

Public Environmental Expenditures in Argentina during the 90's

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Environmental issues have been growing in importance since the 70's, especially after the Stockholm Summit in 1972. As a consequence of that, legal rules and institutions devoted to environment protection have been created in governments worldwide¹. Argentina is not an exception in that sense. In 1973, by decree 75 the first Secretary of Natural Resources and the Environment appeared within the Ministry of Economy and, since then, there has always been some agency of the sort at the federal government (it has been moved through the years from the Ministry of Economy to the Health Ministry, to the General Secretary of the Presidency, and since December 1999 to the Ministry of Social Development and the Environment). In the same line, a large body of legislation on the matter has been passed, including rules on every environmental media, on environmental impact analysis, etc.

In that context, environmental regulation is generally justified by efficiency reasons since environmental problems are seen as a clear case of "market failure". More precisely, pollution of any kind is considered a "negative externality" because some agent's action harms others, who are not paid for that damage. There is no payment because environmental assets (as can be clean

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¹ The environment has also become an important issue at the International Trade Organization (former GATT), while agreements as the European Community or NAFTA (and even the Mercosur –Mercado Común del Cono Sur-) have also included environmental provisions.

air or clean water) are not exchanged in any market. Since “market failures” are one of the reasons that may justify public intervention², environmental public policy can be seen on the same level as health protection or basic education policies (the importance of State’s role for environmental protection with respect to other functions can be assessed in Table 1).

Table 1: Functions of the State

	<i>Addressing Market Failure</i>			<i>Improving Equity</i>
<i>Minimal Functions</i>	<u>Providing pure public goods:</u> Defense, Law and Order, Property Rights, Macroeconomic Management, Public Health			<u>Protecting the Poor:</u> Antipoverty Programs, Disaster Relief
<i>Intermediate Functions</i>	<u>Addressing externalities:</u> Basic Education Environmental Protection	<u>Regulating Monopoly:</u> Utility Regulation, Antitrust Policy	<u>Overcoming Imperfect Information:</u> Insurance (Health, Life, Pensions), Financial Regulation, Consumer Protection	<u>Providing Social Insurance:</u> Redistributive Pensions, Family Allowances, Unemployment Insurance
<i>Activist Functions</i>	<u>Coordinating Private Activity:</u> Fostering Markets, Cluster Initiatives			<u>Redistribution:</u> Asset Redistribution

Source: Reproduction of Figure 1.1. from the *World Development Report* (WB, 1997).

In general, environmental public policies are directed towards correcting market failures in such a way that agents incorporate the environmental costs of their actions. Less emphasis is put on equity considerations, and this is a phenomenon valid for all countries not only for developing ones. Nevertheless, it can be argued that equity aspects of environmental policies are as least as important as efficiency ones. For example, the State should be avoiding location of all most toxic firms or toxic waste deposits closer to poorer neighborhoods.

² Even when “market failures” justify a priori government’s intervention, it is always relevant to remember that be created when correcting the former. So, both types of deficiencies have to be weighted in order to confirm that environmental public policy is welfare improving.

But, while in a way or another, everybody recognizes the need of public environmental expenditures because of the above mentioned reasons, when it comes to macroeconomic adjustment that type of spending is generally very vulnerable to being cut. In that sense, Argentina is not an exception either. In fact, the last expenditure cut to reduce in fiscal deficit in 1999 (a reduction in public outlays of around 1,000 millions pesos), implied a decrease of which 66.5 millions from the former Secretary of Natural Resources and Sustainable Development.

So, given efficiency, equity and fiscal austerity reasons, it is crucial to identify what would be an “optimum” absolute amount of public environmental expenditures, and how those should be spent. In particular, priorities have to be set, so that public resources (which are limited) are channeled in the most efficient and more equitable way to protect human health and the environment. In any case, what is clear is that such analysis requires a comparison of marginal costs of reducing pollution and marginal benefits of doing so. Then, an analysis of "pollution abatement and control" expenditures is key to deal with the first part of that equation, and so, a crucial element in any rational effort to set or evaluate environmental policy.

Almost nothing is known in terms of private environmental costs in Argentina. There have been some isolated surveys on the matter but there is no coherent aggregate information. On the side of public expenditure, there were no studies performed to analyze this issue but budgetary data do exist. In this context, the purpose of this note is to be a first approach on what has been done (both quantitatively and qualitatively) in terms of public environmental expenditure in Argentina during the 90s and what are the issues still pending. In particular, section I evaluates how much has been spent in environmental problems with in comparison to other countries and with respect to other programs. Then, section II makes an analysis of how were public expenditure monies spent, with emphasis on three aspects: the design of environmental federalism, the type of regulation used to protect the environment, and the cost-benefit analysis performed.

I. Quantitative Analysis

A complete quantification of environmental expenditures requires accounting for all spending directed to achieve environmental objectives. In general, there are different kinds of classifications for *overall* “pollution abatement and control” expenditures (usually denominated PACE): *a) by type or environmental media* (air, water, waste, noise, etc.), *b) by economic sector* (households, businesses or public sector) and *c) by type of expenditure* (investment or current expenditures³).

There is no compiled information for overall private or public environmental expenditures for Argentina. There are some spread data on environmental investments by large industrial firms in Chudnovsky et al. (1997) and investment environmental expenses by different types of firms in ADEGA (1995). Meaning by "spread" that, they are based on small surveys at a point in time. For example, Chudnovsky et al (1997) reports environmental investments for the period 1993-1997 based on 7 to 22 industrial firms that answered a survey run by them. Information on public environmental expenditures has never been explicitly published but it can at least be derived from budgets, while private costs information is not of easy access. This is the reason why this article focuses on public environmental expenditures rather than private ones.

Now, in terms of quantifying public environmental expenditures, it is important to first of all sort by economic sector to assess, not the country total effort to prevent and abate pollution (e.g., purchases of motor vehicles devices as catalytic converters by households or development of pollution prevention technologies by firms), but rather government expenses directed at preventing, reducing and eliminating pollution or nuisances arising as a residual of consumption and production patterns⁴.

According to the extent of public sector participation in the economy, public PACE can contain a large share of governments own abatement expenses (e.g., to run public sewer systems)

³ In fact, following OECD (1996), to account for PACE according to the *Abater Principle* one has to add to investment and current expenditures, receipts from by-products of pollution control and abatement activity. Furthermore, accounting for PACE according to the *Financing Principle* implies adding to the latter Subsidies to the private sector, and subtracting Fees and/or Charges from the private sector. However, in most countries, PACE are calculated according to the *Abater Principle*.

⁴ PACE’s definition excludes any expenditure on natural resources management (e.g., protection of endangered

and may be large amounts of research and development expenses, or they can involve mostly regulation and monitoring costs. Public PACE distribution by environmental media would depend on countries natural characteristics and structure of production (i.e., it would include mostly air and noise pollution if there are more urban than rural areas).

Table 2. Expenditures for Pollution Abatement and Control in Selected Countries

<i>Country</i>	<i>Year</i>	<i>Public</i> <i>(% of GDP)</i>	<i>Total</i> <i>(% of GDP)</i>
Australia	1991	0.5	0.9
Austria	1991	1.0	2.2
Bulgaria*	1994		1.3
Canada	1991	0.7	
Denmark	1991	0.6	
France	1992	0.9	1.3
Germany	1992	0.9	
Greece	1991	0.5	
Iceland	1992	0.4	
Italy	1989	0.5	
Japan	1990	1.0	
Netherlands	1992	1.2	2
Portugal	1992	0.8	
Russian Federation*	1994		0.9
Slovak Republic*	1994		1.7
Spain	1991	0.6	
Sweden	1991	0.8	
Switzerland	1992	1.0	2.1
United Kingdom	1990	0.4	1.5
United States	1992	0.7	1.7
Average		0.7	1.5

Source: from Summary Table 1 in OECD (1996).

Note: * are non-OECD countries, while the rest belong to OECD.

In general, only a small fraction of countries' budgets is devoted to the environment, and this is particularly true in developing countries. To assess how “small” is the amount spent, it is useful to review what fraction of public monies is devoted to the environment in other countries, and how much is spent in other activities carried out by the government which also involve the

species or natural parks).

“solution” of externalities (principally, Basic Education) or minimal functions of the State (as Justice, Defense and Security and Public Health).

Table 3. Expenditures for Pollution Abatement and Control by Sector and by Type in the United States

	<i>Air</i>	<i>Water</i>	<i>Solid Waste</i>	<i>Total**</i>	<i>Total**</i>	
	(Millions of Dollars)				(%)	
Pollution Abatement	36,167	41,550	41,080	117,622	96.6	100
<u>Personal Consumption</u>	9,756			9,756	8.3	
<u>Business</u>	24,800	14,802	26,147	64,017	54.4	
Government***	1,611	26,748	14,933	43,848	37.3	100
· Federal	812	26,276	487	27,943		63.7
· State and Local	799	472	14,446	15,906		36.3
Regulation and Monitoring	714	622	429	2,201	1.8	
· Federal Government	234	440	194	1,271		
· State and Local Governments	480	182	234	930		
Research and Development	716	212	228	1,989	1.6	100
<u>Private</u>	420	76	82	685	34.4	
<u>Government</u>	296	136	146	1,304	65.6	100
· Federal	280	91	128	1,220		93.6
· State and Local	16	45	18	84		6.4
Total PACE	37,597	42,384	41,737	121,812	100	
(% of GDP)				1.75		
Total Government Spending	2,621	27,506	15,508	47,353		
(% of PACE)				38.9		
(% of GDP)				0.7		
Federal Government Spending	1,326	26,807	809	30,434		
(% of PACE)				25.0		
(% of GDP)				0.4		

Note: * Information referred to 1994, the last year of the Pollution Abatement and Control Expenditure Survey (BEA, 1996).

** Total includes other expenditures as control of noise, radiation and pesticide pollution.

*** It includes operating costs and capital expenditures for the public sewer system.

In that sense, Table 2 shows that approximately 1.5% of GDP is devoted to PACE (OECD, 1996), while considering only public expenditure, that percentage decreases to 0.7%. And, Table 3 shows details of the United States percentages by classifying expenditures by each environmental media (air, water and solid waste), by sector (personal consumption, businesses, and government), and by spending types (in this case: pollution abatement, regulation and

monitoring, and research and environment)⁵. Given these international references, what are those figures for Argentina?

The only way to build a figure for public PACE in Argentina is to account for budget spending by all agencies that have a role to play in policies to protect the environment at all levels of government. This should include at the federal level not only the specific Secretary of the Environment⁶ but also Secretaries of the Ministry of Finance (e.g., those related to Energy, Industry, Mining, Agriculture, etc.), the Ministry of Foreign Affairs (e.g., related to international environmental negotiations), Ministry of Culture and Education (e.g., related to Science and Technology), etc⁷. In addition, environmental agencies of local governments have to be considered. A lower bound number could come from considering provinces which have the most active environmental policies: Córdoba, Santa Fe, Mendoza, Buenos Aires, and, the City of Buenos Aires.

However, for Argentina, and as a consequence of difficulties to access to the data, the most feasible comparison comes from contrasting not overall public expenditures but what is spent by the Argentinean National Environmental Authority (SRNyAH, SRNyDS, or SDSyPA depending on the year we talk about). That agency was in the 90s the parallel of the EPA (Environmental Protection Agency) in the U.S., and so it can be compared to the latter once one takes care for their different roles⁸. EPA has a relatively stable budget of around 7,000 million

⁵ In the United States, the Bureau of the Census had collected data of a PACE Survey from 1972 to 1994 (see BEA, 1996), when it was cut for budgetary reasons. However, that survey will be reinstated in 2000 (for a discussion of changes to the original survey that are being discussed see Burtraw Dallas, Alan Krupnick, Richard Morgenstern, William Pizer and Jhih-Shyang Shih, 2000).

⁶ This secretary was called Secretaría de Recursos Naturales y Ambiente Humano (SRNyAH) until 1996, Secretaría de Recursos Naturales y Desarrollo Sostenible (SRNyDS) from 1996 to 1999, and Secretaría de Desarrollo Sustentable y Política Ambiental (SDSyPA) since December 1999.

⁷ There is a former Secretaría de Recursos Naturales y Desarrollo Sustentable (SRNyDS) internal document which reports all areas of the federal government which had some role to play in the protection of the environment by 1997 (“Situación Normativa de Competencias en Materia Ambiental en el ámbito de la Administración Pública Nacional”). However, this situation is now outdated since after the new administration assumed in December 1999, it modified the public sector organization structure. In fact, only part of the functions of the former SRNyDS belong now to the Secretaría de Desarrollo Sustentable y Política Ambiental.

⁸ In terms of structure, comparisons with the EPA are a priori somehow reasonable since the United States have also a federal structure.

dollars, which represents approximately 0.4% of U.S. federal outlays and roughly 0.1% of U.S. GDP (www.access.gpo.gov/usbudget/).

In the case of Argentina, figures are as in Table 4. It is indisputable then that, until 1998, if EPA and this Argentinean National Environmental Authority had the same type of functions and attained the same goals, public environmental expenditures in Argentina would be lower. Figures became closer for 1998, when the SRNyDS was assigned approximately 180 million pesos together with water regulations functions which corresponded to the Ministry of Economy and the Ministry of the Interior (decree 146/98). Those are issues that the EPA also controls, which makes 1998 a better year for comparison than previous ones. However, even under those circumstances, EPA expenditures are higher than those corresponding the Argentinean National Environmental Authority.

Table 4. Public Expenditures for Argentina’s National Environmental Agency

	<i>Outlays (Initially budgeted)</i>	<i>Outlays (Finally Spent)</i>		
	<i>- Millions of Current Pesos*-</i>	<i>- Millions of Current Pesos*-</i>	<i>- As % of Federal Public Expend. -</i>	<i>-As % of GDP-</i>
1994	62.00	50.86	0.12	0.02
1995	58.39	45.33	0.10	0.02
1996	49.86	51.98	0.12	0.02
1997	66.35	59.55	0.13	0.02
1998**	257.10	172.27	0.36	0.05
1999	408.24	101.71	0.21	0.04

Source: Official Budgets 1994, 1995, 1996, 1997, 1998, and 1999. Information for 1990, 1991 and 1992 was not available from official sources, and information for 1993 was incomplete.

Note: * The exchange rate between pesos and dollars is one to one.

** There was a transfer of all functions related to water issues from the Ministry of Finance to the SRNyDS (Decree 146/98) due to a conflict with the privatized water company for the Buenos Aires Metropolitan Area.

As stated above, another measure of comparison to evaluate how “small” are environmental expenditures in Argentina’s budget is comparing environmental outlays to other expenditures towards minimal functions of the State and intermediate functions (specifically to

correct real externalities) to see if “the presumed lag” is the same as in other areas. Table 5 shows such a comparison between the U.S. and Argentina. As a simple conjecture, it seems there is not lag with respect to the fraction destined to Environmental Protection in the U.S: than in Argentina contrasting with other areas as Public Health or Basic Education.

Having made a short quantitative analysis, it is important to remember that beyond data restrictions which make quantitative analysis of public PACE quite difficult, even if that kind of information was available, comparisons among countries have some caveats that merit to be considered. It is true as it was stressed above that they are only valid if governments have to fulfill the same environmental functions (note that a similar distribution of functions among levels of governments has to hold), and the same goals are attained with the same amount of spending. But, there are also some other features to consider when evaluating the absolute amount of public PACE.

Table 5. Comparison of Federal Outlays Directed Towards Minimal and Intermediate Functions of the State between the U.S. and Argentina for 1998

	<i>United States</i>	<i>Argentina</i>	<i>United States</i>	<i>Argentina</i>
	-as % of Federal Expenditures--		-as % of GDP-	
<u>Functions</u>				
Justice	1.4	1.7	0.3	0.2
Defense and Security	16.2	7.1	3.2	1.0
Public Health	7.9	1.8	1.5	0.3
Education	3.3	4.5	0.6	0.6
Environmental Protection*	1.3	1.1	0.3	0.2

Source: Own calculations according to www.access.gpo.gov/usbudget/fy2000/guide02.html and Dirección Nacional de Programación del Gasto Social (1999).

Note: * In the case of the U.S., it includes the amount budgeted for Natural Resources and the Environment. In the case of Argentina, information is calculated by making quite an assumption: the ratio expenditure from EPA and from the rest of U.S. federal government agencies that are involved in the environment issues is the same in Argentina.

First of all, an argument for “small” public environmental expenditures may be the own dynamic of the private sector towards the environment. This appear to be the case particularly in developing countries (see López Murphy and Conte Grand, 1998). In Argentina, for example, firms’ environmental management has been acquiring importance not as the product of stronger government intervention but rather as a result of international markets requirements. In fact, according to Chudnovsky et al (1996), in Argentina, the greatest efforts appear to be focused on the steel and petrochemical sectors, and they are stronger the larger and more oriented towards international markets are the firms (different is the issue of small and medium size companies)⁹. From that point of view, a low level of public environmental intervention in a developing country would not necessarily mean a worse environment since it might free-ride on stronger environmental regulations (and public expenditures) in developed countries.

Another reason which would make public PACE comparisons less relevant is that while public environmental expenditures may be large (and seen as a “good indication” of environment’s direct) ways of not taking care of the environment: *perverse* subsidies (e.g. fuel subsidies in the transportation sector or fertilizers subsidies in the agricultural sector). Eliminating them could show that governments can guarantee a better environment with lower expenditures (as an illustration of this, see work by de Moor 1997 and Gandhi 1996). In that sense, quantifying public expenditures per se is a trivial exercise.

II. Qualitative Analysis

So, the other dimension of public environmental expenditure is a qualification of how the assigned budget is spent. While there is plenty information on how EPA spend its budget and what are its goals by environmental media and by specific program (e.g., in 1999, 76 million dollars are enacted to attain Ozone and Particulate Matter Air Pollution Standards, 17 millions for Climate

⁹ A similar analysis with emphasis on different sectors was carried out by Fundación de Investigaciones Latinoamericanas (FIEL, 1996).

Change, etc.), this is not the case for the SRNyDS. Expenditures as they are classified by program simply replicate outlays by each one of the Under Secretaries which formed the structure of the Secretariat. For example, for 1998, there are only 5 categories: 1. Central Activities, 16. Sustainable Development of Natural Resource, 17. Water Issues, 18. Environmental Issues, and 99. Contribution to Decentralized Agencies dependent of the SRNyDS (e.g., National Parks Agency, regulation agency for water in the Buenos Aires Metropolitan Area –Ente Tripartito de Obras y Servicios Sanitarios or ETOSS-, etc.).

There is another, presumably more detailed classification by “Activity and Works” but is rather disordered since it does make some aggregation by activity but not following a criterion as amount spent by environmental media or by main goals of the SRNyDS (see Table 6 as an example for 1998).

Nevertheless, a positive point on that matter is that it has been improving, since, when looking at previous budgets, only a few categories of “Activities and Works” were reported, making even more difficult to disentangle how were public monies spent. In addition, accounting of expenditures by use, source of funds, and geographic distribution has also been improving in the last few years. For example, table 7 shows how “Figurative” expenditures and “Not Classified” expenditures have been decreasing.

It is clear then from this section that few things are known on how much Argentina spends on environmental protection, neither in the private sector nor in the public sector. Nevertheless, even if more information were available, a complete evaluation would require looking at how are those resources directed. In that sense, it is crucial to have at least some knowledge on the role played by each level of government in the design and monitoring of environmental regulation, what kind of rules are in place to prevent any “excessive” environmental harm, and what kind of cost-benefit analysis is performed.

**Table 6. Classification of Expenditures of the SRNyDS by
"Activity and Works"**

<i>Classif. Codes*</i>	<i>Public Environmental Expenditures of the SRNyDS</i>
0/0/1/0	Administration Support for Hydraulic Works Contribution to the Secretaría General de la Presidencia de la Nación
0/1/1/0	Environmental Matanza-Riachuelo Plan (IDB PPF 946)
0/0/2/0	Contribution to the Administration of National Parks Sustainable Development Environmental Issues Administrative/Planning and Coordination
0/0/3/0	Contribution to the National Institute of Water and Environment Fire Handling Preservation and Protection of Water Resources
0/0/4/0	Contributions to the National Treasury Pollution Management Improvement and Creation of Protected Natural Forest and Biodiversity
0/0/5/0	Management of Water Resources Contributions to the Ente Nac. de Obras Hídricas y Saneamiento Development of Institutional Relations Strengthening Participation in Environmental Management Pollution Management
0/0/6/0	Institutional Environmental Development (IDB 767-OC) Strengthening Participation in Environmental Management Reforming Waterworks and Sanitation Sectors
0/0/7/0	Institutional Environmental Development (IDB 907-SF)
0/0/8/0	Transference for the Ex Fund for Regional Development
0/0/9/0	External Financing and Cooperation (IDB 552/OC-AR)
0/1/0/0	Others
0/1/0/51,0/1/0/52,0/1/0/53,0/5/0/52,0/1/0/54,0/7/0/55,0/2/0/96: Not specified	

Source: Initial Budget for Fiscal Year 1998

Note: * Classification codes correspond to Subprogram/Project/Activity/Works in MEyOSP (1996).

Table 7. Public Environmental Expenditures in Argentina

Code	Classification	1994	1995	1996	1997	1998	1999
		(as percentage of total expenditures)					
	By use (inciso)						
1	Personal Services	0.12	0.15	0.13	0.09	0.04	0.08
2	Consumption goods	0.01	0.01	0.02	0.01	0.00	0.00
3	No Personal Services	0.23	0.14	0.26	0.31	0.13	0.24
4	Use Goods	0.01	0.03	0.03	0.05	0.26	0.39
5	Transfers	0.01	0.00	0.04	0.03	0.25	0.28
9	"Figurative" Expenditures	0.63	0.67	0.54	0.51	0.32	0.00
	By source						
1.1	National Treasury	0.99	0.93	0.80	0.75	0.86	0.78
1.3	Resources with specific destination		0.01	0.08	0.11	0.01	0.01
1.4	Internal Transfers					0.05	0.05
1.5	Internal Credit					0.02	0.07
2.1	External Transfers			0.01	0.01		
2.2	External Credits	0.01	0.06	0.11	0.12	0.05	0.08
	By region						
2	Capital Federal	1.00	0.33	0.45	0.47	0.22	0.37
6	Buenos Aires					0.07	
	Other Provinces				0.01	0.19	0.24
96	InterProvinces					0.18	0.36
97	Federal			0.01	0.01	0.02	0.03
99	Not Classified		0.67	0.54	0.51	0.32	

Source: Official budgets

1) Environmental Federalism in Argentina

An unambiguous division of responsibilities among federal and local governments is key for a coherent environmental policy. Arguments which favor decentralization are known and are centered basically on the following reasons: that people in each region may have different tastes toward the environment; that abatement costs can be quite distinct in a place than in another; that the assimilative capacity of the environment changes according to each site; that local regulators have more incentives to take care of the environment because they suffer a greater political pressure to solve concrete problems; or that regional agencies have a better knowledge on their

regions' environmental problems.

On the other side, those who propitiate federal environmental regulations do so: because of interjurisdictional problems (for example pollution of rivers that cross -or are the border among- several states or air pollution, which may be underprotected if left to local governments because of free-rider effect); to avoid a “race-to-the-bottom” if state’s governments attempt to lower their environmental standards to attract investments¹⁰; to avoid duplication costs for firms which have activities in several jurisdictions; because of economies of scale in the design and enforcement of regulations, and (on equity considerations) to guarantee a minimum level of environmental quality for all inhabitants.

In general, however, countries have mixed regimes with some functions taken care by federal governments and some others by local ones, while both levels share some other tasks¹¹. In Argentina, by the Constitution of 1853 local governments had all the power over their natural resources and their environment since they had not explicitly delegated it to the federal government (art. 104). This was not enough to avoid rulemaking by national government using as a justification that the Congress could pass laws for the general welfare of all provinces (art. 67 inc. 16). Then, a mechanism of “*leyes convenio*” was put in place as a consequence of such a vague definition of each level of government rights. That mechanism consists in dictating a national law and then seeks its approval at the local level. But, since Provinces had the right to adhere or not, the consequence was the existence of multiple regulations on the same resource. Two examples can illustrate this point: air quality rules and hazardous waste legislation.

Difficulties in rule making with respect to air quality standards are particularly acute for the Buenos Aires Metropolitan Area. Table 8 portrays that situation by reporting the different standards existing for each level of government. In particular, it compares Carbon Monoxide, Nitrogen Oxides, Sulfur Dioxide, Ozone, Total Suspended Particulates, and Lead for the City of

¹⁰ In some cases, it is also argued that centralization is necessary to avoid “race-to-the-top” (particularly for policies directed to toxic wastes). Local governments generally do not want to receive them and so establish stricter standards or higher taxes (this is also known as NYMBY or “Not in my backyard” regulations).

Buenos Aires (ordenanza 39.025 of 1983), for the Province of Buenos Aires (law 11.459 of 1993), and for all the Nation (law 20.284 of 1973).

Table 8. Comparison of Argentine Air Quality Standards

<i>Units: - mg/m³ -</i>	<i>Capital Federal*</i>	<i>Province of Buenos Aires</i>	<i>Argentine National Stds.</i>
<i>Carbon Monoxide</i>			
20 minutes	15,000		
1 hour		40,100	57,300
8 hours		10,300	11,400
24 hours	3,000		
<i>Nitrogen Oxides</i>			
20 minutes	400		
1 hour		376	847
24 hours	100		282
1 year		100	
<i>Sulfur Dioxides</i>			
20 minutes	500		
1 hour			2,620
3 hours		1,310	
8 hours			780
24 hours	80	370	
1 month			80
1 year		80	
<i>Ozone</i>			
20 minutes	100		
1 hour		235	200
8 hours			
24 hours	30		
<i>Total Suspended Particulates</i>			
20 minutes	500		
24 hours	150		
1 month			150
<i>Lead</i>			
20 minutes	10		
24 hours	1		
3 months		1.5	

Source: Weaver and Balán (1998).

Note: Capital Federal is the City of Buenos Aires.

As expected because of urban pollution, standards are in several cases (as for Carbon

¹¹ A typical example of the latter is air pollution regulation in the United States, where minimum standards are

Monoxide and Nitrogen Oxides) more strict at the local level than those of the federal government. However, for Ozone 1 hour, for example, table 8 shows that the Province of Buenos Aires standard is less strict than the national one. Another strange issue is why Sulfur Dioxides 24 hrs. standard is so different for the City of Buenos Aires than for the Province, despite of the fact that the air "circulates" freely throughout the Metropolitan Area of Buenos Aires.

The hazardous waste legislation is another example of environmental federalism difficulties. In the management of "hazardous waste" there is a national law (law 24.051 of 1991), which some provinces have adopted¹². This is not the case for the Province of Buenos Aires, which has its own legislation on "special wastes" (law 11.720 of 1995). As a consequence of that, in order to "coordinate" this problem, the Secretary of Environmental Policy (SPA) of the Buenos Aires Province and the former SRNyDS have signed a compromise according to which the SRNyDS recognizes the province jurisdiction over hazardous waste except in those cases which are explicit in the national law 24.051 (those are exactly the ones recommended by economic theory: interjurisdictional problems, situations with risks of "race-to-the-bottom", etc) and accept to eliminate from the National Register of Transporters, Producers and Operators of Hazardous Waste those firms which operate in the province¹³ (Conte Grand, 1999).

However, while the latter does not seem to be much a "solution" in terms of coordination, there is a more vivid illustration of the rather inefficient division of responsibilities in the area of hazardous waste. Since they reformed their Constitution, both the Province of Buenos Aires and the Capital Federal have forbidden the entry of hazardous waste to their territory. However, the Capital (which is surrounded by the Province) does not have treatment plants, so, waste has to be transported by national roads to further provinces (basically Santa Fe and Córdoba) instead of to the Province of Buenos Aires, increasing unnecessarily treatment costs and the potential risk of

set at the federal level and states can make them more (no less) strict if they desire.

¹² In fact, of the 23 Argentine Provinces, 11 have taken as their own the national law, 8 have legislation which are quite similar to law 24.051, 2 have their own regulations and 2 others do not have any regulation on hazardous waste.

¹³ In exchange for that, the SPA agrees to transfer to the national government 10% of the fix fee they charge.

accidents.

The 1994 reform of the National Constitution of 1994, as a way to find a solution to all these situations, established “minimum standards” of environmental quality for the overall country (art. 41), while allowing provinces to set their own regulation to guarantee stricter (not lower) standards. However, more than six years after the reform of the National Constitution, no “minimum standards” has been approved¹⁴. At this point it is clear that a decision has to be made if the goal is to spend public funds in a more efficient way by solving the actual chaos produced by superposed laws. A choice has to be made between decentralization clearly defined or shared responsibility with “minimum standards” established at the national level (with stricter local regulation) as was established by the 1994 Constitution.

2) Type of Environmental Regulations in Argentina

In its beginnings environmental regulation in all countries was based on “command and control” (CAC) rules, which establish a certain behavior for polluters that regulators try to enforce. Examples of CAC regulations are basically: standards of environmental quality (specify the maximum amounts of pollution accumulated on the environment), emission standards (set the maximum amount of emissions authorized), technology standards (establish the type of technology allowed for some polluting process), product standards (fix the characteristics that must have some potentially polluting goods), and input standards (define the type of inputs to be used or determine the maximum to be utilized of some polluting inputs)¹⁵.

The attraction of this type of instrument is that at least theoretically environmental authorities have control over the amount of allowed emissions and can decide which are the sectors that have to improve. However, in practice, that kind of regulation has at least three type

¹⁴ There are several projects of the sort in the Congress but none has been passed.

¹⁵ Purely administrative regulations as prohibition for cars to circulate a certain number of days during the week (as in Santiago de Chile, Mexico D.F. or even Paris for emergency days) or to go downtown during peak hours are also examples of CAC rules.

of weaknesses: it requires to have a large amount of information (on technology costs and on pollution damages to be able to set the optimum standard, and of monitoring to control that the standard is implemented), it does not give incentives to innovation (once standards are attained no firm attempts to improve over that), and, it creates possibilities of lobbying by firms (since standards are generally different by sector).

Then, more recently, as in other fields of regulation, environmental policies have been redirected towards more “incentive” or “market-oriented” rules as a way of being more cost-effective. Instruments of this type are principally: direct or indirect emission taxes (includes taxing emissions directly, taxing polluting goods or polluting inputs), subsidies, deposit/refund systems, tradable permits, and establishment of legal responsibility. Another “market-based” scheme is regulators’ information disclosure on polluters’ activities, which is known as the “third wave” of environmental regulation and whose main advantage is the transfer of most of monitoring tasks from the government to the community.

In terms of environmental regulation, the case of Argentina is not so different from other countries. In fact, regulations on the environment are more than abundant. There are rules for air and water that establish environmental quality and emission standards. For example, the above mentioned law 20.284 that fixes standards for air quality or the decree 875 which sets limits to emissions by mobile sources. In a similar way, law 20.324 and several decrees determines maximum pollution amounts for industrial discharges. There is also legislation on technological standards as the already mentioned on hazardous waste (law 24.051) that regulates treatment, disposal and storage plants (TDSs).

There also are some shy cases of taxes and subsidies: law 24.196, which determines that expenditures toward pollution prevention in mining can be deduced from income taxes, law 23.966 that established a differential tax on leaded gasoline as a way of phasing out lead; or the concession contract of water provision to a private firm in the Buenos Aires Metropolitan Area (art. 4.9.2 and 11.6.2) that establishes the possibility of billing industrial firms if their discharges contain amounts of pollution above standards. Other examples of the use of this type of policies are a system of subsidies for conversion of taxis to GNC, also (in some way) the fee on hazardous

waste which is related to the amount generated waste, use of fossil fuels and water, and amount of waste recycled (law 24.051), and financing of small and medium firms to obtain ISO 14000 certifications.

In terms of deposit/refund schemes, while official rules do not exist, some private firms have implemented them for plastic or glass bottles. Argentina as most other countries (except the U.S. and some other isolated experiences in Germany, Australia, Canada and recently in Chile¹⁶) does not have any tradable permit system. With respect to the establishment of liability rules, the law 24.051 of hazardous waste sets a strict liability without defense for “double” contributory negligence (i.e., the only way not to be sanctioned is to prove that any accident was somebody’s else fault, and, one has taken due care).

Finally, there are some isolated experiences of disclosure of information of the positive type (i.e., on voluntary agreements to reduce pollution). In that sense, the most cited case is the agreement among petroleum companies, local and federal governments to implement an environmental management plan to reduce water pollution on the Colorado River. Nevertheless, despite of the trend toward more pollution measurement, there are no schemes of “negative information dissemination” (as the Toxic Release Inventory in the Evaluation and Rating” program in Indonesia¹⁷) in Argentina. There are some data on air pollution collected by Fundación Siglo XXI (Carbon Monoxide downtown), by the City of Buenos Aires Laboratorio de Vigilancia Atmosférica, Instituto de Seguridad y Educación Vial (ISEV) and Instituto Pro Buenos Aires, and by the PROAIRE Program in the City of Córdoba¹⁸. For water, the private firm that has the concession of the Water Company for Buenos Aires has made several monitoring campaigns. The same is true for hazardous waste. There is a Register for Generators, Transporters and TSDs under law 24.051 but nobody (except for some federal government officials) can have access to it. Free access to environmental data is the exception rather than the rule.

¹⁶ In that respect, see OECD (1994) and for Chile: the Decree 4/92 of the Ministry of Health.

¹⁷ A rather complete reference for that type of programs is World Bank (2000).

3) Cost-Benefit Analysis

Finally, as important as going towards more flexible regulations in order to save costs, is to take care of weighting costs and benefits at the moment of initiating any project or when deciding over a regulation. There are several laws in Argentina that set rules for project evaluation with environmental considerations. In fact, the procedure for environmental impact analysis (EIA) is inspired mostly on U.S., E.U. and international organization standards.

At the federal level, the National System of Public Investment has a “General Environmental Guide” to evaluate all projects (law 24.354 and resolution 501 by SRNDS). On a more specific level, there are norms on EIA for hazardous waste (decree 831 by SRNyDS), for mining (law 24.585), for large dams (law 23.879), as well as several guides for specific EIAs for hydraulic works, projects in national parks, etc., and most Argentinean provinces also have their own EIA laws (see Iribarren, 1997). However, while there is a tendency towards sanctioning EIA studies for private and public sector projects, it is generally limited to physical assessment of damage, not an economic valuation of benefit and cost involved. In addition, there is just nothing for regulations per se. Water or air pollution standards are not defined by studying the local conditions, but copying U.S. or E.U. ones. The most recent case of this type is law 5.965 and decree 3.395 of the Buenos Aires Province that directly refers to NAAQS EPA standards.

The only exceptions are punctual studies in the framework of Inter American Development Bank (IDB), World Bank (WB) or U.S. Environmental Protection Agency (EPA) projects. There was an attempt of contingent valuation and an hedonic pricing valuation to measure willingness to pay to reduce flood risk under a project financed by the IDB and a survey by the Consejo Federal de Agua Potable y Saneamiento to quantify willingness to pay for sewers at the Matanza-Riachuelo Rivers (World Bank, 1995). Then, under a World Bank project there was a study of "avoided health" costs of reducing air pollution in the Buenos Aires Metropolitan

¹⁸ There are also measurements for the city of Mendoza and the Province of Buenos Aires.

Area (Conte Grand, 1998). In terms of costs quantification, under a project financed by EPA to determine Argentina's climate change target, private costs of alternative greenhouse gases mitigation measures were approximated (SRNyDS, 1999). So, while there are isolated efforts to perform cost-benefit analysis, this issue is clearly a very important task pending in Argentina.

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