

# Interjurisdictional Problems in Air Pollution Control

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WITH the increasing trend of population movement into urban areas, there arise companion environmental health problems associated with the resulting industrial and citizen activity. Air pollution is one of the foremost environmental health concerns of areas of high population density and industrialization.

While a vital aspect of air pollution control is the expertise to cope with its technical phases, it is becoming increasingly apparent that equally complex social and political problems may affect the extent to which air pollution control measures may be applied to any particular situation.

As populations spill over the limits of the developing city, communities on the fringe grow in such a fashion as to be indistinguishable from the city itself. Under separate, independent, and autonomous governments no one municipality is able to mount an air pollution control program capable of attacking the entire problem, because of the political and geographic limitations of its jurisdiction.

## Local Agencies

To ascertain the extent to which it was recognized that air pollution problems are caused by sources outside the jurisdiction of the official control agency, the Philadelphia Department of Public Health conducted a simple study in the spring of 1961. A questionnaire was circulated to 250 local control agencies listed in the 1961 Directory of Governmental Air Pollution Agen-

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cies (1). Usable replies were received from 159 respondents, or 63 percent, in 37 States and the District of Columbia.

A number of respondents supplied information on the population served by the control agency and on the annual budget (table 1). Expenditures varied from less than 1 cent per capita per annum to about 53 cents, with a median of 9 and an average of 11 cents. The budgets, in per capita terms, seemed to be greatest for the smallest and the largest population groups.

A study of similar agencies was made in 1956 for other purposes (2). In that study, data from 46 agencies showed an annual per capita expenditure of from 1 to 53 cents, with a median of 8 cents. The study indicated that 15 cents per capita per annum was needed for a minimal but comprehensive basic program for air pollution control.

The Air Hygiene Committee of the American Public Health Association suggested in 1960 that 10 to 20 cents per capita per annum was needed for adequate financing of local air pollution control activities (3). Sterling reported in 1961 a per capita expenditure in a group of 75 agencies, with a median of 8 cents and an average of 10 cents per capita (4).

Respondents were requested to give "Yes" or "No" answers to the following questions:

- Do any sources of air pollution outside your jurisdiction cause direct nuisance to people in your jurisdiction?
- Do sources of air pollution outside your jurisdiction significantly affect general air pollution levels in your jurisdiction?

More than 60 percent of the respondents stated that they experienced problems caused by

sources outside their jurisdictions (table 2). However, some agencies may have answered both questions affirmatively or either question independently, so that the total number of jurisdictions affected is greater than that shown in the table. Similar information is shown in table 3, according to the type of political jurisdiction.

These tables suggest several generalizations. Air pollution originating from outside a jurisdiction creates problems for one-half or more of the agencies in all population groups. When the population served is 200,000 or more, external pollution problems are reported by 70 to 100 percent of the agencies.

When data are based on the city or county as the unit of jurisdiction, external problems are apparently more numerous for cities. A closer examination of the raw data indicated that 50 percent or more of the cities in all population

groups reported external pollution sources. On the other hand, counties serving populations of less than 200,000 reported external pollution sources of 0 to 25 percent. When populations of more than 200,000 were served, counties reported external pollution sources of 70 to 100 percent.

From these data one might conclude that problems of air pollution by external sources are more numerous in the larger population areas. Furthermore, and perhaps more significant, counties, with lower populations, report external problems less frequently than do cities. This suggests that the county is more likely than the city to contain all sources of pollution in a given urban area. However, in areas with very large populations and intense development, air pollution spreads over more than one county. Hence counties, with large populations, also report external pollution problems.

**Table 1. Per capita expenditure for air pollution control reported by local agencies**

Population group	Number agencies		Per capita budget for air pollution control (cents per annum)			
	Reporting	Budget data usable	Minimum	Maximum	Mean	Median
Under 50,000.....	37	9	2.2	41.2	15.5	12.7
50,000-99,000.....	41	8	.3	26.2	9.9	8.4
100,000-199,000.....	22	12	.3	27.2	8.0	7.6
200,000-499,000.....	27	18	.7	25.9	8.2	5.5
500,000-999,000.....	20	12	1.5	45.9	13.9	10.8
1,000,000 and over.....	12	11	1.8	53.3	14.0	9.7
Total.....	159	70	0.3	53.3	11.2	8.7

**Table 2. Air pollution problems created by sources outside jurisdiction of control agency, by population size**

Population group	Number agencies reporting	Air pollution sources outside jurisdiction—			
		Cause nuisance		Affect pollution level	
		Number	Percent	Number	Percent
Under 50,000.....	37	20	50.0	13	35.0
50,000-99,000.....	41	19	46.3	20	48.8
100,000-199,000.....	22	13	59.1	11	50.0
200,000-499,000.....	27	20	74.1	20	74.1
500,000-999,000.....	20	14	70.0	10	50.0
1,000,000 and over.....	12	12	100.0	8	66.7
Total.....	159	98	61.6	82	51.6

Respondents who stated that sources of air pollution outside their jurisdictions caused direct nuisance or affected general air pollution levels were asked: "Do you have any formal or informal working agreements between officials, agencies, or governing bodies of your jurisdiction and other jurisdictions to coordinate air pollution control efforts?" Table 4 summarizes the replies to this question. Approximately one-half of the jurisdictions which reported problems also reported some working agreement with other jurisdictions. Details of the nature of those agreements were not requested and generally were not reported.

In a few selected instances, additional information was solicited on specific examples of working arrangements. These examples were not chosen on the basis of the degree of their brilliance or success but rather to indicate a variety of approaches applied to different circumstances. These approaches are briefly described below.

*Cincinnati Metropolitan Area.* Contiguous to Cincinnati, Ohio (population 503,000), are 15 autonomous communities with a combined population of 81,000. Some of these communities are surrounded by Cincinnati. Many are heavily industrialized.

When citizens of these neighboring communities began to clamor for air pollution control, the mayor of Cincinnati invited their officials to a meeting and offered his cooperation (5). This led to the development of a plan whereby Cincinnati makes a contract with each cooperating community to supply air pollution control services. This action is authorized by separate

**Table 4. Extent of working agreements to coordinate interjurisdictional air pollution control efforts of control agencies**

Population group	Number reporting interjurisdictional problems <sup>1</sup>	Agencies reporting working agreements	
		Number	Percent of those reporting interjurisdictional problems
Under 50,000-----	20	8	40
50,000-99,000-----	21	10	48
100,000-199,000----	14	3	21
200,000-499,000----	20	11	55
500,000-999,000----	15	10	67
1,000,000 and over--	12	5	42
Total-----	102	47	46

<sup>1</sup> Total of responses reporting both nuisance and general problem; may be greater than the component figures in tables 2 and 3.

enabling ordinances adopted in Cincinnati and in each municipality. So far seven communities have entered into such contracts.

Cincinnati employs a metropolitan air pollution control officer, who responds to complaints, patrols for visible violations, initiates plant surveys, and makes followup inspections in Cincinnati and in the seven communities. His reports and recommendations are forwarded to the local government involved, where decisions are made on the action to be taken and any enforcement is initiated. The city also provides supervision of air pollution control services and assumes responsibility for overhead.

The direct costs of the program are borne by

**Table 3. Air pollution problems created by sources outside jurisdiction of control agency, by type of political jurisdiction**

Type of political jurisdiction	Agencies reporting		Air pollution sources outside jurisdiction—			
			Cause nuisance		Affect pollution level	
	Number	Percent	Number	Percent	Number	Percent
City-----	118	74.3	75	63.6	65	55.1
Multi-city-----	3	1.8	1	33.3	1	33.3
County-----	36	22.6	21	58.3	15	41.7
Multi-county-----	2	1.3	1	50.0	1	50.0
Total-----	159	100.0	98	61.6	82	51.6

the participating communities, both residential and industrial. Each community is charged 5 cents per capita plus 5 cents per thousand dollars of real estate valuation. (It is believed that it would be better if the real estate valuation were based on a 3-year average so that it would not change rapidly.)

Five of the seven participating communities have adopted a uniform ordinance. The other two communities are strictly residential and are not producers of air pollution. A single air pollution hearing board functions for all five communities by the practice of each community appointing its members as the local board.

*Dayton-Montgomery County.* Air pollution problems in Montgomery County, Ohio, outside the city of Dayton are serviced by Dayton inspection personnel on a reimbursable basis. Since Dayton, population 258,200, had already established engineering and other personnel and laboratory facilities for the investigation of sources of air pollution, the board of commissioners of Montgomery County by resolution requested that these services be extended to the county, which has a population of 431,500. Dayton then adopted an ordinance formalizing terms of the agreement.

When inspections are made in the county, the city is reimbursed at the rate of the pay of the investigating employee plus 100 percent of that amount. Standards in the county were established equivalent to those in the city. The county does its own enforcement on the basis of data supplied by the city and asks the city to handle only problems of air pollution that are of a more complex nature than dumps and trash burning.

*Springfield and Eugene, Oreg.* When Springfield, Oreg., population 19,616, began its air pollution control program, Eugene, Oreg., population 50,901, already had an air pollution control officer. Enabling legislation was apparently not required in Springfield, and after approval by the budget committee the city contracted with Eugene for the services of its air pollution control officer. The contract calls for Springfield to pay Eugene \$2,500 per year for these services. This represents about one-third of the air pollution control budget of Eugene.

Both cities have adopted practically identical air pollution control ordinances. Procedures,

policies, and practices are discussed at meetings between the managers of the two cities. When enforcement becomes necessary, Springfield is prepared to proceed with its own action in court. The city expects to continue this arrangement until it can employ a qualified air pollution control officer on a full-time basis.

*Multi-municipal Cooperation in Illinois.* The health department of the village of Winnetka, Ill., also serves the villages of Glencoe, Kenilworth, and Northfield. Air pollution control is a health department service. The total population of the area served is about 30,000.

Costs of health department activities are shared on a per capita basis by the participating villages. Each village has agreed to consider and, if possible, pass similar ordinances. Enforcement will then be based on the provisions of the local ordinances.

*Lehigh Valley.* The Lehigh Valley in Pennsylvania contains a vast cement manufacturing industry. Sixteen plants, about 10 percent of the cement manufacturing plants in the United States, are located in this area (6). In 1946 citizen dust committees were formed in Northampton and Nazareth Boroughs. In 1947 an action in equity was brought by the borough of Northampton against one company, which resulted in a consent decree in 1950.

In 1957 both Northampton and Nazareth Boroughs adopted air pollution control ordinances and each borough created an air pollution control board. These boards, acting jointly, hired an engineer to initiate a control program. A year later three more municipalities took similar action and joined in the program. The five independent boards meet together to develop a joint program; however, each board is in charge of enforcement in its own area.

Lehigh Valley Air Pollution Control now serves a population of about 34,000. Costs are shared by the five participating municipalities according to point ratings based on population, assessed valuation, and number of principal industries in each municipality.

The fact that different dust removal efficiencies are required by the various municipalities has created a problem. Three municipalities require at least 90 percent efficiency, one

requires 85 percent, and another, 80 percent. There is some indication that more than 90 percent efficiency may be required to satisfy the residents of the five communities. On the whole, however, this cooperative effort appears to be very successful.

*San Francisco Bay Area.* By act of the California Legislature, the Bay Area Air Pollution Control District was established in 1955 (7). This was the first multi-county air pollution control district to be so created in the United States. Initially, the district included the six counties of Alameda, Contra Costa, Marin, San Francisco, San Mateo, and Santa Clara. Napa, Solano, and Sonoma Counties have the option of joining in the future.

A representative air pollution control board of 12 members, with rule making, hearing, enforcement, and taxing power, governs the district. Six members are county supervisors, one selected by the board of supervisors of each participating county, and six are mayors or councilmen, one from each county, chosen by a committee composed of all the mayors in each county. An advisory council works with the board (8).

Activities of the Bay Area Air Pollution Control District are supported by direct property taxes, collected by each county. Costs are distributed, 50 percent on the proportion of population and 50 percent on the proportion of the assessed value of real property. The tax rate is limited to 1 cent per \$100. This limits the budget potential to about \$365,000. The population of the district is about 3,263,000.

*Delaware Valley Voluntary Program.* A unique approach to air pollution control in a metropolitan area is that developed for use in the Delaware Valley in the vicinity of Philadelphia (9,10). As part of the effort of the Philadelphia Air Pollution Control Board begun in 1955 to better define emissions from all industrial sources that affected air quality in Philadelphia, the petroleum refining industry, in due course, came up for survey. Evaluation was complicated by the location of the refining plants. Only two were located in Philadelphia. Two others were located in Pennsylvania, near Philadelphia, and two in New Jersey.

At the invitation of the air pollution control board, officials of the air pollution control agen-

cies in the areas concerned and top officers of the petroleum refining companies met in 1956 and developed a plan which made possible a uniform survey of all the plants. The three participating air pollution control agencies agreed to pool their engineering resources to operate under the guidance of a coordinating committee composed of representatives of the Philadelphia, Pennsylvania, and New Jersey health departments. The petroleum refining industry supplied two advisory committees, one policy and one technical, to work with the coordinating committee.

The survey, begun in the fall of 1956, was completed in 1958. A complete report was issued in April 1959. It was agreed in advance of the survey that specific improvement programs would be worked out between the industry and the government agency in whose jurisdiction it was located.

This undertaking demonstrated the possibility of pooling resources for a cooperative effort in a situation where formal machinery had not been provided by legislation. While there were problems of coordinating timing for this project with other demands on the agencies involved, the initial objective was accomplished under circumstances that seemed to defy any other approach.

*Tristate Sanitation District.* An Interstate Sanitation Commission composed of five commissioners from each participating State was created by a tristate compact between New York, New Jersey, and Connecticut. This commission has been operating since 1936 in water pollution abatement and control. Effective January 1, 1962, activities were authorized to be extended to air pollution by New York and New Jersey, under the administration of the commissioners from these States only. Budgeted costs of the air pollution control program will be shared equally by New York and New Jersey.

Activities with respect to interstate air pollution problems include studies and research, dissemination of information, taking of air samples, and tracing of air pollutants. Complaints are referred to appropriate enforcement agencies of the States in which the sources of air pollution are located and to which air pollutants are carried. The Interstate Sanitation

Commission also makes recommendations and reports to the governors and legislatures of the participating States.

### State Agencies

Effects of air pollution in one community caused by air pollution in another community might logically be considered to be the kind of situation which would cause a State air pollution control agency to be concerned about coordination of control efforts and resolution of problems. Accordingly, in this study local government agencies were asked, "Are interjurisdictional problems handled by any State agency?" Responses to this question were surprising. With one exception, New Jersey, there was no consistency of response, when more than one local agency replied from a given State.

Since no conclusions, other than the possible existence of poor communications, could be drawn from such divergent reports, the States were questioned directly. The State agencies questioned were the ones listed in the 1961 Directory of Governmental Air Pollution Agencies (1). Useful replies were received from 30 States.

Data from these replies are summarized in table 5. Fifty-three percent of the 30 States reported recognized programs for the control of air pollution and 40 percent stated that they intervened in interjurisdictional problems. On

**Table 5. Summary of air pollution control activity reported by 30 States<sup>1</sup>**

Activity	States	
	Number	Percent
Recognized program-----	16	53
Enabling legislation:		
Establishing function-----	14	47
Emission standards-----	13	43
Outdoor air standards-----	10	33
Interjurisdictional intervention--	12	40
Intervenes in interjurisdictional problems-----	12	40

<sup>1</sup> States not included: Alabama, Alaska, Arizona, Arkansas, Connecticut, Delaware, Indiana, Iowa, Kansas, Kentucky, Louisiana, Nebraska, North Dakota, Rhode Island, South Carolina, Utah, Vermont, Washington, West Virginia, Wisconsin.

NOTE: Data do not reflect adoption of atmospheric standards by the States.

the basis of population, the only tendency reflected was less air pollution control activity (less than 25 percent) in States with less than 1 million population and more activity (more than 75 percent) in States of more than 5 million population. Thirteen States supplied budget information. Per capita expenditures varied from 0.1 to 5.5 cents, with a median of 1.4 cents and an average of 2.0 cents.

### Discussion and Conclusions

The fact that more than 60 percent of the 159 local air pollution control agencies participating in this study recognize that sources of pollution outside their jurisdictions cause problems in their jurisdictions indicates that this is a question meriting fuller exploration and consideration. The Air Hygiene Committee of the American Public Health Association has referred to ". . . the desirability of programing and enforcement at the lowest level of government capable of taking effective action" (3). The same report has cautioned that "care must be taken, however, to insure a sufficiently broad population, economic, and area base to provide for effective action." It seems essential to effective action that the political-geographic area under the supervision of an agency must be such as to allow legal control of all sources of air pollution causing nuisance or otherwise adversely affecting air quality.

There are several methods of approaching this problem. In many instances, the location of the control function in the county offers the possibility of effective containment of sources of air pollution. Performance of other municipal-type functions by the county government offers the additional advantage of coordination and integration of air pollution control with these other services. Even when the county does not contain all the socioeconomic community, placement of the air pollution control function in the county government reduces the number of agencies in the metropolitan area whose actions require coordination.

Among the several types of contractual arrangements for achievement of coordination between municipalities, the chief problem is the possibility of divergence in the adoption of standards or in their enforcement. Furthermore, there is no assurance that all communi-

ties concerned will join the cooperative effort or will continue their financial support in the years to come. Nevertheless, a coordinated approach may avoid costly duplication of laboratories and test equipment and may allow the employment of qualified personnel on a full-time basis. Both of these are tremendous benefits.

For large metropolitan areas, the formation of multi-county districts, such as the San Francisco Bay Area Air Pollution Control District, offers many potentialities for providing a unified air pollution control program on a political, geographic, and financial basis sufficient to assure effective action. Through a representative governing board, "grassroots" political control seems to be assured.

While such a single-purpose district has much to commend it for handling the immediate problem, it neglects the desirability and may negate the probability of functioning in concert with other governmental activities in the same area. If all metropolitan problems were approached on this basis, a fragmented and probably chaotic condition would result, fraught with inefficiency.

State activity in air pollution control, while increasing, seems less intense than local activity. More than half the States reporting in this study do not have enabling legislation establishing their authority to control air pollution, and a slightly greater number do not intervene in interjurisdictional problems. This would appear to be an area of concern in which the influence of the State air pollution agency could be most effective. While the advantages of providing direct service on the lowest effective level are recognized, the State agency could well undertake to assume the responsibility for promoting the establishment of the air pollution control function at a level capable of containing the problem and of mounting an effective program. Even in States that provide service to local communities in interjurisdictional matters there seems to be considerable lack of awareness by local authorities concerning assistance available from State governments.

Where the developed community extends beyond State boundaries the problem is complicated even more. Voluntary cooperation and the interstate pact offer extremes of approach.

Both leave much to be desired, since thus far neither approach has any real power to assure uniformity in control programs and both approaches are used mainly for study purposes.

On the basis of the findings of this limited study it seems that interjurisdictional administration of air pollution control activities merits further study. Continued experimentation may prove fruitful. Among the programs cited there may be systems that will suggest an expedient approach to individual agencies facing similar problems. More effective systems may have to await a better understanding of the administration of government services in metropolitan areas.

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## Deaf Drivers

A national symposium on "The Deaf in the United States With Emphasis on Driving and Employability" was held in Denver, Colo., February 11-14, 1962, under the sponsorship of the Department of Health, Education, and Welfare and the University of Denver College of Law. The symposium was under the direction of Sherman G. Finesilver, judge of the Denver Municipal Court and founder and director of the Denver Driver Improvement School, which recently initiated a 6-week course for deaf drivers.

Finesilver reported that in a survey of the licensing administrators of all 50 States and the District of Columbia, only one stated deaf drivers were below average in driving ability. All the others except two that gave no opinion said deaf drivers were either average or better in driving ability.

In his own State of Colorado, Finesilver examined the driving records of 100 deaf drivers and compared them with the records of 100 hearing drivers selected at random. The deaf drivers had 54 percent fewer moving violations than the hearing drivers. None of the deaf drivers had been convicted of hit and run, driving under the influence of alcohol or drugs, driving with a revoked or suspended license, or reckless driving. Only one traffic charge involved taking the right-of-way from an emergency vehicle. No deaf driver was involved in a fatal accident through his own fault.

In reporting insurance practices concerning deaf drivers, Finesilver said that most automobile insurance companies will not preclude coverage solely because of deafness. Some companies do not insure deaf motorists in large metropolitan areas because of the congested traffic conditions.

Finesilver mentioned many characteristics of deaf drivers that help them to be safe drivers, such as proper seeing habits and well-developed perception; greater concentration on driving in the absence of distractions from radio, conversation, and the "hypnotic" effect of prolonged, steady engine and tire noises; general conservatism in driving; and recognition that their driving reflects on other deaf drivers and that the driver's license is a privilege rather than a right. Driving is especially valued by the deaf because of the independence it provides, Finesilver said.

Another speaker on the program, Dr. Tobias Wagner of New York University, stated that all but 11 States have hearing requirements for licensing of drivers but that qualified deaf drivers may be readily licensed in all States, usually with the requirement of two outside rearview mirrors. The States that require hearing examinations have informal, nonscientific tests, Wagner said.

The introduction of a bill in 1961 to stop the licensing of deaf drivers in Illinois was described by Lowell J. Myers, a Chicago attorney who is deaf himself. The bill was introduced after a policeman was killed in a collision between a police car and a car driven by a deaf person. The police car had entered the blind intersection where the accident occurred against a red light with its sirens on. After the driving records of deaf drivers were made known to the legislature and the public by various groups and newspapers, the bill was killed by the Illinois House Committee on Motor Vehicles.

Many of the symposium participants made the point that deaf persons have about the same potential as hearing persons for becoming good drivers. According to one speaker, more than 35 of the schools for the deaf in this country have driver training classes. Fletcher N. Platt, manager of the traffic safety department of the Ford Motor Co., pointed out that many times people with normal hearing realize the presence of emergency vehicles only by seeing others pull to the side of the road. "With windows closed and radio or heater on, all drivers are deaf to sounds outside the vehicle," said Platt. He said tire sounds, engine noise, and wind noise are helpful to a driver in maintaining proper speed, but these cues can be misleading or masked by other noises.

The public's primary concern in regard to drivers with physical handicaps should not be concentrated on the handicaps themselves but on whether the individual performs as safely and dependably as normal drivers, declared Alexis McKinney, assistant to the publisher of the *Denver Post*. He said that the day of optimum safety and fluidity of movement on the highways will be much nearer when every person behind the wheel, whether he wears glasses or is a double amputee or whatever his age, medical history, or status in life, is a tested, dependable driver.