG 2005
Intermodal Distribution	Land use polygons	SCAG 2005
	Line Features	NTAD 2001

Table 1. *Cont.*

INDICATOR	SOURCE/DATE
Health Risk and Exposure all at census tract level	
Risk Screening Environmental Indicators (RSEI) toxic concentration hazard score	USEPA 2005
National Air Toxics Assessment respiratory hazard for air toxics from mobile and stationary emissions	USEPA 1999
Estimated cancer risks from modeled ambient air toxics concentrations from mobile and stationary emissions	CARB 2001
PM _{2.5} estimated concentration interpolated from CARB's monitoring data	CARB 2004-06
Ozone estimated concentration interpolated from CARB's monitoring data	CARB 2004-06
Social and Health Vulnerability all at census tract level	
% people of color (total pop-non-Hispanic white)	US Census 2000
% below twice the national poverty level	US Census 2000
Home Ownership-% living in rented households	US Census 2000
Housing Value-median house value	US Census 2000
Educational attainment-% >age 24 with <high school	US Census 2000
Age of residents-% <age 5	US Census 2000
Age of residents-% >age 60	US Census 2000
Linguistic isolation-% residents under age 4 in households where no one over age 15 speaks English well	US Census 2000
Voter turnout-% votes cast in general election	UC Berkeley Statewide Database 2000
Birth outcomes-% preterm and small for gestational age	CA Dept Public Health Natality Files 1996-2003

Sadd, J.L.; Pastor, M.; Morello-Frosch, R.; Scoggins, J.; Jesdale, B. Playing It Safe: Assessing Cumulative Impact and Social Vulnerability through an Environmental Justice Screening Method in the South Coast Air Basin, California. *Int. J. Environ. Res. Public Health* 2011, 8, 1441-1459.

OLD...NJDEP 2009 Method: Environmental Indicators

Indicator	Data source	Original Geographic Scale	Original Units
NATA cancer risk (1999)	EPA data	Census tract	Risk per million
NATA diesel (1999)	EPA data	Census tract	Ug/m3
NJDEP Benzene from stationary sources	DEP emission inventory	100 meter grid	Ug/m3
Traffic All	Congestion Management System	1000 foot buffer	Traffic Counts all vehicles
Traffic trucks	Congestion Management System	1000 foot buffer	Traffic Counts heavy trucks
Density of Major Regulated sites	DEP NJEMS data	100 meter grid	Sites per acre
Density of Known Contaminated	DEP SRP data	100 meter grid	Sites per acre
Density of Dry Cleaners	DEP GIS data	100 meter grid	Sites per acre
Density of Junkyards	DEP NJEMS data	100 meter grid	Sites per acre

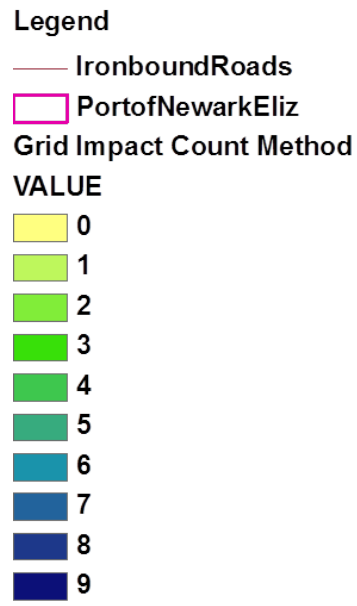
Newark/Ironbound



Illustration of GIS Analysis: OLD Method Newark Ironbound Care Project

+ Trucks = Total

- + Vehicles all
- + Drycleaners
- + Junkyards
- + Known Contaminated Sites
- +Major Stationary Sources
- + Benzene Stationary Sources
- + Diesel
- Air Cancer risk



CI Method Work Group

- NJDEP Internal Cumulative Impact Methods Work Group
 - 14 NJDEP staff from various programs Plus 1 from NJDHSS
 - evaluate other methods and develop Method DEP will use going forward
 - determine what environmental data should be used as indicators of burden
 - how the indicators should be combined and scored
- Method should focus on environmental **public health** burden to “people”
 - Ecological environmental burden will be addressed by other Goals and/or incorporated later.
- Method should not determine what a **community** is, DEP is defining community broadly and can be anywhere from a section of a municipality to larger areas like a region.
- Method should “cast the widest net” to identify all burdens but be able to identify areas “with the greatest cumulative environmental stressors”.
- Method must show cumulative environmental burden to:
 - help prioritize actions,
 - but allow for identification of individual burdens at any geographic area to determine what actions will make a difference.
- Method must be defensible.
- Method should identify environmental burdens “statewide”
 - but then overlay where people live, work and play
- Method should determine environmental burden which will be “compared” to demographic and health outcome data to identify “additional vulnerability”.

CI Method DRAFT Data Layers

Draft Data Layers - March 2012 - Environmental Burden - Cumulative Impact Method	Indicators Still Under Evaluation
NATA Cancer Risk (exclude stationary benzene, mobile, drycleaners)	Ambient Air Radiation
NATA Diesel (Non Road, Port)	Incidents
NATA Respiratory Risk (exclude mobile)	CEAs/CKEs/Deed Notice Areas?
DEP Port Modeling	Historic Fill
Benzene (Stationary Sources)	Out of State Impacts (PA, DE, Etc)?
All Traffic Counts	Pesticide Misuse
Heavy Truck Traffic Counts	Heat
Dry Cleaners	<ul style="list-style-type: none"> • Still DRAFT....Method Team still doing its job! • Goal is to develop and provide data at two levels: <ul style="list-style-type: none"> • Cumulative Impact (combined burden – to prioritize actions) • Individual data layers (to determine what actions will make a difference) • Some highlights..... <ul style="list-style-type: none"> • Mobile impacts • Port Modeling • Criteria Air Pollutants (Ozone and Fine Particulate Matter) • Open Space • Contaminated Site (Remedial Priority Scoring System) • Drinking Water • Radon
AQ Ozone, PM2.5, NO2, CO2, Lead	
Distance to Open Space	
Radon	
Remedial Priority Scoring System	
Community Drinking Water Quality	
Private Well Water Quality	
Beach Water Quality	
Shellfish Closures	
Fish Advisories	
Railroads	
Non Road (Port, Airport, Marine)	
Warehouses	
Multi Media Release Report	
Major NJPDES DSW	
Combined Sewer Overflows (CSO)	
Large Quantity Generators (HW)	
Landfills (active or not on KCS?)	
Junkyards	
Waste Incineration	
Recycling Facilities	
Transfer Stations	
Major Regulated Sites (TCPA, DPCC)	
Autobody Shops	
Compliance Rate/Significant Non Compliance Rate	
Childhood Blood Lead Levels	

Goal 3 Work

- Steering Committee for Goal 3
 - develop and implement an action plan for advancing this goal
 - focus efforts, redirect resources (staff and money), and prioritize initiatives that benefit communities that are highly impacted by environmental burdens
 - inform decision making by understanding cumulative and multimedia impacts on communities
 - work across programs to maximize environmental benefit
 - work with communities (public, community groups, local government/health officials, businesses) to understand concerns, impacts, options and discuss solutions.
- Additional Work Groups formed for Goal 3
 - Financial Assistance: targeting, internal coordinating, intra-state coordinating, better outreach for Overburdened Communities (OBCs)
 - Inspection: targeting, internal coordinating and more community involvement for OBCs
 - Permitting: internal coordination, community involvement, data and gaps in authority analysis and needed regulatory changes targeting OBCs as a priority
 - Community Engagement Group: Coordinating DEP decisions impacting communities, particularly those comprised of low income and minority populations

Initial Activities In Progress

Activity	Summary
Camden WFS Inspection Targeting	Utilized CI tool, NJEMS data, and staff and community knowledge to retarget. Includes outreach to community and compliance assistance.
Synthesized environmental attributes and DEP activities in Camden	Cross program coordination for base lining environment conditions in Camden and DEP current presence.
Solid Waste Truck Routes	Enhanced review of 2 solid waste truck routes (Woodbridge & Patterson).
Pursue and Target SEPs in OBCs	As condition of settling enforcement matter, in lei of full penalty, conduct environmental project.
Auto Email notification of permit apps	Allow for externals (and internals) to sign up for auto email notifications on permit info received.
Facilitating cross program coord. for Metal Processing Facilities	Facilitating cross program coordination around permitting of metal processing facilities.

Next Steps

- CI Methods Work Group
 - NJDEP Internal Cumulative Impact Methods Work Group
 - Finalize Indicators
 - Complete Sensitivity Analysis
 - Finalize Draft Method
 - Internal QA/QC of Data
 - DEP Use of Draft Cumulative Impacts Method to continue to inform Method Development
 - Comparisons with Demographic and Health Data
 - External Stakeholder Input

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