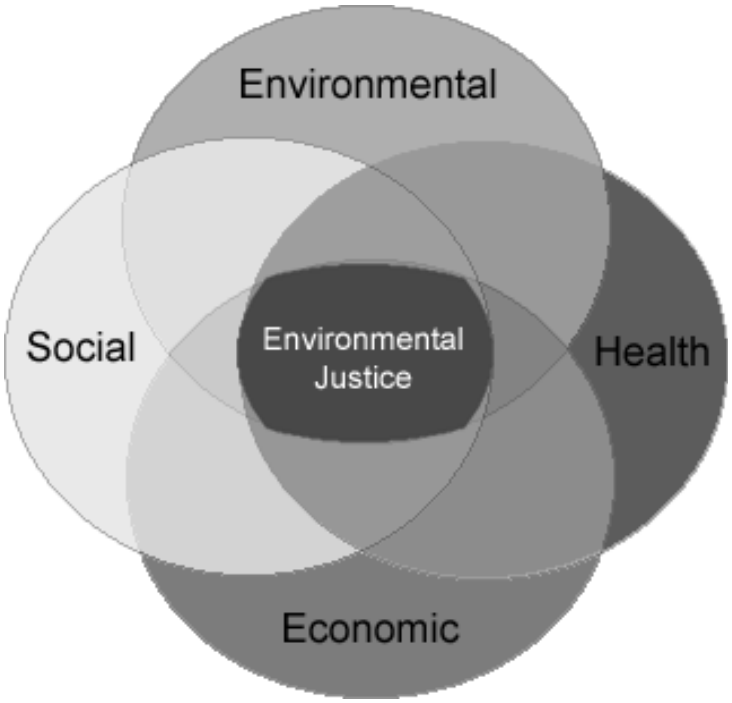
ENVIRONMENTAL JUSTICE – SMART ENFORCEMENT TARGETING STRATEGY



United States Environmental Protection Agency

Enforcement and Compliance Assurance (2201A)

EPA 300-R-04-003
November 2004

Office of Environmental Justice

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Environmental Justice Smart Enforcement Targeting Strategy

Final

Office of Enforcement and Compliance Assurance
November 2004

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EXECUTIVE SUMMARY

Environmental justice is a cornerstone of smart enforcement and an overall Agency priority. Numerous independent studies have concluded that minority, tribal, and low-income populations experience disproportionate exposure to environmental harms and risks. Other studies address issues of compliance rates, health disparities, and cumulative impacts. Collectively these studies suggest that populations facing environmental justice issues (e.g., cumulative impact and health vulnerabilities) require focused attention.

The OECA Environmental Justice-Smart Enforcement Targeting Strategy outlines a targeting methodology based on health, compliance, environmental, and demographic data. Consistent with OECA Environmental Justice Policy, we will use this data to identify environmental justice concerns and apply appropriate compliance tools to achieve optimal environmental outcomes.

While all regions have used demographic factors to target compliance resources, the demographic characteristics of a community, alone, are only part of the equation. To reliably allocate resources to where they are needed most, indicators of existing health vulnerabilities, environmental conditions, and compliance must be considered, as well. Outlining a targeting methodology based on a fuller array of indicators, the Environmental Justice-Smart Enforcement Targeting Strategy is critical to the achievement of Agency's public health and environmental mandate and achieving the goal of environmental justice.

Specifically, the strategy outlines an approach, which is consistent with existing laws, regulations and enforcement memorandum, for identifying geographic areas, and/or facilities located in areas, that may experience environmental justice concerns. The methodology may be used in the context of: (1) targeting and planning efforts; (2) tailoring remedies based on-the-ground conditions; (3) helping to apply penalty considerations (e.g., risk of injury); (4) developing supplemental environmental projects; and (5) measuring outcomes.

The methodology is flexible, but structured. Recognizing that different initiatives will have different data-targeting needs, the specific health, demographic, compliance, and environmental indicators selected should be tailored. To ensure consistency, however, the strategy provides that indicators of local health, environmental quality, and compliance should be compared to conditions nationally. Demographic indicators, however, should be compared to smaller, appropriate, geographic areas to account for the existence of significant regional differences. Those geographic areas and/or facilities in areas having multiple indicators registering above the appropriate averages, or which otherwise give cause for concern, should receive priority attention, and the indicators should receive additional consideration in any further case development.

As with any screening tool, it is important to understand the limitations of the data, which is not extensive enough to enable us to make definitive statements regarding public health and environmental burdens. Quite simply, this framework is intended solely to enable OECA to prioritize areas and facilities in a uniform manner and use data in order to assist OECA in making fair and efficient resource deployment decisions.

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I. INTRODUCTION

Since the early 1990s, the US Environmental Protection Agency (EPA) has sought to integrate environmental justice into the Agency's decision-making process. Executive Order 12898[1] directed the EPA and other federal agencies to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health and environmental effects on minority and low-income populations that result from the Agency's policies, programs, and activities.

Consistent with the Executive Order, the Administrator stated in an August 9, 2001 memorandum to Agency employees that, "[E]nvironmental statutes provide many opportunities to address environmental risks and hazards in minority and/or low-income communities. Application of these existing statutory provisions is an important part of this Agency's efforts to prevent those communities from being subject to disproportionately high and adverse impacts and health effects."[2]

Within EPA, the Office of Enforcement and Compliance Assurance (OECA) is responsible for ensuring full compliance with the laws intended to protect human health and the environment of all communities. On April 15, 2003, OECA Assistant Administrator outlined the Smart Enforcement approach, requiring OECA to target compliance and enforcement efforts strategically to ensure that the most significant impacts to human health and the environment are addressed first. He identified environmental justice as a cornerstone of the smart enforcement program.

Subsequently, OECA's Principal Deputy Assistant Administrator issued a memorandum on OECA's Environmental Justice Policy[3], further supporting the importance of environmental justice in program implementation. Consistent with the goals of environmental justice, OECA's application of smart enforcement concepts will result in the use of existing environmental and health data, compliance tools, and enforcement actions to address significant environmental problems and to identify problems in communities with environmental and public health concerns.

Instead of seeking to establish a "brightline" to identify an "environmental justice community" solely on the basis of demographics data (race and income), this paper proposes how OECA can enhance targeting efforts to ensure that we identify and screen facilities, sectors, geographic and demographic areas based on suspected or known impacts to human health and ecological resources.

The paper begins with the definition of environmental justice and a brief description of policy

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[1] "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" Executive Order, February 11, 1994

[2] "EPA's Commitment to Environmental Justice" Memorandum, August 9, 2001

[3] "OECA Environmental Justice Policy" Memorandum, January 12, 2004

issues regarding environmental justice targeting. A conceptual framework by which geographic areas with environmental and public health issues/problems or industrial sectors may be identified is then presented. This is followed by a discussion of the implementation issues that will need to be addressed.

II. DEFINITION

According to EPA:

> Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including a racial, ethnic, or a socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies. Meaningful involvement means that: (1) potentially affected community residents have an appropriate opportunity to participate in decisions about a proposed activity that will affect their environment and/or health; (2) the public's contribution can influence the regulatory agency's decision; (3) the concerns of all participants involved will be considered in the decision making process; and (4) the decision makers seek out and facilitate the involvement of those potentially affected.

In sum, environmental justice is the goal to be achieved for all communities and persons across this Nation. Environmental justice is achieved when everyone, regardless of race, culture, or income, enjoys the same degree of protection from environmental and health hazards and equal access to the decision-making process to have a healthy environment in which to live, learn, and work.

III. POLICY ISSUES

OECA is committed to securing EPA's goal of environmental justice for all communities, including minority and/or low-income communities, consistent with the environmental laws and implementing regulations. Translating this commitment into measurable program actions has proven difficult, in part due to the lack of: 1) a consistent set of indicators (i.e., environmental, health, social, and economic) that are used to identify a community with environmental and public health issues/problems which need to be addressed; and 2) a proactive targeting tool to assist Regions and HQ in identifying the potential for disproportionately high and adverse human health and environmental impacts on communities.

During the March 11-12, 2003 OECA Senior Manager's Meeting, OECA senior managers discussed the need to address this problem. As a result, a national working group was convened in San Francisco in May 2003 in order to develop a consistent methodology enabling OECA to identify communities with environmental and public health issues/problems for the purposes of targeting and reporting.

The working group agreed that community demographics (represented in this paper through the use of indicators such as income, ethnicity, and age) and a set of health and environmental indicators should be used in identifying potential geographic areas of analysis for targeting and reporting purposes. In addition there were several specific decisions made that helped frame the goals of this concept paper. Those decisions include:

A. Indicators of potential environmental or health problems should consider: Facility density, public health data, along with existing Agency environmental data.
B. Income should be one of the indicators used to define community demographics.
C. We will use the Census Bureau's definition of minority (all races excluding non-Hispanic whites).
D. A more consistent way of applying income and other criteria is needed so that we can do data pulls at the national and state levels, using tools such as the EJ Geographic Assessment Tool.
E. In order to pick a level that is defensible and credible, it is recommended that we select a reference level that is already in use by other federal departments/agencies.
F. OECA shall use a national set of environmental justice indicators that are designed to be flexible enough to allow the Regions to make adjustments based on locally available data.

As a result of this meeting, OECA and the Office of Environmental Justice (OEJ) created a team to write a concept paper on how OECA would create a consistent, well understood approach that could be used in the future for targeting and planning and determining remedies and outcomes, penalties, and using supplemental environmental projects to address environmental justice issues in communities. Outstanding issues that are to be addressed in this concept paper include: how reference levels or thresholds will be established and specifically, which criteria would be applied to define geographic areas of concern related to addressing the environmental and public health issues/problems in communities.

IV. CONCEPTUAL FRAMEWORK

The overall goal of this document is to develop a nationally consistent screening and targeting approach that will allow OECA to be proactive in the identification of communities with environmental and public health issues/problems that need to be addressed. Given OECA's limited resources, this information will also help OECA prioritize its work to ensure that attention is given to the most significant public health and environmental problems. As with any screening tool, it is important to understand the limitations of the data, which is not extensive enough to enable us to make definitive statements regarding public health and environmental burdens. Quite simply, this framework is intended solely to enable OECA to prioritize areas and facilities in a uniform manner in order to assist OECA in making resource deployment decisions.

While all regions have used percentages of minority and low income residents within an area to define a community with environmental and public health issues/problems, there is a lack of consistency in terms of how these criteria are applied. In any case, the workgroup has determined that demographic characteristics of a community are only part of the equation. In order to accurately protect human health and the environment, OECA screening and targeting efforts should use existing health vulnerabilities and environmental conditions, as well as demographic characteristics.

Furthermore, OECA believes that health vulnerabilities and environmental conditions should be used as threshold criteria for targeting in the EJ context, allowing the Agency to first identify affected areas of concern with environmental and public health issues. Once these areas have been identified, information on community demographics will be used as criteria to further prioritize potential geographic areas of concern.

Finally, this concept paper will need to address how OECA can apply a nationally consistent set of factors in order to address the following targeting and planning needs:

- Prioritization of self-identified communities with environmental and public health issues/problems;
- Identification and prioritization of communities with environmental and public health issues/problems; and
- Evaluation of national priority sectors to identify facilities that may be contributing to a community's environmental and public health issues/problems.

A. Environmental Compliance and Existing Health Vulnerabilities and Environmental Conditions

To determine the environmental compliance and existing health and environmental conditions of a particular community, several data sources are outlined below. By first identifying geographic areas of concern based on environmental compliance and existing health vulnerabilities and environmental conditions, we are creating a proactive process that can be used to effectively target communities and facilities within a priority sector for additional evaluation by EPA.

1. Environmental Compliance Factors

OECA manages several data systems that collect information regarding the frequency in which EPA and the states monitor facility compliance as well as an individual facility's overall compliance and enforcement history. The following factors should be used to assess facility density and overall compliance within a geographic area.

Environmental Compliance Factors	Data Sources & Issues
Facility density and proximity to Corrective Action/ Superfund Sites	EPA, GIS, States (should look at all permitted sites and also non-permitted of concern such as printing shops and auto body repair shops)

Environmental Compliance Factors	Data Sources & Issues
Enforcement Data	EPA, States. Some of the measures include: • number of high priority violations/significant non-compliance (HPVs/SNCs) for all program areas • HPV/SNC Rate: # of new identified per 100 facilities inspected • percent and number of uninspected facilities • percent and number of unaddressed violations

2. Health (Vulnerabilities) Factors

The health vulnerability factors identified below are divided into two categories: core and supplemental. The core health factors can be used at the national level to provide an overall assessment of community health conditions. The supplemental health factors can be used for individual communities of concern where the data is available. These factors are not intended to suggest cause and effect but instead to identify areas with existing health related vulnerabilities.

Core Health Factors	Data Source
Cancer mortality rate (age adjusted)	National & State: http://www.cdc.gov/cancer/npcr/2000/index.htm
Cancer incidence rate (age adjusted)	National, State, and Census region: http://www.cdc.gov/cancer/npcr/uscs/report/index.htm
Infant mortality rate	National: http://www.cdc.gov/nchs/data/nvsr/nvsr50/50_12t1.pdf State: http://www.cdc.gov/epo/shp/pdf/shp2002.pdf http://www.cdc.gov/nchs/data/nvsr/nvsr50/50_12t1.pdf
Low birth weight rate	National: http://www.cdc.gov/nchs/data/statab/t991x26.pdf State: http://www.cdc.gov/epo/shp/pdf/shp2002.pdf

Supplemental Health Factors	Data Source
Asthma	National data on deaths, hospital discharges, prevalence, and emergency room and /or doctor's visits: http://www.lungusa.org/data/asthma/asthma1.pdf
Childhood lead poisoning	National: http://www.cdc.gov/nceh/lead/research/kidsBLL.htm State, County, Census tract, and block groups: http://www2.cdc.gov/nceh/lead/census90/house11/house11.htm

3. Environmental Factors

There are several environmental factors (listed below) that should be used to assess environmental conditions across the country as set forth in the EJ Toolkit. The challenge with environmental data will be to select a discrete number of data sets that can provide an overall sense of environmental conditions of an area. The primary national factors currently being considered include: TRI emissions using Risk Screening Environmental Indicators program, Attainment Status, National Air Toxic Assessment (NATA) data, and 305(b) stream data. Additional factors available at the local level can then be used to refine the assessment (e.g., beach closings, fish advisories,...)

Environmental Factors	Data Sources & Issues
Attainment status	EPA, States, includes Ozone Action Days & Ambient Air Monitoring data
Emissions	EPA, States, TRI data NATA data. EPA's Risk-Screening Environmental Indicators (RSEI) program can be used to assess the risk emissions pose to a community. RSEI information available at www.epa.gov/opptintr/rsei.
Indoor air issues	US Census, State Indoor Air Programs
305b stream data	EPA
Fish advisories	States
Beach closings	County and local governments
Truck traffic	State and local environmental quality and transportation departments can provide data on numbers of trucks, resulting air quality, etc. Use EPA Air Division data to track trucks as mobile pollution sources. NATA data also provides risk estimates for mobile sources, separated by on-road and off-road, as well as diesel exhaust emission estimates.

The above factors have been chosen based on their nexus to relevant health and environmental concerns and on data quality and availability. Should new, high-quality data sources become available, additional factors could be added. Although at least one data source has been included for each factor listed above, other excellent sources for additional guidance regarding data sources are available.[4]

[4] *Resources for Community Health Assessment.* Dr. Olivia Carter-Pokras, University of Maryland School of Medicine. http://www.epa.gov/reg3ecej/environmental_justice/Resources%20for%20Community%20Health%20Assessment/index.htm and *Environmental Public Health Indicators.* CDC, 2002. http://www.cdc.gov/nceh/indicators/indicator%20list.pdf

B. Community Demographics

The definition of a community with environmental and public health issues/problems traditionally included a focus on race/ethnicity and should be expanded to include sensitive populations. Sensitive populations can include: children, the elderly, and subsistence hunter, fisher, gatherer groups. These indicators tend to serve as a proxy of the population groups who are more likely to be impacted by environmental exposures. The third indicator included in community demographics is information on economic conditions.

1. Minority Population

Census 2000 revised the questions on race and Hispanic origin to better reflect the country's growing diversity[5]. Race and Hispanic origin are considered by the Federal government to be two separate concepts. Therefore, for Census 2000, all individuals living in the United States were asked the question on race and the question on Hispanic origin. Although the question on Hispanic origin remained the same as in past census, it was located directly before the question on race.

In addition, the question on race was changed to address three issues: 1) OMB's requirement that federal agencies use a minimum of five race categories; 2) a desire to add "some other race alone" category; and 3) to accommodate those who choose to report "two or more races." As a result, Census 2000 provided seven race categories:

- White alone;
- Black or African American alone;
- American Indian or Alaska Native alone;
- Asian alone;
- Native Hawaiian or Other Pacific Islander alone;
- Some other race alone; and
- Two or more races.

Ethnicity was defined as either Hispanic origin or not of Hispanic origin. Therefore, through the combination of race data and ethnicity data, Census 2000 data can be used to identify minority populations.

Several draft guidance documents and data collections have been developed for purposes of performing environmental justice assessments. The Office of Environmental Justice has defined "minority" populations to include Hispanic, Asian-Americans and Pacific Islanders, African-Americans, American Indians, and Alaskan Natives, as did the Interagency Working Group on Environmental Justice which developed the *Guidance for Federal Agencies on Key Terms in Executive Order 12898*. Most EPA geographic analyses have been based on the Census classifications, and refer to the total of Black, American Indian/Alaska Native, Asian or Pacific

[5]US Census Bureau. 2001. Census 2000 Brief: Overview of Race and Hispanic Origin, March 2001. C2KBR/01-1.

Islander, Other race, and White Hispanics as minority populations. An alternative method for calculating this total is to deduct White non-Hispanics from the total population. These three alternatives are by far the most frequently used definitions. In all these definitions, there is general agreement on the definition of minority as all races excluding non-Hispanic whites.

2. Vulnerable Populations

It is generally accepted that children and senior citizens are sub-populations which are more susceptible to health insults than the general population. One way to define these groups is to include persons between a specific age range. Age-based criteria vary and arguments can be made to increase or decrease the age limits based on the affects of varying chemicals. For example, lead poisoning tends to be a problem for children six years and younger[6]. On the other hand, there is some evidence that indicates that teens are also affected by lead poisoning. Generally, older citizens tend to experience more dramatic changes in health as they age. However, from an environmental health perspective, age is less of a predictor of susceptibility than underlying chronic conditions that are common as we age. Older adults are a heterogeneous group and often are described as being in two camps, the fit or the frail. In addition, a member of NEJAC enforcement subcommittee recommended that age for older citizens be set at 55 due to a belief that African Americans suffer at a younger age from respiratory problems. It will be important to balance the desire to be inclusive with the need to establish meaningful indicators. Given that we are trying to identify the most significant problems, it might not be appropriate to set the age limits at 14 years old and 55 years old, as it would likely be so inclusive that it would be not be a very useful indicator. Therefore, it is recommended that we use children six years of age or younger (to be consistent with EPA's Lead Program) and older citizens sixty-five years of age or older (to be consistent with EPA's Aging Initiative) as an indicator of vulnerable populations.

The age of a home can also be an indicator of indoor air risk, as it provides some description of the living environment and may offer some additional information regarding potential exposures. Additionally, a household may be more vulnerable to environmental insults if they use coal, coke or wood for heating fuel and homes built prior to 1978 due to the prevalent use of lead-based paints. In addition, older, multiple family housing is more likely to support larger populations of biological vectors (i.e., rats, mice and roaches) and the resulting biological risk, as well as higher pesticide usage.

Other potential vulnerabilities include cultural land use variations, due to unique exposure pathways resulting from cultural activities, such as wild rice harvesting or subsistence hunting and fishing . Executive Order 12898 states that federal agencies should collect data on "consumption patterns of populations who principally rely on fish and/or wildlife for subsistence." Pollutants discharged into the airways and waterways near these populations may pose a greater health risk to those communities.

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[6]US Environmental Protection Agency, "Lead in Your Home: A Parent's Reference Guide," EPA 747-B-98-002, June 1998, p. 5.

3. Economic Conditions

The economic status of a community plays an important role in determining whether the community as a whole merits attention under the Agency's Environmental Justice Program. Because the economic status of "low-income" communities is too diverse to be characterized along one dimension, the Agency cannot establish a single economic point to establish a community as an environmental justice community. The Agency can however, establish a generic economic definition that can be used at the National level, as a starting point. In other words, national consistency on what constitutes an economically distressed community can be achieved, while at the same time, allowing the Regional Offices the flexibility to refine the boundaries at the local level to more accurately identify environmental justice communities.

The United States Census Bureau uses the federal government's poverty definition. The U.S. Social Security Administration (SSA) first published poverty statistics in the early 1960's using a poverty measure developed by Mollie Orshansky, a SSA economist. This poverty measure established a set of poverty thresholds for different types of families that consisted of the cost of an adequate diet multiplied by three to allow for other expenses. The threshold amount in 1963 for a family of two adults and two children was approximately $3,100.00. To determine a family's poverty status, its resources, defined as pre-tax money income, were compared with the appropriate threshold. This definition was subsequently revised in 1969 and 1980 by federal interagency committees. The Office of Management and Budget's Directive 14 prescribes this definition as the official poverty measure for federal agencies to use in their statistical work. Following the Office of Management and Budget's Statistical Directive 14, the Census Bureau uses a set of money income thresholds that vary by family size and composition to determine poverty status. If a family's total income is less than their corresponding family size threshold, that family is considered to be in poverty. These poverty thresholds do not vary geographically, but they are updated annually for inflation using the Consumer Price Index. The official poverty definition counts money income before taxes and does not include capital gains and noncash benefits such as public housing, Medicaid, and food stamps. This definition of poverty is not without criticism. The major shortcoming, as reported in the literature, is that it excludes in-kind benefits such as food stamps, it ignores direct tax payments, child care costs, etc.

The U.S. Department of Health and Human Services (HHS) has developed poverty guidelines, which are updated yearly. The poverty guidelines are a simplification of the U.S. Census' poverty thresholds and are used in determining financial eligibility for certain federal programs. These poverty guidelines are similar to the U.S. Census' poverty thresholds in that they are based on the size of the family unit. While the U.S. Census poverty thresholds focus on the number of children in a household the HHS guidelines only consider the size of the family unit regardless of the number of children in a household.

Whether reviewing the U.S. Census poverty thresholds or the HHS poverty guidelines, it is clear that they were established to determine whether a family would qualify to be included as part of a federal entitlement program. The Agency's Environmental Justice Program, however, does not necessarily look at individual families to determine economic status, but instead evaluates an entire community's economic status to determine inclusion as part of an environmental justice need.

Based on our research it appears that each federal agency has the ability to choose where its poverty level shall be set. Most federal programs begin with the U.S. Census poverty data or the HHS's poverty guidelines. Some federal programs set the poverty guideline for their respective program to be 100%, 125%, 150% or 185% of the HHS poverty guidelines. The U.S. Department of Agriculture's Women, Infants and Children Program for example, sets its poverty guideline as 185% of HHS guidelines to establish its poverty level.

It is clear that federal agencies either use the U.S. Census data or the HHS data or a combination of both to try to define the economic status of households. Therefore, the Agency should also use the same data, to establish economic status, as sister Federal agencies. Both data sets have their limitations. Because the U.S. Bureau of Census data related to poverty is only gathered every 10 years, it may not provide the level of detail required for regular analysis. Although updated on an annual basis, the HHS poverty guidelines are generally applied to the large geographic areas. For example, while Alaska and Hawaii have independent poverty guidelines, there is one set of guidelines that apply to the 48 contiguous states and the District of Columbia.

V. IMPLEMENTATION ISSUES

This section attempts to identify issues and provide specific suggestions related to the development and implementation of an Environmental Justice targeting strategy for OECA.

A. Environmental Compliance and Existing Health Vulnerabilities and Environmental Conditions

The Executive Order does not define the term "disproportionate impact or risk", however, the Council on Environmental Quality's guidance on EJ in the National Environmental Protection Act (NEPA) process[7], defines 'disproportionate' effect as an adverse effect that "appreciably exceeds or is likely to appreciably exceed those [sic] on the general population or other appropriate comparison group".

Rather than conducting disparate or disproportionate impact analysis, where specific areas are compared against a "norm," we recommend the development and use of a qualitative screening tool that can be used to target geographic areas of concern or facilities located in areas of concern at the national level. This tool would allow OECA to identify and prioritize geographic areas of concern and facilities located in areas of concern based on a discrete set of health and environmental factors. Areas could be ranked relative to each other based on how many of the factors exceed state or national averages. This information could then be used to identify geographic areas, or facilities located in areas of concern, that appear to have higher levels of environmental burdens and/or health vulnerabilities. Once identified, these areas of concern could then be combined with demographic data and used by OECA and the Regions to prioritize communities or facilities within a national priority sector for compliance assurance activities.

[7] http://www.epa.gov/compliance/resources/policies/ej/ index.html, pp 26-27.

There are numerous types and sources of environmental and health data that could potentially be used to identify "high and adverse impacts" on a subject community. For the purposes of creating a screening tools that can be used by OECA for targeting facilities that are located in potential EJ areas, the following data sources and models should be used to represent the environmental compliance and existing health vulnerabilities and environmental conditions.

1. Environmental Compliance

This criteria can be used to provide in relative terms which communities have the most number of permitted facilities and Superfund sites in their neighborhoods. Agency databases (OTIS, FRS, ICIS,....) can provide information on facility and site locations, inspection frequency and compliance. This information can be ranked and mapped along with other criteria in order to get an overall picture of an area's environmental and health conditions.

2. Existing Health Vulnerabilities

The core indicators identified in Section IV of this paper should be used at the national level to provide an overall assessment of community health vulnerabilities. These indicators include: Cancer mortality rate (age adjusted); Cancer incidence rate (age adjusted); Infant mortality rate; and low birth weight rate. Similar to the ranking approach discussed above, assessments should compare communities with national and state averages, and rank by zip code (if possible) the areas with high existing health vulnerabilities.

Due to its broad coverage, nationally compiled health statistics will have limited value in terms of targeting, although they can be useful for identifying and understanding trends. State-level data can provide some value for targeting; however, additional information at the local level would be needed to help narrow the focus. Unfortunately, local health data (generally found at local Health Departments) is not consistently collected and available for all communities. If available, local Health Departments can provide this data, after receiving a formal request. Due to limited resources at Health Departments, it will be important for Agency staff to plan ahead to allow these local departments sufficient time to respond to our requests. Creating and maintaining good working relationships with these local departments could greatly improve the accuracy of the data and the speed with which information is released.

3. Existing Environmental Conditions

EPA has several sources of environmental data and models that can be used as indicators of environmental conditions. These indicators are presented below:

The Risk Screening Environmental Indicators (RSEI): The USEPA's Office of Pollution Prevention and Toxics (OPPT) has created toxicity weights for most chemicals listed by the Toxic Release Inventory (TRI). The toxicity weighting system measures chemical toxicities relative to one another using a proportional system of numerical scores. These scores are based upon a chemical's toxicological potential to cause chronic human health effects. The OPPT Risk-Screening Tool uses

each facility's reported TRI air releases and water discharges, and models their distribution upon the surrounding population using US Census Bureau data and site specific information, such as facility stack heights and local meteorology.

The RSEI screening tool uses risk concepts to screen large amount of data, and is particularly useful for examining trends to measure change, ranking and prioritizing industry sectors for strategic planning, conducting risk-related targeting, supporting community-based projects and investigating environmental justice issues. RSEI is based on the Toxic Release Inventory (TRI) and considers the following information: the amount of chemical released, the location of that release, the toxicity of the chemical, its fate and transport through the environment, the route and extent of human exposure, and the number of people affected. The results are for comparative purposes and offer a screening-level perspective for relative comparisons of chemical releases which may be useful in the establishment of priorities for improving human health and the environment. It should be noted that the use of population data (number of people affected) in RESI may not be appropriate for our purposes. Since including population in RESI analyses may result in diminished risk to smaller communities, we recommend using the version of RESI without the population parameter.

National-scale Air Toxics Assessment: The National Air Toxic Assessment (NATA) is based on using computer models to estimate ambient air toxics concentrations and population exposures nationwide. The current assessment is based on 1996 data and will help to characterize the potential health risks associated with inhalation exposures to 33 air pollutants. These air pollutants are a subset of EPA's list of 188 toxic air pollutants plus diesel particulate matter, which is used as a surrogate measure of diesel exhaust. EPA is currently working to update the assessment using 1999 data.

While TRI is based on emissions data only, the National Toxics Inventory (NTI) contains stack indicators, control device information, and location data for individual stacks, which are the indicators needed for modeling. In addition, NTI includes more facilities than the TRI because of TRI reporting thresholds and the limitations in the types of facilities required to report to TRI.

Non-attainment areas for criteria pollutants - The AIRS air quality subsystem contains measurements of ambient concentrations of criteria air pollutants (SO2, NO2, CO, O3, PM-10, and Pb). These data are used to assess the status of the nation's air quality and to identify areas where improvements in air quality are needed because of exceedances of one or more National Ambient Air Quality Standards (NAAQS). Whereas it may be inappropriate to attempt to identify areas of concern, or facilities located in areas of concern, based solely on the location of non-attainment areas (because non-attainment areas tend to be designated in larger than "community-sized" plots), these data may be used to determine a component of the cumulative environmental/health impact faced by a community with environmental and public health issues/problems. Moreover, the quantitative ambient air measurements of specific pollutants allow for some risk analysis, when combined with population and available toxicity data.

Ground and Surface water - Under section 305(b) of the Clean Water Act, States are required to assess the quality of their groundwater, in addition to their assessment of surface waters on a two-year cycle. States assess the quality of their waters by determining if they meet designated beneficial

uses (e.g., drinking water supply, aquatic life support, primary contact recreation-swimming, etc.), including specific numeric and narrative criteria relating to the support of designated uses. The STORET (Storage and Retrieval) database of ambient water quality exceedances data contains primarily chemical and physical water quality monitoring data. These two sources can be used to identify "impaired" water bodies and water quality exceedances that may have an impact on a nearby community. Water pollution may pose a potential public health concern due to an impact on drinking water supplies or contaminated fishing/recreational areas.

Fish and sediment monitoring data - EPA tracks issuance of advisories in its National Fish Consumption Advisory database. The database is limited in that it only counts one advisory per water body, even if multiple fish species in different parts of the water body are found to be contaminated. In 1993, 93% of the fish consumption advisories were caused by mercury, PCBs, chlordane, dioxins, and DDT (OW RTC, 1994). Contaminated sediments and fish tissue data from the recently compiled National Sediment Inventory database have similarly been used to link pollutant discharges to human health and aquatic life impacts in minority and low income communities.

B. Use of Demographic data

Some studies have used a fixed or relative threshold to define a “minority area” (e.g. 50% of the block group must be minority population, or at least 3 times the state average percentage minority population, in order to be considered a minority area), while others have used a relative comparison or a continuum ranking method. The advantage in using a specific threshold (whether absolute or relative) level is that it would be much simpler to apply, and there would be fewer ambiguities when screening for areas of concern. In contrast to a simple cut-off point, we could use a series of scored gradations to determine areas with a greater minority population. For example, we could look at ranges or bands of 0-25%, 26-50%, 51-75% and 76-100% minority. This method would enable us to rank areas according to minority composition, and give priority to ones with the greatest numbers of minorities.

Absolute thresholds typically consider the percentage of minorities within a given area and then classify the area (minority area or not a minority area) by comparing this percentage to a pre-existing threshold. For example, the Census Bureau has published a list of counties with 50% or more minority populations. Another approach uses relative thresholds, which would take the percent minority population in a target area and compare it with the percent minority in a reference geographic area.

Instead of using a single national number to determine minority areas, this method takes into account regional differences. California, as well as many southern states, have higher minority percentages than the national average, whereas other states such as Idaho and Maine have lower minority percentages than the average. Use of relative thresholds would enable us to see whether, within the state, county, or locality, there are areas which have a significantly higher percentage of minorities than elsewhere within the region.

Since the goal for OECA is to establish a consistent national approach to screening and targeting,

it is recommended that established and recognized boundaries (state averages, county averages, census blocks and zip codes.....) be used as reference areas. For the purposes of screening at the national level for demographic data, state averages should be used as a reference area. Using a state average makes sense for a number of reasons: (1) the demographic data is typically more readily available across a broad array of indicators; (2) the jurisdiction is subject to a common environmental regulatory and political system; and (3) the area is large enough so as to be meaningful compared to the area of concern. In addition, state averages take into account differences in the cost of living between states. Economic indicators within a state are more realistic than federal guidelines, especially for the poverty level. Therefore, it may be more appropriate to use U.S. Census poverty data, even though it becomes dated toward the end of a decade. Through the application of state averages as the reference point for community demographics, OECA can further prioritize by focusing on geographic areas of analysis that are above the state average for minority/children/seniors populations and incidents of families living in poverty.

For any analysis, it is important to recognize that the selected geographic unit of analysis can effect the analysis outcome. This phenomenon is sometimes called the "Modifiable Area Unit Problem (MAUP)[8] As Regions refine the analysis at a more local level, the Region should evaluate whether and which smaller geographic boundaries should be used to assist in prioritization. For local-level analyses, a variety of factors may be relevant in choosing the reference and target areas for analysis. The rationale for selecting particular areas should be described as part of any record of the analysis.

C. Other Implementation Issues and Next Steps

There are several steps that need to be taken in order to implement the concepts presented in this paper. While some steps may be implemented in the short-term, others may require more long-term solutions. The following are issues and steps needed for implementation of this concept paper:

1. Improved Locational Data*:* States and regions have already collected a significant amount of good quality locational data which we can use cooperatively. EPA should continue to explore methods for utilizing a mix of acquisition methods to both provide a floor of minimum acceptable data quality for all regulated entities, as well as to continue to extend the quality and completeness of data in targeted areas and for high-priority entities.

2. Responding to Self-Identified Communities**:** The concepts presented in this paper can also be used to respond to self-identified communities with environmental and public concerns. Regions, States, or the communities themselves should attempt to gather the same data for the identified community as for the other sites. In addition, the individuals doing the review should use the stated concerns of the subject community to guide them in their selection from the menu of indicators. For

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[8]J. Maantay, "Mapping Environmental Injustices: Pitfalls and Potential of Geographic Information Systems in Assessing Environmental Health and Equity," Environ Health Perspect 110 (suppl 2): 161-171 (2002). This paper is available online at http://ehp.niehs.nih.gov/members/2002/suppl-2/161-171maantay/maantay-full.html

example, if the community expresses concern about the health of their children, some appropriate factors to research would be the rates of infant mortality, low birth weight, asthma, and childhood lead poisoning as set forth in the EJ Toolkit. Following the selection of factors, a brief justification memo should be developed and included in any referral to DOJ for consideration in case development and establishing remedies and/or penalties. At some point in the data gathering stage, information regarding the method and criterion for targeting should be disseminated to Regional EJ coordinators and others who are aware of communities with environmental justice issues to give them an opportunity to identify communities they feel have environmental justice problems.

3. Data Management and Ease of Application: Consistent and continued use of the proposed screening and targeting approach for EJ will require high quality data sources that are easily accessible to EPA staff. Although some of the proposed indicators have data sources that are currently available, others may not have readily available data sources at this time. An assessment of data availability should be conducted to determine short-term and long-term needs. Once data sources are adopted, OECA will need to establish a process to ensure that data sources are maintained and updated on a regular basis. In addition, the process should include an effort to periodically review criteria and data sources to determine if more representative surrogates and data sources have been made available.

By using a simple ranking approach, each factor can be used to rank areas (e.g., by zip code or other appropriate geographic units of analysis) to determine which areas score highest for each category. This information can then be mapped using GIS technology for each parameter, and then compiled to determine an overall rank.

Finally, this targeting tool should be developed and integrated with existing OECA data systems (i.e., OTIS, ICIS, EJ GIS Assessment Tool, Enviromapper,...) to enable headquarters and regions to conduct these analysis at their desktops.

VI. CONCLUSIONS AND RECOMMENDATIONS

In summary, OECA should apply a nationally consistent set of environmental, health and demographic factors in order to identify and prioritize communities with environmental and public health issues/problems and to evaluate OECA's national priority sectors to determine which facilities are located in geographic areas of concern. In order to accomplish this goal, the following approach is recommended:

- Environmental and health factors should be used as threshold criteria to target geographic areas of concern. Indicators recommended for use in identifying existing environmental and health burdens within a geographic areas of concern include:
  - OECA's Environmental compliance data
  - Facility density information
  - EPA's emissions data, as well as EPA's ambient environmental data
  - National (CDC) health data.
- Demographic information should be used to help prioritize within these geographic areas of concern, where OECA will deploy it's limited resources. Indicators recommended for use in

assessing community demographics include:

- locations where minority populations (defined as all races, excluding non-Hispanic whites) are found at a higher percentage than the state average; and
- locations where the percentage of children (six years of age and younger) and/or older citizens (65 years of age and older) are found at a higher percentage than the state average; and
- locations where the percentage of individuals (or families) living whose household income is at or below the poverty level are found at a higher percentage than the state average.

Finally, OECA should develop and maintain a EJ targeting tool that uses the indicators identified above to identify and prioritize communities (including those that self-identify) with environmental and public health issues/problems and to evaluate OECA's national priority sectors to determine which facilities are located in geographic areas with environmental and public health issues/concerns. The concept presented in this paper, when applied to an EJ targeting tool should be used by OECA to assist them in making resource deployment decisions.