The U.S. National Acid Precipitation Assessment Program

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The Acid Precipitation Act of 1980 (Title VII of The Energy Security Act of 1980 - P.L. 96-294) established the Interagency Task Force on Acid Precipitation to develop and implement a comprehensive National Acid Precipitation Assessment Program. The Task Force has issued a National Plan to broadly outline the ten-year research program mandated by the Act. This generalized document is supplemented by a detailed operational research plan for managing the federal research program.

The purpose of the National Acid Precipitation Assessment Program is to increase our understanding of the causes and effects of acid precipitation. The National Program includes research, monitoring and assessment activities that emphasize the timely development of a firmer scientific basis for decision making. This program of policy-oriented research issues Annual Reports describing: research progress; the current state of knowledge about acid precipitation and its implications; and future research needs. The first Annual Report to the President and the Congress was issued in January 1982.

The National Program will use a general strategy that includes:

- Building upon previous efforts to develop a federal acid rain program. The former Acid Rain Coordinating Committee (ARCC) has been reconstituted to form the statutory Task Force; the ARCC draft plan was refined and served as a foundation for developing the current plan.

- Using existing scientific knowledge for timely assessments and, where appropriate, policy recommendations. Currently available data and information from the U.S. and other nations will be critically analyzed and applied where possible.

- Conducting research to develop more knowledge. The emphasis in the proposed research will be on activities that contribute most effectively to establishing a firmer scientific basis for decision making.

- Establishing a long-term National Trends Network (NTN). The development and maintenance of a well-designed acid precipitation (wet and dry) monitoring network is essential for documenting and understanding acid precipitation and its effects. Existing monitoring efforts, such as those of the National Atmospheric Deposition Program (NADP), will be incorporated into the NTN.

- Evaluating information and the policy implications. Information generated by the National Acid Precipitation

Assessment Program and other research efforts in this country and abroad, are expected to contribute significantly to our knowledge. The information produced will be synthesized periodically, subjected to scientific peer review, published and interpreted to guide decisions on future research. The Task Force will report annually to the Congress, the President and the nation on the research program's progress and implications of the existing knowledge on acid rain.

The Task Force will work with all those concerned to ensure that the federal activities are conducted as part of a comprehensive, well coordinated and long-term National Program. The National Program will utilize and coordinate the expertise available in federal and state agencies, universities, industry, private contractors, and research institutions.

Proposed Research

Research is proposed in nine basic categories where more information about acid precipitation is urgently needed. The research tasks described in the National Plan each focus on a specific area and generally involve the coordinated participation of several agencies. The number and extent of the proposed research tasks eventually carried out will depend on the availability of resources in future years. With funding available for FY 1982, the first full year of the research program, work has begun on all priority 1 and 2 tasks and some priority 3 tasks.

Each research task has been assigned one of three priority levels. Priority 1 denotes the most urgently needed research that offers the opportunity for relatively rapid generation of crucial information. Tasks of slightly less urgency are given a priority 2, and priority 3 indicates important research but where the need for results is least urgent.

The Task Force believes that intensive research efforts in the next several years could substantially reduce some key uncertainties about acid rain. Research is being focused on specific questions such as:

- What is the quantitative relationship between emissions of acid precursors and deposition of acids?
- How do chemical and physical atmospheric processes control acid deposition?
- What are the interactions between acid rain and other pollutants affecting ecosystems?
- What is the extent of damaged or sensitive aquatic ecosystems and water resources in the U.S.?
- What is the relative contribution of local versus

distant sources of acidic material?

- How great is the potential for acid deposition damaging forests, crops and soils?

- What are the most cost-effective ways to manage acid deposition?

Numerous other questions about acid rain are being addressed and in some cases many years of research will be necessary to yield definitive answers. The Task Force will develop information and provide it in a timely manner to those charged with controlling pollution sources, such as the U.S. Environmental Protection Agency and the states. No regulatory authority is vested in the Task Force, whose role is to conduct research and supply input to the regulatory process.

The National Program's research tasks, the priorities assigned, participating agencies, and durations are summarized in Table 1.

Organization and Implementation

The Interagency Task Force on Acid Precipitation is jointly chaired by the Department of Agriculture (DOA), the Environmental Protection Agency (EPA), and the National Oceanic and Atmospheric Administration (NOAA). The other participating federal entities are: the Departments of the Interior (DOI), Health and Human Services (HHS), Commerce (DOC), Energy (DOE), State (DOS); the National Aeronautics and Space Administration (NASA); the Council on Environmental Quality (CEQ); the National Science Foundation (NSF); and the Tennessee Valley Authority (TVA). The Task Force also includes four Presidential appointees and the Directors of the Argonne National Laboratory, Brookhaven National Laboratory, Oak Ridge National Laboratory, and the Pacific Northwest National Laboratory.

The main responsibilities of the Task Force are to:

- Develop and update the National Acid Precipitation Assessment Plan;

- Oversee and implement a ten-year comprehensive research program that coordinates and focuses the acid rain activities of the federal agencies;

- Maintain an inventory of federally-funded acid precipitation research projects;

- Develop an annual interagency budget for the fedreal program;

- Provide Annual Reports on the program's progress and policy implications;

- Encourage productive interaction between the federal program and private sector, academic, state and local governmental and international activities; and

- Obtain nonfederal input to the planning, review and program activities.

The Task Force meets at least three times a year to develop budgets, establish objectives, set priorities, approve plans and reports, and conduct program reviews. All federal acid precipitation research and assessment activities are coordinated and integrated by the Task Force to form a cohesive national program.

Individual agencies' projects are carried out in the context of the National Program defined by the current ten-year Plan (as updated and revised by the Annual Reports) and with oversight by the Task Force. Technical Task Groups for each of the nine research categories oversee and facilitate detailed planning of activities in their assigned areas. A Research Coordination Council integrates the outputs of the Task Groups as well as develops and updates the detailed operational research plan for the National Program. A Program Coordination Office serves as the focal point for planning and managing the interagency federal effort. The Office is managed by the Task Force's Executive Director and is responsible for disseminating information and providing liaison with nonfederal activities, other nations and the public. An organization chart for the Task Force is shown in Figure 1.

The role of the Task Force in planning the interagency budget for the National Program is an important aspect of the federal effort. The Task Force develops a coordinated interagency budget for the National Acid Precipitation Assessment Program. By working together through the Task Force, the agencies have established a research program that focuses on addressing national needs while building on the research interests of the individual agencies. The strong interagency planning process eliminates undesirable duplication and avoids crucial omissions in the National Program.

The Task Force sets the research goals for the National Acid Precipitation Assessment Program, identifies the projects needed to meet those goals, and decides which agencies are best suited to conduct the necessary work. The result is a comprehensive program of interlocking projects, with each agency contributing to specific aspects of the overall national effort.

The Task Force maintains a Task Group on international activities. This group is chaired by the Department of State and will assist the Task Force in ensuring that the U.S. National Acid Precipitation Assessment program is effectively coordinated with relevant international activities.

NATIONAL ACID PRECIPITATION ASSESSMENT PROGRAM
SUMMARY OF RESEARCH

Research Task (Coordinating Agency)	Priority	Duration (FY)	Agency Involvement* (Participating = 1) (Contributing = 2) DOA	EPA	NOAA	DOI	DOE	NSF	TVA	Other
A. Natural Sources (NOAA)										
1. Analysis & Assessment of Natural Sources of Acid Deposition	1	1981-1986		2	1	2	2	2		NASA
2. Case Studies of Neutralizing Materials in the Atmosphere	1	1981-1986	2	2	1		2	2	2	NASA
B. Man-Made Sources (DOE)										
1. Inventories of Current Emissions of Pollutants of Interest	1	1981-1990		1			1		2	
2. Developing Models for Emissions & Economic Analysis	1	1982-1990		1			1		2	
3. Baseline Emission Projections	1	1982-1990		1			1		2	
4. Analysis of Historic Emission Trends	2	1982-1986		1			1		2	
5. Detailed Analyses of Factors Affecting Emissions from Man-Made Sources	2	1983-1990		1			1		2	
C. Atmospheric Processes (NOAA)										
1. Research on Long-Range Transport & Dispersion	1	1982-1987		1	1	1	2	2	2	NASA
2. Determining Global & Regional Circulation of Acidic Materials	1	1980-1986		1	1		1	2	2	NASA

* Note - Agencies are considered participating in a task when they have resources specifically committed to it. Contributing agencies are ones conducting work that is relevant to the task but not directly involved as principals in the project.

SUMMARY OF NAPAP RESEARCH
(Continued)

Research Task (Coordinating Agency)	Priority	Duration (FY)	Agency Involvement (Participating = 1) (Contributing = 2) DOA	EPA	NOAA	DOI	DOE	NSF	TVA	Other
3. Investigating Chemical & Physical Transformations	1	1980-1990		1	1		1	2	1	NASA
4. Research on the Scavenging of Particles & Gases by Clouds	1	1980-1990		1	1		1	2		NASA
5. Improving Modeling Data Bases	3	1981-1985		2	2		1		2	
6. Improving Computer Simulation	1	1980-1985		1	1		1			
D. Deposition Monitoring (DOI)										
1. Continued Improvement & Evaluation of the Global Trends Networks (GTN)	1	1980-1990		1	1		2			
2. Further Development of National Trends Network (NTN)	1	1980-1990	1	1	1	1	2		1	
3. Developing Methods for Sampling Dry Measurements	1	1982-1987	2	1	1	2	1			
4. Expansion & Improvement of the Research Support Networks	1	1980-1990		1	1	1	1		2	
E. Aquatic Impacts (EPA)										
1. Monitoring National & Regional Water Quality	1	1982-1987	1	1		1			1	
2. Determining Factors that Control Lake Susceptibility	1	1980-1985	1	1		1		2	1	
3. Determining Relative Contribution of Nitric and Sulfuric Acid Inputs	1	1981-1986	1	1		1		2	1	
4. Evaluating the Significance of Mobilization of Toxic Metals	2	1982-1987	1	1		1	2		1	
5. Modeling Watershed Dose/Response Relationship	1	1981-1986	1	1		1	2	2	1	
6. Studying Acidification of Drinking-Water Sources	1	1980-1984		1		1				HHS
7. Monitoring Drinking-Water & Evaluating Treatment Methods	2	1983-1986		1		1				HHS

SUMMARY OF NAPAP RESEARCH
(Continued)

Research Task (Coordinating Agency)	Priority	Duration (FY)	Agency Involvement (Participating = 1) (Contributing = 2) DOA	EPA	NOAA	DOI	DOE	NSF	TVA	Other
8. Monitoring Regional Trends in Biological Effects	1	1980-1984		1		1			2	
9. Studying Watershed Productivity	1	1980-1990	1	1		1	2	2	1	
10. Identifying Vulnerable Growth Stages	1	1980-1985		1		1	2	2		
11. Studying Metal Contamination of Fish	2	1981-1983		2		1	2			
12. Analyzing Mitigation Strategies for Acidified Lakes	2	1982-1987	1	1		1			1	
F. Terrestrial Impacts (DOA)										
1. Studying Effects on Growth & Productivity of Forest Trees and Range Plants	1	1980-1990	1	1		1	2	2	1	
2. Identifying Vulnerable Growth Stages in Plants	2	1980-1990	1	2			2			
3. Investigating Effects on Metabolic Functions and Cellular Structures	1	1982-1992	1				2	2		
4. Analyzing Acid Deposition Induced Predisposition of Forest and Range Plants to Diseases and Insects	1	1982-1987	1	2						
5. Screening of Crop Species Sensitivity	1	1980-1985	1	1		1	2	2	1	
6. Developing Dose-Response Relationships for Crop Growth and Yield	2	1982-1987	1	1			2		2	
7. Investigating Acid Deposition Induced Predispositions of Crops to Susceptibility to Diseases and Insects	3	1982-1987	1	1						

SUMMARY OF NAPAP RESEARCH
(Continued)

Research Task (Coordinating Agency)	Priority	Duration (FY)	Agency Involvement (Participating = 1) (Contributing = 2) DOA	EPA	NOAA	DOI	DOE	NSF	TVA	Other
8. Analyzing Metal Contamination of Crops	3	1982-1984	1				2			HHS
9. Characterizing Soil Vulnerability	1	1982-1985	1	1		1				
10. Studying Effects on the Ability of Soils to Support Vegetation	1	1980-1985	1	1			1	2	2	
11. Analyzing Soil Degradation Mechanisms & Mitigation Measures	3	1982-1987	1	1						
12. Analyzing the Buffering Capacity & Response of Watersheds to Acid Deposition	1	1981-1986	1	1		2	2	2	1	
G. Materials & Cultural Resources (DOI)										
1. Investigating Effects on Materials and Cultural Resources	1	1980-1985		1		1				GSA;DOD;NBS
2. Determining the Susceptibility of Cultural Resources	1	1982-1987		1		1				GSA;NBS
3. Estimating the Costs of Materials Damage	2	1984-1987		1		2	2			GSA;NBS
4. Research on Protective Coatings & Mitigative Treatments	3	1983-1986		1		1				GSA;DOD;NBS
I. Assessments & Policy Analysis (EPA)										
1. Compilation and evaluation of Costs and Performance of Potential Mitigation Measures	1	1982-1991	2	1		2	2			
2. Integrated Assessment of the Acid Precipitation Phenomenon and Potential Mitigation Measures	1	1982-1990	2	1		2	1			CEQ
3. Preparing Special Scientific and Policy Assessment Documents	1	1981-1990	1	1	1	1	1	2	2	DOS;HHS; NASA