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Eduardo Silva

DEMOCRACY, MARKET ECONOMICS, AND ENVIRONMENTAL POLICY IN CHILE

Eduardo Silva
Department of Political Science
Fellow, Center for International Studies
University of Missouri-St. Louis
8001 Natural Bridge Road
St. Louis, Missouri 63121-4499
FAX: (314) 516-6757
e-mail: sgesilv@umslvma.umsl.edu

DEMOCRACY, MARKET ECONOMICS, AND ENVIRONMENTAL POLICY IN CHILE¹

Recent environmental policy in Chile offers both hope and a challenge. The twin processes of healthy economic growth and democratization opened political space for increased attention to environmental issues, principally pollution. The policies adopted so far tend to emphasize end-of-pipe technology for the alleviation of problems that have reached crisis-proportion, mainly for air pollution. They avoid methods associated with either the management of materials inputs in products or with the more ecologically-friendly use of natural renewable resources; methods that might make it possible to address the very causes of environmental degradation rather than primarily the symptoms. The promise lies in this: Chile's example supports the theory that economic stability and democracy permit developing countries to address environmental concerns more than authoritarian political systems. The test is whether developing countries with neoliberal orientations to policy can consider a sufficient range of options or broad enough degree of socio-political participation to move beyond high chimney strategies.

As is true of all policy issues in Chile, environmental policy has to be understood in the context of Chile's recent transition from a long-lived, conservative, repressive military government to political democracy. In 1973, the military took over the government in a violent coup d'etat against a socialist administration and ruthlessly suppressed all political freedom. Between 1973 and 1990 the government of the armed forces concentrated on restructuring Chile's economy and society according to market principles. It largely succeeded. As a result of that transformation, the democratic governments that followed inherited a stable, growing economy and promised to maintain it. They also vowed to address issues neglected by the military, such as extreme poverty, democratic principles and practices, human rights, and the environment.² Consequently, mounting environmental problems--many of them the direct result of unfettered free-market approaches to economic development--have only received serious attention since 1990.

The environment is a relatively new issue area world-wide, only dating back to the 1970s. A few developing countries with more stable political histories, such as Mexico and Venezuela, began to address pollution and natural resource degradation early on. But Chile's dictatorship essentially ignored the problem and strangled the evolution of a domestic environmental movement and its political expression. This meant that democratic governments had to focus on elemental questions. These included diagnosing major environmental problems, crafting and passing basic legislation, creating and strengthening public institutions, and forging basic political accommodations over the nature and scope of environmental policy. Given the recentness of the effort it is too early to assess the effectiveness and efficiency of the policies enacted. However, one can gauge the general orientation of the policies with respect to their objectives.

This framing of Chilean environmental policy guides the organization of this chapter in terms of periodization, the advances Chile has made, and the opportunities and limitations Chilean policy makers face. The first section covers the period of the military government. It briefly describes the economic model and focuses on the major environmental problems that developed. The second section examines the democratic governments' responses to these issues. It focuses on the basic legal and institutional arrangements that democratic administrations have managed to construct to address environmental issues. It concludes with an evaluation of the direction of policy and the political accommodations--or policy style--that gives the policies their orientation.

THE ENVIRONMENTAL LEGACY OF MILITARY RULE, 1973-1989

Chile emerged from military rule as a leading example of successful market-oriented economic restructuring among the developing nations of South America. The economic model emphasized exports based on extractive activities in agriculture, fishing, and timber, as well as minerals, principally copper. It privatized the financial sector, shrank manufacturing, and encouraged commerce, especially import-export transactions. To spur economic restructuring, the military government drastically reduced government regulation and ownership of the economy. This meant that ministries and agencies were cut to the bone in terms of functions and staff. Regardless of whether one agrees with this neoliberal model, within its confines Chile's economy, after a rocky beginning, has done quite well. Since the middle of the 1980s, it enjoys a positive, sustained GDP growth rate; its fiscal accounts are in order; it has low inflation, rising investment rates, a sound financial system that exports capital to neighboring countries; and vigorous exports--mainly in extractive activities--keep its external accounts in order.³

Yet, sustained economic growth--born in the heady, freewheeling days of neoliberal economic restructuring under military dictatorship--came with a significant environmental price tag, among other negative effects. The impact of unregulated, rapid economic development based on intensive agriculture and natural resource extraction contributed to the depletion of fisheries, the destruction of natural forests, erosion, desertification, and the pollution of water sources. Mining of nonrenewable natural resources polluted both the air and water of nearby towns and coastal areas. By the same token, air quality and sewage treatment remain among the principal environmental problems of Chile's capital city, Santiago, and other major urban areas. This section describes these environmental problems, the military government's response to them, and the early development of the environmental movement in Chile. They are the necessary background to the policy responses of the democratic period inaugurated in 1990.

Chile's Main Environmental Problems

The Fishing Industry. Chile possesses a 6,435 Km. coast line that is very rich in marine resources. During the military government, Chile's fishing industry expanded dramatically from a catch of about 1.5 million metric tons in 1971 to 2.5 million in 1979 and just above 6 million in 1989. The average catch per year between 1989-91 was 5.9 million metric tons about double that of the period between 1979 and 1981. Over 90 per cent of the catch was exported in the form of fish meal, and frozen and tinned sea products. While this is good for industrialists and national accounts, it does not bode well for the long-term prospects of Chilean fisheries. According to the World Bank, 3.5 million tons constitutes the maximum sustainable average for Chilean coastal waters. The current size and age of the catch suggest over fishing and a consequent decline of fisheries.⁴

The Forest Sector. Forestry was another sector that grew at spectacular rates during the military government. Between 194 and 1990, it expanded from 4.8 to 7.5 percent of GDP and accounted for 750 million dollars worth of exports in 1991.⁵ Products include, wood chips, paper pulp, whole logs, paper, plywood, and planks. The development of the forest sector has had both benign and deleterious environmental effects. Most of the timber industry is based on plantations of exotic species, predominately pine and some eucalyptus. On the positive side, the early plantations rose on abandoned eroded soils in south-central Chile. As a result, they helped to recover degraded agricultural and ranching land.⁶ On the negative side, the emphasis on plantations in the timber industry devalued native species. Thus, as plantations expand they now substitute natural forests. Moreover, the growing international demand for short-fiber wood chips abroad has led to wholesale clear-cutting of natural forests.⁷

The Mining Industry. Mining remains Chile's principal export earning activity, accounting for nearly half of the nation's hard currency income (US\$4.4 billion in 1991). Although the country has diversified into the production of gold, silver, and molybdenum, copper continues to dominate. Chile is the second largest producer of copper in the world, and the publicly owned company (CODELCO) owns one quarter of the mines and provides three quarters of industry's output. Between 1980 and 1990, CODELCO doubled production from 600,000 to 1,200,000 metric tons.⁸ The mining industry, concentrated in the deserts of Northern Chile, contributes substantially to rural and urban pollution in that region. Smelting, refining, and the extraction of commercial byproducts account for the bulk in the form of sulfur dioxide, fine particulate matter, and arsenic. The resulting air pollution poses significant health risks for local populations. Toxic liquid and solid wastes pose serious downstream problems, in coastal waters and urban areas.⁹

The Agricultural Sector. Chile's free-market model emphasizes agro-industrial exports dominated by fruits from Chile's fertile central valley, which have expanded from 36 per cent of agricultural exports in 1970 to more than 70 per cent after 1988.¹⁰ Intensive use of agri-chemical inputs have sharply increased contamination of soil and water, and pose serious health problems for agricultural workers and their villages, as well as other downstream effects. There is a lively and unresolved debate over their effects on consumers, although there have been outbreaks of gastric infections due to the consumption of contaminated products such as cured meats.¹¹

Soil loss, erosion, desertification, sedimentation, and salinization, by some accounts are not considered serious problems for the modern, technologically intensive agricultural sector in the short term. However, lack of attention to these issues could pose serious problems 20 years hence. By contrast, these conditions actively threaten marginal lands worked by impoverished peasants.¹² Desertification and salinization are serious problems in northern Chile. The region possesses almost 60 per cent of lands so affected in all of Chile. The process dates to well before 1970, and is largely the result of indiscriminate use of native vegetation by the mining industry and rural populations.¹³

The Built Environment. The urban-industrial areas of Chile suffer from a myriad of problems, of which air pollution and sewage are among the most pressing. While the issues described below are common to many cities in Chile, they are best documented for Santiago, the capitol city. It is estimated that about 4.5 million people inhabit greater Santiago, out of a total population of just over 13 million.

Santiago lies in a valley and is surrounded on three sides by the Andes mountains. A great deal of the nation's manufacturing plant is located in the area, and air pollution has reached alarming levels as a result of point and non-point source emissions. Emissions include carbon dioxide, carbon monoxide, sulfuric oxides, nitrogen oxides, particulates, and hydrocarbons. Combustion engines contribute most of the pollution from non point sources. Since 1987 the vehicle stock has increased at an average rate of 10 per cent per year.¹⁴ By one estimate, in 1994 industry and public transport spewed approximately 16 metric tons of particulates per day in the metropolitan region. At the same time, industry added about another 110 tons of SOx per day (see Tables 1 and 2).¹⁵ Moreover, industry-based point sources routinely discharge insufficiently treated toxic wastes or organic materials into streams and canals, and coal fired utilities contribute to sulfur dioxide emissions. The health effects of this pollution include a drastic rise of respiratory disease, especially in winter when a temperature inversion noticeably worsens the situation. For example, in 1988 there were 300,000 additional cases of bronchial-pneumonial diseases.¹⁶

Urban areas in the rest of the country have similar problems. Northern cities are particularly affected by the mining industry due to uncontrolled smelting and refining processes that produce intolerably high emissions of arsenic, sulfur dioxide, nitrous oxide, copper particles. In the central-southern metropolitan area of Concepción-Talcahuano, industry generates 89 per cent of emissions in particulates, 78 per cent of hydrocarbons, and 60 per cent of sulfur dioxide. Vehicles are responsible for 84 per cent of carbon monoxide emissions.¹⁷

In addition to these problems, inadequate sewage treatment and industrial discharges from mining, manufacturing, food processing, fish plants, and the pulp and paper industry contaminate the water supplies of urban areas. Open canals that receive these toxic and unsanitary discharges are often used to irrigate truck farms. As a result, unless treated in the household, the consumption of raw vegetables routinely causes outbreaks of typhus, hepatitis, and, until recently, cholera.¹⁸

Hydraulic Resources. Uncontrolled economic development (in mining, manufacturing, fish processing, the pulp and paper industry, intensive agriculture, and timber) places great stress on Chile's fresh water resources and coastal areas. Increased industrial and agricultural production and the expansion of cities have created a water shortage (see Table 3). By one estimate, agriculture uses up 89 per cent of fresh water resources, industry five per cent, and domestic sources consume six per cent. Uncontrolled economic development and urban growth have also exacerbated the pollution of Chile's rivers and coast. In particular, areas of high population density find themselves under great pressure from watershed disturbance due to the felling of natural forests, industrial pollution, agri-chemical run-off, and lack of sewage treatment. Contaminated rivers have contributed to dangerous levels of pollution in port cities as Valparaíso-Viña del Mar area, Concepción-Talcahuano in central Chile, and bahía Chañaral in the north.¹⁹

Biodiversity. Soil erosion and salinization in the North and coastal central Chile, deforestation, plantations, extensive bovine and ovine grazing further south, pollution, all of these processes have affected the habitats of flora and fauna. By 1985, 69 species of Chilean flora found themselves in danger of extinction. Of these, 11 were classified as endangered, 26 were placed in the vulnerable category, and 31 were considered rare. At least six species of mammals and birds also found themselves in danger of extinction. An additional two species of mammals and six of birds were in the vulnerable category.²⁰

Response to Environmental Problems During the Military Government

The Chilean environmental movement began in 1963 with the founding of the Comité de Defensa de la Fauna y Flora (Codeff), which remains one of Chile's most important environmental

nongovernmental organizations (NGOs). However, this group of ecologists dedicated to the preservation of biodiversity was largely ignored at the time. During those years, politics centered on the crucial issues of "reform or revolution."²¹ The Stockholm conference on environment in 1972, and the creation of the U.N. Environmental Programme, however, gave further impetus to the movement in Chile. In 1974, at the beginning of the military government, a group of ecologists founded the Instituto de Ecología. During the military government this organization actively lobbied the authorities for the creation of a legal and administrative framework within which to address Chile's environmental problems.²²

Many more environmental NGOs sprang up in the late 1970s and 1980s as a result of political repression that purged centrist and left-leaning academics from the universities. The Centro de Investigación y Planeamiento para el Medio Ambiente (Cipma)--another one of Chile's leading environmental NGOs--was founded in the early 1980s. So were the Grupo de Investigaciones Agrarias (GIA), the Centro de Estudios y Tecnología (CET), El Canelo de Nos, and the Instituto de Ecología Política (IEP). The staff of these organizations had a concern for a wide range of issues. Rather than focus on strict preservationist concerns, they linked development, social justice, and environmental issues.²³ Of these NGOs, Cipma remained in the political center, and, through a series of congresses over the years, played an important role in consensus-building among the different groups and in political agenda-setting. GIA and CET, tended to be more on the left, while IEP, Canelo de Nos, and Codeff took more radical ecological stances along new left lines.

While civil society cautiously organized in response to expanding environmental degradation, the military government basically either ignored the environmental impact of its development model or, when pressure mounted, gave it very low priority. The government's main goal was rapid economic growth at any and all costs, and with minimum government intervention. As a result, between 1973 and 1984 environmental problems worsened significantly and received little or no attention, as evidenced by the lack of legal development and institutional capacity-building. To the contrary, institutionally weakened sectoral ministries were supposed to enforce a welter of existing and often conflicting environment regulation without coordinating mechanisms. The most important ministries included those of Health, Agriculture, Economy, Public Works, Defense, Housing and Urban Affairs, Transport, Mines, and Interior.²⁴ The Corporación Nacional Forestal (Conaf)--a semiautonomous government agency--managed forests and national parks. With a few additions, as will be seen, these continue to be the most significant government agencies involved in the environmental issue area today.

Nevertheless, growing world attention to environmental issues, limited lobbying, and the development of a domestic environmental movement during a period of political upheaval

induced the military government to respond in two ways, although in typical minimalist fashion. First, in answer to the strenuous efforts of key individuals in the Instituto de Ecología the military government gave the issue legal standing in the Constitution of 1980, which is still the law of the land today. This constitution, passed at the height of the military government's popularity, stipulated that citizens have the right to live in an environment free of contamination, and that it is the duty of the government to ensure that right and to watch over the preservation of nature.²⁵ Although these were only pretty words during the dictatorship, they gained new meaning in democracy.

The military government's second measure followed the organization of Cipma's first Scientific Congress in 1983. The event brought together 377 environmentally concerned scientists and academics (a good turn out given the lack of political freedom in Chile) to diagnose the country's main environmental problems and offer policy recommendations. Despite government control, media reporting revealed to the nation an agitated scientific community that offered solid technical criteria for its conclusions about the critical condition of Chile's environment. In short, the environmental movement began to cautiously flex its muscle in an effort to gauge its strength. The military government--now in a period of political instability and with its popularity at an all-time low--responded by creating the National Commission for Ecology in 1984. Its main task: to establish a national environmental policy. That goal, however, remained unaccomplished despite the best efforts of its well-intentioned staff.²⁶

Despite this dismal performance, the military government aggressively pursued one environmental problem. Chile is a contracting party or signatory to most global environmental conventions.²⁷ But there was one in particular that the military government devoted a lot of energy toward, one that addressed a problem that directly affected Chile: the ozone layer convention of 1985 and the CFC control convention of 1987. A large "ozone hole" over Antarctica, which Chile had virtually no role in creating, presents very real hazards to that country. In addition to adverse health effects on humans, Chileans worry over the consequences of higher doses of ultraviolet radiation on fish, timber, and fruits, the mainstays of Chile's economy. As a result of this, Chilean diplomats worked hard for the success of the Montreal Protocol and follow-up meetings.²⁸

Several reasons may explain the military government's greater responsiveness to this particular problem. First, since the treaty postponed action for developing countries, active engagement had little immediate cost. Second, Chile expected technology transfer assistance in implementation. Third, Chile's repressive dictatorship was virtually an international pariah at the time and this issue gave it visibility and good publicity in international fora. Fourth, political negotiations took place outside of Chile.

ENVIRONMENTAL POLICY AND INSTITUTIONS UNDER DEMOCRATIC RULE

Chile's military government officially ended in March 1990 with the inauguration of the administration of Patricio Aylwin, a Christian Democrat, and candidate of a broad center-left coalition of political parties that had formed the moderate, reformist opposition to General Augusto Pinochet since 1983. Unofficially, the dictatorship collapsed in October 1988, when the Concertación de Partidos por la Democracia (CPD) defeated Pinochet's bid for eight more years of rule in a hotly contested plebiscite.²⁹ The CPD's programmatic platform, dominated by the centrist Christian Democratic party (PDC) and including non-revolutionary leftist parties, principally the Partido por la Democracia (PPD) and reformed socialists (PS), championed virtually all of the socio-economic and political issues that the dictatorship had either exacerbated, ignored, or repressed. Thus, environmental problems, received attention along with the issues of political democracy and social equity.³⁰ With the environment now officially on the new government's policy agenda, the professionals of the environmental NGOs helped to shape it and staffed many of the new government's technical and political positions related to environment. A second CPD administration that began in March 1994 under Christian Democratic president Eduardo Frei, jr., continued to address these concerns.³¹

Chile's return to a democratic form of government clearly opened political space for the advocates of a much broader range of problems and points of view on how to deal with them. Yet domestic forces were not the only ones giving urgency to environmental issues. Demands from external actors also pressured the Aylwin administration to address environmental policy. Given the advanced state of Chile's market-oriented economic restructuring, it was among a select group of candidates for inclusion in an expanded North American Free Trade Agreement (NAFTA). The NAFTA debate with Mexico showed that entering into such an agreement with the United States demanded giving attention to environmental issues.

The military government's lack of attention to the environment meant that the new government had to begin at the beginning with the establishment of the general legal and institutional framework for this issue area. It also had to set priorities with respect to which problems to address first. Consequently, the exposition that follows first focuses on the content of the Framework Environmental Law. It continues with a discussion of the sectoral environmental problems that democratic governments have addressed with varying degrees of success. A second subsection analyzes how politics has affected the style of the policy making process--from a high level of politicization to greater cooperation at the expense of the exclusion of socio-political forces interested in moving beyond preservation and high-chimney strategies. Given the recentness of these actions (no more than one two or three years in the best

of cases) it is premature to undertake an evaluation of the effectiveness or efficiency of these new policies.

The Legal Framework, Institutions, and Other Measures

The Aylwin administration (1990-94) faced a formidable challenge in the environmental issue area. Chile lacked the most basic legal and institutional instruments to deal with the problem, and faced serious pollution hazards in addition to natural renewable resource depletion and threats to the nation's biodiversity. To the administration's credit, it set the foundations for coming to grips with the environmental legacy of unchecked, rapid economic growth left by the military government.

The Environmental Framework Law. The establishment of a legal and institutional basis for environmental policy making was one of the Aylwin administration's most significant achievements. To this end, the administration introduced an Environmental Framework Law to congress in 1992, which, after long and often heated debate, passed into law in March 1994.³² In addition to setting the legal and institutional foundations for environmental policy making, other objectives of the law included the establishment of a few basic instruments with which to carry out that policy, and to ensure that subsequent laws would provide a framework of action applicable to individual economic sectors.³³ Four principles inspired the framework law: prevention, the polluter pays, gradualism, and participation.

The prevention of additional environmental degradation via mandatory environmental impact reports (EIR) stands at the heart of the law, and is its most detailed section. Moreover, the EIR emerges as the principal instrument of environmental policy. Its aim is to force all new national and foreign investment projects to incorporate the costs of compliance with environmental standards. In addition to improving the quality of investment projects, it is expected that the reports will generate valuable environmental data and applied knowledge. This is key, since Chilean policy makers lack fundamental information with which to make policy. It is also hoped that investment in environmental safeguards will maintain Chile's competitive advantages in world markets.³⁴

In a further attempt to force adherence to the law, the polluter pays principle places the costs of non-compliance with environmental law and regulation on the perpetrator rather than the state; a clear effort to force companies to internalize the costs of pollution. In essence, the norm is quite simple: any legal person, private or public, that causes pollution above prescribed levels must pay for clean up. Only in exceptional cases will the government provide funds for such efforts. In practice, however, the wording of the relevant clauses place the burden of proof on the prosecution rather than the polluter, making it easier for the latter to shirk responsibility. The polluter pays section of the law suggests two additional

instruments of environmental policy: traditional command and control practices and market based incentives, such as tradable pollution permits.³⁵

The principle of gradualism addresses two issues. On the one hand it acknowledges the need to prioritize environmental problems in order to tackle the most urgent ones first. On the other hand, gradualism has a political content. It urges political caution. Drastic, conflictual measures should be avoided at all costs. This principle appeals to the pragmatic realism on which many of the policy makers and their advisors pride themselves. In their view, strong measures generate too much conflict and produce legislative gridlock rather than solutions.³⁶ This second aspect of the principle of gradualism explains why the framework law leaves the heart of the hard core policy issues for future debate. It also illuminates why the law shifts the resolution of intensely politicized issues such as standards to its regulatory body, which will be drafted by sectoral ministries with minimum procedural guidance from the framework law itself, and out of the public eye. Furthermore, the gradual principle explains why the environmental impact report receives so much attention--it involves future investments related to standards that have not yet been set.

Dispositions to fulfil the participatory principle of the law are part and parcel of its institution-building provisions and will be discussed at that point. However, before passing on to that discussion it is worth noting that, in a very brief section, the framework law also establishes the legal basis for the protection and preservation of Chile's biodiversity. It accomplishes this by reaffirming the state's commitment to the maintenance and expansion of its National System of Protected Areas. In 1991 it covered about 18.8 million ha, or 18.5 per cent of national territory. The bulk of the actual territory covered by these protected areas lie in the sparsely populated extreme south of Chile (XI and XII regions).³⁷ The law also gives the state responsibility for classifying species according to their degree of endangerment.

The framework law set the institutional foundations of environmental policy making with the creation of the Comisión Nacional de Medio Ambiente (CONAMA), a decentralized national environment commission. CONAMA is fundamentally an interministerial coordinating committee of 10 ministries of state with environmental functions. It is chaired by the minister of the General Secretariat of the Presidency (Segpres). That Segpres is the strategic and tactical nerve center of the presidency is an indicator of how sensitive and politicized environmental issues have become in Chile. The other ministries are Economy, Public Works, Agriculture, National Properties, Health, Mines, Housing and Urban Affairs, Transportation, and Planning (the latter is also the link to international cooperation). CONAMA has relatively few powers of its own. Each of the sectoral ministries retain their full range of rights and

responsibilities with respect to environmental issues related to their sector.

CONAMA has two main functions: oversight of the implementation of environmental impact reporting, and arbitration of disputes that may arise between sectoral ministries or between CONAMA's view of a problem and that of a sectoral ministry. For most practical purposes, environmental policy will be left to individual ministries and private sector consultants. This is especially true for the regulatory body of the law to which the crucial issue of standards were deferred.³⁸ Nevertheless, CONAMA does have a modest technical secretariat charged with developing some national-level guidelines for the process. Its focus to date has clearly been in the area of pollution control more than anything else. Environmental education is another area in which CONAMA will most likely be active, as well as in the management of some funds for specific projects.

CONAMA is a small institution. Its staff is limited by law to 62 persons, an executive director (who has the right to speak at meetings of the ministerial committee), 20 directors, 25 professional staff, 2 technicians, 9 administrative secretaries, and 5 more or less menial positions. It is also a decentralized institution with 13 semi-autonomous regional commissions for the environment.³⁹

CONAMA also receives funds from international financial and bilateral development organizations to help build institutional capacity. In 1992, the World Bank opened a tranche of US\$11.5 million for the institutional development of CONAMA's predecessor. It was recently renewed for the present incarnation of CONAMA. The loan strengthens the technical secretariat, funds data gathering research, provides training in environmental assessment, and supports projects for decontamination in mining and industry. US AID has also provided funds for building a data base to establish a foundation from which to monitor pollution trends. These capacity-building projects should help Chile to overcome some of its major institutional obstacles to environmental management. These include a shortage of environmental professionals, insufficient information, and the lack of a clear institution for monitoring and controlling pollution.⁴⁰

A consultative council in CONAMA offers a limited space for societal participation in the formulation of environmental policy. The president of CONAMA (the Minister Secretary of the Presidency) heads the consultative council. The president of the republic nominates two representatives of the following organizations on the basis of lists of five candidates proposed by them: two scientists from universities, two business representatives, two from labor. The NGO community may also have two members on the council, as may the sector of non-university academic organizations. There is also a representative of the president of the republic. Each of the Regional Commissions for the Environment will also have a consultative board made up of two scientists, two representatives of NGOs, two each from

business and labor, and one representative of the regions's political head--the Intendente. Societal participation is also contemplated in the oversight of environmental impact reports. The latter must be made public (safeguarding sensitive commercial and proprietary information) and citizens and organizations may challenge it for a period of 60 days.⁴¹

Other Environmental Measures. In addition to crafting and pushing through the environmental framework law, Patricio Aylwin's administration addressed a number of specific critical environmental problems inherited from the dictatorship. These essentially dealt with air pollution related to state mining companies. In a further attempt at institutional capacity-building, the presidency encouraged the creation of an Environmental Unit in the Ministry of Mines in order to implement environmental management. The Unit draws heavily on private sector consultancies for its task. The Unit has concentrated on incorporating environmental design in new projects and decontamination programs for existing problems.⁴² With respect to the former, and in conjunction with the Regional Environmental Commissions, the Ministry of Mine's Environmental Unit has started a pilot program for the design of EIRs.⁴³

With respect to decontamination programs, Supreme Decree no. 132 of 1993 outlines a decontamination plan for the world's largest open pit copper mine, Chuquicamata, owned by the government. Between 1993 and 1998 sulphur emissions should be cut from 252,000 metric tons per year to 162,000; particulates from 9,720 metric tons per year to 3,240; and arsenic spewed into the air should fall from 225 metric tons per month to zero by 1996. Supreme decrees 180 of 1994 and 252 of 1992 call for drastic reductions of those airborne toxic wastes in other state-owned mines. Supreme Decree no. 185 of 1991 sets guidelines for emissions of those substances for the entire nation, but principally the mining sector as a whole, public and private, because smelters and refineries are their principal producers (see Tables 4, 5, and 6).⁴⁴ In some instances, the government reportedly released funds to implement the decontamination plans. For example, in 1992, Codelco and Enami, the two state-owned companies, allocated a total of about US\$300 million each to comply with decree 185 by 1999.⁴⁵

The government has also addressed the issue of air pollution and sewage in Santiago. With respect to the former, its main actions have centered on pulling nearly 3,000 aging buses off the streets, and by closing especially problematic industries on days of emergency--when pollution indicators are at their worst in winter. According to one source, air quality in non-winter months was "acceptable" in 1994, although the measures taken so far are not up to the task of further, and much needed, improvement.⁴⁶ The Inter-American Development Bank has provided loans to address sewage problems. Overall, the Aylwin administration has quintupled spending on the environment as compared to the military government. By one estimate, it spent

approximately US\$33 million on CONAMA and specific decontamination projects.⁴⁷

While the focus has clearly been on pollution abatement, democratic governments have made an effort to control renewable natural resource depletion as well, although to a lesser extent. The most widely publicized, and perhaps most successful, venture addresses the problem of desertification. In the early 1990s, CONAF, with financing from UNEP, started a National Desertification Plan.⁴⁸ Desertification is a problem that mostly affects marginal lands with high incidences of rural poverty. As a result, the Plan emphasizes the linkages between economic development and the environment. The Plan, in its first phase, involves data gathering for the first through fourth regions of Chile in order to adequately diagnose the problem before making policy recommendations. In general, it is known that desertification in Chile is caused by overgrazing, inadequate agricultural methods, and deforestation due to fires. CODEFF has been doing the research for CONAF and so far has completed a profile of the fourth region.⁴⁹ CONAF has been taking some action besides research as well, principally in the form of reforestation projects.

In a similar vein, CONAMA, in conjunction with the Ministry of Agriculture, have proposed a National Plan for Soil Conservation. Again, the first step is information gathering to build a data base on the degree of degradation and its causes. The next step would be to make policy recommendations.⁵⁰

The Policy Making Style and its Effects on Policy Orientation

The general policy making style of democratic Chile is one of close cooperation between policy makers and the private sector, carefully limited attention to the interests of other social sectors, and tightly controlled channels of participation for them. This pattern emerged from the process of the transition to democracy which involved explicit bargains between the opposition to the dictatorship (the CPD), the business community, and the armed forces. The latter two wanted assurances that if the CPD won elections it would retain the neoliberal socio-economic model. The CPD, partially to ensure the transition to democracy and partially out of conviction that it was the only way to sustain economic stability, acquiesced.⁵¹

To give credibility to its promise CPD governments have included business sector representatives in the policy making process wherever issues that affect their economic interests appear. Since the private sector provides the investment that undergirds economic growth, it gets an ample hearing. Policy makers recognize the interests of other social groups, such as labor, peasants, and middle classes--as well as non-business interpretations of problems--but always subordinate to private sector preferences. Therefore, the degree of their participation in the policy making process is more controlled than that of business. In short, the government sets the policy agenda and

then has close interaction with business groups in policy formulation and implementation. Other social groups--or points of view--also get a hearing but to a significantly lesser extent.⁵²

After initially high levels of politicization, that same policy making style has applied to the environmental issue area since 1992. The more conflictual period took place between 1990 and 1992. During those years, a group of more progressive environmentalists centered in the Ministry of National Properties controlled the formulation of the environmental framework law. That group advocated greater degrees of change from the neoliberal socio-economic model. Institutionally, it favored the creation of a Ministry of Environment to increase the independence of environmental policy making from other line ministry's and their penetration by business groups. The group wanted to encourage research and development in technologies that went beyond high chimney strategies. They had a keen interest in the sustainable use of natural resources that included grassroots development projects as a means to address both ecological concerns and poverty. To further counteract the power of business, they argued for strong citizen participation in both the policy making process and decision-making about technological packages.⁵³

This turn of events alarmed the presidency, committed as it was to the maintenance of the basic neoliberal socio-economic model. It never imagined that one of the most serious challenges to it could originate from what they had mistakenly believed to be such an apolitical technical and scientific issue area. To defuse the heated dispute that emerged between 1990 and 1991, the presidency put Segpres in charge of the policy formulation process. As the strategic and tactical right arm of the president, Segpres fulfilled two major functions in the policy formulation process. First, it ensured the protection of business interests and preferences before those of any other groups. Second, it narrowed the points of access for opposing ideas, or excluded them outright. In effect, Segpres relied almost entirely on consultants from the private sector mining industry and from Cipma, with whom the former were closely related.⁵⁴

Cipma by this time had embraced the philosophy of close collaboration with the business sector. It turned the 4th scientific congress of 1993 into an agenda setting forum for the debate over the framework law. The professionals who attended the congress were overwhelmingly from the business sector, right of centrist sectors of the academic community, and NGOs similar in outlook to Cipma. They, in effect, elaborated the gradual principle of environmental policy and ensured the creation of a weak coordinating institution (CONAMA) with maximum control over real policy by sectoral ministries, whose heads were usually more responsive to business interests, and where the latter had greater influence. The gradual principle guarantees that non-conflictual problems and solutions receive attention first. More

difficult issues are postponed, and it is expected that resulting regulations will not be too stiff.⁵⁵

This means that CONAMA's institutional structure now ensures that the collaborative arrangement between the state and business also applies to the environmental issue area. Two key features of CONAMA's structure safeguard that understanding between the private sector and the top political leadership of the CPD. One is the establishment of a weak central authority dominated by Segpres, which works closely with business and screens out or smoothes over the input of other currents. The other centers on strong ministerial responsibilities, where environment is only one of many concerns, and not the principal one. Because economic growth and production receive more attention, business interests have greater influence.

The composition of CONAMA's consultive council, the official space for citizen participation, reinforces these objectives. It leaves little political space for alternative views, much less their forceful and binding advocacy. To begin with, Segpres chairs the Consultative Council and the president of the republic directly appoints a second government representative. Moreover, of the non-business representatives, the scientists are nominated by the rectors of universities, notoriously sensitive political posts, subject to approval by the president of Chile. The representatives of labor are also subject to approval of the president. Although not subject to presidential approval, NGOs, despite their great diversity, only get two representatives just like all other "interest groups" in the environmental issue area.⁵⁶ For all intents and purposes this guarantees that one of those will be a business-oriented one.

If the proponents of environmental measures that lead to greater change from the neoliberal socio-economic model have such few avenues of direct influence, what strategies are they likely to use to be heard? What are the implications of those strategies for the style of environmental policy making in Chile? In all probability, they will follow a defensive, conflictive strategy by exercising watchdog functions. Blocking new economic projects by challenging their environmental impact reports seems the most likely path of action. As is already the case, causes of confrontation may range from biodiversity preservation, to pollution, to claims of exclusion from participation in decision-making, to the impacts of economic development projects on the cultural identity and life chances of native peoples. Demonstrations, news media exposés, civil disobedience, legal action will most likely be their weapons. Thus, Chile will probably be characterized by a two tier policy style: an official one that privileges collaboration between business and government over the preferences of other groups; and a conflictive one where mobilization and legal action challenges their decisions.

By the same token, as currently structured, Chile's collaborative style of policy making will most likely lead to the design of a combination of command and control and market incentive approaches to curb urban-industrial pollution--air and

water--through the application of end-of-pipe technology. This is clearly the trend in the measures taken during Patricio Aylwin's administration discussed above. Moreover, the government follows the path of least resistance. It tackled state enterprises and services first, leaving the thornier issue of dealing with the private sector for later. Controls over renewable natural resource extraction--including intensive agriculture--will mostly lag. For example, while a fishing law was enacted in 1990, it leaves many loopholes for fishing industrialists. A natural forest law remains blocked in congress since 1992.⁵⁷

Within these parameters, the Chilean government is serious about addressing the nation's environmental problems. It has placed the issue on the policy agenda. Production (both public and private) and services (utilities and waste) must respond. In this sense, business has devised an aggressive strategy of collaboration to help define environmental policy, rather than defend themselves against any and all measures. Key business organizations, such as the Society for Industrial Development and the National Mine Owners Society, have organized environmental committees chaired by high profile businessmen. Their task: to develop a private sector definition of environmentalism, one that fits best with their existing production processes--hence the stress on end-of-pipe technology. Their strategy is preemptive in the sense that they are developing diagnoses of their industries' environmental impacts and the solution to them before the government does, thus, they are shaping the government's response. Moreover, they have publicized their commitment to the environment--as they define the problem--in high visibility public fora. Their technical staff work with Cipma and similar allied organizations to provide the government with data and solutions. According to their own publicity, large-scale companies that are part of Chile's most important conglomerates are gearing up to invest in the latest pollution abatement technology.

ENDNOTES

1. Thanks to Patricio Silva, Frank Fischer, Patricio Rodrigo, the Corporación para la Preservación y Conservación del Medio Ambiente (Alejandra Aburto and Carola Urrutia), and the Center for International Studies of the University of Missouri-St. Louis.

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TABLE 1
Key Emmissions in Santiago--Metropolitan Region
(Metric tons/day, based on current practices & norms)

Year	SOx	Particulates	
	Industry	Industry	Busses
1994	110	13	3.75
1996	118	13	3.25
1998	121	13.5	2.25
2000	123	14	2.25

Source: InduIndustria, n.d.

TABLE 2
National Atmosphere and Climate, 1991
(Tousands of metric tons)

CO2 from industry: 32,525 (2.42 tons/per capita)

Methane: 310

Source: World Resources Institute, World Resources, 1994-95

TABLE 3
Freshwater Resources and Withdrawals

<u>Annual Internal Renewable</u>		<u>Annual Withdrawals</u>		
(1992)		(1975)		
Total (cubic km)	Per capita (000 cubic meters)	Total (Cubic km)	% resource	per capita (cubic m)
468	34.41	16.80	4	1,623

Source: World Resources Institute, World Resources, 1994-95

TABLE 4
Emissions Reduction Timetable DS no. 132
CODELCO--Chuquicamata
(t: metric tons; tt: thousands of mt)

Year	Sulfur tt/year	Particulates tt/year	Arsenic	
			t/month	tt/year
1993	252	9.72	252	---
1994	242	8.28	195	2.34
1995	198	3.24	156	1.87
1996	198	3.24	-----	-----
1997	198	3.24	-----	-----
1998	162	3.24	-----	-----

Source: Supreme Decree 132, 7 June, 1993

TABLE 5
Emissions Reduction Timetable DS no. 180
Enami--Hernán Videla Foundry
(Mt/m: metric tons per month; Mt/y: metric tons per year)

Year	Sulfur* Mt/m	Particulates Mt/y	Arsenic Mt/y
1995	3,700	1,500	84
1996	3,700	1,500	84
1997	3,700	1,500	84
1998	2,600	1,000	84
1999	1,666	600	42
2000	(**)	600	28

*Actual amounts are slightly less because greater reductions are required in the winter months of June, July, and August.

** Has to meet air quality standards.

Source: Supreme Decree 180, 18 October, 1994

TABLE 6
Emissions Reduction Timetable DS 252
Enami--Las Ventanas Foundry and Refinery
(Metric Tons per year)

Year	Sulfur	Particulates
1993	62,000	3,400
1994	62,000	3,400
1995	62,000	3,400
1996	62,000	3,400
1997	62,000	3,400
1998	45,000	2,000
1999		1,000

Source: Supreme Decree 252, 30 December, 1992.