

1 The Clairton Perspectives

The place to begin a book on air pollution politics is at the source of the irritant. It is simply too easy to forget the realities of specific problems in identifiable places when one analyzes policy development and implementation by decision makers, many of whom are far removed from the smells and smoke of industrial processes. In the Pittsburgh metropolitan area, one industrial complex in particular—the Clairton Coke Works of United States Steel—has symbolized the problems of accommodating the goals of both clean air and economic development. We begin, then, in Clairton, Pennsylvania, as a check on the reductive tendencies of higher-level policy analysis. Hopefully this perspective will provide meaningful questions to direct analysis of action at all levels. I also return to Clairton at the close of the book so as to counteract the abstractionist tendencies of conclusion-writing.

COKE-MAKING IN CLAIRTON

Clairton, Pennsylvania, is located southeast of Pittsburgh on the Monongahela River just below McKeesport where the Youghiogheny joins the Monongahela and just above Donora, site of the famous air pollution disaster in 1948. As you approach the city on Route 837, you have no trouble identifying the principal industry. The United States Steel Corporation's Clairton Works is, shall we say, a rather dominant feature of the landscape. You were probably unaware smoke came in so many different colors, smoke quite striking in its own way, both to sight and to smell.

The largest coke works in the world is part of this complex. Coke production is, of course, essential to steel-manufacturing. Coke burns hotter but with less smoke than coal. At one time charcoal was used for smelting. Huge earth-covered piles of cut wood were ignited and control-burned to produce the charcoal.¹ These same carbonizing principles were later applied to coal, and thousands of beehive coke ovens dotted the landscape near coal mines.

Beehive ovens were replaced with the contemporary by-product ovens. A "battery" consists "of a block of many long, narrow fire-brick ovens with heating chambers . . . located between." Blast-furnace gas, coke-oven gas, or natural gas is used to heat the ovens. Tar, benzene, naphtha, and other

products are removed from the gas produced by cooking the coal—hence the term *by-product* oven. The cleaned gas may be used as fuel for the ovens.

Two controls reduce the probability of particulate and gaseous pollution from the cooking phase. First, low-sulfur coal must be used in coke-making since sulfur has an undesirable effect in steel-making. Second, the holes on top of the battery are closed immediately after loading or “charging.” Indeed, permitting emissions through the charging holes reduces the efficiency of the operation.

After this processing, the new coke is pushed from the ovens into large railroad cars with perforated sides and taken to quenching towers where it is doused with water to stop further oxidation. It is then conveyed to a cooling wharf and spread out so that excess water may drain. Eventually it is sized and shipped to the mills.²

The Clairton Works has twenty batteries—1,375 individual ovens in all. The plant capacity is 33,000 tons of coal per day, producing approximately 21,500 tons of coke per day. The coal is cooked an average of eighteen hours at approximately 2000° F. It takes approximately 105 gallons of water to quench the coke produced by *one ton of coal*—3.5 million gallons daily for quenching at the Clairton Coke Works.³

Now, what happens when you throw water on hot coke? As campers know, dousing the campfire before retiring fills the air with smoke, steam, and flecks of solid matter. The same is true with the coke-quenching process. When you throw water on 21,500 tons of red-hot coke every day, a lot of solid matter goes into the air—although technology is available to capture much of it.

Over 70 percent of the water used for quenching at Clairton is referred to as “flushing liquor and other liquid”—water used in the coke-making process. The gases which escape from the cooking ovens pass through a liquid spray to remove certain matter. This “process water” contains a variety of potentially harmful chemicals: phenols, ammonia, cyanide, hydrogen sulfide, and chlorides. To discharge it into the Monongahela would violate water pollution regulations. Recycling it to quench the coke is thus an efficient use of a water product. Tests show that approximately ten tons of phenol, one ton of cyanide, twenty tons of ammonia, and five tons of hydrogen sulfide are “put through” daily in the quenching process.⁴ It is uncertain how much of this total is carried into the air by steam.

COKE-QUENCHING IN POLITICS

However efficient it might be to use the process water to quench coke, doing so violated section 1708.1B of the Allegheny County Air Pollution Rules and Regulations, which also provided, however, that “any person may

submit a petition to the Appeals Board for a variance from these Rules and Regulations governing the quality, nature, duration or extent of discharge of air contaminants.”⁵ The Board of Air Pollution Appeals and Variance Review (or variance board as it will be referred to here) was authorized to hear petitions and issue variances for a period “not to exceed one (1) year.” When United States Steel (USS) petitioned the variance board for permission to violate county regulations, coke-quenching became very much involved in politics. A duly constituted governmental unit—the variance board—had to make a judgment to resolve the conflict between community values identified as important in the Allegheny County air pollution code. Here is a summary of those values and a description of the variance board’s efforts to weigh them in making a decision.

The Public Interest

Article 17 of the Allegheny County Health Department’s rules and regulations deals with air pollution control. In regard to the granting of variances, the regulations state:

The Appeals Board may grant such variance if it finds that:

- A. The emission occurring or proposed to occur does not constitute a hazard to public health or safety;
- and
- B. To require compliance with the terms of this Article from which variance is sought would not be in the *public interest*.⁶

Such general terms are difficult to apply. Both are public-interest tests—the first is just slightly more specific than the second. One can assume, as the variance board has, that health considerations alone are insufficient for determining whether or not to grant a variance. Otherwise there would be no need for subsection B, a broader public-interest test. In the Clairton decision, the board defined the second test as follows: “The general ‘public interest’ test, Article XVII, Section 1704.2B, involves a number of factors, among them economics, and the amount of time necessary for a given petitioner to solve a particular air pollution problem.”⁷

For immediate purposes, then, the variance request by United States Steel to continue using process water for quenching purposes at the Clairton Coke Works permits us to review the health, economic, technological, and “good intentions” aspects of defining the public interest in a specific instance of air pollution.

The Public Health

Even without being a chemist one might guess that phenol, ammonia, hydrogen sulfide, and cyanide should not be mixed as an evening cocktail.

They are, of course, all highly toxic. Drinking such a mix, or even inhaling large quantities of such chemical particulates, was not at issue in this case, however. The question was whether the particular mix of chemicals and air in the vicinity of Clairton, and beyond, constituted a health hazard. The air pollution regulations, presumably based on health criteria, were quite specific regarding quench water. “The water utilized for the quenching of coke, prior to use as a quenching agent, shall be of a quality *as may be discharged into the nearest stream or river, in accordance with the Acts of the Commonwealth of Pennsylvania.*”⁸ To meet the state standards, water had to be *totally clear* of phenol. Since accomplishing this was considered technologically impossible, the county air pollution code was amended in 1970 to require instead that 99 percent of the phenol be removed. If this standard was not being met at the Clairton Works, as it was not, the works was in clear violation of the county regulations.

A variance could be granted, however, if “the emission . . . does not constitute a hazard to public health.” So, regardless of the standard set in law, the variance board had to consider the health hazard. The board members “implicitly imposed a ‘rule of reason’” for determining health hazards, denying a variance if “we believe, or have *a serious and unallayed suspicion*, that there is a health hazard.”⁹ They were forced to evaluate the health effects in this case with a *minimum of data*—a condition, as we shall see later, that is distressingly typical of air pollution policy development, implementation, and code enforcement.

Suppose the variance board had had the means, available through the Allegheny County Health Department, of measuring health effects resulting from various mixes of phenol and other chemicals in the air. A first order of business would have been to gather precise data on the chemical composition of air in the vicinity of the Coke Works and elsewhere (wherever the foul mix was being carried by prevailing winds up and down the river valleys). No such precise findings were available to the board, however. It was never established how the measured chemicals in the water were discharged into the atmosphere as a result of the transformation of water to steam.

Lacking these data, the board turned to United States Steel to demonstrate that there was no health hazard from the emissions.

The only testimony that the petitioner [United States Steel] saw fit to submit on the question was a single sheet . . . submitted to the Board . . . stating that Herbert Dunsmore, the petitioner’s Chief Environmental Engineer, and admittedly not an expert on medical matters, had performed (or directed) a literature search and had uncovered nothing relevant to whether the emissions in question might or might not constitute a hazard to the public health. No independent experiments were performed. A request by the Board to detail the literature which was searched, and to list articles that contained

descriptions of problems that arise with respect to the environment of workers in the plant . . . went unanswered; the additional detail was not supplied.¹⁰

In this case, then, the variance board apparently seriously suspected a health hazard it was unable to prove. Under these circumstances its “rule of reason” shifted the burden of proof to the petitioner. United States Steel officials had to “allay” the board’s suspicion of a health hazard. They were unsuccessful in doing so—indeed, they scarcely tried. The board’s conclusion from applying the first test was, by this logic, inevitable. “On the evidence presented, we most *certainly* cannot conclude that the petitioner proved that the emissions from the Clairton Coke Works quenching operation do *not* constitute a hazard to life and health. It follows that no variance can be granted.”¹¹ Thus, in seeking a variance from a regulation, it is reasoned, the petitioner bears the burden of proof that his practice is not harmful in ways existing regulations are trying to prevent.

Technology

The second general test for issuing a variance has been interpreted by the variance board as involving both economics (discussed below) and “the amount of time necessary for a given petitioner to solve a particular air pollution problem.” The time element is, in reality, a technological dimension. If technology exists to solve a particular pollution problem, the board need only consider a variance during the period needed for installation. When no technology exists, however, a much more serious problem is raised, particularly if it has been determined that a health hazard exists from uncontrolled emission. What should be done in the interim—while equipment is being developed and fitted? The board must weigh various factors in making its decision, fully aware of the implications for the local economy of closing down an industrial plant.

In the Clairton case, the board had only limited evidence for assessing the health hazard and reached no conclusion on whether existing technology was capable of controlling the pollution in question. United States Steel contended that no water treatment process existed which would bring the Clairton Coke Works into compliance. On the other hand, testimony was presented (and agreed to by United States Steel) that “pretreatment could remove 90–99% of the phenol, and that a free ammonia stripper would remove around 90% of the ammonia.” So, if technology for meeting the law was not presently available, technology for *approaching* the law was.¹²

The board recognized that the petitioner had done nothing, and intended to do nothing, to approach the law during the time in which technology might be developed. In responding to this point, United States Steel argued

that its legal, corporate responsibilities would not permit such expenditures. “A corporate entity cannot legally approve expenditures responsive to rules of regulatory agencies where such expenditures will not result in compliance with the rules in question and will still leave the corporation vulnerable to civil and criminal penalties.”¹³ The board judged this reply to be “an attitude of corporate irresponsibility . . . United States Steel . . . does not seem to have been able to conceive of air pollution control expenditures being made, other than in response to rules of regulatory agencies.”¹⁴ The board indicated that it probably would have granted the variance if USS had made an effort to treat quench water to whatever limits were technologically feasible.

Suppose the petitioner had earlier invested in control equipment as effective as it admits others are using, and that it could use, and then came to this Board saying, “We are taking out 99% of the harmful material; it is not now technologically possible to comply with the law, but we are trying, and in the meantime we do not believe the remaining fraction represents a serious health problem.” *It would have been difficult for this Board to refuse to grant a variance in such a case.*¹⁵

Economics

The board’s review of public health, technological, and “good intentions” criteria seemingly led it to deny inexorably the variance request. As that important decision became more obvious, however, the economic dimension of the general public-interest test had to be considered. For Clairton barber Eugene Scarlato, smokeless skies meant “people don’t spend money.” Another Clairton businessman, Robert Abrasheff, told a reporter: “When I built my home here, I knew the smoke was here. If I wanted fresh air, I would have built my home in Ligonier. The mill was here before I was.” To ironworker Andrew “Whitey” Matola, “You gotta have smoke to live.” And Mrs. Rosanne Russo summarized United States Steel’s advantage very well.

Pollution in Clairton is no different from the pollution problems in other mill towns. If cleaning the air in Clairton means closing down the mills here, then it means my husband will lose his job. If the antipollution people want to feed us and pay our bills, then I’m for it. Clairton is my home. I was born here. If they don’t like it, they can move.¹⁶

As expected, United States Steel emphasized these economic realities in its statements before the variance board (and, undoubtedly, in more informal meetings with county officials). Called “economic blackmail” by some, the actual argument by USS officials was, as with the technological problems, put in the context of their corporate responsibility.

The petitioner has a responsibility to its employees as well as to its stockholders. In weighing the public interest . . . the Board must consider that

there are twenty-nine thousand (29,000) individuals directly employed by the Clairton Coke Works, the blast furnaces of United States Steel dependent on the coke plant, the coke plant, the United States Steel plants dependent on the hot metal supplied by those blast furnaces, and the United States Steel finishing steel mills. The operation of the Clairton Coke Works is essential to the continued operation of all United States Steel plants in Allegheny County which, in turn, is important to the economic welfare of Allegheny County. Thus, the problems inherent in the circumstances developed at the Clairton hearing create a wide range of conflicting responsibilities which are not easily resolved.¹⁷

Though it was unnecessary for USS in making its point to go beyond the immediate effect on employment of shutting down the Coke Works, the escalating effects could not be overlooked.¹⁸ In its decision the board estimated that an additional seventy-five thousand jobholders—doctors, businessmen, teachers, service personnel—were dependent on USS operations in Allegheny County. And what would be the effects on the nation of a major cutback in steel production?

These realities prolonged the Clairton hearings as the board, other public officials, and representatives of citizens' groups tried to find a solution. A series of meetings was held outside the hearing room to persuade USS "to come forth with a definite plan to at least bring the emissions in question within the degree of control [provided] through dephenolyzing and ammonia stripping." USS, however, steadfastly refused to produce such a plan, relying on its interpretation of its legal responsibilities as a corporate entity. "In the meantime, what turned out to be, in effect, a variance was given for more than 15 months."¹⁹

Since little or no progress had been made at the end of fifteen months, the board was led to make a very harsh judgment.

We have seen copious evidence that the Corporation has quite deliberately decided to delay solving the air pollution problems at the Clairton Coke Works as long as possible.

After 15 months, this Board is convinced that United States Steel will delay cleaning up the Clairton Coke Works until it is forced to take action. And we now believe that it will take more force than this Board has available to it to get United States Steel to move on this problem. . . . we are convinced that United States Steel will not move on this problem, as long as it believes it can delay injunctive and/or criminal action by hiding behind legal technicalities, or by holding 30,000 jobs over the heads of the air pollution control authorities of the County as *a kind of blackmail*.²⁰

Thus, on November 11, 1971, the variance board refused to grant the variance, recommending that the case be transferred to a court of equity which "would have the flexibility to deal with the reality of the public

nuisance, the pollution problem, without getting bogged down in the ‘all or nothing’ approach that is alleged to characterize the phraseology of Article XVII, Section 1708.1B, viewed as a criminal statute.”²¹ United States Steel appealed the decision, and an even lengthier process of seeking compliance was begun, a process eventually involving all three levels of government (federal, state, and local).

CLAIRTON IN PERSPECTIVE I

John Dewey makes an important differentiation between the public and the private. He maintains that people try to control their environment and the consequences of human acts. Such “consequences are of two kinds, those which affect the persons directly engaged in a transaction, and those which affect others beyond those immediately concerned. In this distinction we find the germ of the distinction between the private and the public.”²² For Dewey, a “public” consists of those “affected by the indirect consequences of transactions” to such an extent that they take action to control outcomes. A public problem, then, presumably arises when consequences cannot be controlled without affecting others and becomes an issue when controversy develops. This surely is one definition of politics in any society.

The Clairton Coke Works case meets all the criteria of a public problem as an issue and thus is highly political in nature. United States Steel has not (perhaps could not have) solved its coke-quenching problem privately. Though not precisely measured, the indirect consequences of coke-quenching are obvious to anyone passing through the area. In a process that would not meet Dewey’s ideal, representatives of publics have sought to control these indirect consequences. Their actions, in turn, have public consequences for which controls may be sought.

When we picked up the Clairton story, United States Steel officials were seeking to control the manner in which the regulations were applied to them, fully aware of the advantages resulting from their expertise and the effects of precipitant action on the local economy. Various affected publics (notably the Group Against Smog and Pollution—GASP) sought full enforcement of regulations consistent with existing technology. Other affected groups were either unaware of the consequences for them or not organized for action. Thus, Clairton offers a good illustration of a public air pollution issue *at the level where the direct and indirect consequences of human actions can be perceived firsthand*. That is an important reason for beginning with such a case study.

A second reason for discussing a specific issue is that it illustrates the complexities of applying standards to highly technical and critical industrial

processes. In the analysis to follow, I describe at length the air pollution standard-setting policies of the federal government. It is important to emphasize now the complications of trying to justify and employ those standards when a specific industry is befouling real air with gaseous pollutants to be inhaled by an identifiable population.

A third justification for the Clairton perspective is that it introduces a major conflict of values in full enforcement of clean air standards. “Smoke versus survival” is admittedly an overly dramatic characterization of what is at stake. On the other hand, the Clairton case illustrates that the clean air option is simply not available at present. Those who insist on it (as a real goal rather than as a policy strategy) are naive, unaware of the costs and effects, or insensitive to the needs of Mrs. Russo and her neighbors. The variance board’s decision to deny a variance could be, and was, interpreted as the “get tough” approach. In many respects, however, that decision represents weakness in the system of air pollution control in Allegheny County. It took fifteen months just to hear the case. The variance board admitted its inability to resolve the issue raised by its own public-interest tests; and in its effort to reach an accommodation with United States Steel, the board in effect *acknowledged the standards were unenforceable*.

It becomes apparent to all that once the enforcers compromise the standards (for whatever reasons—in Clairton’s case technological), there are no standards, only a process by which each regulated industry seeks to reach an accommodation with the regulators. According to Murray Edelman:

So far as the great bulk of law enforcement is concerned “rules” are established through mutual role-taking; by looking at the consequences of possible acts from the point of view of the tempted individual and from the point of view of his acts upon the unttempted. The result is a set of unchallenged rules *implicitly permitting evasions and explicitly fixing penalties*.²³

Enforcers and “enforced” alike assume both the role of potential violator and the role of his victim. Out of their responses to such mutual role-taking come the rules as actually acted out: the specification of the loopholes, penalties, and rewards that reflect an acceptable adjustment of these incompatible roles.²⁴

When no such accommodations are possible, perhaps because, as I discuss later, public opinion or strong citizen-group action prevents them from occurring, regulations can come to have important effects on social life. Suppose, in the interests of clean air, the variance board had denied the variance after the first hearing in 1970 and United States Steel had been forced to close the Clairton Coke Works. Varieties of conflicts in values for many people would have been apparent at that point—we would have had a direct test of the commitment to clean air in Allegheny County.

CLAIRTON IN PERSPECTIVE II

It would be convenient indeed if one could analyze the Clairton case as a local matter—but few issues can be so contained anymore. As noted earlier, all three levels of government were eventually involved in the compliance proceedings of the Clairton Coke Works, and, in fact, both federal and state policies had already affected local air pollution decision-making. Therefore, a second Clairton perspective is called for, one which reaches beyond the immediate issues and values to consider the background, context, and reciprocal impact of policy development and implementation in a federal system. Herein lies my goal in this book—to frame an intergovernmental analysis of clear air policy and politics.

To maintain the advantages of the Clairton perspective, however, I have limited the analysis to policy development and implementation in Allegheny County (which includes Pittsburgh), the Commonwealth of Pennsylvania, and the federal government. What I lose in generalizability across many state-local cases I gain in a strong data base for the conclusions developed. And I would argue that in-depth analyses of this type must precede comparative studies—both foreign and domestic. In this and other policy areas, students of politics require sets of interrelated concepts as guides in systematic data collection and policy evaluation. Hopefully this study will produce such frameworks.

A scholar does not approach a new topic with a *tabula rasa*. Even the most scientific and objective among us come equipped with intentions, impressions, and values. The canons of scholarship require that these be identified and made as orderly as possible. That is, intentions should be clearly stated as research goals, impressions ordered as a conceptual framework (with sources identified), and values explored for the criteria they suggest. Each of these is briefly considered in turn.

Why study specific policies? Austin Ranney identifies scientific, professional, and political reasons. The scientific goals emphasize improved understanding of process and outcome; the professional goals stress evaluation and advice-giving; and the political goals involve action—the “right policies to achieve the right goals.”²⁵ It is my intention to emphasize the scientific and professional goals in this study. I seek to understand the processes and outcomes of air pollution policy development and implementation at three levels of government as a basis for evaluating processes and making recommendations. As it happens, achieving the scientific and professional purposes of the study also demands explication of one’s educated impressions and values.

Referring to a conceptual framework as a set of “impressions” may be unacceptable to philosophers of science, but it serves my purposes well (and, in my judgment, reflects the status of paradigmatic development in political

science). Typically political scientists are, or can be, equipped with more or less well-ordered impressions about what one might expect to find in politics. The sources of these views can normally be identified if one takes the time to do so; and the impressions themselves vary in specificity, depending on the purposes to be served.

I had two major conceptual requirements in this study. First, I needed a broad framework that would provide concepts useful in tracing and analyzing public problems from their emergence to and through the effects of government policies—that is, a conceptual framework for a general understanding of the policy process. I shopped for these concepts from the research and theoretical offerings of my colleagues. I found it necessary, however, to select carefully from among their writings, choosing ideas which suited my purpose without feeling bound to accept a whole line of goods from one producer. As noted above, I had definite explanatory goals in mind. Whereas many of the scholars cited below had something to contribute to those goals, most had other purposes in mind as well. Thus, I felt no compunction about taking what I thought I needed from one scholar and holding the rest in reserve.

I required two sets of concepts in this exercise—those more abstract concepts relating to the nature of a democratic public policy system and a more specific set relating to the structure of the American political system. For the first I relied heavily on John Dewey, David Easton, David B. Truman, Robert A. Dahl, Charles E. Lindblom, and Harold D. Lasswell.²⁶ As I melded extracts from the works of these men, a network of concepts emerged that performed the function I wanted—provided a set of general expectations for the “normal” operations of a democratic public policy system. Thus, for example, Dewey’s concept of the *public*, Easton’s use of *system*, Dahl’s *minorities rule*, Lindblom’s *disjointed incrementalism*, and Lasswell’s decision categories prepare one for a “problem through policy” system which is highly pluralistic (sometimes brutally so), features bargaining for coalition-building, and thus produces incremental output. One is also led to expect a variety of subsystems and processes not necessarily coincident with institutional groups.

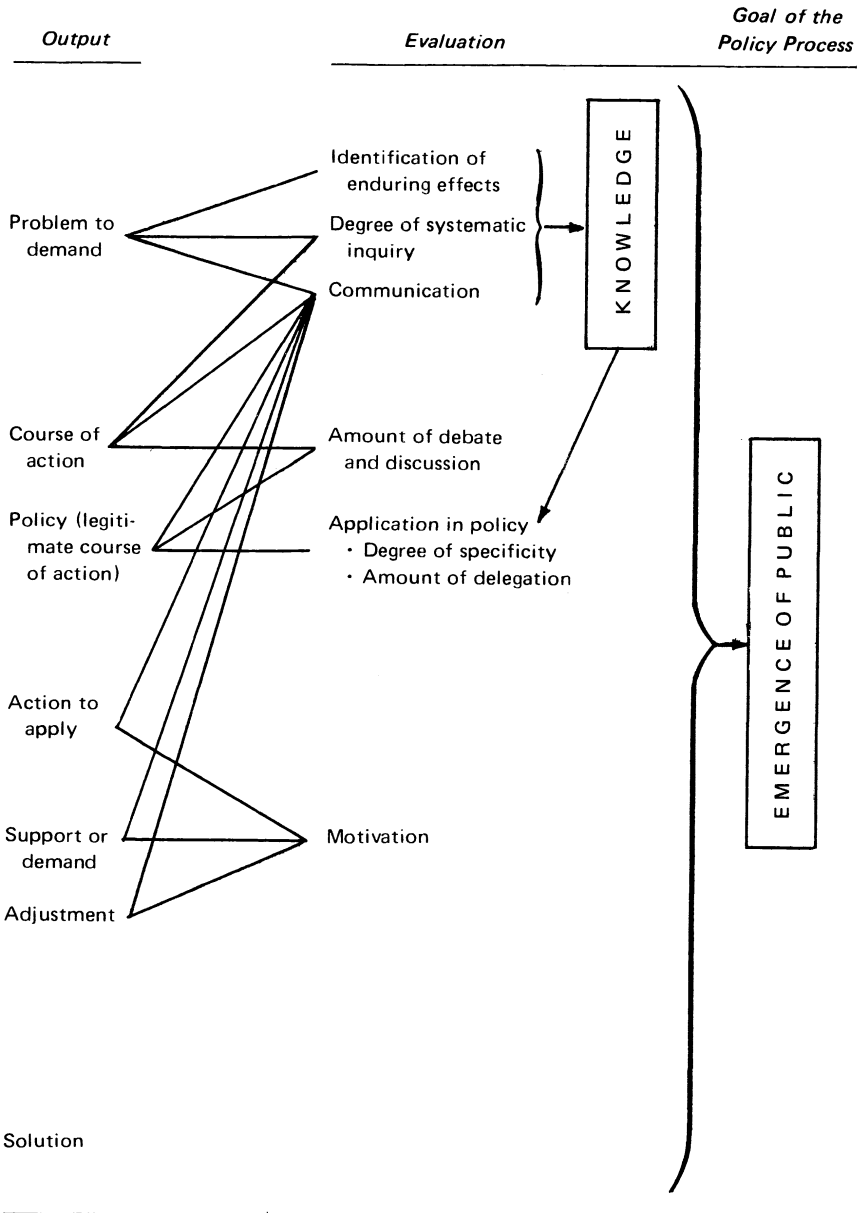
Other more specific conceptual guidelines were drawn from scholars studying American institutions, intergovernmental relations, and various electoral and policy processes. Some of the scholars relied on here include Morton Grodzins and Daniel J. Elazar on federalism, J. Leiper Freeman on cross-institutional systems, Aaron Wildavsky on budgeting and planning, Anthony Downs on bureaucracy, V. O. Key, Jr., on public opinion, Murray Edelman on symbolism in administration, Theodore J. Lowi on policy outputs, and David B. Truman on group processes.²⁷ Each of these men has produced works rich in concepts for public policy analysis. Together they prepare one for a complex of governmental units at all levels that share authority,

CHART 1
 Framework of Analysis

Scientific Analysis of the Policy Process

<i>System</i>	<i>Activities</i>
	<u>Problem to Government Phase</u>
Problem identification system	Perception (to receive and register an event)
	Definition (bringing into sharp relief the effect of an event)
	Aggregation (grouping)
	Organization (to develop structure)
	Representation (means of access)
	<u>Action in Government Phase</u>
Formulation system	Formulation (to develop a plan for solving a problem)
Legitimation system	Legitimacy (to conform to recognized principles or accepted standards)
	Legitimation (process to legitimate—importance of majority-building)
	<u>Government to Problem Phase</u>
Application system	Application (administering policy to the problem—and associated activities)
	<u>Policy to Government Phase</u>
Evaluation system	Reaction (response to the application of policy)
	Evaluation (judging the effects of policy on public problems)
	(Emergence of policy cycles of support, of incremental adjustment, of larger change, of problem identification)
	<u>Problem Resolution or Change Phase</u>
	Resolution (relief from needs)
	Termination (ending policy application)

Professional Analysis of the Policy Process



function across institutional barriers, develop means for expansion and survival, respond to (and are biased toward) clearly articulated group interests, adjust to changes in political environment, and seldom measure the social effects of public policy.

The next task was to establish categories useful for understanding public policy processes. With Lasswell, Yehezkel Dror,²⁸ and others, I proposed a logical sequence of action from problem identification and representation through formulation, legitimation, implementation, and evaluation. I expected that these functional activities would be characterized by the concepts identified above—some would characterize action throughout, others would be specific to a particular functional activity. If not, then the democratic policy process failed to operate as expected, a failure which in itself might explain subsequent policy action in an issue area.

The purpose of developing this sequence was heuristic, not prescriptive. For example, I had no reason to presume in advance that problems had to be defined in a particular way, or at all for that matter, for policy to be developed and implemented. I sought merely to provide a framework based on a logical ordering of the policy process that reflected concepts drawn from existing scholarship and yet was flexible enough to permit adjustments in the light of unexpected findings, new interpretations, and reformulated concepts. The results are summarized on the left portion of chart 1 (to be read in conjunction with Appendix I, especially chart I.1).²⁹

I then directed attention to the specific research needs for a study of air pollution policy development and implementation. What should one expect to find? Again relying heavily on my colleagues I have ordered my impressions in the set of conceptual expectations shown in chart 2. It is expected that action will occur in the sequence indicated, since logic suggests that the stages are consecutive, each dependent on the output of the previous stage. I assume that one can identify patterned and persistent goal-oriented activity within each stage and therefore order the concepts accordingly. As indicated, I propose conceptual expectations for three principal elements of a system—goal, process, and output. The concepts themselves are no more than expressions of what scholars have told me to expect.

I propose looking for a policy formulation system for air pollution which, in good pluralistic form, seeks to articulate the proposals of those who perceive themselves affected by this issue to such an extent that they gain access to decision makers. I expect bargaining and compromise to characterize efforts in the legitimation system to develop an insured majority (one which typically would be greater than 50 percent plus one) for policy increments. Finally, scholars of administration have suggested that applying these increments is normally a continual process of adjustment—principally through

CHART 2
Conceptual Expectations of Air Pollution Policy Development and Implementation

System	Expected Sequence of Activities →		
	Development	Development	Implementation
	1. Identification/Formulation → 2. Legitimation → 3. Application →		
Goal	Articulation	Insured majority	Contextual change
Process	Access/representation	Compromise/bargaining	Adaptation through mutual role-taking
Output	Proposal	Policy increment	Rule (adjustment)

mutual role-taking—so that social change is contextual and not abrupt.

One other important matter must be discussed briefly before we proceed. As noted this study describes and analyzes policy developments at three levels—federal, Pennsylvania, and Allegheny County. Whereas the state and local levels originally developed policy independently of the national government, they gradually came to depend on federal actions and support. Thus, while the concepts in chart 1 could be profitably employed at each level before 1963 (when the first major federal air pollution legislation was enacted), it became necessary in later years to analyze intergovernmental impacts of policy choices. Governments at each level came to share authority in air pollution policy development and implementation, as students of federalism have told us to expect once the federal government has acted. But the form and substance of this sharing were the formal responsibilities of the national level and thus came increasingly to influence conceptual expectations of policy action at lower levels. Though it is too early to determine the full implications of this development, it is useful at this point to introduce the concept of *centrally directed sharing* since it leads us to expect even *less* institution-bound policy action than is suggested by the frameworks summarized in charts 1 and 2. Put in more traditional terms, if charts 1 and 2 advise us to be wary of the separation-of-powers model, centrally directed sharing, with all it implies, advises us to be extremely cautious in relying on time-honored models of federalism as well. It also prepares us for a second Clairton perspective that is interlevel in scope and therefore possibly characterized by divergent purposes and styles.

CLAIRTON IN PERSPECTIVE III

Finally, something must be said about values. If political scientists are to assume the professional roles of which Ranney speaks, then some attention must be devoted to the value basis for advice-giving. To evaluate present policies and the processes by which they are developed and implemented, political scientists will find it necessary to establish interrelated criteria leading to an evaluative framework. This then suggests a third Clairton perspective, one in which decision-making processes are evaluated and recommendations developed, if necessary, for doing things differently.

Though an exact coincidence of preferences among scholars is unlikely, often a review of important social philosophers will produce someone who expresses one's views more coherently than one had thought possible. John Dewey performs that function for me, and I have relied heavily on his learned essays delivered at Kenyon College in 1926, entitled *The Public and Its Problems*, in developing the third Clairton perspective.

Presenting the precise applicability of Dewey's thoughts would be too diversionary at this point (see Appendix I). It is enough for present purposes to cite his general measures of the policy process. These include:

1. Identification of enduring effects
2. Systematic inquiry into effects
3. Communication
4. Debate, discussion, and deliberation

Since these are primarily policy development criteria, I have added implementation criteria drawn from Theodore Lowi's book *The End of Liberalism*³⁰ and Yehezkel Dror's *Public Policymaking Reexamined*. These additional measures appear to be entirely consistent with Dewey's philosophy.

5. Reaching conclusions (Lowi)
6. Motivation (Dror)

Dewey sought the "Great Community" and was convinced it could be achieved through development of knowledge and awareness. Only then would "an organized, articulate Public come into being."³¹ These measures of an emerging public are summarized on the right side of chart 1.

The three Clairton perspectives provide the basic structure for this book. Having begun with the local perspective, I now turn to the immense complexities of the second perspective—that of intergovernmental policy development and implementation, an endeavor which forms the major portion of the book (chapters 2 through 8). After having examined in detail the historical and intergovernmental context of air pollution control policy, I then return to complete the Clairton case study. Evaluation of the processes described in the book logically constitutes the final order of business.