



# EPA Region 9 Air Toxics Monitoring Program Evaluation

*Air Toxics Data Analysis Workshop*  
Chicago, IL

October 2-4, 2007

# Background



- Interest in having a better understanding of air toxics monitoring activities in EPA Region 9
- Identified core EPA team to guide evaluation effort
  - ↳ James Hemby – OAQPS
  - ↳ Mike Jones – OAQPS
  - ↳ Meredith Kurpius – Region 9
  - ↳ Michelle Mandolia – EPA Evaluation Support Division
- Evaluation effort selected by EPA Evaluation Support Division (OPEI) to receive funding for contractor support
  - ↳ Ross & Associates Environmental Consulting
- Completing data collection phase now and aiming to have final report done by December 2007

# Evaluation Objectives



- Objective 1: Characterize air toxics monitoring programs across Region 9
- Objective 2: Assess the monitoring network's design and the extent to which it meets stated objectives
- Objective 3: Distinguish ways in which Region 9's monitoring network contributes to the objectives of the national Air Toxics Monitoring Program and areas for improvement
- Objective 4: Identify potential performance metrics for evaluating air toxics monitoring programs at national and regional levels

# Evaluation Scope



Evaluation effort focuses on:

- 🌐 State and local air agencies within EPA Region 9
- 🌐 Air toxics monitoring networks and activities designed to collect data for 1+ years

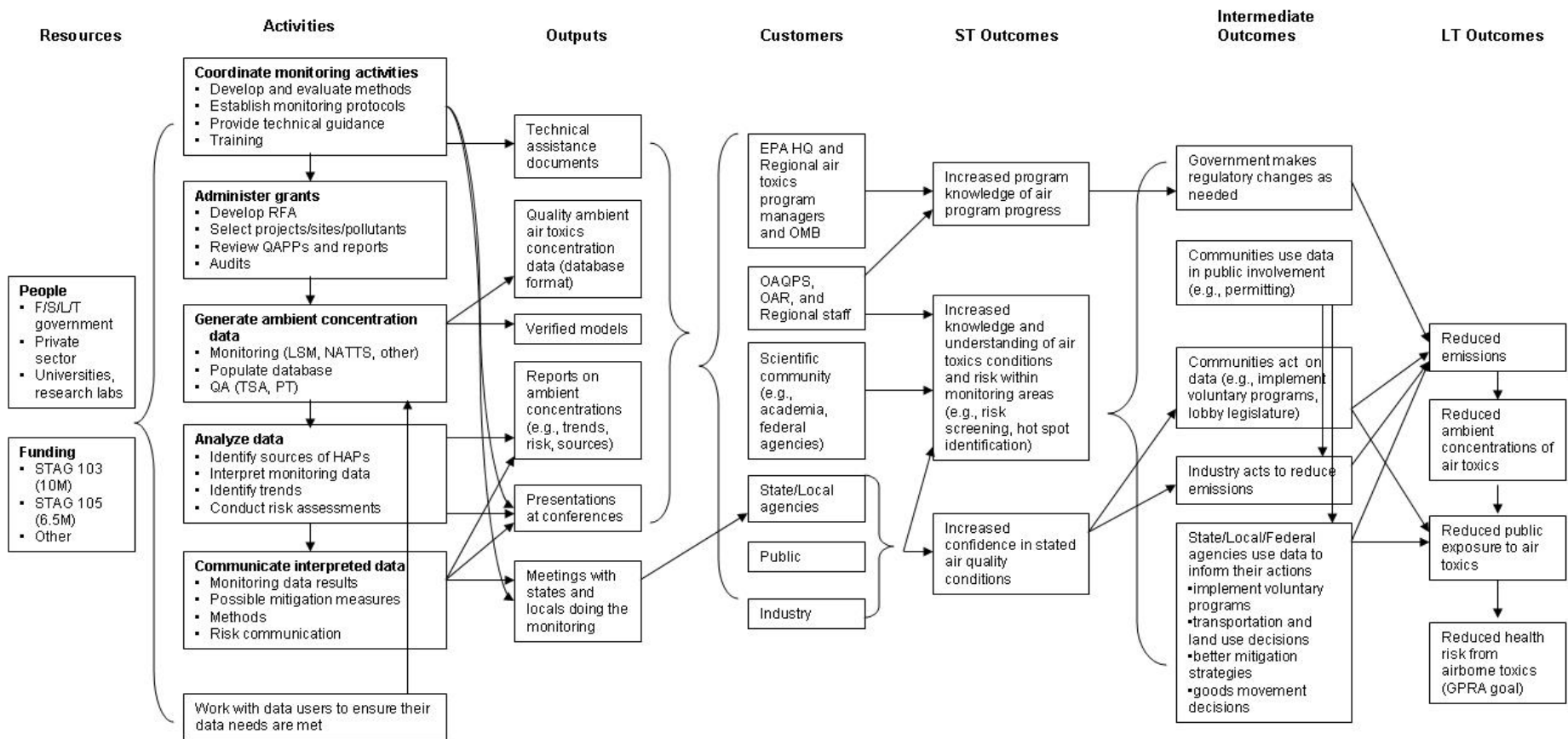
EPA Region 9



# Air Toxics Monitoring Evaluation: A Logic Model Approach



Program purpose: To inform actions that reduce public exposure to hazardous air pollutants by monitoring ambient air toxics concentrations.



External factors: Level and type of resources available, how customers use the data, the objectives of state and local agencies (which may differ from EPA's objectives), differing levels of ability to account for how funds are used depending on grant type, no national statutory requirement to monitor any HAPs.

# Logic Model of EPA's Air Toxics Monitoring Program

Program purpose: To inform actions that reduce public exposure to hazardous air pollutants by monitoring ambient air toxics concentrations.

## Resources

People

Funding

## Activities

Coordinate monitoring activities

Administer grants

Generate ambient concentration data

Analyze data

Communicate interpreted data

## Outputs

Reports on ambient concentrations (e.g., trends, risk, sources)

Presentations at conferences

## Customers

EPA HQ and Regional air toxics program managers and OMB

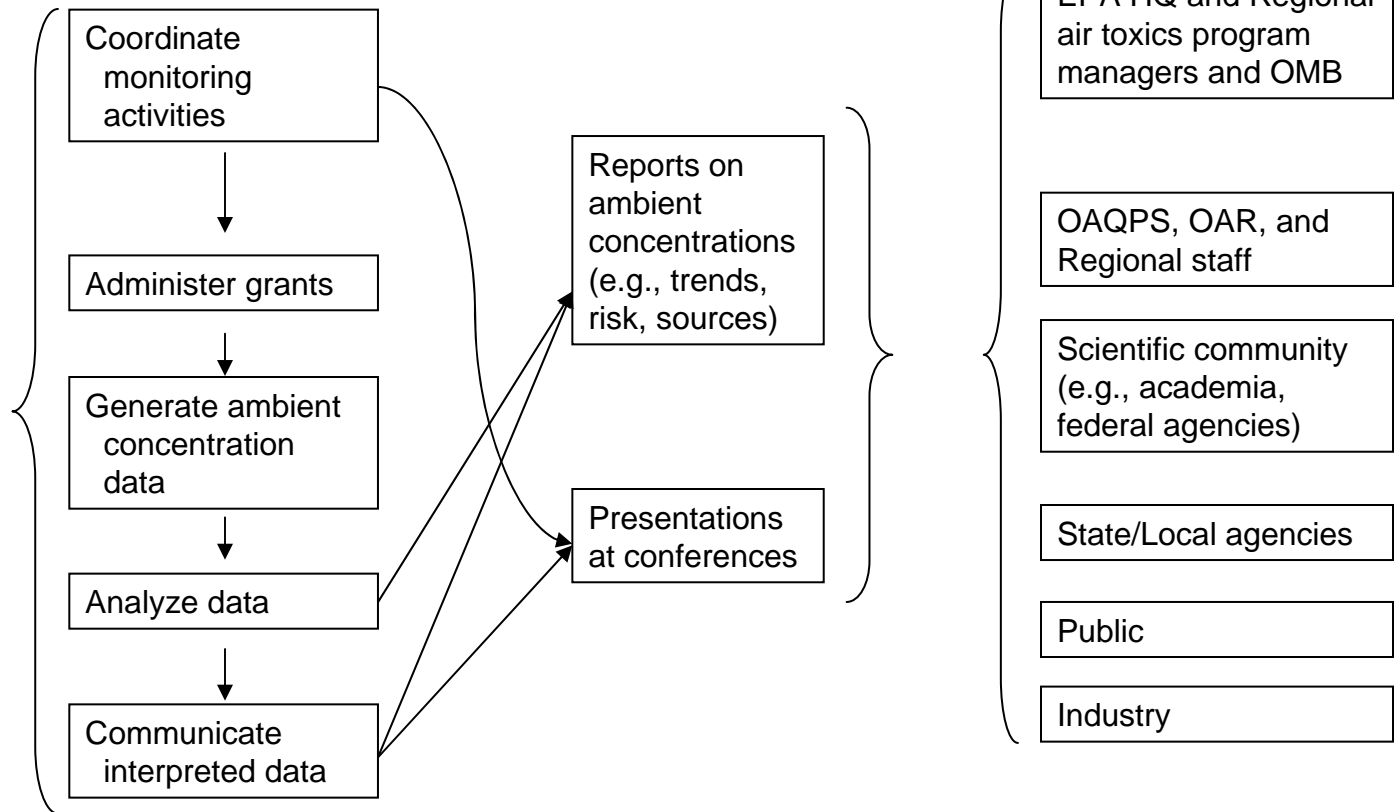
OAQPS, OAR, and Regional staff

Scientific community (e.g., academia, federal agencies)

State/Local agencies

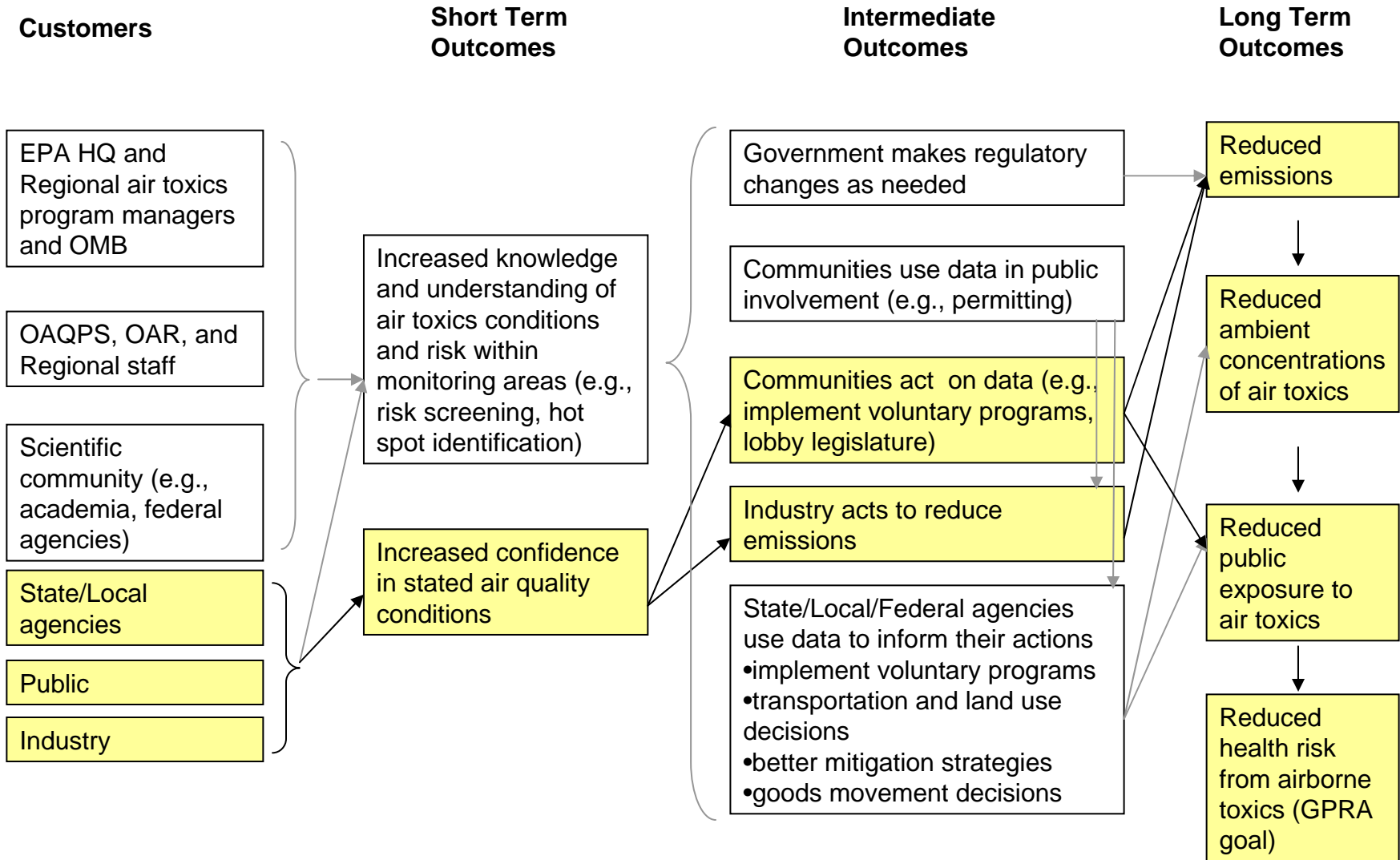
Public

Industry



# Logic Model of EPA's Air Toxics Monitoring Program

Program purpose: To inform actions that reduce public exposure to hazardous air pollutants by monitoring ambient air toxics concentrations.





# Initial Observation #1: R9 Air Toxics Monitoring Activities

→ *There is an exciting array of air toxics monitoring activity in R9, but it's a patchwork of capacity and approaches*

California Air Resources Board: 20 AT sites; short-term studies; agricultural chemical/pesticides air toxics studies; PT samples.

Bay Area AQMD: 20 AT sites; NATTS

South Coast AQMD: NATTS; short- and long-term studies; MATES I, II, and III; Ports of Long Beach and LA

San Diego APCD: 6 AT sites, LSM for community risk, Cr+6





# Initial Observation #1: (cont'd)

## R9 Air Toxics Monitoring Activities

Placer County APCD: LSM project to monitor DPM from local rail yard, using near-roadway AT monitoring for land use decisions

Joint Air Toxics Assessment Project (JATAP): The Joint Air Toxics Assessment Project (JATAP) is a collaborative air toxics evaluation effort between state, county, and tribal representatives in the Phoenix area

Arizona DEQ: NATTS, short-term studies, JATAP

Hawaii DOH: AT monitoring at Pearl City

Nevada DEP: Hg emissions/deposition from mining operations (LSM)

## Initial Observation #2: Monitoring Program Objectives



- *Stated Objectives for EPA's Air Toxics Monitoring Program*
  - ↪ Establish trends and evaluate effectiveness of air toxics reduction strategies,
  - ↪ Characterize ambient concentrations in representative monitoring areas,
  - ↪ Provide data to support and evaluate models and emissions inventories, and
  - ↪ Assess human exposure and characterize risk.
  - ↪ Sub-objectives have been defined as program accountability, problem identification, and support of science.

## Initial Observation #2: (cont'd) Monitoring Program Objectives



- *State and local air toxics monitoring program objectives are largely consistent with national monitoring objectives*
  - ↪ Some agencies report that evaluation of models with monitoring data is challenging or not feasible in practice
  - ↪ Air toxics monitoring plays an important role in the regulatory development and evaluation process in some jurisdictions
  - ↪ Community scale monitoring data is critical for securing voluntary emissions reductions (Roseville rail yard)
  - ↪ Some state and local agencies report they would prefer to prioritize monitoring of air toxics that are prevalent in their region, which can conflict with national objectives to develop a baseline dataset for compounds common to other regions

## Initial Observation #3: Community Scale Monitoring Grant Program



- *Community scale grant program yielding important successes, but some opportunities may be missed*
  - ↳ Opportunities to leverage studies on air toxics monitoring “source profiles” and results from mitigation efforts for similar source types
  - ↳ Consider having themes for the grant program to build robust knowledge base in certain areas
  - ↳ Short-term funding horizon (2 years) may not be sufficient to realize full value of initial investments



## Initial Observation #4: Sampling and Analysis Methods

- *Sampling and analysis methods for air toxics monitoring are not always consistent across jurisdictions*
  - ↳ Degree of consistency varies by pollutant
  - ↳ Equipment (and cost) can be an important factor in method used
  - ↳ Outside of NATTS, lack of forums to foster greater consistency in methods
  - ↳ Cross-jurisdiction consistency may not always be best
    - ↷ Where significant historical trends data exists, changes in methods can break trend comparability (trade-off)



## Initial Observation #4: (*cont'd*) Sampling and Analysis Methods

- *Common sampling and analysis concerns include:*
  - ↳ Monitor siting
  - ↳ Sampling frequency (e.g. 1:6 or 1:12)
  - ↳ Minimum detection levels and/or other reporting levels
  - ↳ Data flagging (particularly within the AQS database)
  - ↳ QA methods
    - ↔ Performance testing for NATTS
    - ↔ Best practices (e.g., blind audits, NIST samples, round robin lab analyses, zero blanks)

# Initial Observation #5: Data Analysis, Access, and Reporting



- *Interest in greater sharing of air toxics monitoring results, findings, trends information*
  - ↳ Interest in analysis of results from NATTS data
  - ↳ Interest in increased sharing of data, findings, and results of state and local monitoring efforts
    - ↷ Organize community scale monitoring results, analysis, papers, etc. by source type or pollutant type
    - ↷ AQS alone is not sufficient clearinghouse; supplement with effective website clearinghouse
  - ↳ Interest in common, shared ways of comparing and analyzing air toxics datasets

# Initial Observation #6: Cross-Agency Communication



- *Interest in increased communication and information sharing on air toxics monitoring at regional and national scale*
  - ↪ Limited information sharing exists outside of NATTS; sharing often relies on personal relationships
  - ↪ Interest to foster discussion on emerging air toxics monitoring issues (e.g., advances in sampling and analysis methods, new pollutants to examine, effectiveness of mitigation measures, new program design, etc.)
  - ↪ How to best utilize existing conferences, groups, calls, websites, etc. to foster greater communication and information sharing?



## Initial Observation #7: Training



- *Interest in greater cross-agency coordination and collaboration on air toxics monitoring training*
  - ↪ Perception that sampling methods/ best practices vary widely
    - ↪ Little training available (beyond training from equipment manufacturers)
  - ↪ Interest in web and other mechanisms to share training resources (presentations, SOPs, etc.) for both sampling and analysis



## Next Steps

- Final report will be available in December 2007 on EPA's website
- For more information, contact:

Meredith Kurpius

Air Division - EPA Region 9

[Kurpius.Meredith@epa.gov](mailto:Kurpius.Meredith@epa.gov)

(415) 947-4534