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REGIONAL CONTROL OF AIR AND WATER POLLUTION IN THE SAN FRANCISCO BAY AREA

Automobiles and industry daily pour their poisons into the San Francisco air. Sewage facilities daily discharge their contaminants into the waters of San Francisco Bay. Between the years 1960 and 1990 the population of the Bay Area will double.¹ This increased population, its automobiles and its industries will produce tremendous amounts of wastes; and the problems of pollution will be complicated by a growing need for cleaner air and water.

To alleviate the problems of air and water pollution, regional programs have been developed. Air and water pollution, too complex for solution by local municipalities, are ideally suited for such a regional approach. Other areas with similar problems can learn much from San Francisco's experience. In fact, the successful operation of Bay Area regional pollution control agencies may provide the model for broader forms of regional government. This Comment will analyze the problems of air and water pollution, describe the agencies created to control them and evaluate the effectiveness of these agencies.

I

AIR POLLUTION

By 1948, air pollution problems in the Bay Area had become acute. Although city and county programs were established to solve these problems,² air pollution did not heed governmental boundaries. These local programs could not reach sources of pollution outside each governing body's territorial jurisdiction, and budgets were insufficient to maintain technical personnel and facilities.³ One county's program could be undermined by an uncooperative neighbor and unfavorable winds. California law provided a means for two contiguous counties to merge their air pollution control programs.⁴ For the nine Bay Area counties, however, the process would have been slow, the merger complicated, and the reluc-

¹ It is predicted that by 1990 there will be over 8 million residents in the Bay Area, compared to 3.6 million in 1960. ASSOCIATION OF BAY AREA GOVERNMENTS, REFUSE DISPOSAL NEEDS STUDY 16 (1965).

² JOINT SUBCOMM. ON AIR POLLUTION OF CALIFORNIA ASSEMBLY INTERIM COMMS. ON CONSERVATION, PLANNING, & PUBLIC WORKS, AIR POLLUTION IN THE SAN FRANCISCO BAY AREA 24 (Cal. Assembly Interim Comm. Reps., Vol. 13, No. 4, 1955). For a history of the organizations established in the Bay Area to control air pollution prior to 1955 see Walker, *Organization and Administration of Interjurisdictional Air Pollution Control Programs*, 13 AIR POLLUTION CONTROL ASS'N J. 370 (1963).

³ JOINT SUBCOMM. ON AIR POLLUTION, *supra* note 2, at 29.

⁴ CAL. HEALTH & SAFETY CODE § 24330 (West 1967).

tance of one strategically located county to join would destroy the entire merger.

In 1955, therefore, the California Legislature established the Bay Area Air Pollution Control District,⁵ a regional agency to control sources of air pollution in the Bay Area. In 1960 the Legislature decided that emissions of air pollutants by automobiles was a state wide problem and created the California Motor Vehicle Pollution Control Board,⁶ a state agency with jurisdiction over moving vehicles.

In the Bay Area these regional and state agencies have been successful, however, primarily in controlling, not in reducing, air pollution. Reducing the problem to a tolerable level depends on legal, political and technological advances. Stricter laws must be drafted and enforced; cities and counties surrounding the Bay must also establish control programs; and more effective devices must be invented to control automobile exhaust—the source of more than half of all air pollutants.⁷

A. *The Problem of Air Pollution*

Smog is a killer. In October 1948 the town of Donora, Pennsylvania, was blanketed by a heavy smog. When rain washed the smog away, six thousand of the town's fourteen thousand residents had become ill, and eighteen eventually died.⁸ In December 1952, a deadly smog struck London, causing four thousand deaths.⁹ London suffered a similar smog attack in 1962, and New York was attacked by killer smog in 1953 and 1962.¹⁰

The air pollution in the Bay Area is photochemical smog.¹¹ Photochemical smog is formed by a chemical reaction chiefly between combustion products of such organic fuels as gasoline. Energy for the reaction is acquired from the ultraviolet rays of the sun. When this reaction occurs and the resultant pollutants are trapped beneath a layer of warmer air, pollutants become concentrated and smog is formed. Air pollution is a problem in the Bay Area because San Francisco is dependent upon a

⁵ *Id.* § 24350.

⁶ *Id.* §§ 24383-88.

⁷ BAY AREA AIR POLLUTION CONTROL DISTRICT, AIR POLLUTION AND THE SAN FRANCISCO BAY AREA 1 (1965) [hereinafter cited as BAY AREA POLLUTION].

⁸ PUBLIC HEALTH SERVICE, U.S. DEP'T OF HEALTH, EDUCATION, AND WELFARE, PUB. NO. 1556, THE EFFECTS OF AIR POLLUTION 3 (1966) [hereinafter cited as EFFECTS OF AIR POLLUTION]. Those who became ill, but survived, experienced coughing, sore throats, headaches, burning sensation to eyes and vomiting. *Id.*

⁹ *Id.*; BAY AREA POLLUTION 10.

¹⁰ EFFECTS OF AIR POLLUTION 3.

¹¹ For a description of photochemical smog formation see BAY AREA POLLUTION 5-7, 15-20. Photochemical smog differs from the more toxic forms of smog described in text accompanying notes 8-10, *supra*, and is not usually strong enough to cause death. *Cf.* EFFECTS OF AIR POLLUTION 10.

petroleum economy, and the topography and climate of the area are conducive to smog formation.

Air pollution is injurious in many ways. Its most common effects are eye irritation, coughing and chest pains.¹² Studies have shown a striking correlation between exposure to air pollution and such diseases as emphysema, chronic bronchitis and the common cold.¹³ Recent tests suggest that air pollution is a decisive factor in the development of lung cancer.¹⁴ Smog is also damaging to animal and plant life. Cattle feeding on contaminated grass become ill,¹⁵ and Bay Area growers suffer an estimated annual loss in excess of 5 million dollars, making air pollution the major cause of plant damage in the area.¹⁶ Air pollution also damages property. It corrodes, weakens and discolors building materials, disintegrates clothing, causes rubber to crack, and dirties clothing, cars and houses.¹⁷ Finally, by reducing visibility, smog makes land, water and air travel more hazardous.¹⁸

The problems of smog will persist as long as man burns anything. Little can be done to change the topography and weather of the Bay Area,¹⁹ and the development of power sources less polluting than petroleum is still in its infancy.²⁰ For the foreseeable future, therefore, air pollution controls must be imposed upon petroleum combustion emissions at their source. Thus far California and the Bay Area have attempted to impose these controls with varied success.

B. *The Agencies Created to Control the Problem*

Control of air pollution in the Bay Area is centered primarily at the regional and state level. Cities and counties may, however, enact local ordinances identical to, or stricter than those adopted by the Bay Area Air Pollution Control District, the regional agency.²¹ The federal govern-

¹² See EFFECTS OF AIR POLLUTION 4; BAY AREA POLLUTION 10-11.

¹³ See EFFECTS OF AIR POLLUTION 4-6.

¹⁴ *Id.* at 6. Deaths from lung cancer in urban areas are twice as great as in rural areas, and in laboratory experiments mice and hamsters exposed repeatedly to various air pollutants developed cancer. *Id.*

¹⁵ *Id.* at 12.

¹⁶ BAY AREA POLLUTION 8. Air pollution has damaged such diverse plant life as fir trees, citrus and salad crops, spinach, orchids and garden flowers. EFFECTS OF AIR POLLUTION 15-17.

¹⁷ EFFECTS OF AIR POLLUTION 13-14; see BAY AREA POLLUTION 7-8. Air pollution is estimated to cost the nation \$12 billion or \$65 per capita annually. This figure does not include the cost of health damage or the aesthetic loss because of reduced visibility. EFFECTS OF AIR POLLUTION 18.

¹⁸ EFFECTS OF AIR POLLUTION 13.

¹⁹ A report of the Bay Conservation and Development Commission (see note 108 and accompanying text *infra*) states that massive filling of the Bay would increase the smog level in the area. A. Miller, Smog & Weather, Feb. 1967, at 37-38 (BCDC).

²⁰ For a discussion of the feasibility of electric cars, see *The Truth About the Electric Car*, U.S. NEWS & WORLD REPORT, March 20, 1967, at 72-76.

²¹ CAL. HEALTH & SAFETY CODE § 24360.3 (West 1967). They may also provide by

ment is assuming an increasingly active role in controlling air pollution. The Secretary of Health, Education, and Welfare is directed to establish a national research program,²² to make grants to air pollution control agencies to subsidize the development and improvement of their programs,²³ and to establish standards for the emissions of any substance from new motor vehicles.²⁴

1. *At the Regional Level*

The Bay Area Pollution Control District (BAAPCD), established in 1955,²⁵ includes six of the nine Bay Area counties.²⁶ It is directed to "establish and execute an effective program for the reduction of air contaminants within the district."²⁷ To perform this duty BAAPCD is composed of three separate bodies: the Board of Directors, the Hearing Board and the Advisory Council.

The Board of Directors consists of twelve members, two from each county.²⁸ One must be a county supervisor, the other a mayor or city councilman.²⁹ The Board first determines whether a regulation to control air contaminants is necessary.³⁰ This determination is made only after the Board has held a public meeting where all interested persons are afforded an opportunity to appear and present their views on proposed regulations.³¹ If a resolution is adopted, the Board is then empowered to enact the proposed regulation.³² The regulation, however, may not specify the

ordinance for local enforcement of regulations adopted by the Bay Area Air Pollution Control District. *Id.*

²² 42 U.S.C. § 1857b (1964).

²³ *Id.* § 1957c (1964).

²⁴ 42 U.S.C.A. § 1857f-1 (Supp. 1966). Also the Secretary can abate any other source of pollution which endangers the public health or welfare. *Id.* § 1857d.

²⁵ CAL. HEALTH & SAFETY CODE §§ 24345-74 (West 1967).

²⁶ The primarily agricultural counties of Napa, Solano and Sonoma did not originally join because they were not greatly affected by air pollution problems. These counties may join at any time by resolution of their board of supervisors. *Id.* § 24350.3.

²⁷ *Id.* § 24354.1.

²⁸ *Id.* § 24352.

²⁹ The mayor or city councilman is chosen by a city selection committee composed of the mayors of all the cities in the county. CAL. HEALTH & SAFETY CODE §§ 24351-52 (West 1967).

³⁰ *Id.* § 24362.

³¹ *Id.* Because the BAAPCD is not a state agency, its rulemaking and enforcement procedures are not covered by the California Administrative Procedure Act. For rulemaking, notice must be given by publication. *Id.* § 24362.2. In addition the Board in its discretion sends written notice to all persons the Board believes will be interested. For example, prior to the adoption of BAAPCD Reg. 3 (see note 67 *infra*) there were about 100 formal meetings and at least 100 informal meetings. Telephone interview with Matthew Walker, Legal Counsel for the BAAPCD, March 21, 1967. Procedures for hearings (see text accompanying notes 38-42 *infra*) are governed by CAL. HEALTH & SAFETY CODE §§ 24367-67.11 (West 1967).

³² *Id.* § 24362.1.

design or construction of smog abatement equipment nor the particular method to be used to reduce the release of air contaminants.³³

The Board appoints an air pollution control officer who enforces the regulations prescribed by the Board.³⁴ If any person refuses to furnish information or analyses requested by the control officer within a reasonable time, or if the control officer finds any regulation is being violated, he may notify the Hearing Board and request a public hearing.³⁵

The Hearing Board, composed of three members, is also appointed by the Board of Directors.³⁶ One member must be an attorney, another a professional engineer and the third may represent any section of the community.³⁷ The Hearing Board must hold a public hearing within thirty days after the control officer's request.³⁸ By a majority vote³⁹ it may find that no violation exists, that a variance should be granted, or that an order for abatement should be issued.⁴⁰ A variance will be granted if a regulation constitutes an arbitrary or unreasonable taking of property without a corresponding benefit or advantage to the public in the reduction of air contamination.⁴¹ If the Hearing Board finds that no variance is justified and that a reasonable time has been allowed for compliance, it will issue an order for abatement.⁴² A proceeding for mandatory or prohibitory injunction can then be brought to enjoin any person who violates such an order.⁴³

The Advisory Council, consisting of twenty members, is also appointed by the Board of Directors.⁴⁴ The members are citizens of the community chosen to represent various interest groups.⁴⁵ They have no

³³ *Id.* § 24362.3.

³⁴ *Id.* §§ 24355, 24355.2(b). The air pollution control officer is the full-time chief executive of the BAAPCD.

³⁵ *Id.* § 24362.5.

³⁶ *Id.* § 24357.

³⁷ *Id.*

³⁸ *Id.* § 24362.6. Thus, there is a separation of legislative and adjudicative powers in the BAAPCD. However, for the Bay Regional Water Quality Control Board (see text accompanying 113-27 *infra*) the same body has the legislative and adjudicative powers.

³⁹ CAL. HEALTH & SAFETY CODE § 24367.3 (West 1967).

⁴⁰ *Id.* § 24362.7.

⁴¹ *Id.* § 24365.5.

⁴² *Id.* § 24368. Judicial review may be obtained by filing a petition for a writ of mandate. *Id.* § 24368.4.

⁴³ *Id.* § 24368.6. This power has only been employed twice. Interview with D. J. Callaghan, BAAPCD Air Pollution Control Officer, in San Francisco, Nov. 30, 1966, on file with the *California Law Review*.

⁴⁴ CAL. HEALTH & SAFETY CODE § 24356 (West 1967).

⁴⁵ The groups represented are the following: colleges and universities, health agencies, agriculture, industry, community planning, transportation, registered professional engineers, general contractors, architects and organized labor. The other ten may represent any other worthwhile community interest as defined by the Board of Directors. *Id.* § 24356.

regulatory power but merely advise the Board of Directors about the feasibility, fairness, adequacy and justification, both technically and economically, of proposed regulations.⁴⁶

In analyzing the structure and power of the BAAPCD, one may instructively compare it with the Los Angeles Air Pollution District.⁴⁷ The BAAPCD is a regional district, whereas the Los Angeles District is a single county district.⁴⁸ The Los Angeles District uses a permit system whereby it may specify the devices used to control each pollutant source;⁴⁹ violation of these permits results in misdemeanor sanctions.⁵⁰ The BAAPCD, on the other hand, may not specify how each pollutant source is to be controlled⁵¹ and depends almost exclusively on civil injunctions to enforce its regulations.⁵²

2. At the State Level

To control pollutants emitted by motor vehicles, the state legislature in 1960 established the California Motor Vehicle Pollution Control Board (MVPCB).⁵³ The MVPCB is composed of thirteen members, nine appointed by the Governor and four ex officio⁵⁴ members from related state agencies.⁵⁵ The MVPCB is empowered to establish criteria for approving motor vehicle control devices.⁵⁶ These criteria may be adopted only after the MVPCB has held a public meeting where all interested persons are afforded the opportunity to present statements in writing.⁵⁷ After these

⁴⁶ Walker, *supra* note 2, at 371.

⁴⁷ Any county may, by resolution of its board of supervisors, declare itself to be an air pollution control district. CAL. HEALTH & SAFETY CODE § 24200 (West 1967).

⁴⁸ Consequently, its board of supervisors are members of the District's Board of Directors. *Id.* § 24220. The funds for the Los Angeles District come from the general county budget, *id.* § 24209, whereas the BAAPCD is supported by property taxes collected by each county. The six Bay Area member counties are assessed after the Board of Directors estimates the District's annual budget. This assessment is apportioned among the counties: one-half according to each county's share of real estate value in the District and one-half according to the county's share of the District's population. *Id.* § 24370.1.

⁴⁹ *Id.* § 24263.

⁵⁰ *Id.* § 24253. The Los Angeles Board can also petition for injunctive relief. *Id.* § 24252.

⁵¹ See note 33 and accompanying text *supra*.

⁵² Misdemeanor sanctions for violations of BAAPCD Reg. 1 (see note 67 *infra*) were added in 1965. Punishment consists of a fine of not more than \$500 or imprisonment not exceeding six months or both fine and imprisonment. CAL. HEALTH & SAFETY CODE § 24361.5 (West 1967). These penalties have been used infrequently but their worth can be measured by how many offenses have been prevented. D. J. Callaghan interview, *supra* note 43.

⁵³ CAL. HEALTH & SAFETY CODE §§ 24383-88 (West 1967).

⁵⁴ The directors of the agencies cited in note 55 *infra* are also members of the MVPCB.

⁵⁵ These members are the directors or their nominees of the departments of Public Health, Agriculture, California Highway Patrol and Motor Vehicles. *Id.* § 24383.

⁵⁶ *Id.* § 24386(3). In drafting the applicable criteria the Board must consider the cost of the device and its installation, its durability, and the ease of determining whether the device is functioning properly. *Id.*

⁵⁷ CAL. GOV'T CODE § 11425 (West 1966). The Board in its discretion may allow oral

criteria have been adopted, the MVPCB then issues certificates of approval for any control device that satisfies the criteria.⁵⁸ Misdemeanor sanctions are applied to any person who sells or installs uncertified devices.⁵⁹ The MVPCB can enjoin the sale in California of vehicles which do not have certified smog control devices.⁶⁰

Three other state agencies are involved in the control of air pollution. The Department of Public Health sets standards for the quality of air to be maintained in the state.⁶¹ It also establishes standards for maximum emissions of exhaust contaminants from motor vehicles.⁶² The Department of Motor Vehicles licenses persons to install, repair, inspect and recharge vehicle control devices in approved stations.⁶³ The Department will refuse to register any vehicle required to use a control device until a certificate of compliance has been obtained from a licensed station.⁶⁴ Finally, the California Highway Patrol may stop vehicles to inspect the effectiveness of the control devices.⁶⁵

C. *The Agencies in Action*

1. *At the Regional Level*

The control of air pollution is ideally suited for regional control and the BAAPCD has been very effective because its jurisdiction encompasses the major sources of air pollution in the area. With the exception of moving vehicles there is no need for state control, and the BAAPCD can easily locate and regulate the stationary sources of air pollution. The BAAPCD has been very successful in reducing the release of contaminants⁶⁶ by issuing regulations which primarily control open fires, industries and commercial incinerators.⁶⁷

testimony as well. *Id.* All rulemaking procedures and hearings of the MVPCB are governed by the California Administrative Procedure Act. CAL. HEALTH & SAFETY CODE §§ 24386(1), (7) (West 1967). Hearings are for the purpose of issuing certificates of approval, granting exemptions and revoking certificates previously issued or exemptions previously granted. *Id.*

⁵⁸ CAL. HEALTH & SAFETY CODE § 24386(4) (West 1967). The Board may exempt certain motor vehicles from using these devices if they are not available or the vehicles can meet state requirements without the use of additional equipment. *Id.* § 24386(5).

⁵⁹ *Id.* §§ 24395-96.

⁶⁰ *Id.* § 24391.

⁶¹ *Id.* § 426.3. These standards assist the BAAPCD in formulating regulations.

⁶² *Id.* § 426.5. These standards are then used by the MVPCB in approving smog control devices.

⁶³ CAL. VEH. CODE §§ 28500-11 (West Supp. 1966).

⁶⁴ *Id.* § 4000.1(a).

⁶⁵ *Id.* §§ 2813-14.

⁶⁶ In 1955 stationary sources in the Bay Area emitted 4,600 tons of air pollutants. In 1964 the figure was reduced to 3,200 tons. *Id.* Without the BAAPCD the figure would have been 6,250 in 1964. BAY AREA POLLUTION, *supra* note 7, at 12. Furthermore, in 1966 smog concentrations in the Bay Area were 25% lower than in 1965. San Francisco Chronicle, Feb. 2, 1967, § 1, at 3, col. 1, 2 (CCCCAA ed.)

⁶⁷ BAAPCD Reg. 1, which became effective in October 1957, controls large scale open

While the BAAPCD has had great success, it has been hindered by a number of problems. First, it may not specify the type of equipment used to control sources of air pollution. By contrast, the board in Los Angeles will not issue a permit until the specified equipment is procured.⁶⁸ Thus, there is less chance that the pollutants will not be controlled when the equipment is installed. Also the Los Angeles permit system is easier to administer. Because the BAAPCD does not know what type of device is being used to control pollution, it must make numerous performance checks. Control of air pollution by the BAAPCD would also be strengthened if it had misdemeanor sanctions as does the board in Los Angeles.⁶⁹

A second problem of the BAAPCD is that only six of the nine Bay Area counties have joined.⁷⁰ This has caused several difficulties. One is that the dissident three counties are not required by law to control their air pollutants as stringently as BAAPCD counties. Thus, winds can transport pollutants into the air of the other six counties. Furthermore, the three counties receive the benefits of the BAAPCD without shouldering the cost. This creates a vicious circle. Because the BAAPCD reduces the number of contaminants blown into the air of the three counties, the problem will not become acute. And until the problem becomes acute, these counties have no reason to join.

2. At the State Level

It is estimated that sixty percent of the air pollutants in the Bay Area originates from automobiles.⁷¹ This does not necessarily mean that the MVPCB is a failure,⁷² but it does highlight the need for controlling motor vehicles.⁷³ The success of the MVPCB was reflected in the state-

burning with certain exceptions. Among the most important exceptions are fires for cooking, certain agricultural fires and fires at one and two family dwellings between the hours of 6:00 a.m. and sunset for the disposal of rubbish. BAAPCD Reg. 1, § 3. BAAPCD Reg. 2, promulgated in January 1961, is a comprehensive and technical regulation which controls certain visible emissions from industrial sources, and the emission of hydrocarbons from commercial incinerators. BAAPCD Reg. 3, to become effective January 4, 1968, is designed to regulate the emission of all reactive organic gases from various sources. In addition to this new regulation, the Advisory Council has recommended the strengthening of Reg. 1 by removing the exemption on agricultural fires and rubbish fires from one and two family dwellings. D. J. Callaghan interview, *supra* note 43.

⁶⁸ See text & note 49 *supra*.

⁶⁹ See text & note 50 *supra*.

⁷⁰ See note 26 *supra*.

⁷¹ D. J. Callaghan interview, *supra* note 43.

⁷² The MVPCB prevents the release statewide of 470,000 gallons of hydrocarbons and 2,400 tons of carbon monoxide daily. E. GRANT, STATUS REPORT—PERFORMANCE OF EMISSION CONTROL SYSTEMS 1 (1967), on file at MVPCB office, Los Angeles.

⁷³ Of the hydrocarbons emitted by automobiles, 65% are released in exhaust, 25% from the crankcase and 10% through evaporation. Of the 11 million automobiles in the state, 1.4 million have exhaust control devices and these eliminate approximately 70% of the hydrocarbons found in exhaust. Seven million automobiles have crankcase devices and these

ment by Senator Edmund Muskie, Chairman of the United States Senate Subcommittee on Air Pollution, to the chairman of the MVPCB, that the California effort was the "nation's best air pollution control program."⁷⁴ In accord with this statement, the Secretary of Health, Education and Welfare adopted the same standard for automobile exhaust emissions as the California State Department of Public Health had adopted.⁷⁵

The achievements of the MVPCB, however, have not been perfect. Only sixty percent of the automobiles with exhaust control devices⁷⁶ are meeting the criteria established by the Department of Public Health.⁷⁷ Also, although the data is insufficient, there is great concern that these exhaust devices become progressively less effective with the number of miles traveled.⁷⁸

The principal problem encountered by the MVPCB has been technical. Inexpensive and efficient crankcase control devices⁷⁹ are not yet available for all used cars,⁸⁰ but it is used cars that burn gasoline most inefficiently, and unburned gasoline contains the air pollutants.⁸¹ In addition, exhaust control devices thus far invented are only seventy percent effective in reducing exhaust emissions.⁸² Finally, no device has been invented to control evaporation pollution which constitutes ten percent of all automobile pollutants.⁸³

Second, air pollution control devices were at one time illegally and carelessly installed. Some licensed stations would, contrary to law, install devices on automobiles whose engines were already defective.⁸⁴ Since this caused engines to burn out, much of the criticism directed at the devices should have been directed at the installer.⁸⁵ Another problem was

devices completely eliminate hydrocarbon emissions from the crankcase. By 1970, of the state's 13.5 million automobiles, 9 million will have crankcase controls while 4 million will have exhaust controls. Thus, 1970 model automobiles will be 90% controlled. *Id.*

⁷⁴ MOTOR VEHICLE POLLUTION CONTROL BULL., March 1967, at 1.

⁷⁵ CALIFORNIA MOTOR VEHICLE POLLUTION CONTROL BOARD, SMOG 17-18 (1967). The federal requirements are contained in 31 C.F.R. § 85.21 (Supp. 1967).

⁷⁶ Exhaust control devices complete the combustion of partially burned exhaust gases.

⁷⁷ M. Brubacher, Effectiveness of Exhaust Controls in Public Use 1 & Figure A (1967), on file at MVPCB office.

⁷⁸ *Id.* at 2.

⁷⁹ Crankcase devices are designed to prevent gases from escaping between the piston and cylinder wall into the atmosphere. They circulate the unburned gases into the combustion chamber for more complete burning. Thus, because they increase the amount of gasoline burned, these devices aid in automobile performance in some cases.

⁸⁰ Interview with Alfred Noyes, engineering for the MVPCB in Los Angeles, March 23, 1967, on file with the *California Law Review*.

⁸¹ *Id.*

⁸² E. GRANT, *supra* note 72, at 1.

⁸³ *Id.*

⁸⁴ Alfred Noyes interview, *supra* note 80.

⁸⁵ *Id.*

that some licensed stations would approve faulty devices.⁸⁶ These problems have been reduced considerably by the revocation of the licenses of many stations by the Department of Motor Vehicles.⁸⁷

A third problem has been caused by gaps and imprecision in the drafting of regulatory legislation. Under present California law, used cars are not required to have crankcase control devices until the vehicle is transferred to a new owner.⁸⁸ This means that many used cars for which efficient and inexpensive devices are available are not required by law to have them installed.⁸⁹ Crankcase control devices should be required on all nonexempted used cars as a prerequisite to registration. The federal law concerning the establishment of standards on automotive exhaust emissions⁹⁰ is also ambiguous as to whether it has preempted the field from state action. Although California has planned to tighten its standards on 1970 model cars,⁹¹ it is uncertain whether it will be able to impose stricter standards than those applied by the federal government.⁹²

D. Summary

The regional approach to air pollution was certainly correct. Perhaps swifter results could have been obtained if the BAAPCD had been granted greater powers through a permit system. Future success will depend on technological advances and on encouraging other Bay Area counties to join. At the state level future success is almost exclusively dependent upon technological advances. Financial considerations affecting these technological advances are of little consequence compared with the enormous damage air pollution causes daily.

II

WATER POLLUTION

The control of water pollution in the Bay Area has had a history somewhat similar to that of air pollution. With industry moving to the

⁸⁶ *Id.*

⁸⁷ There are now 5,106 licensed stations in the state, as compared with 8,000 previously. *Id.*; see CALIFORNIA MOTOR VEHICLE POLLUTION CONTROL BOARD, *supra* note 75, at 15. The power to revoke licenses of stations is found in the CAL. VEH. CODE § 28504 (West Supp. 1966).

⁸⁸ CAL. HEALTH & SAFETY CODE § 24390(d) (West 1967).

⁸⁹ The previous law requiring devices on these cars was repealed because of ambiguous wording. This was § 24393 of the Health and Safety Code, as amended by ch. 999, [1963] Cal. Stats. 2264. It was repealed by ch. 2031, [1965] Cal. Stats. 4606. For a discussion of the ambiguity, see ch. 3, [1965] Cal. Stats. 872.

⁹⁰ 42 U.S.C.A. §§ 1857f-1 (Supp. 1966).

⁹¹ *Cf.* CALIFORNIA MOTOR VEHICLE POLLUTION CONTROL BOARD, *supra* note 75, at 17-18.

⁹² In the opinion of Dean Coston, Deputy Undersecretary of Health, Education, and Welfare, there is nothing in the law to prevent a state from adopting stricter measures. E. GRANT, SUMMARY OF STATEMENTS PRESENTED BEFORE THE MUSKIE COMMITTEE HEARINGS 1 (1967), on file at MVPCB office.

area during World War II, cities developed rapidly on the Bay's shoreline. These industries and cities dumped their raw sewage into the Bay without any preliminary treatment.⁹³ Cities in other parts of the state were also adulterating their waters.⁹⁴ In 1949 the state legislature divided the state into nine water regions and created regional boards to control the water pollution in each region.⁹⁵ The legislature believed that the regional approach was required because the waters of the state varied from one region to another;⁹⁶ but because many waters, unlike air, are not confined to a single region, a state board was created to provide supervision for the regional boards.⁹⁷

The water pollution program in the Bay Area has been generally successful. But even though cities and sanitary districts have invested more than 200 million dollars in waste treatment facilities since 1950,⁹⁸ the problem of water pollution remains. The future success of the program depends upon greater cooperation between local governments and the regional boards. And because rivers emptying into the Bay carry pollutants from distant parts of the state, more forceful leadership is needed from state agencies.

A. *The Problem of Water Pollution*

Diseases caused by water contamination, such as dysentery and typhoid, are more severe than those generally caused by smog. While protective measures are usually taken to safeguard the community's drinking water, the purity of other waters is often neglected. These waters can poison fish and wildlife, emit noxious odors and discourage water recreation.⁹⁹

⁹³ Address by Grant Burton, Chairman of the Bay Regional Water Pollution Control Board, California Sanitary Districts Ass'n, July 16, 1965, on file with the *California Law Review*. Added to these wastes were enormous deposits of silt from gold minings that were transported from mountain streams into the Bay. M. SCOTT, *THE FUTURE OF THE SAN FRANCISCO BAY* 25 (1963). The problems arose when the assimilative capacity of the Bay was exceeded and the tides proved ineffective in removing the polluted waters. *Id.* As a result, "Bay breezes, once only bracing, carried stenches of man-made wastes." STATE WATER QUALITY CONTROL BOARD, *SAN FRANCISCO BAY-DELTA WATER QUALITY CONTROL PROGRAM* ix (1966).

⁹⁴ In 1949 raw sewage from 134 communities representing 20% of the state's population was being discharged into the waters of the state. Statement Before the Assembly Interim Comm. On Water, by the League of California Cities, San Francisco, Nov. 17, 1966. Today less than 0.01% of California residents are served by facilities that do not provide waste treatment. *Id.*

⁹⁵ CAL. WATER CODE §§ 13040-64 (West 1956).

⁹⁶ "[P]roblems of water pollution in this state are primarily regional and dependent upon factors of precipitation, topography, population, and recreational, agricultural and industrial development which vary greatly from region to region." *Id.* § 13000.

⁹⁷ *Id.* § 13010.

⁹⁸ M. SCOTT, *supra* note 93, at 66.

⁹⁹ *E.g.* "The dumping of refuse in land-fills in productive areas such as the Berkeley and

The Bay Area has not been able to eliminate pollution from its waters. Increases in waste discharges have overburdened treatment plants to the point of inefficiency,¹⁰⁰ and rivers draining regions far removed from San Francisco transport sewage wastes from many parts of the state into the Bay.¹⁰¹ Two additional factors seriously compound the problem. First, the supply of fresh water needed to decompose these wastes is being reduced. Streams formerly running into the Bay are being diverted to Southern California.¹⁰² Second, the Bay itself is getting smaller¹⁰³ through careless dumpings,¹⁰⁴ industrial filling, and unavoidable bridge, highway and airport construction.¹⁰⁵ Substantial filling of the Bay reduces the cleansing and flushing power of the tides,¹⁰⁶ and by diminishing the volume of water, it decreases the assimilative capacity of the Bay.

B. The Agencies Created to Control the Problem

As with air pollution, control of water pollution is centered mainly at the regional and state level. Cities and counties can, however, adopt regulations for disposal of sewage and industrial waste which do not conflict with state and regional board rulings.¹⁰⁷ In addition, special regional commissions such as the Bay Conservation and Development Commission (BCDC)¹⁰⁸ and the San Francisco Bay-Delta Study Steering Committee,¹⁰⁹ established by the state legislature, will have a great impact

San Mateo flats has undoubtedly had an adverse effect on the striped bass population." Kutz, *The Fishery Resources, In REDUCED AREA—INVESTIGATION OF THE SAN FRANCISCO BAY*; see M. SCOTT, *supra* note 93 at 53.

¹⁰⁰ STAFF OF THE REGIONAL BOARD, SAN FRANCISCO BAY REGIONAL WATER POLLUTION CONTROL BOARD—ITS COMPOSITION, METHOD OF ORGANIZATION, ETC. 4 (1963). See M. SCOTT, *supra* note 93, at 53. This increase is partly caused by the growing use of household garbage disposal devices. *Id.*

¹⁰¹ Approximately 40% of the state's waters flow into the Bay. Interview with Grant Burton, Chairman of the Bay Regional Water Quality Control Board, in Walnut Creek, March 15, 1967, on file with the *California Law Review*.

¹⁰² These diversions are executed under the California Water Plan, CAL. WATER CODE §§ 10004-05 (West Supp. 1966).

¹⁰³ The Bay has been reduced 243 square miles between 1850 and 1957. W. Spangle & P. Sedway, *Municipal, State and Federal Programs Affecting San Francisco Bay 1* (1966).

¹⁰⁴ See note 99 *supra*.

¹⁰⁵ SAN FRANCISCO BAY-DELTA WATER QUALITY PROGRAM, *supra* note 93, at 8.

¹⁰⁶ See generally B. Smith, *The Tides of San Francisco Bay*, June 1966 (BCDC).

¹⁰⁷ CAL. WATER CODE § 13001(a) (West Supp. 1966). Also, every city and county retains the power to declare, prohibit and abate nuisances. *Id.* § 13001(b); *People v. City of Los Angeles*, 160 Cal. App. 2d 494, 325 P.2d 639 (1958).

¹⁰⁸ Ch. 1162, [1965] Cal. Stats. 2940. BCDC is making a detailed study of the quality, quantity and movement of the waters of the Bay and it is charged with the formation of a comprehensive program for the conservation of the Bay and the development of its shoreline. CAL. GOV'T CODE § 66603 (West 1966). As seen in the text accompanying note 106 *supra*, any fill affects the assimilative capacity of the Bay.

¹⁰⁹ Ch. 1351, [1965] Cal. Stats. 3239. The Study Committee to develop the basic features of a comprehensive water quality control program, including a system for the

on future water pollution control in the Bay Area. Finally, as with air pollution, the federal government is taking an increasingly active role in the control of water pollution. The Secretary of the Interior is directed to conduct a coordinated research program,¹¹⁰ to make grants to states to establish and maintain water pollution control programs¹¹¹ and to make grants to states, municipalities and intermunicipal agencies for the construction of necessary treatment plants.¹¹²

1. *At the Regional Level*

The Dickey Act of 1949¹¹³ initiated a statewide attack on water pollution.¹¹⁴ Principal control powers were vested in nine regional water quality control boards which covered the entire state. The San Francisco Bay Regional Water Quality Control Board (BRWQCB) encompasses the nine Bay Area counties.¹¹⁵ Its seven members are appointed by the Governor for staggered four-year terms¹¹⁶ and are selected to represent various interest groups.¹¹⁷

The BRWQCB controls pollution in the Bay Area by issuing requirements for waste discharges.¹¹⁸ Any person proposing to discharge sewage or industrial waste,¹¹⁹ other than into a community sewer system, must file a report of the proposed discharge with the BRWQCB.¹²⁰ Waste dis-

collection, reclamation, treatment and disposal of waste and drainage waste discharges in the waters of the San Francisco Bay-Delta area. Ch. 1351, § 3, [1965] Cal. Stats. 3239.

¹¹⁰ 33 U.S.C. § 466 (a) (1964). He accomplishes this objective by publishing reports of such investigations and by making grants-in-aid to public and private agencies and individuals for research. *Id.* § 466c(a)(1)-(2) (1964).

¹¹¹ *Id.* § 466d (1964).

¹¹² *Id.* § 466e (1964). Also, he can abate the pollution of interstate and navigable waters of the state which endangers the public health and welfare. *Id.* § 466g (1964).

¹¹³ Ch. 1549, [1949] Cal. Stats. 2782. The title of the act was changed to the Water Quality Control Act in 1965. Ch. 1657, [1965] Cal. Stats. 3760.

¹¹⁴ Pollution is defined as "an impairment of the quality of the waters of the State by sewage or industrial waste to a degree which does not create an actual hazard to the public health but which does adversely . . . affect such waters for domestic, industrial, agricultural, navigational, recreational or other beneficial use." CAL. WATER CODE § 13005 (West Supp. 1966).

¹¹⁵ While closely approximating the boundaries of the nine Bay Area counties, the jurisdiction of the BRWQCB does not include all the area of each county.

¹¹⁶ CAL. WATER CODE §§ 13041-42 (West Supp. 1966).

¹¹⁷ The interest groups represented are the following: organizations dealing with water supply, conservation or production; irrigated agriculture; industries; municipalities; counties; recreation and wildlife; and the public at large. *Id.* § 13041.

¹¹⁸ These requirements prescribe the maximum of certain chemicals to be maintained in the effluent or the receiving waters. For example, see BRWQCB Reg. 683 (1965), discussed in text accompanying notes 172-74 *infra*.

¹¹⁹ These terms are defined to include almost all wastes associated with human habitation. See 27 OP. CAL. ATT'Y GEN. 182 (1956). For the specific definitions see CAL. WATER CODE § 13005 (West Supp. 1966).

¹²⁰ CAL. WATER CODE § 13054 (West Supp. 1966). Any person failing to file is guilty of a misdemeanor. *Id.* § 13054.4.

charge requirements for the proposed discharge and future discharge privileges are then established after a public hearing at which both the discharger and downstream water user have an opportunity to express their views.¹²¹ The BRWQCB may not, however, restrict the location, type of construction or particular manner in which the waste is treated or discharged.¹²²

If a violation of BRWQCB requirements occurs and the discharge threatens to cause or is causing excessive pollution, the BRWQCB may issue a cease and desist order.¹²³ Violations of a cease and desist order are certified by the BRWQCB to a county district attorney who petitions the county superior court for the issuance of an injunction restraining the discharger from further violations.¹²⁴

Additional duties of the BRWQCB include the formulation, after a public hearing, of long-range plans and policies with respect to water quality control within the region.¹²⁵ Because there are no misdemeanor sanctions for violations of discharge requirements,¹²⁶ an extremely im-

¹²¹ *Id.* § 13054. These written requirements may specify the necessary quality of the receiving water or the quality of the effluent prior to discharge or a combination of the above. 16 OP. CAL. ATT'Y GEN. 203 (1950).

¹²² CAL. WATER CODE §§ 13054 (West Supp. 1966); *id.* § 13064 (West 1956); 16 OP. CAL. ATT'Y GEN. 200 (1950). If the regional board is considered to have taken an inappropriate action, the aggrieved party can appeal to the State Water Quality Control Board. CAL. WATER CODE § 13025 (West Supp. 1966). Only eight waste discharge requirements have been appealed to the State Board from 1950-1966, and in only one case has the State Board decided that the regional board's requirements were improper. Statement of the League of California Cities, *supra* note 94. In addition, under § 13054.1 these requirements may be modified upon evidence of changed conditions in the receiving waters.

¹²³ CAL. WATER CODE § 13060 (West Supp. 1966). Prior to 1959, hearings were required under the California Administrative Procedure Act before the issuance of a cease and desist order. CAL. WATER CODE § 13061 (West 1956). However, it was felt that these hearings were used as a delaying tactic. Statement Before Assembly Interim Comm. on Water, by P. Bonderson, Executive Officer of the State Water Quality Control Board, San Francisco, Nov. 16, 1966. Therefore, these requirements were repealed and hearings are now discretionary rather than mandatory. Ch. 1299, [1959] Cal. Stats. 3454. Between 1959 and September 30, 1966, the nine regional boards have issued 190 cease and desist orders. State Water Quality Control Board, Quarterly Progress Report 4 (Sept. 1966). These orders remain in effect until removed by the regional board. Ninety of these orders have been so removed. *Id.*

The BRWQCB has established a policy that when it wishes to initiate formal enforcement procedures, it will ask the discharger to file a time schedule with the BRWQCB showing the dates when compliance with the discharge requirements will be met. San Francisco Bay Regional Water Quality Control Board Status of Water Pollution Control in Napa County, Appendix A (1966).

¹²⁴ CAL. WATER CODE § 13063 (West Supp. 1966). Since 1959, twenty cease and desist orders have been referred to a district attorney. In only two of these cases was the state's petition for a court order denied, and in one of these cases the condition complained of had been corrected prior to the final judgment. Statement by P. Bonderson, *supra* note 123.

¹²⁵ CAL. WATER CODE § 13052(e) (West Supp. 1966). This policy adopted by the BRWQCB together with the policy adopted by the State Board (see text accompanying note 131 *infra*) serve as guidelines for establishing waste discharge requirements.

¹²⁶ See text accompanying notes 123-24 *supra*. These are the only sanctions provided.

portant function of the BRWQCB is to obtain coordinated action of water quality control by means of formal and informal meetings with dischargers.¹²⁷

2. *At the State Level*

The Dickey Act of 1949 also created a State Water Quality Control Board (State Board), which is composed of fourteen members.¹²⁸ Nine are chosen by the Governor for staggered four-year terms to represent various interest groups;¹²⁹ five directors of related state agencies are ex officio members.¹³⁰ The State Board exercises coordinating, supervisory and review authority over the regional boards. To coordinate and guide the establishing of waste discharge requirements by the regional boards, the State Board formulates a statewide policy for water quality control.¹³¹ The State Board supervises the financial activities of the regional boards by allocating funds for administrative expenses, directing the flow of federal assistance funds and administering technical research programs.¹³² It may review the action or inaction of a regional board and, upon finding that the regional board's conduct was improper, the State Board may require the regional board, or any appropriate state agency, to take appropriate action, or it may take such action itself.¹³³ Finally, in the event a waste discharge in one region affects the water in another region and the regional boards involved disagree over the requirements to be established, either regional board may submit the dispute to the State Board for resolution.¹³⁴

Other state agencies are involved in the control of water pollution,

¹²⁷ CAL. WATER CODE § 13052(a) (West Supp. 1966).

¹²⁸ *Id.* §§ 13010-11.

¹²⁹ *Id.* § 13011. The represented groups are the following: production and supply of domestic water; irrigated agriculture; industrial water use; production of industrial waste; public sewage disposal; city government; county government; recreation and wildlife; and the public at large.

¹³⁰ *Id.* These members are the directors of Public Health, Water Resources, Conservation, Agriculture, and Fish and Game.

¹³¹ *Id.* § 13022.1 See note 125 *supra*. This policy is also designed to aid state agencies in planning their water activities.

¹³² CAL. WATER CODE §§ 13023-24 (West Supp. 1966). During the fiscal year 1965-1966 there were 128 applications from local governments which requested \$33 million, and the State Board administered fifty federal grants for a total of \$19.3 million. Statement Before Assembly Interim Comm. on Water, by R. Gupta, Member, State Water Quality Control Board, San Francisco, Nov. 17, 1966. The research programs of the State Board have concentrated on waste water reclamation, water quality criteria and the effects of various pollutants on marine environment. *Id.*

¹³³ CAL. WATER CODE § 13025 (West Supp. 1966). This function includes the review of discharge requirements set by the regional boards and the issuance of cease and desist orders. See text accompanying notes 118-23 *supra*.

¹³⁴ CAL. WATER CODE § 13025.5 (West Supp. 1966).

but in the performance of their duties they must give conscious recognition to the policies and standards of water quality control adopted by the state and regional boards.¹³⁵ The Department of Public Health has control over water pollution which creates an actual hazard to the public health.¹³⁶ It continually surveys public sewage treatment and disposal systems and assists local health officers in preventing health hazards.¹³⁷ The Department of Fish and Game can prosecute any person who discharges into state waters any substance or material deleterious to fish, birds or plants.¹³⁸ It also determines the levels of toxicity of various pollutants and their effect on fish and game,¹³⁹ drafts comments on proposed regional board discharge requirements,¹⁴⁰ and conducts special investigations for the regional boards.¹⁴¹ The Department of Water Resources is an information gathering agency in the field of water pollution. It conducts investigations on the existing level of water pollution¹⁴² and on the possibility of water reclamation from sewage and industrial wastes.¹⁴³ It also provides technical information and assistance to the state and regional water quality control boards whenever requested.¹⁴⁴

C. *The Agencies in Action*

1. *At the Regional Level*

Secretary of the Interior Stewart Udall has stated that California has an unsurpassed program for water pollution control.¹⁴⁵ This success

¹³⁵ 44 OP. CAL. ATT'Y GEN. 126 (1964). By § 13057 of the Water Code, the enforcement procedures of the Water Quality Control Act are not applicable to state agencies.

¹³⁶ CAL. HEALTH & SAFETY CODE §§ 5410-12 (West 1967). A contamination is defined as "an impairment of the quality of the waters of the State by sewage or industrial waste to a degree which creates an actual hazard to the public health through poisoning or through the spread of disease." *Id.* § 5410(c). A "pollution," note 114 *supra*, and a "contamination" may exist in the same waters simultaneously. 26 OP. CAL. ATT'Y GEN. 253 (1955).

¹³⁷ WATER RESOURCES ENGINEERS, INC., AN INTERAGENCY SYSTEM FOR WATER QUALITY MANAGEMENT 93-94 (1962). See W. Spangle & P. Sedway, *supra* note 103, at 50. Whenever the Department learns that a pollution exists, it must report it to the regional water quality control board. CAL. HEALTH & SAFETY CODE § 5413 (West 1967).

¹³⁸ CAL. FISH & GAME CODE § 5650 (West 1958). These prosecutions may be made without approval of the regional water quality control boards. 42 OP. CAL. ATT'Y GEN. 53 (1963). The Department filed sixty-eight misdemeanor complaints during the period of January 1960 to January 1962, and of these only six resulted in decisions of "not guilty." WATER RESOURCES ENGINEERS, INC., *supra* note 137, at 68.

¹³⁹ WATER RESOURCES ENGINEERS, INC., *supra* note 137, at 64.

¹⁴⁰ *Id.*

¹⁴¹ *Id.* at 70, 76.

¹⁴² CAL. WATER CODE § 229 (West 1956).

¹⁴³ *Id.* § 230.

¹⁴⁴ *Id.* §§ 13020(g), 13052(c) (West Supp. 1966).

¹⁴⁵ See Address by Secretary Udall, dedication ceremonies of the Sunol Filtration Plant, San Francisco, September 1966, quoted in Statement of R. Gupta, *supra* note 132.

is due to the accomplishments of the regional boards.¹⁴⁶ California was the first state to place planning for water pollution control on a regional basis,¹⁴⁷ and the progress made in the Bay Area demonstrates the soundness of this approach. Fishing has improved vastly.¹⁴⁸ Concentrations of gross pollution which existed offshore have been eliminated.¹⁴⁹ Sewage facilities, a rarity in 1950, are now commonplace and are constantly being improved.¹⁵⁰ And the BRWQCB has developed a successful checking and monitoring system to test the concentrations of treated industrial and sewage waste.¹⁵¹

The program in the Bay Area has not, however, been successful in all aspects. Its principal weakness has been its failure to encourage groups of communities to consolidate their waste treatment facilities into one efficient operation.¹⁵² The BRWQCB has a long record of encouraging local governmental agencies to undertake integrated planning for sewerage systems and waste disposal facilities,¹⁵³ yet no master plan has been devised to replace small, overlaid facilities with large, efficient plants to serve wide areas.¹⁵⁴ There are several unfortunate examples in the Bay Area of the low-cost, small system approach.¹⁵⁵ The public has "had to pay for the initial facilities, for their expensive (and usually faulty) operation, and finally for the annexation of the area to a larger system, abandoning the initial system."¹⁵⁶

¹⁴⁶ As an example of the success due to the regional boards, a survey of all agencies concerned with water pollution concluded, "[t]he Regional Water Pollution Control Boards have, in a great majority of cases, administered their programs effectively. The average production effort of the staffs of these boards, per individual, was the highest of any state organization reviewed." WATER RESOURCES ENGINEERS, INC., *supra* note 137, at 182.

¹⁴⁷ Statement Before Assembly Interim Comm. on Water, by G. Burton, Chairman of BRWQCB, San Francisco, Nov. 17, 1966, on file with the *California Law Review*.

¹⁴⁸ Address by Grant Burton to the California Sanitary and Sanitation Districts Ass'n, July 16, 1965, on file with the *California Law Review*. The number of complaints from fishermen has dropped markedly. Interview with Grant Burton in Walnut Creek, March 15, 1967, on file with the *California Law Review*. Species of fish which have not been caught in the Bay in forty years are now returning. *Id.* Also, shrimp in commercial quantities are now found in the Bay. *Id.*

¹⁴⁹ Burton address, *supra* note 148.

¹⁵⁰ *Id.*

¹⁵¹ *Id.* This includes self-monitoring whereby the discharger himself must make tests on his effluent. Also, the BRWQCB makes tests with a patrol boat. CAL. WATER CODE § 13055 (West Supp. 1966). Misdemeanor sanctions have been added to enforce the self-monitoring system. *Id.* § 13055.1.

¹⁵² See notes 167-81 and accompanying text *infra*.

¹⁵³ STAFF OF THE REGIONAL BOARD, SAN FRANCISCO BAY REGIONAL WATER POLLUTION CONTROL BOARD—ITS COMPOSITION, METHOD OF ORGANIZATION, ETC. 4 (1963); Interview with James McCormick, vice-chairman of the BRWQCB, in Berkeley, Nov. 22, 1966, on file with the *California Law Review*. See text following note 184 *infra*.

¹⁵⁴ M. SCOTT, THE FUTURE OF THE SAN FRANCISCO BAY 66 (1963).

¹⁵⁵ W. ZION, ALTERNATIVES FOR THE GOVERNMENTAL ORGANIZATION OF SEWAGE FACILITIES IN THE PLEASANTON-LIVERMORE AREA 11 (1960).

¹⁵⁶ *Id.*

The interests of economy and public health demand the consolidation of sewage treatment facilities. Large plants are more efficient than smaller plants¹⁵⁷ and can be more carefully operated.¹⁵⁸ If a small plant suffers mechanical failure and there is no one to repair it, raw sewage will be discharged into public waters. Large plants, on the contrary, can afford a full-time maintenance man. The arguments against consolidation focus on three points. First, politicians dislike taxing residents for sewage expenditures.¹⁵⁹ Second, communities that have invested in treatment facilities fear that under a regional arrangement their investment will be wasted.¹⁶⁰ Third, there exists a desire to retain political autonomy at the local level.¹⁶¹

Nevertheless, these considerations are outweighed by the need to purify the polluted waters of the Bay Area. A regional program must be established to integrate the fragmented sewage treatment systems now in operation. This program should stress the most economic means of transmitting wastes to treatment plants, the most efficient type of treatment available and the possibilities of reclamation and reuse. Different systems may be required to transport wastes to treatment areas and to transport reclaimed waters to other areas for use.¹⁶² But the difficult problems of consolidation are "more political than engineering."¹⁶³ The conduct and financing of a regional program appear to be the major obstacles to establishing such a system.

The water pollution control program in California rests upon a philosophy of cooperation. The legislature has given the cities the discretion to use whatever treatment system they consider best; the regional boards may not require the use of any specific treatment facility through a permit system.¹⁶⁴ The use of civil injunctions rather than misdemeanor sanctions for violations also reflects a philosophy of cooperation. Constant

¹⁵⁷ It has been estimated that the treatment cost per million gallons from a treatment plant of one million gallons per day (mgd) capacity is \$700. The same cost for a 10 mgd plant is \$330. For a 25 mgd plant the cost is \$250. *Id.* at 11-12.

¹⁵⁸ Burton interview, *supra* note 148; see W. ZION, *supra* note 155, at 12.

¹⁵⁹ W. ZION, *supra* note 155, at 12; M. SCOTT, *supra* note 154, at 66. "Appropriations for sewage expenditures occupy about the lowest rung on the expenditures scale." Interview with J. Gilbert, member of the BRWQCB, in Novato, Cal., Nov. 29, 1966, on file with the *California Law Review*.

¹⁶⁰ W. ZION, *supra* note 155, at 12; M. SCOTT, *supra* note 154, at 66.

¹⁶¹ See authorities cited in note 160 *supra*. See also McCormick interview, *supra* note 153.

¹⁶² State Water Quality Control Board, San Francisco Bay-Delta Water Quality Control Program, A Preliminary Report and Prospectus 20 (1966).

¹⁶³ McCormick interview, *supra* note 153. An example of these difficulties occurred in 1964 when San Mateo County developed a countywide plan for the discharge of wastes through the mountains into the Pacific Ocean instead of into the Bay. San Mateo County tried to get Alameda and Santa Clara counties to join. Negotiations began at that time but as of this writing there have been no tangible results. *Id.*

¹⁶⁴ See note 122, *supra* and accompanying text.

pressure must therefore be applied to city councils to consolidate and establish better treatment plants. This pressure can come from two sources: the regional boards and the public. For the regional boards to apply this pressure they need larger staffs.¹⁶⁵ An increase of the staff on the regional boards would allow them to apply more pressure on local communities and wage an effective campaign to arouse public resentment against the contamination of the waters of the Bay Area. Although the public becomes easily incensed about air pollution, it is comparatively apathetic about the pollution of its waters.

Another way to arouse the public may be to have the people of each region elect regional board chairmen. Candidates for the position would certainly bring the water pollution situation into public debate. The argument against such an election would be that an ineffective chairman might be chosen. But if the other six members were appointed, as they are now,¹⁶⁶ they could easily prevail. The benefits of awakening the public seem to outweigh the possibility of having one incompetent member on a regional board.

2. *The Livermore Example: A Study in Failure*

On October 9, 1956, Livermore, the largest city in the Amador Valley, voted to build a sewage treatment plant that would treat 2.5 million gallons of sewage effluent daily. In March 1957 the BRWQCB passed Resolution 239 which established discharge requirements on the effluent from the treatment plant entering the Arroyo las Positas.¹⁶⁷ Plant operations began in 1960. Late in 1962 the treatment plant ponds¹⁶⁸ filled and improperly treated sewage was discharged in violation of Resolution 239.¹⁶⁹

¹⁶⁵ M. Scott, *supra* note 154, at 58; Gilbert interview, *supra* note 159.

¹⁶⁶ This selection process of the other six members is subject to further criticism. Choice by the Governor can result in the selection of political favorites rather than the most qualified. However, there are overwhelming advantages to the present system as compared to the system used by the BAAPCD. See text accompanying notes 28-29 *supra*. The cities and counties rather than industries are the major water polluters. Thus, city representatives might be more reluctant to fulfill their obligations to the region since they would have conflicting obligations. Even if an industry were a major source of pollution in a certain city, the councilman might not wish to antagonize the industry for fear of causing it to move elsewhere, thus destroying the economy of the city.

¹⁶⁷ Water from the Arroyo las Positas enters the Alameda county ground basins, which are a major source of water supply for domestic, agricultural and industrial use. BRWQCB Res. 239 (1957).

¹⁶⁸ Treatment of wastes usually requires two steps. Primary treatment makes the organic material inactive. Secondary treatment involves holding ponds containing algae, which break down the sewage even further.

¹⁶⁹ Letter from John B. Harrison, executive officer of BRWQCB, to the mayor and city council of Livermore, Cal., Jan. 4, 1963, copy on file in BRWQCB Office.

This was the beginning of four years of friction between Livermore and the BRWQCB. The period was characterized by repeated violations of discharge requirements by Livermore and a vacillating policy by the BRWQCB. The blame, however, lies more heavily with Livermore. The situation could have been prevented by regional cooperation, which is presently lacking. There is no guarantee that the problem will not recur in the Amador Valley.

The BRWQCB could have issued a cease and desist order for the violation, but it desired cooperation. Instead it passed Resolution 446 which merely cited the violation and prescribed more explicit requirements as to the chemical content of treated effluent. Between February 1963 and July 1965 Livermore repeatedly violated Resolution 446. At one point the city promised that there would be no further discharges after June 30, 1963,¹⁷⁰ yet discharges in violation of the resolution occurred in July 1963.¹⁷¹

On November 19, 1964 the BRWQCB decided that the discharge requirements on the Livermore plant would have to be revised in light of changed conditions in the area.¹⁷² Resolution 683, adopted July 15, 1965, imposed stricter standards on the effluent discharged by Livermore. By changing the discharge requirements, the BRWQCB forced Livermore to choose between expanding its old plant, constructing a new one, or consolidating with other communities in building a plant to serve the entire region. In addition, Resolution 683 directed Livermore to submit by September 1, 1965 a firm and detailed time schedule of proposed actions the city would take to regulate the mineral quality of wastes discharged into its sewerage system.¹⁷³ The September 1 deadline was not

¹⁷⁰ Letter from William H. Parness, Livermore city manager, to John Harrison, executive officer of BRWQCB, June 11, 1963.

¹⁷¹ Letter from William H. Parness, Livermore city manager, to John Harrison, executive officer of BRWQCB, July 16, 1963. Violations also occurred during the period November 11-13, 1964. Letter from John Harrison to Daniel Lee, Livermore Public Works Director, Feb. 1, 1965, copy on file in BRWQCB office.

¹⁷² The BRWQCB can revise requirements due to changed conditions in the disposal area or receiving waters. CAL. WATER CODE § 13054.1 (West Supp. 1966). In the Livermore case, the Alameda County Flood Control and Water Conservation District Zone no. 7 had put into operation stream diversion activities, and these facilities were located only 2½ miles downstream from the Livermore treatment plant's point of discharge into the Arroyo las Positas. BRWQCB Res. 683 (1965). Also, the present use of the natural channels of the Alameda Creek system from Altamont to Niles for transportation of imported water was not foreseen in 1957, and this use was therefore not a factor in determining the regional board's previous requirements. Present plans for the ultimate discharge near Sunol Bay Aqueduct of water to the Alameda Creek system near Sunol and conveyance thence to Niles were also not known to the BRWQCB in 1957. Finally, demands for waste assimilative capacity of this stream system had increased greatly since 1957, and this demand would continue to grow. *Id.*

¹⁷³ See note 123 *supra*.

met. No communication from the city of Livermore was received until October 20.¹⁷⁴

On October 21, 1965 the BRWQCB passed Resolution 703 setting interim requirements to last until the treatment plant could be expanded to meet the requirements of Resolution 683. These requirements allowed Livermore to spray its partially treated sewage onto uninhabited areas of land. Violations of Resolution 703 occurred in November and January.¹⁷⁵ A cease and desist order was drawn up at the meeting of January 20, 1966, but its issuance was postponed for one month to allow the city to acquire more land to meet the requirements of Resolution 703. The gravity of the situation was already apparent; effluent discharged by Livermore was appearing in the drinking water downstream.¹⁷⁶

Livermore still proceeded very slowly to meet the requirements of Resolution 703. The city manager stated that it would be a waste of money to spend 50,000 dollars, the minimum required to obtain more land, for merely an interim solution.¹⁷⁷ But because discharges in violation of Resolution 703 continued to occur during February, the BRWQCB, feeling it had been deceived by Livermore's pleas for more time, finally issued the cease and desist order on February 17, 1966.¹⁷⁸ Over three years of violations had elapsed before the board took this action.

Livermore felt it had been treated unjustly by the BRWQCB.¹⁷⁹ The city spent 800,000 dollars on a sewage treatment plant in 1958 which was designed to meet the discharge requirements that had been set by the BRWQCB. Seven years later the BRWQCB changed the requirements and Livermore was required to spend another 1.4 million dollars. There is no question but that the law gives the regional board the power to revise requirements due to changed water conditions.¹⁸⁰ Unfortunately, Livermore had to pay the penalty of the changed conditions. Farsighted planning on a regional basis in 1958, however, would have prevented these problems. Livermore still has no assurance that its present plant will always be sufficient.

Blame must be placed on both Livermore and the BRWQCB. Livermore was shortsighted and intransigent; the BRWQCB was hesitant and

¹⁷⁴ City Clerk Dorothy J. Hock wrote that an ordinance would be adopted by February 1, 1966. The ordinance was adopted before that date, one of Livermore's few acts of compliance with the BRWQCB. The BRWQCB later discovered that the ordinance was not being strictly enforced, *Oakland Tribune*, Sept. 16, 1966, at 21, col. 6.

¹⁷⁵ BRWQCB Res. 725 (1966).

¹⁷⁶ Statement by Clarence Smith, senior engineer of the Alameda County Water District, minutes of BRWQCB meeting, Jan. 20, 1966.

¹⁷⁷ *Oakland Tribune*, Feb. 18, 1966, at 20, col. 1.

¹⁷⁸ BRWQCB Res. 725 (1966).

¹⁷⁹ See *Livermore Herald & News*, Nov. 22, 1966, at 4, col. 1 (editorial).

¹⁸⁰ CAL. WATER CODE § 13954.1 (West Supp. 1966).

indecisive. Yet the board's options were limited. During the ten-year period it had clearly fulfilled its advisory functions by preparing studies recommending region wide consolidation of sewage facilities. In March 1957 the BRWQCB had passed Resolution 240 which stated a "need for and urged commencement of an investigation of integrated sewerage facilities for the [Amador Valley]," and it recommended the development of "large systems" which were "frequently more economical and provide better water pollution control and better sanitation control than a multitude of small sewerage systems serving the same area." The resolution urged "all responsible legislative and planning bodies not [to] permit development of land in the Livermore-Amador Valley . . . unless integrated facilities . . . will be available to collect, treat and dispose of any sewage and industrial waste resulting from such development."

These recommendations fell on deaf ears. Late in 1962 the willingness of Livermore and surrounding communities to cooperate was described as nil: "The best they can offer in the way of progress is that they're talking to each other . . . after six years and 10,000 dollars have been spent."¹⁸¹ A potentially productive study was launched in late 1961 when Livermore and Pleasanton cooperated in forming the Valley Sewer Study Committee. In August 1965 the Committee reported that valleywide use of the 2 million dollar Valley Community Services District sewage plant was legally and physically possible.¹⁸² Livermore and Pleasanton could purchase capacity rights in the plant and operate it under some form of joint power agreement. Livermore had to decide whether to participate in the plan or expand its own plant. It chose to expand and retain its political autonomy. Today the cities in the Amador Valley continue to hold social "get-togethers"¹⁸³ to discuss consolidation. But it is apparent that nothing can happen as long as they "want to protect their little kingdoms."¹⁸⁴

The BRWQCB applied as much pressure as it could with respect to consolidation but Livermore chose to remain autonomous. The BRWQCB might have issued a cease and desist order sooner but that would not have solved the problem. As Livermore did not have the facilities to meet the requirements, it had to violate them or allow sewage to accumulate. The solution to this type of problem therefore is the construction of large regional treatment systems.

Regional treatment systems can either be established through legis-

¹⁸¹ Statement by Emanuel P. Razeto, chairman of the Alameda Board of Supervisors, Hayward Daily Review, Sept. 26, 1962, at 5, col. 1.

¹⁸² Hayward Daily Review, Aug. 18, 1965, at 18, col. 2.

¹⁸³ McCormick interview, *supra* note 153.

¹⁸⁴ *Id.*

lative mandate or through voluntary action by the various communities of the Bay Area. If the BRWQCB had been granted authority to issue permits whereby it could dictate the specifications of treatment facilities, a regional system could have been established. However, the legislature chose not to give such power to the BRWQCB, which could then force a city to spend millions of dollars on a treatment plant. Since there are political problems for the legislature in granting such power to a regional board, voluntary action by the Bay Area communities may be the most feasible solution. Encouragement from the public and the regional boards is needed to expedite such voluntary action. Increases in the staff and budget of the BRWQCB would facilitate such encouragement. Popular election of the chairmen of the regional boards perhaps could arouse the public which in turn might force the cities to relinquish their treasured autonomy.

3. *At the State Level*

One problem which may be corrected at the 1967 legislative session is the ineffectiveness of the State Water Quality Control Board.¹⁸⁵ The State Board has been unsuccessful as a coordinating force since its inception. Although charged with a legislative mandate to help the regional boards set waste discharge requirements and aid in coordinating the activities of other state agencies in the maintenance of water quality,¹⁸⁶ it failed for seventeen years to adopt a statewide water quality control policy.¹⁸⁷ The inefficiency of the State Board is partly the fault of the state legislature. The budget and staff of the State Board have been inadequate.¹⁸⁸ In addition, the composition of the State Board has inhibited leadership. This cumbersome body, consisting of part-time, uncompensated public members who meet only once a month¹⁸⁹ cannot adequately supervise the fight against water pollution.¹⁹⁰ Because of their

¹⁸⁵ A.B. 163, Cal. 1967 Sess. For a discussion of the bill, see text accompanying notes 194-99 *infra*.

¹⁸⁶ CAL. WATER CODE § 13022.1 (West Supp. 1966).

¹⁸⁷ The State Board did adopt the Statewide Policy for the Control of Water Quality on March 7, 1967. Res. 67-7.

¹⁸⁸ Statement of R. Gupta, *supra* 132. When the staff was increased various policies were adopted, including the Statewide Water Quality Control Policy. *See generally id.* The State Board employs only nine men trained in water quality control, CALIFORNIA ASSEMBLY INTERIM COMM. ON WATER, A PROPOSED WATER RESOURCES CONTROL BOARD FOR CALIFORNIA 33 (1966) [hereinafter cited as PROPOSED WATER CONTROL Bd.], compared to 48 similarly qualified who are employed by the BAAPCD. D. J. Callaghan interview in San Francisco, Nov. 30, 1966 on file with the *California Law Review*.

¹⁸⁹ The State Board has held special meetings in regard to the San Francisco Bay-Delta Study and the development of the Statewide Water Quality Control Policy. Statement of R. Gupta, *supra* note 132. Also, much work is done in committee meetings. *Id.*

¹⁹⁰ *See* PROPOSED WATER CONTROL Bd. 30-31; Opening Statement Before Assembly

greater expertise, the ex officio members have been able to dominate the board.¹⁹¹ And because these members are directors of agencies which discharge wastes,¹⁹² participation in board activities often "involves the wearing of two hats and therefore at times [results] . . . in a conflict of interest."¹⁹³

In 1967 the California Legislature will vote on a proposal to combine the State Water Quality Control Board with the State Water Rights Board to form the State Water Resources Board.¹⁹⁴ Proponents of the measure argue that California can no longer view the problems of water supply and water quality separately.¹⁹⁵ Diversions of fresh water often inhibit the assimilative capacity of the receiving water,¹⁹⁶ and the State Water Rights Board has not previously given enough consideration to the effect on downstream users when it approves applications to appropriate water from one area to another.¹⁹⁷ The new Water Resources Board would be composed of five, full-time experienced members.¹⁹⁸ It would be guided by an advisory committee, composed of representatives from various interest groups.¹⁹⁹ Under the proposal the regional boards will be unaffected. This is further evidence of the success of the regional boards.

Another problem which exists at the state level is the lack of coordination between the various state agencies involved in water pollution control.²⁰⁰ Their responsibilities often overlap as their legislative grants

Interim Comm. on Water, by Committee Chairman, Assemblyman C. Porter, San Francisco, Nov. 17, 1966. According to Porter this has caused the state legislature to take the initiative in resolving important water pollution problems. *Id.*

¹⁹¹ Burton interview, *supra* note 148; Gilbert interview, *supra* note 159.

¹⁹² The Department of Water Resources, for example, will operate the San Luis Drain, a system of drainage canals that will discharge wastes from the Central Valley into the Bay. Phone interview with Grant Burton, Chairman, BRWQCB, April 11, 1967.

¹⁹³ PROPOSED WATER CONTROL BD. 30-31; Statement Before Assembly Interim Comm. on Water, on behalf of the nine Regional Water Quality Control Boards, San Francisco, Nov. 17, 1966.

¹⁹⁴ A.B. 163, Cal. 1967 Sess.

¹⁹⁵ PROPOSED WATER CONTROL BD. 24; Statement of R. Gupta, *supra* note 132; Statement Before the Assembly Interim Comm. on Water, by K. Silverthorne, Chairman, State Water Rights Board, San Francisco, Nov. 17, 1966.

¹⁹⁶ See text accompanying note 102 *supra*.

¹⁹⁷ PROPOSED WATER CONTROL BD., 25; Statement Before the Assembly Interim Comm. on Water, by the Eel River Flood Control and Water Conservation Ass'n, San Francisco, Nov. 17, 1966. "In years past, water quality considerations have been subordinate to other considerations, and the Water Rights Board has usually decided contested applications on what might be called a water quantity basis." Statement by K. Silverthorne *supra* note 195.

¹⁹⁸ A.B. 163, Cal. 1967 Sess. If enacted, this portion of the bill would be CAL. WATER CODE § 175, repealing *id.* § 13020.

¹⁹⁹ A.B. 163, Cal. 1967 Sess. If enacted, this portion of the bill would become CAL. WATER CODE § 13015.

²⁰⁰ See notes 135-44 *supra* and accompanying text. For a discussion of the problem see

of authority are quite broad. The Department of Public Health has the power to examine any condition affecting the public health and welfare.²⁰¹ The Department of Water Resources is directed to develop a plan for the utilization of the state's water resources.²⁰² And the Department of Fish and Game is directed to protect fish and wildlife.²⁰³ Often the three agencies study the same body of water but for different purposes.²⁰⁴ For example, there are four distinct sources of waste water quality information: the surveillance of sewage treatment facilities of the Department of Public Health; the waste monitoring program of the Department of Water Resources; the self-monitoring program developed by the BRWQCB; and the waste monitoring the BRWQCB does itself.²⁰⁵ These programs often produce duplication of effort.²⁰⁶

A continual liaison between the various state agencies is required to apprise the others what each agency is doing. The results of past investigations need to be catalogued systematically so that one agency will not make a study another has already made. Improved cooperation could be achieved by making the staffs which are responsible for water pollution studies in the agencies file a report of each study with the proposed Water Resources Board. Perhaps a sounder approach would be to transfer all investigatory and regulatory functions of the state agencies pertaining to water quality to the proposed Water Resources Board.

D. Summary

The regional approach to water pollution, though not perfect, has been successful in achieving some purity in the state's waters. Future success of the program is now dependent upon the communities of the Bay Area consolidating their sewage treatment facilities. Stronger leadership is needed at the state level and it is hoped that the proposed Water Resources Board will provide this leadership.

III

CONCLUSION

Success of the regional approach to problems of air and water pollution should encourage a similar approach to other problems which by their

WATER RESOURCES ENGINEERS, INC., AN INTERAGENCY SYSTEM FOR WATER QUALITY MANAGEMENT 129-47 (1962).

²⁰¹ WATER RESOURCES ENGINEERS, INC., *supra* note 200, at 135. See CAL. HEALTH & SAFETY CODE §§ 203, 205 (West 1967).

²⁰² CAL. HEALTH & SAFETY CODE §§ 229-31 (West 1967); WATER RESOURCES ENGINEERS, INC., *supra* note 200, at 135.

²⁰³ CAL. FISH & GAME CODE §§ 1000-08 (West 1958); WATER RESOURCES ENGINEERS, INC., *supra* note 200, at 135.

²⁰⁴ WATER RESOURCES ENGINEERS, INC., *supra* note 200, at 130-47.

²⁰⁵ *Id.* at 140.

²⁰⁶ *Id.*

nature are not confined to a single community. For example, the problem of solid waste disposal is conducive to regional solution. Present landfill methods²⁰⁷ are proving inadequate, and the solid waste may have to be burned or dumped into the Bay unless planning on the regional level develops a more organized or new approach to dispose of solid waste. Some thought should be given to combining the agencies controlling air and water pollution and waste disposal. The San Francisco Bay-Delta Study Steering Committee may succeed in developing a plan for a comprehensive waste collection and disposal system which will serve the entire Bay Area.²⁰⁸ Thus far the Study has concluded that "[c]oordinated, comprehensive, multipurpose planning is needed to provide region-wide collection, disposal, reuse, reclamation and other control of wastes for the protection and improvement of water quality."²⁰⁹ Such a consolidation would have to separate regulatory agencies from service agencies, so that an agency performing a service would not be regulating itself, which might result in a conflict of interest.

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²⁰⁷ By this method, refuse is dumped onto the land and then covered with earth. For a discussion of the problem of the diminishing amount of land available for this purpose see ASSOCIATION OF BAY AREA GOVERNMENTS, REFUSE DISPOSAL NEEDS STUDY (1965).

²⁰⁸ Ch. 135, § 3, [1965] Cal. Stats. 1086.

²⁰⁹ State Water Quality Control Bd., San Francisco Bay-Delta Water Quality Control Program, A Preliminary Report and Prospectus 9 (1966).