

FY2008-09 ORD EJ Action Plan

The mission of the Office of Research and Development (ORD) is to conduct leading-edge research and foster the sound use of science and technology to fulfill EPA's mission. This mission commits ORD to conduct its research in a way that will have a direct and meaningful impact on EPA's decisions and programs. ORD provides EPA, and the at-large public, with scientific and technical information to make informed decisions about risks to human health and the environment. ORD provides much of the scientific foundation for EPA's regulatory programs and decisions by assessing the state of the environment, identifying new issues of potential concern, and providing guidance and tools to customers and stakeholders.

The FY2008-09 EJ Action Plan is representative of the ORD activities that meet the Agency's EJ objectives. ORD recognizes the vital role of science in supporting the protection of public health. Sound science is at the core of understanding and adequately addressing the needs of disproportionately affected communities by helping communities of concern, and all communities, make informed decisions about their health and well-being. ORD brings environmental justice concerns to bear, either directly or indirectly, through its research, expert advice, and leadership in the development of Agency science policies. Through coordinated efforts with the Agency's Program and Regional offices, ORD provides scientific information and expertise in support of the Agency EJ activities.

ORD is committed to strengthening its EJ program by broadening the lines of communication, both internally and with our external stakeholders and environmental partners. By incorporating an EJ component into our research programs and initiatives, we seek to more effectively address these challenging issues. ORD has initiated a multi-year planning effort to plan the direction of our research program in selected topic areas over five or more years. This approach promotes ORD's focus on the highest priority issues and provides coordination for achieving our research goals. The purpose of the MYPs is to provide a framework that integrates research across ORD's laboratories and centers and Government Performance and Results Act (GPRA) goals in support of the Agency's mission to protect human health and the environment. The MYPs identify long-term goals and present annual performance goals (APGs) and associated annual performance measures (APMs) for a planning window of approximately 5-10 years. By helping to identify the impact of potential annual planning decisions, MYPs aid in the evaluation of research options. The MYPs also foster the integration of strategic risk-based environmental protection and anticipation of future environmental issues by communicating our research approach and timing for responding to environmental issues. The MYPs are intended to be living documents and are updated as needed to reflect the current state of the science, resource availability, and Agency priorities.

ORD has developed MYPs in a number of program areas to describe the research ORD proposes to accomplish over the next several years. The MYP is intended to provide a vision of the research program and the programmatic rationale for its intended directions. In addition, the MYP provides an up-to-date, structured listing and description of the significant expected outputs from its research, which serves to communicate across ORD and with stakeholders, clients, and reviewers. Multi-year planning permits ORD to consider the strategic directions of the EPA and how research can evolve to best meet the EPA's mission of protecting public health and the environment.

The MYPs include two major components: (1) a narrative description of the plan, and (2) a matrix of goals and measures. The narrative provides an introduction and background to the topic of the plan, describes the long-term goals, provides the logic/thinking used to array performance goals to achieve long-term goals, and describes the integration between goals and organizations. The matrix is used to indicate annual goals and measures needed to meet the long-term goals identified in the plan. These goals and measures are arrayed across time (i.e., fiscal years) and laboratories/centers and are based on total annual resource levels for the MYP topic area that will not exceed the resource level proposed in the most recent President's Budget. The following narrative is representative of those efforts. For a fuller, more detailed description of ORD's programs, see our multi-year research plans (MYP) at <http://www.epa.gov/osp/myp.htm>. We have updated this Action Plan to be reflective of our most current programs. ORD is currently engaged in a myriad of activities with particular relevance to environmental justice communities. Two of our more current activities are detailed in the following paragraphs. These programs are representative of the types of activities in which ORD is currently involved.

Project Name: Environmental Risk and Impact in Communities of Color and Economically Disadvantaged Communities

One Sentence Summary: This project directly impacts the communities by providing community-specific exposure data for environmental pollutants of concern and develops an Environmental Science program that will train future leaders and experts in community exposure research.

Description of Issue: In many past studies in environmental justice (EJ) communities, scientists have often needed to use surrogate measures of exposure because of the lack of monitoring data on actual exposures. The environmental issues examined in this project included exposures to waterborne contaminants in small local streams and air quality concerns in an area where a number of manufacturing facilities were concentrated.

Description of Communities Involved: Two communities were selected for study under this project. The studies were conducted in Durham and Moncure, NC.

Organizations Involved: In 2001, North Carolina Central University (NCCU) received Congressional funding for a research and training initiative.

Date/Time Span of Project: The project was conducted over the period of 2001 to 2007.

Action Taken: The research infrastructure of the North Carolina Central University (NCCU) Environmental Sciences Program, including the laboratory required to support work in the community exposure studies, was developed during the project. An Environmental Sciences and Technology Seminar Series was also developed for training researchers and students. In support of the work under the EPA cooperative agreement, NCCU hired environmental faculty and support staff, developed environmental studies coursework, acquired required state-of-the-art scientific instrumentation, developed sampling and analytical methods for the contaminants to be measured including metals and selected organic compounds, and developed the study designs and quality assurance project plans for the exposure studies.

For the Durham community exposure study, site screening was performed in local streams where children might play, involving collection and analysis of sediment and water samples for a number of different classes of chemicals. Results of the screening measurements were provided to local

community groups who participated in the community-based participatory research study. Results were also presented at scientific conferences and published.

The study in Moncure, NC, involved screening level air quality measurements in the winter and summer of 2007. Results from the screening measurements were compared with regulatory standard values, TRI data, and results from previous modeling studies. Results of the screening measurements were shared with the local community groups interested in this community-based participatory research study. Results were also presented at scientific conferences and published.

Environmental and Public Health Results: In addition to establishing an analytical laboratory, the NCCU infrastructure efforts also resulted in two new courses in Environmental Sciences and work began toward an accreditation with the National Environmental Health Sciences and Protection Accreditation Council.

In central Durham, housing and commercial properties are intermingled creating a concern for increased pollution and poor water quality in area creeks and streams. To determine if current or past commercial practices impacted creeks, a screening study was performed in which organochlorines (pesticides and polychlorinated biphenyls), polycyclic aromatic hydrocarbons, and heavy metals were quantified in water and sediment samples collected during the summer of 2007 from nine creeks located in the study area. Water quality measurements and contaminant concentrations were compared to regulatory values. Based on the limited number of screening measurements that could be performed during this study contaminant concentrations were not above regulatory levels. The results have been shared with members of community organizations at community functions.

Data from the screening air quality study in Moncure did not indicate elevated air concentrations of criteria air pollutants as compared to the National Ambient Air Quality Standards. Comparisons of other pollutants measured in air samples were compared to other available published data. The results have been shared with members of community organizations and local action groups concerned with local air quality.

Project Name: Southern Center on Environmentally Driven Disparities in Birth Outcomes

One Sentence Summary: The central mission of the Southern Center on Environmentally-Driven Disparities in Birth Outcomes is to determine how environmental, social, and host factors jointly contribute to health disparities in birth outcomes.

Description of Issue: Low birthweight (LBW), preterm birth (PTB), and fetal growth restriction (FGR) all exhibit documented disparities across subpopulations. Survivors of LBW and PTB are at significant risk for both, short-term neonatal morbidity, as well as long-term disabilities, including respiratory distress syndrome, variable heart rate, cerebral ventriculomegaly, cerebral palsy, mental retardation, blindness, deafness, learning disabilities, behavioral disabilities, and motor impairment. Of similar importance is the impact of lower birth weight on increased risk of diabetes,

obesity, cardiovascular disease and other health problems in adulthood. Thus, understanding, and eventually intervening, to prevent these adverse birth outcomes is of critical importance to the overall health of the nation.

Description of Communities Involved: The Southern Center on Environmentally-Driven Disparities in Birth Outcomes will achieve the central mission and specific goals through the organization of an Administrative Core; three Research Projects (Research Project A: Mapping Disparities in Birth Outcomes; Research Project B: Healthy Pregnancy, Healthy Baby: Studying Racial Disparities in Birth Outcomes; and Research Project C: Perinatal Environmental Exposure Disparity and Neonatal Respiratory Health); one Facility Core (Geographic Information Systems and Statistical Analysis Core); and a Community Outreach and Translation Core. Synergies and complementarities exist across all research projects and cores. Overlap exists between each pair of research projects, as well as among all three research projects. The Geographic Information Systems and Statistical Analysis and Administrative Cores support all three research projects, and the Community Outreach and Translation Core serves as a bi-directional bridge between the center and all its component parts and the community.

The Geographic Information Systems and Statistical Analysis Core: (1) provides support for the development of environmental and social data layers needed to implement the various data analyses required for the research projects and the Community Outreach and Translation Core; (2) provides statistical analysis, advice, and consulting on the broad range of statistical issues that arise in conjunction with the research projects, with a particular emphasis on data reduction methods and modeling spatial and spatio-temporal data within a Bayesian framework; and (3) provides analysis for the unique needs of genetic data arising from the clinical and animal studies of the center. This support core facilitates the development of innovative quantitative methodology for children's environmental health research associated with the projects and cores.

The Community Outreach and Translation Core: (1) conducts environmental health outreach and education directed at low income and minority women and their children; (2) enhances the capacity of disadvantaged communities to understand threats posed by environmental contaminants; and (3) provides a bridge between campus research, communities, and policy makers. The Community Outreach and Translation Core's activities utilize center expertise to promote the development of preventive outreach and education with the goal of enhancing the lives of those most vulnerable in our communities.

Organizations Involved: Several researchers at Duke University will be conducting the research.

Date/Time Span of Project: The project period runs from May 2007- September 2011.

Actions Taken: Research Project A, "Mapping Disparities in Birth Outcomes" uses a geographically-based nested study design and high-end Geographic Information Systems (GIS) applications in combination with Bayesian spatial hierarchical modeling and other advanced spatial statistical approaches to: (1) spatially link detailed birth record, fetal death certificate, socioeconomic, environmental exposure, tax assessor, community-based, and clinical obstetric data at highly resolved scales for the State of North Carolina from 1990-2003; (2) refine the conception of fetal growth restriction by developing a joint distribution for birthweight and gestation using bivariate modeling for live births and fetal deaths — both separately and jointly; and (3) determine whether and to what extent differential exposures to both socioeconomic and environmental stressors help explain health disparities in fetal growth restriction among different ethnic and social groups.

Research Project B, “Healthy Pregnancy, Healthy Baby: Studying Racial Disparities in Birth Outcomes” is a cohort study of pregnant women in Durham, NC designed to: (1) correlate birthweight, gestational age, and birthweight x gestational age with individual-level measures of environmental, social, and host factors; (2) partner with local community groups to inventory neighborhood quality and the built environment in order to develop community-level measures of environmental and social factors; (3) create a comprehensive data architecture, spatially resolved at the tax parcel level, of environmental, social, and host factors affecting pregnant women by linking data from the cohort study and neighborhood assessments with additional environmental and socioeconomic data; and (4) determine to what extent differential exposures explain health disparities by applying innovative spatial and genetic statistical methods.

Research Project C, “Perinatal Environmental Exposure Disparity and Neonatal Respiratory Health” uses an animal model to: (1) determine whether maternal exposure to airborne particulates (PM) and/or ozone restricts fetal growth and/or postnatal growth, and impairs lung development/function in newborn mice; (2) determine whether PM and/or ozone exposure ‘reprograms’ maternal inflammatory responses; (3) determine whether postnatal ozone exposure further impairs postnatal somatic and lung development/function following maternal PM and/or ozone exposures; and (4) determine whether genetic or developmental susceptibility to airway hyperreactivity exacerbates maternal and/or postnatal exposure effects on postnatal somatic and lung development/function.

Environmental and Public Health Results: The Southern Center on Environmentally-Driven Disparities in Birth Outcomes will produce important new knowledge to disentangle the complex etiology of birth outcomes. This new knowledge will point the way to effective interventions to achieve better pregnancy outcomes among all population groups.

The attached matrix is organized following the EJ Action Plan format from the EPA Office of Environmental Justice (OEJ) and focuses on the Agency’s eight EJ priorities. The matrix uses OEJ’s definitions for the following terms to maintain consistency with other EJ Action Plans:

Goal - The five goals identified in the EPA Strategic Plan 2006-2011 and the Cross Goal Strategies.

Objectives - Any of the 8 national environmental justice priorities or other priorities identified by a Headquarters Program Office or Region to accomplish a goal.

Activity - Action undertaken in order to address an Objective

Output - What was accomplished under each Activity

Outcome - Description of the impacts resulting from an Activity

The eight Agency EJ priorities are:

Goal 1: Clean Air and Global Climate Change

Objective 1: Reduction in number of asthma attacks

Objective 2: Reduce exposure to air toxics

Goal 2: Clean and Safe Water

Objective 1: Safe fish/shellfish

- Objective 2: Clean and safe drinking water
- Goal 4: Healthy Communities and Ecosystems
 - Objective 1: Reducing elevated blood lead levels
 - Objective 2: Collaborative problem-solving to address environmental justice issues
 - Objective 3: Revitalizing of brownfields and contaminated sites
- Goal 5: Compliance and Environmental Stewardship
 - Objective: Ensuring compliance
- Goal 6: Cross Cutting Strategies
 - Objective: Internal Capacity Building (*e.g.*, training, internal program management)

The matrix illustrates ORD’s approach to integrating environmental justice priorities within the context of our MYPs. The “Activities” column lists MYPs that address the listed EJ priority Goal/Objective and the long-term goals of the MYP. All MYPs that provides relevant research to the EJ Goal/Objective are included in the matrix, even if that MYP is not formally under that Goal number in the Agency Strategic Plan structure. The MYP title and long-term goals are repeated each time the MYP is listed to aid readers who are only interested in a particular area. The volume of relevant research products and results from the MYPs is too extensive to detail in this plan. A **small number** of the expected outputs from each MYP are included in the matrix for illustrative purposes, but are not inclusive of the full breadth of ORD’s work. Please refer to the MYPs for further details regarding ORD’s research program.

Goal 1: Clean Air and Global Climate Change
Clean Air Research Multi-Year Plan (<http://www.epa.gov/ord/npd/pdfs/Air-MYP-narrative-final.pdf>)

Air pollution continues to have adverse impacts on the human and environmental health of the United States, despite clear evidence that overall air quality has improved. The *EPA Strategic Plan 2006-2011* (Strategic Plan) identifies Clean Air and Global Climate Change (Goal 1) as a primary goal for environmental protection with its first objective being Healthier Outdoor Air, and its second objective, Healthier Indoor Air. EPA's Strategic Plan Goal 1 also establishes an objective to provide and apply sound science to support the goal of clean air by conducting leading-edge research to support regulatory decisionmaking. This research provides the scientific foundation to develop regulations and advanced tools and models to implement air quality standards and controls by the States, EPA Regions, and tribes. At the same time, the research program strives to develop better ways to track progress in achieving health and environmental improvements under this goal. The Clean Air Research program targets this first objective by providing the science needed to review, attain, and maintain ambient air quality standards required to protect public health. This research, together with the rest of the Clean Air Research program, has the added benefit of addressing risk reduction from a number of toxic air pollutants, and increases in the number of Americans experiencing healthier indoor air in homes, schools, and office buildings. Although the Clean Air Research program considers within its overall goal the reduction of air pollution impacts on ecosystems and visibility, research specific to the protection of public health remains the top priority of ORD's clients.

This MYP supports the goal of Clean Air by defining the research needed to answer key questions regarding the development and implementation of National Ambient Air Quality Standards (NAAQS)—primarily targeting PM and ozone as high-risk pollutants. In addition, it also supports, although secondarily, the goals of managing hazardous air pollutants (HAPs). This MYP includes a major shift in the Clean Air Research program by combining several program areas that previously had targeted air pollutants individually (e.g., PM, ozone, HAPs). Although it is essential to provide support for the various NAAQS pollutants that continue to be regulated individually, a multipollutant research program better reflects the complexity of real-world air pollution problems and parallels the evolving scientific and regulatory context. The Clean Air Research program uses the science-based framework, developed by the National Academy of Sciences' (NAS's) National Research Council (NRC) in 1998 and modified by the Air Quality Research Subcommittee (AQRS) of the Committee on Environment and Natural Resources (CENR) in 2007, to identify those pollutants and sources responsible for the greatest health risk. Critical components of this research are used to develop an understanding of how pollutants from sources impact ambient concentrations, how these concentrations relate to exposures, and, in turn, how exposures relate to health outcomes. This information provides the fundamental linkages for evaluating health impacts, ascertaining which sources are most egregious in terms of health risk, and in developing effective mitigation strategies.

| Activities/ Resources/ /Partners | Output | Applicable Outcome Measure | | | Point of Contact |
|--|--|---|--|--|--|
| | | Short-term (awareness) | Intermediate (behavior) | Long-term (condition) | |
| <ul style="list-style-type: none"> -Protect public health through the development and attainment of appropriate, protective air quality regulations -Reduce emissions and exposures to 188 specified HAPs -Conduct Near-road/traffic exposure research -Support Air Quality Management Decisions -Assess health and environmental improvements attributable to EPA actions -Study infiltration of outdoor air with its diverse pollutants into the indoor environment -Conduct Ecological Research -Conduct Global Climate Research. -Conduct research to support the Regions, States, and Tribes | <ul style="list-style-type: none"> -Development of the NAAQS and other air quality regulations -Implementation of air pollution regulations -Leverage ORD research activities -Develop a multi-pollutant approach to research -Identify specific source-to-health linkages, using “near-roadway” as the prototype -Assess health and environmental improvements due to past regulatory actions | <ul style="list-style-type: none"> -Evaluate exposure to different PM size fractions and determine the role of those fractions in particle-associated health effects | <ul style="list-style-type: none"> -Evaluate exposure to PM components and the role of those components in particle-associated health effects -Elucidate the susceptibility and vulnerability factors that increase risk of adverse health outcomes associated with air pollutants -Provide exposure-based evidence for systemic effects of air pollutants, other than those on the cardiopulmonary system -Provide assessment of long-term exposures to fine particulate matter and gaseous co-pollutants -Evaluate the importance of key biologic pathways in explaining how air pollutants cause adverse health outcomes -Characterize the ambient concentration and exposure-dose-response relationship for PM and other priority air pollutants | <p>LTG1-In accordance with EPA’s legislated mandate for periodic NAAQS assessments and assessment of HAP risks, advances in the air pollution sciences will reduce uncertainty in standard setting and air quality management decisions.</p> <p>LTG2-Air pollution research will reduce uncertainties in linking health and environmental outcomes to air pollution sources to support effective air quality management strategies</p> | <p>Name: Dan Costa Org: ORD Tel: (919) 541-2532 E-mail: costa.dan@epa.gov</p> <p>Name: Jason Edwards Org: ORD/OSP Tel: (202) 564-5568 Email: edwards.jason@epa.gov</p> |

**Goal 2: Clean and Safe Water
Drinking Water Research Plan**

The Drinking Water Research Program in ORD supports the Agency's responsibilities to apply sound science for regulatory decisions under the Safe Drinking Water Act (SDWA). ORD's research is used to characterize and manage public health risks associated with exposure to waterborne contaminants. The research is also used to provide input for EPA's review, revision, development, and implementation of SDWA rules.

The multi-year plan for drinking water research addresses the safety, reliability, and sustainability of public drinking water systems. Research is focused on protecting supplies of drinking water sources; investigating treatment strategies for reducing health risks from waterborne pathogens and chemical contaminants; preventing water quality deterioration in drinking water distribution and storage systems; and developing tools to assess potential health benefits of regulations. The Drinking Water Research Multi-Year Plan is currently under revision.

The Water Quality Research Program in ORD provides the research to protect human health and the environment in support of the Clean Water Act. The research program is addressing the need for new or improved methods, approaches, and tools to assess, restore and protect aquatic systems and provide measurable improvement in water quality.

The multi-year plan for water quality research defines the research needed to protect and restore our nation's drinking water sources. Research is focused on water quality management, watershed management and source control management. The Water Quality Multi-Year Plan is currently under revision.

**Goal 4: Healthy Communities and Ecosystems
Human Health Risk Assessment Multi-Year Plan (<http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=161757>)**

Human Health risk assessment research is a process by which information is analyzed to determine if an environmental hazard might cause harm to exposed persons. It is the essential intermediary means by which primary data and published literature are compiled, analyzed and summarized for application to decision-making in real-world situations. Risk assessment in the federal government is based on the tenets outlined by the National Academy of Sciences (NAS 1983, 1994), namely hazard identification, dose-response assessment, exposure assessment, and risk characterization, as a foundation for subsequent risk management decisions. This science-based framework for decision-making is central to the U.S. EPA's implementation of its statutory responsibilities and to its mission to protect human health and the environment. The Human Health Risk Assessment (HHRA) MYP serves as a primary EPA mechanism to implement this process, linking laboratory and field science with the use of this information by EPA Programs, Regions and the broader community. To achieve this goal, the HHRA program directs efforts toward by: 1) providing qualitative and quantitative health hazard assessments of priority environmental

contaminants for incorporation in applied risk assessments (these assessments are exemplified by the Integrated Risk Information System (IRIS) Toxicological Reviews and Summaries, reference doses (RfDs), reference concentrations (RfCs), oral cancer slope factors (CSF) and cancer inhalation unit risks and Provisional Peer Reviewed Toxicity Values (PPRTVs)); 2) preparing Integrated Science Assessments (ISAs; formerly Air Quality Criteria Documents (AQCD)) for criteria air pollutants as a mandated component of EPA's review of National Ambient Air Quality Standards (NAAQS); 3) conducting environmental risk assessments of national importance, such as potential health impacts in the aftermath of Hurricane Katrina and Rita, the attack on the World Trade Center, and the reassessment of the health risks posed by dioxin; 4) developing models, methods and guidance to incorporate the latest scientific advances into EPA risk assessment practice, thereby maintaining the scientific quality and objectivity of EPA assessments consistent with the state-of-the-science; and 5) identifying, evaluating and conveying to the scientific community key uncertainties and research needed to improve health risk assessments through laboratory, field and methods research.

The principal purposes of ORD's MYPs are planning and communication – communication among ORD laboratories and centers, and communication between ORD and the EPA Programs, Regions, and broader science community. The risk assessment MYP differs from other ORD MYPs in that it does not describe plans for conducting or funding primary research. Rather, the HHRA program draws on data and research for developing primary methods generated under other ORD MYPs. Activities under the HHRA program also receive substantial information from the published literature and other federal, private, and international organizations. This information is then analyzed and prepared for use by EPA Programs and Regions to respond to their regulatory and decision-making needs in a timely manner.

| Activities | Output | Applicable Outcome Measure | | | Point of Contact |
|--|---|---|---|---|--|
| | | Short-term (awareness) | Intermediate (behavior) | Long-term (condition) | |
| <p>-Model development and application of the integrated exposure and uptake biokinetic model (IEUBK) for lead and other metals</p> <p>-Conduct independent reviews of the scientific validity of intentional dosing human pesticide studies to assist the Office of Pesticide Programs in their re-registration evaluation of the scientific and ethical attributes of these studies</p> | <p>-Improve the quality and timeliness of assessments; focus development and incorporation of scientific advances into risk assessment methods and products</p> <p>-Improve the alignment of ORD laboratory and center research and programs</p> <p>-Increase technical support to Program offices and Regions.</p> | <p>Decisions on the type and extent of external peer review and finalization procedures are often made late in the assessment process as the science unfolds and areas of controversy become apparent. These late decisions are not amenable to advance planning on a chemical-specific basis in the Agency multi-year planning process. Recognizing, however, the importance of these individual, major assessments, the HHRA program has sought to maximize information on individual substances without compromising its ability to define ambitious, yet realistic, future APG targets.</p> | <p>Decisions on the type and extent of external peer review and finalization procedures are often made late in the assessment process as the science unfolds and areas of controversy become apparent. These late decisions are not amenable to advance planning on a chemical-specific basis in the Agency multi-year planning process. Recognizing, however, the importance of these individual, major assessments, the HHRA program has sought to maximize information on individual substances without compromising its ability to define ambitious, yet realistic, future APG targets.</p> | <p>LTG1-Agency, state, and local risk assessors use the state-of-the science health hazard assessment information provided on priority substances in their decisions and actions to protect human health from risks posed by environmental pollutants.</p> <p>LTG2-EPA programs, states, and other risk assessors use the risk assessment models, methods, and guidance provided to enhance, through the incorporation of contemporary scientific advances, the quality and objectivity of their assessments and decision-making on environmental health risks.</p> <p>LTG3-Provide OAR with information in its review of the NAAQs to protect public health and the environment with an adequate margin of safety.</p> | <p>Name/Org: John Vandenberg, ORD/NCEA Tel: (919) 541-4527 E-mail: vanderberg.john@epa.gov</p> <p>Name/Org: Jason Edwards, ORD/OSP Tel: (202) 564-5568 E-mail: edwards.jason@epa.gov</p> |

Land Research Program Multi-Year Plan (<http://www.epa.gov/ord/npd/pdfs/Land-MYP-Final-07-19F.pdf>)

The Land Research Program (LRP) MYP puts forward ORD’s strategy for planning and conducting research in response to the Office of Solid Waste and Emergency Response (OSWER) and Regional priorities for the LRP; authorizing legislation (e.g., Superfund Amendments and Reauthorization Act [SARA] 9660b; resource Conservation and Recovery Act [RCRA]); linkage to the EPA Strategic Plan, appropriate research areas under the Land Preservation and Restoration Goal; Board of Scientific Counselors (BOSC) and EPA Science Advisory Board (SAB) peer reviews; and the National Academy of Sciences (NAS) and other resource documents. The LRP MYP is built upon two previous reports, the Contaminated Sites MYP and the RCRA MYP. The ORD Executive Council and the EPA SAB, in their review of these two plans, endorsed the combination of the plans and the development of an integrated research program. The LRP has two primary purposes: 1) to provide improved scientific knowledge and develop and apply more cost-effective tools, models, and methods to inform decisions on land restoration; and 2) to provide improved scientific knowledge and develop and apply more cost-effective tools, models, and methods to manage material streams and inform land revitalization decisions.

| Activities/ Resources/ /Partners | Output | Applicable Outcome Measure | | | Point of Contact |
|--|---|---|---|--|--|
| | | Short-term (awareness) | Intermediate (behavior) | Long-term (condition) | |
| <ul style="list-style-type: none"> -Characterize and assess risks posed by contaminated sites, resource conservation, and waste management activities -Development/assessment of waste remediation and management alternatives -Characterize and assess risks posed by contaminated sites, resource conservation, and waste management activities -Development/assessment of waste remediation and management alternatives | <ul style="list-style-type: none"> -Data, technical expertise and knowledge, leading to publications white papers, assessments, user guides, computer models, and databasses | <ul style="list-style-type: none"> -Clients use ORD research products to inform and issue advice, guidance and policies about clean-up, corrective actions and waste management decisions -Provide critical assessment techniques and advanced fate and transport modeling constructs for bioaccumulative chemicals for sites with extensive contamination, high remedial costs, or other complex issues -Develop tools and approaches to evaluate | <ul style="list-style-type: none"> -Program Offices, Regions, states and other stake-holder groups use the advice and guidance to implement the policies that are incorporated in ORD’s research products - Improve the capability to predict and manage residuals after dredging operations -Evaluate innovative approaches for sediment remediation -Develop site characterization and analytical tools for contaminated ground water | <ul style="list-style-type: none"> LTG1- Develop research products and services needed for mitigation, management, and long-term stewardship of contaminated sites LTG2- Develop research products and services needed to manage material streams, address emerging material streams, and conserve resources | <ul style="list-style-type: none"> Name/Org: Randy Wentzel, ORD Tel: (202) 564-3214 E-mail: wentzel.randy@epa.gov Name/Org: Jason Edwards, ORD/OSP Tel: (202) 564-5568 E-mail: edwards.jason@epa.gov |

| Activities/ Resources/ /Partners | Output | Applicable Outcome Measure | | | Point of Contact |
|-------------------------------------|--------|---|--|--------------------------|------------------|
| | | Short-term (awareness) | Intermediate (behavior) | Long-term (condition) | |
| | | transport of contaminants from sediments -Provide hybrid modeling approaches using empirical field data and bioaccumulation models to extrapolate BAFs and BSAFs for PBTs across ecosystems, species, and time -Provide monitoring, measurement, and benthic screening methods and tools to characterize, assess, and communicate conditions. | sites -Develop sampling, analytical, modeling, and management approaches to support vapor intrusion assessments -Complete fuel composition studies and enhance capabilities of the Hydrocarbon Spill Screening Model | | |

Goal 6: Cross-Cutting Strategies:
<http://www.epa.gov/osp/ej.htm>
<http://www.epa.gov/osp/tribes.htm>

ORD is engaged in a wide variety of activities designed to facilitate information sharing amongst our various labs, centers, and offices. ORD is uniquely positioned within EPA in that the Office does not focus in one media area. Rather, ORD uses its personnel and other resources to address EPA's science and research needs from a cross-media perspective. The activities list in the following section are representative of some of the programs in which ORD is actively engaged.

| Activities | Output | Applicable Outcome Measure | | | Point of Contact |
|------------|--------|----------------------------|----------------------------|--------------------------|------------------|
| | | Short-term (awareness) | Intermediate (behavior) | Long-term (condition) | |
| | | | | | |

| Activities | Output | Applicable Outcome Measure | | | Point of Contact |
|--|---|----------------------------|----------------------------|--|--|
| | | Short-term (awareness) | Intermediate (behavior) | Long-term (condition) | |
| <p>RD EJ Coordinator will work more closely with ORD's National Program Directors (NPD) in order to ensure EJ-related priorities are considered during earliest stages of ORD strategic planning.</p> <p>- ORD will continue to support the NEJAC by providing research products and expert advice.</p> <p>-ORD will continue to engage NEJAC to ensure that research products/plans address identified priorities</p> <p>- ORD will Co-Chair the National Community Involvement Training Conference, to be held in Seattle, WA</p> <p>- Link current/future research goals/priorities with EJ priorities via stronger communication with the Agency's Program Offices.</p> <p>-ORD will continue its efforts to strengthen the lines of communication between ORD and the Program and Regional Offices.</p> <p>-Continue to sponsor operation of the National EPA-Tribal Science Council (TSC).</p> | <p>-ORD's internal capacity-building activities are all designed to facilitate greater, and more immediate, communication amongst ORD's laboratories, research centers, and offices (L/C/O). The ORD EJ Coordinator leads the ORD Environmental Justice Communication Network (ComNet). The ComNet was formed for the purpose of strengthening ORD's internal communications, as they relate to environmental justice. This group is comprised of an EJ lead person in each of ORD's L/C/O; and is charged with keeping the ORD EJ Coordinator current and informed, as to activities with particular EJ-related relevance. The ComNet also facilitates EJ-related training throughout ORD, ensuring that all 2900+ ORD employees understand the importance and relevance of environmental justice to our research and other products.</p> <p>-Develop a better understanding of the priority science issues of tribes from across the nation and EPA's ability to address these issues and consider them as part of its formal planning process; reach consensus on collaborative approaches for addressing priority scientific issues</p> <p>-Promote partnerships between tribal and EPA scientists in the development and application of sound science</p> <p>-Facilitate coordination with other Agencies and organizations to more effectively respond to issues.</p> | | | <p>-ORD employees will gain a better understanding of the principles of EJ, so that we can do a better job of integrating those principles into our research and other programs.</p> <p>- Closer communication will facilitate increased timeliness, and better information-sharing, to interested parties, outside of ORD.</p> <p>-The NCIC provides ORD, and EPA staff, with the opportunity to communicate, directly, with stake-holders at the federal, state and local levels.</p> <p>-The TSC seeks to increase tribal involvement in EPA's scientific activities - building bridges between tribal and Agency programs.</p> | <p>Name/Org: Jason Edwards, ORD/OSP Tel: (202) 564-5568 Email: edwards.jason@epa.gov</p> <p>Name/Org: Monica Rodia, ORD/OSP Tel: (202) 564-8322 Email: rodia.monica@epa.gov</p> |

