



Emission Inventory Improvement Program

July 1999

U P D A T E

In This Issue

This issue of the *EIIP Update* is very different from previous editions. In the past, we have reported on the progress made by various committees, products that have been recently released, and described work in progress. This issue focuses on future plans and activities. Your comments and suggestions on these new directions are welcome.

The main goal of EIIP from its beginning was to provide guidance documents that describe the various activities necessary to collect, calculate, and report emissions data to the emissions inventory (EI) community. The results of this effort are an eight-volume set of documents that is still growing. The consensus of both those preparing and using these documents is that most of the major areas have been addressed; some specific source categories or other select issues still need work, but the existing body of work is adequate for a majority of state and local agencies.

Now that we have successfully addressed the most immediate needs of the inventory community, it is now time to turn our attention to other areas. This issue of the *Update* contains a summary of a series of Steering Committee brainstorming sessions that looked at new directions for the program. Each of the EIIP working committees has also been looking toward the future and their ideas appear in this issue as well.

The results of this self-examination will be combined with the outcome of an “EIIP reinvention” workshop to be held later this summer. The outcome will be a new plan and direction for EIIP. Our goal is to have the future plan finalized and the organizational structure in place for the beginning of fiscal year 2000.

EIIP “Futures” Workshop Planned This Summer

An EIIP planning workshop is scheduled for later this summer. Workshop participants will use the material prepared by the Steering Committee and working committees to develop a framework for the continuation of EIIP. Current Steering Committee and committee cochair will be joined by individual experts not now associated with the program. Participants will be asked to develop project-level plans, develop a list of priorities, and ensure that the entire program presents a cohesive picture.

The EIIP organizational structure will be realigned to accommodate the new projects and work areas. We anticipate that many additional EIIP members will be necessary to support the new directions.

EIIP Steering Committee Completes Brainstorming Sessions

The EIIP Steering Committee has taken the lead in defining new directions for the program. To make sure that fresh ideas were included in the deliberations, several individuals from outside the program were invited to participate. During the discussions, the group identified new areas in which EIIP can contribute its expertise. More needs were listed than there are resources to support (both personnel and money). The ideas, along with suggestions from existing committees, will form the basis for the planning workshop.

Potential activities can be divided into three major categories: products, training and outreach, and institutional. Specific ideas for each category are outlined below. Your comments on these ideas as well as other suggestions in this issue of the *Update* are welcome and details on providing them appear at the end of this issue.

I. Products

- ◆ Techniques development
 - Point sources
 - Area sources
 - Mobile sources
 - On-road
 - Off-road
 - PM
 - PM-2.5
 - Other related PM emissions
 - NH₃
 - Toxics
 - CO₂
 - Biogenic sources
 - Projection procedures
- ◆ Develop new emission factors
 - PM-2.5
 - NH₃
 - Other PM-related sources
- ◆ Develop activity indicators (surrogates)
 - NH₃
 - Other PM-related sources
 - Projections

- ◆ Tools
 - Speciation profiles
 - Temporal profiles
 - Spatial surrogates
 - Projection techniques
 - Quality assessment techniques (performance evaluations)
 - Emissions models
 - Size distribution profiles
 - Process category code system
- ◆ Impacts of control equipment on emission estimates
- ◆ Produce specific inventories using previously developed EIIP products
 - Area source VOC inventory
 - Toxics inventory
 - NH₃ inventory
 - PM-2.5 precursor inventory
- ◆ Data reporting/transfer
 - Review and update the EIIP Data Model as needed
 - Develop alternative data exchange protocol(s) based on the EIIP Data Model

II. Training & Outreach

- ◆ Provide guidance to the EPA, State and Territorial Air Pollution Control Officials/Association of Local Air Pollution Control Officials (STAPPA/ALAPCO), and Air and Waste Management Association (AWMA) on needed EI training
- ◆ Sponsor annual technical EI issues workshop
- ◆ Facilitate agency benchmarking (funds for agency personnel to visit each other)
- ◆ Facilitate mentoring program (one-on-one counseling)
- ◆ Act as a clearinghouse to gather and disseminate information about new ideas and new or emerging issues
- ◆ Communicate availability of all EIIP products

III. Institutional

- ◆ Continually assess the EI needs of the scientific and regulatory community
 - Work with multistate organizations to determine needs of member states
 - Determine needs for special projects
 - Sponsor or cosponsor speciality workshops and conferences (e.g., EI preparers, emission modelers)

- ◆ Encourage needed change within organizations to:
 - Improve interaction between different groups within state and local agencies collecting and using/reporting EI data
 - Improve coordination between EPA groups issuing EI guidance (Office of Air Quality Planning and Standards [OAQPS] and Office of Mobile Sources [OMS])
 - Improve coordination between regional organizations
 - Improve interaction between top-down (national) and bottom-up (local) inventories

- ◆ Encourage managers and decision makers to incorporate best quality practices into all EI activities
 - Raise the awareness and commitment level of managers and decision makers related to the importance of quality EI data
 - Promote a program of continuous improvement in all EI activities
 - Benchmarking
 - Progress tracking

- ◆ Promote consensus building by state/local/federal agencies, industry, and the public sector in developing emission inventories (e.g., common formats)

EIIP Committees' Ideas on Future Direction

Point Sources Committee

The following ideas and issues were discussed by the EIIP Point Sources Committee (PSC) and presented for further consideration.

- ◆ Conduct more studies on different issues pertaining to control device efficiencies, malfunctions, and their effects on emission estimates. These are important issues and while Chapter 12, which is being drafted to address these issues, will be useful to the EI community, more is needed.

- ◆ Develop guidance targeted for a more systematic approach to EI preparation. The PSC has covered a lot of industrial categories in detail, but EI preparers could use a guidance document that describes a systematic approach to preparing an inventory.

- ◆ Develop guidance at the national level for data collection procedures. PSC members see a great need for national consistency in data collection activities. A standard data collection form, or a standard list of questions to be asked by an agency, would be useful.

- ◆ Prepare more basic information in an easy-to-use format. This would primarily include emission factors in a format like that used in the 1990 AFSEF (AIRS Facility Subsystem Emission Factors) document. Committee members do not

think FIRE or the Air CHIEF CD-ROM are convenient or easy to use. They like having the emission factors printed in hard copy and said FIRE does not easily provide a written report. The PSC could provide the current information in FIRE as a written document and thought it would be useful as well to inventory preparers.

- ◆ Develop guidance on developing and applying surrogate emission factors.
- ◆ Conduct more standardized basic training. One idea was to schedule training for the day before the Emission Factor and Inventory Group's EI workshop each year, which would allow more state agency workers to attend both the training and the workshop. Current courses offered do not always provide the basic level of detail needed by the entry-level EI preparer. Input is needed from EI preparers about what their needs are.
- ◆ Develop World Wide Web-based training courses. These would be available to everyone on-line. We could use our documents and walk the inventory preparer through a "how to" session.
- ◆ Do more outreach and education. We need to let all agency personnel know about the EIIP work products. The quarterly newsletter is more of an update for managers and does not reach the inventory preparers.
- ◆ An EIIP help line. This could be similar to InfoCHIEF, where inventory preparers could call with technical questions and for information on available guidance tools.

Area Sources Committee

The following list of suggested work areas and other ideas was submitted by the Area Sources Committee for the new "reinvented" EIIP.

- ◆ Committee members still believe there is a need for more inventory methodology guidance documents, particularly for area source air toxics categories. Existing guidance for these is very weak. Also, more guidance is needed for PM source categories.
- ◆ Development of training materials for inventory methods and data management activities is needed. This would cover the application of inventory methods and step-by-step procedures for preparation and submission of data to the National Emission Trends (NET) database. Training could be developed as computer-based training as well as "live" workshops presented to state and local agencies.
- ◆ Emissions inventories are still hampered by the lack of high quality emission factors, species allocation factors, and temporal allocation factors. In addition to needed financial support, other activities to enhance the emission factor improvement process are recommended. Continuation of the Adopt-A-Factor

program is recommended. Perhaps a joint EPA/state/local peer group working in conjunction with an Adopt-A-Factor-type program would help make it more effective.

- ◆ Recruitment of more state and local agency personnel to work in the new program is a must.
- ◆ Development of procedures to avoid possible double counting of area source air toxic emissions that may be already be included in the Toxic Release Inventory (TRI) and Maximum Achievable Control Technology (MACT) major source databases is needed.
- ◆ Development of more emissions models for important area source categories is needed to support development of more accurate emissions estimates as well as better spatial and temporal resolution of emissions needed for air quality modeling and risk assessment activities.
- ◆ Development of a computer database management system for area sources is needed for state and local agencies, building upon the specifications of the EIIP Data Model.
- ◆ Peer group coordination is needed between EI developers and the atmospheric and receptor modeling communities to work jointly to improve the emissions data needed for modeling.
- ◆ Advancement of Geographic Information System (GIS) technologies is needed for the spatial allocation and management of emissions data.

Projections Committee

The Projections Committee has been continuing to identify and classify major source category methods and models and examine alternatives for projecting emissions changes in the future. Drafts of these alternatives and methods are available on the committee's World Wide Web site (http://www.epa.gov/ttn/chief/eiip/eiip_pj.htm), and a final draft document is scheduled to be available at the end of July. A brief summary of currently and soon-to-be-available documents and resources precedes suggestions for "reinventing" EIIP.

Available Now

- ◆ Currently available on the EIIP Projections Committee home page are drafts of the following chapters: Projections Overview, Point Source Emission Projections, Stationary Area Source Emission Projections, Nonroad Mobile Source Emission Projections, and the Projection Methods Discussion Paper.
- ◆ Each of the chapters listed above provides a source category description to which the projection methods discussed in each chapter applies, an overview section that provides the basic equations and indicates the necessary factors for emission

projection activities of that source category, discussion of the necessary and alternate factors used in the emission projection itself, and known models and alternative methods for projecting either the activity or emissions of that category.

- ◆ In addition to model and method descriptions, each document has been prepared with a “live” format with hypertext links to related on-line chapter models, methods, and activity. Each chapter also presents a table of data sources that can be used in the projection of activity or emissions for the chapter’s source category.

Coming Soon

- ◆ The EIIP Projections Committee is currently working on its draft chapter for highway mobile source emission projections. This chapter will contain information on EPA’s OMS Fuel Consumption Model 4.1 as well as information on OMS’s revised vehicle miles traveled growth indicators scheduled to be released later this year.
- ◆ The final draft of the *Projections Guidance Document* is scheduled to be available for peer review at the end of July with a final version due for release at the end of September.

Future Plans

- ◆ Validation of growth indicators and economic projection tools, possibly with a comparison of past emission projections and ambient monitoring data, is needed.
- ◆ Evaluation of growth surrogate assignments is needed as well as determination of which categories would best be grouped under similar projection methods.

Quality Assurance Committee

The following ideas and issues were discussed by the Quality Assurance (QA) Committee and offered for consideration in defining new directions for EIIP.

- ◆ Develop software tools to accomplish basic data checking for inventories. Other separate modules are also possibilities for point, area, and mobile sources. Regional groups (e.g., Mid-Atlantic Regional Air Management Association or MARAMA) may have information helpful for the checks such as insights on the commonality of data among states in their region. Some of these factors (e.g., demographic factors, socioeconomic factors, climate conditions) may play a role in the types of checks that are developed.
- ◆ Conduct “ground truthing” on the activity data used to estimate emissions for specific source categories. This includes checking the reasonableness of the estimation procedure and the estimates produced from it (e.g., gasoline distribution and how fuel throughput data are obtained). This idea could be expanded to include many different categories and estimation procedures. This

would not only yield useful data on the validity of specific emissions estimates, it would also point out where procedural methods need significant revision and updating.

- ◆ Survey permit-issuing groups across the country to identify which have “diagnostic” software to check permit application data for problems prior to further action on permit requests. Similar permit data-checking routines could be compared and possibly composited into a summary routine that could be applied more generically. The extent to which this could be electronically automated is unclear, but this could be determined during the evaluation process.
- ◆ Conduct audits or inspections of state and local agency inventory programs to investigate methods and data sources. These would be done by agencies’ requests and provided as a service to evaluate their own internal systems. The audit could be as narrow or as broad as an agency desired. The results of such an audit could identify areas where the agency needed more intensive training or more specific needs such as database support. EPA Regional Offices may also indicate that such audits or inspections might be helpful.
- ◆ Make better use of the World Wide Web as a means to communicate, including interactive Web sites and Web-based training.
- ◆ Do more to correlate emissions with real-world pollution levels to both validate inventories and make sure the correct problem is being addressed, which pertains to the topic of ground truthing. There may be a particularly strong audience for this in the greenhouse gas and air toxics communities. This kind of work also would help point out where existing estimation methods are flawed.

PM-2.5 Committee

The EIIP PM-2.5 Committee has two products for release on the EIIP Web site. The first is an overview of PM-2.5 sources and the inventory process. The second is World Wide Web site cataloging and linking resource sites for developing a PM-2.5 emissions inventory.

The committee has discussed ideas for future projects, pending decisions on the overall direction and goals for the EIIP. There is a strong feeling that work is needed to support the PM-2.5 inventory effort. Specifically, the following suggestions were discussed.

- ◆ Provide support for training activities related to PM-2.5 emissions inventory preparation.
- ◆ Support development of consistent activity databases for selected source categories that might be difficult for each state to address individually. These categories would likely be area sources that are of importance on the national scale. Giving priority to activity data for categories that could not easily be addressed through surveys was suggested.

- ◆ Support research programs that would quantify the level of PM-2.5 control obtained through existing regulatory activities for other pollutants such as PM-10.
- ◆ Support the refinement of procedures for states or other stakeholders to follow when they develop new emission factors or estimation approaches. Although procedures exist, some additional criteria are needed to help ensure that the EPA accepts those newly developed methods when inventories are developed.
- ◆ Improve the compatibility of toxics inventory data with PM-2.5 and other criteria pollutant inventory data. Currently, these two databases are formatted differently and frequently different estimation methods are used. Reconciling these differences would enhance the application of the data in multiple programs and decrease development costs.
- ◆ Improve databases, factors, speciation, temporal and spatial profiles, and other approaches used to resolve basic daily or annual emission inventory data for modeling applications. In many cases, the approaches are difficult to use, and the results are often based on outdated profiles and assumed operating characteristics. Development of improved seasonal activity data, particularly for PM-2.5 modeling, is specifically needed to support annual concentration levels.

Other Suggestions

The following ideas for reinventing EIIP were not committee-specific, but are worth considering in defining new directions for the program.

- ◆ Investigate the development of emissions factors for specific, high-need categories, particularly for area and mobile sources. Although EIIP was not originally geared to emission factor development, there is still significant interest in this need. One approach would be similar to the previous “Adopt-a-Factor” program where state and local agencies would sponsor work to address specific source categories that were problematic for them and/or their neighboring states. This concept may also extend to regional groups that may have common-interest categories.
- ◆ Develop electronic “workbooks” (using commercially available spreadsheet software) to estimate emissions for some specific source categories. These workbooks would have all the information needed to estimate emissions except activity data, which the user would supply. These would be constructed with emission factors, speciation profiles, allocation algorithms, or the procedures to calculate them.
- ◆ Conduct hands-on focused training at specific state or local agency offices for specific inventory- or emissions-related needs. Such support would only be provided at the request of the agency. It would address specific issues and would not be broad-based inventory training. This was envisioned to be in effect like an inventory SWAT team.

- ◆ Conduct focused surveys of EPA Regional Offices and regional state consortiums to identify more immediate (short-term) tactical issues and longer-term needs pertaining to inventory development, maintenance, and reporting as well as further use in other applications (modeling, permits, control strategies, etc.). This would be an ongoing activity that would identify details and big picture issues and help assign priorities to the issues. A key output could be identifying the level to which inventory issues are similar or dissimilar by region.
- ◆ Improve or create new mechanisms for communicating the latest developments in inventory techniques and data. Consider the use of an inventory hotline that people could call to get direct technical help with problems. This would be more than what InfoCHIEF currently provides, which is geared more to pointing people to references. This was envisioned as a true hotline similar to others EPA has operated whereby the person staffing the line is a well-trained inventory person who is directly capable of helping callers solve their inventory issues. A side benefit of this technique is that the calls would serve to identify what problems people are having and where guidance and new data efforts are needed.
- ◆ Investigate emission estimation, quality assurance/quality control, and data management needs in the air permitting community. This could be done by surveying permitting agencies, permit application reviewers, and permit writers.
- ◆ Investigate relevant issues EIIP could assist with in the area of emissions trading. This topic has become especially important in greenhouse gas inventories. The verification of emissions and emission reductions on a continual basis is of prime importance in the climate change community in light of recent international treaties. Some countries have committed to specific reductions and some of these are being achieved by trading. For trading to be credible, mechanisms must be in place to validate that the claimed trading credits are being achieved.
- ◆ Investigate co-control issues and develop guidance on how inventory developers and permit reviewers should handle these issues. Of particular interest would be co-control of toxics, especially in terms of PM-2.5.
- ◆ Develop more and better procedural guidance for several purposes in the areas of temporal and spatial allocation of emissions. This initiative could be expanded to be more geared to the development and treatment of activity data in general since many of the emissions allocation questions pertain to the activity data.
- ◆ Improve the inventory-related inputs to exposure and risk assessments so they can be of the highest quality in light of Government Performance and Results Act (GPRA) risk considerations and Clean Air Act residual risk efforts. Potential work includes better source category characterizations for the purposes of developing “representative” facility modeling data (e.g., emission release parameters such as stack height and diameter or release temperature).

- ◆ Identify source categories covered by EIIP guidance for which other emissions estimation guidance is also currently available (e.g., from an industry association, the TRI, a state agency). Determine how the various guidance packages differ and how they could best be assimilated into a single common set of procedures. This would likely mean revision of some existing final EIIP documents.
- ◆ Develop a plan and procedure for maintenance and updating of current EIIP documents.

We Want Your Feedback!

Please send your comments on the ideas for reinventing EIIP presented in this issue of the *EIIP Update* or other suggestions to Steve Bromberg by e-mail, phone, or mail by August 13 so that your suggestions can be considered during the EIIP Futures Workshop.

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