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**Environment, Democratization and Policy Formation: The Case of the Metallurgical
Sector in Eastern Amazônia, Brazil.**

Georgia Ottoni Carvalho
Bridgewater State College
Hart Hall 315
Bridgewater, MA 02135
gcarvalho@topcat.bridgew.edu

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I - Background and Introduction¹

In 1988, the Brazilian government appeared poised to undergo a significant change in its environmental policy, especially in regard to the environmental impacts of the predatory development model that had been pursued in Amazônia since the 1960s. Within a period of six months, the official discourse in relation to the environment in general, and the environmental protection of Amazônia specifically, seemed to suffer a shift. The new Constitution dedicated a whole chapter to the environment, a new environmental agency was created², and a new policy program, "Our Nature" was announced and the protection of Amazônia became a national priority. For the first time since 1964, it appeared that the previously predominant perception that environmental issues were an "obstacle" to the unavoidable economic development of the Amazon, would be substituted by a new discourse and policies. Since these changes coincided with the transition to civilian rule, the dominant perception was that by opening up the political and policy process to new actors and interests the democratization process was partly responsible for the change in attitude towards environmental protection.

Nine years have passed, and while the official discourse has remained one that allegedly favors environmental preservation over destructive forms of development in Amazônia, it remains to be seen if the situation "on the ground" has significantly changed. There is evidence, however, that levels of environmental degradation and deforestation have remained high. This paper examines how environmental policy has evolved since 1988. And what role, if any, the democratization process played in shaping this policy evolution.

To answer these questions I adopt a theoretical framework that examines at once the role of several local, national and international actors that have been instrumental in shaping Brazilian environmental policy and how their interplay has changed with the democratic transition. In this paper I use the case of the development of a metallurgical sector (charcoal based pig iron smelters) in the Carajás corridor area to illustrate policy evolution.

II- Interplay of Local, National and International Actors in Environmental Issues

Most of the attempts to understand environmental degradation in Brazil as well as in most less developed countries (LDCs) have ignored the intrinsically "inter-mestic"³ nature of such problems. In their majority, studies have focused either on the international or domestic arena of environmental politics. While different approaches present in the literature have provided valuable insights into the nature of environmental problems, the majority remains partial accounts of the increasingly complex problems the environment confronts us with.

Traditionally the issues are approached from either a comparative or an international perspective⁴, with very few studies that bridge the two⁵. Environmental issues, due to their

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² The IBAMA, the Brazilian Institute for the Administration of Natural and Renewable Resources - Instituto Brasileiro de Administração do Meio Ambiente e Recursos Renováveis, was created in 1988.

³ Several new studies suggest that the present reality is essentially "inter-mestic" in nature, domestic and international realities can no longer be clearly separated, resulting in a need to bridge the gap between IR and Comparative approaches (Rourke 1993).

⁴ Again this pattern is an echo of the general literature on environmental politics and policy which tends to take an either/or approach by focusing alternatively on the domestic level or the international level, rarely combining both in spite of the transnational effects of environmental problems. For examples of state centered approaches see, for instance, Ascher and Healy (1990). For examples of international approaches (often based on Regime Theory) see Benedick (1991), Choucri (1993),.

pervasive and interconnected nature tend to extend beyond the sphere of the nation-state. Nevertheless, an accurate understanding of current environmental politics and policy, due to the variety of actors involved and their spill-over effects, often require integrated analytical frameworks, that are able to address at once domestic and international variables.

The research which inquires into developments in Amazon environmental policy in the late 1980's predominantly focuses on international factors shaping that reality. These studies tend to understand Amazon development models and the environmental policies linked to them in terms of external pressure from "international alliances" (Gross 1990:11-12, Bramble and Porter 1992) comprised of elements such as international capital, international organizations (e.g. World Bank and E.C.) and foreign governments and, more recently, of environmental organizations (primarily Non-Governmental Organizations - NGOS based in developed countries)⁶. Within this branch of the literature which emphasizes the role of the international dimension two interpretations can be distinguished according to their theoretical approaches.

The first interpretation follows in the tradition of Dependency theory and Marxist based analysis. The underlying argument is that the patterns of development followed by the State in the region are subordinated to the logic of uneven and dependent capitalism, as is often the case in the periphery. In this view, the State and its policy-makers simply serve the interests of the capitalist class and ensure capitalist accumulation for the center. Among the many studies that subscribe to this perspective one could cite Barbosa (1993), Pinto (1982), Silva (1985), Cota (1984), Neto (1988 and 1991) and Almeida (1988, 1993). Most of these authors put forth models illuminated by dependency theory in which the adopted Amazon development strategy was determined primarily by transnational corporations (through mining, timber extraction and cattle-ranching) by-passing the possibility of a locally determined development strategy. In these views, the strategies are ultimately determined by larger international processes, such as globalization, and what happens within Brazil is primarily a reflection of these processes. However, focusing on macro-processes often sheds little light on the immediate environmental and social consequences of economic development in Amazônia.

It is true though, that not all examples of this branch of the literature suffer from the same problem. Evans' (1979) study of the Brazilian development model is a noteworthy example of dependency analysis that offers precious insights. Precisely because his analysis is meticulous, careful and takes into account the role of the state as well as of the different social actors, it manages to avoid the reductionist trap. Evans describes Brazilian development strategies as the result of a 'triple alliance' between the State, national and international capital which seeks to further their interests. However, unlike the more uncomplicated analytical approaches, Evans manages to consider both the linkages between domestic and international actors, while avoiding discounting both the role of national elites and the state, to whom a certain degree of autonomy is granted.

The second interpretation within the literature that emphasizes the role of external factors over domestic factors can be found in the studies that explain the evolution of Brazilian environmental policies in the Amazon as a function of the formation of what Keck and Sikkink have called "Transnational Issue Networks" (1994). Several studies (Bramble and Porter 1992, Worcman 1990, Kohlhepp 1989, Gross 1990, Treece 1990, Bustani 1994, Rodrigues 1996)⁷ argue that the choices of development strategies for the Amazon since 1988 have been shaped in part by transnational issue networks, i.e. alliances forged between transnational social actors organized

⁵Examples of theoretical works that attempt to integrate the two fields are found in R. Putnam (1988) and Evans, P. Jacobson, H. and Putnam, R. (1993), Rodrigues (1996),

⁶ For some examples, refer to works such as Hurrell 1992, Cowell 1990, Cleary 1991, Margolis 1992, McCleary 1992, Gross 1990 and Viola 1995.

⁷It is interesting to note that several of these authors are strongly linked to different NGOs- for instance Barbara Bramble works with the National Wildlife Federation and Steve Schwartzman and Anthony Gross with the Environmental Defense Fund.

around specific causes⁸. This alliance was comprised of mostly NGOs from developed countries and local actors such as the rubber tappers and indigenous groups⁹ that were able to bring the issues of Amazon deforestation and development to public attention in developed countries and request accountability of major international development agencies such as the World Bank in funding the devastating process in Amazônia. They were effective in exerting pressure on the Brazilian government at a point in time when Brazil was particularly susceptible, given the external debt crisis it found itself in and a severe economic inflationary domestic crisis¹⁰. While these arguments are interesting and describe important components of the policy process since the mid 1980's, they are not without problems. Like the first approach, it too tends to regard domestic actors outside the coalition (including the State) as secondary.

These two approaches highlight the importance of seriously considering international factors in any analysis of the Amazon development policies, both for their role in shaping strategies of Amazon development and for their ability to influence policies. However, any thorough analysis of Amazon development policy and its environmental side effects cannot afford to ignore the domestic dimension of the problem and its linkages to international aspects.

There is also a vast literature with noted examples of studies that have emphasized the importance of domestic institutional and political factors in defining Amazon development policies. Authors such as Hurrell (1991), Albert (1992), Hecht (1985), Hecht and Cockburn (1989), Foresta (1991, 1992) and Schmink and Wood (1992), for instance, have stressed elements such as the importance of state-led development in Amazônia, the democratic transition Brazil experienced during the 1980's, and the fact that any policy in regard to Amazônia is intrinsically linked to the larger picture of Brazilian politics, as some of the major reasons for emphasizing domestic elements.

One of the most commonly used theoretical interpretations of Amazon development is a model in which the State plays a crucial role in designing development policies for the region according to a purported set of objectives that becomes distorted in the Amazonian context. For wonderful examples of such approach one could cite both Bunker's (1985) and Moran's (1981, 1983)¹¹ classical studies of Amazon development which recognized the state as the main impetus behind the drive to open up and colonize Amazônia under military rule and noted the evolution of the state apparatus in the region as a way to encourage other groups to follow suit. They go on to analyze the subsequent developments in the region, where this 'rationality' that the state tries to apply to develop Amazônia is distorted by regional or national groups and interests which seek to manipulate instruments of state power, such as financing, policy and bureaucratic machine, for their own purposes.

Cleary (1990, 1991), Wood and Carvalho (1988), Schmink and Wood (1984, 1992) and Valverde (1988, 1993) are also examples of arguments in which the state is considered the most important variable for it is the actor that links social and economic pressures in the region to the main factors driving deforestation (cattle ranching, timber industry, shifting agriculture or large-

⁸For a very interesting account of the action of three different Transnational Issue Networks in Brazil see Rodrigues (1996).

⁹ Some of the specific organizations that were involved in the 1989 alliance were the Conselho Nacional dos Seringueiros, União das Nações Indígenas, Instituto de Estudos Amazônicos e Associação Brasileira de Antropologia (Viola 1995, Bramble and Porter 1992). These were the participants in the case of one specific coalition, Rodrigues (1995) however, notes that there were at least three discernible alliances (environmental protection issue networks) formed at different times, with differing membership and aimed at different policy goals, each one achieving different degrees of success.

¹⁰ For interesting accounts of how the forging of the alliance and its effects see Keck (1995), Viola (1995), Hurrell (1992), Bramble and Porter (1992), and Schwartzman (1991).

¹¹Another example of this type of explanation of development model in Brazil, although not specifically applied to Amazon developments, can be found in Werner Baer's "State Capitalism" formulation (1975), where he links the state and its increasing role in development policy since the Vargas' days (first through its import-substitution strategy and later through the export-oriented economic base) to the type of interests that profit from such strategies (national elites and international capital).

scale developments). All of these analyses present impressive arguments for the intricacy of the interests and groups represented by the state and the growing complexity of the situation in Amazônia as the state progressively loses its control over what was once presumed to be "planned" development strategies.

Responding to this interpretation of the State and its role in Amazon development, there is an 'actor-oriented' model (Hall 1989:243, Grindle 1986). This model assumes that there are several actors capable of shaping policy outcomes as they interact with other groups and institutions at several levels. It is especially interesting for understanding the situation in Amazônia given that it grants a certain autonomy to the state in its policy formulation and recognizes the active role played by the state in development policy in the region, while also accounting for the participation of social groups in molding policy choices. Among those adopting such an approach one could cite Foresta (1991, 1992) who provides an interesting account of the evolution of Amazônian conservation policy from the 1970's to 1990, in which he links the changes taking place in Amazônian policy to changes in the institutional arrangements within Brazil. In his account, as the Abertura (opening) proceeded restricting military participation in policy making, the basis for Amazônian policy formulation shifted away from a policy based strictly on geopolitics and developmentalism towards greater inclusion of environmental and social considerations given the opening to new groups in the political process. Other examples of a similar approach to Amazon development policies can be found in the compilations by Hebette (1991), and Hebette and Castro (1989), Hecht and Cockburn (1989)¹² where the impact of large-scale development in Amazônia is analyzed in terms of its effects for different segments of the local population such as the peasantry and indigenous groups and their reaction to the development strategies adopted by the Brazilian state and in certain ways have helped to shape their outcome.

Finally, Hurrell (1991, 1992), Hall (1989), and Nitsch (1994) present very compelling arguments in their explanation of Amazon development strategies and their negative environmental ramifications. All three authors wholeheartedly recognize the need to examine the linkages of domestic and international factors in shaping the related Brazilian policies in order to fully understand the underlying processes and issues at stake. Their parallel arguments see the domestic and international spheres as intrinsically interlinked: a) the Brazilian state is not operating in a political-economic vacuum neither at the international, nor domestic levels, b) the effects of Amazônian environmental degradation go well beyond national borders¹³, thus, in order to comprehend Amazon policy evolution it is necessary to take into consideration both sets of factors, their linkages and timing.

The above assessment of the current literature makes clear the need for the inclusion of both international and domestic elements if Amazon development is to be fully understood. There is a need for an integrated analytical framework that include both perspectives while refining certain deficiencies inherent in any theorizing.

What follows is the outline of an attempt at such an integrated analytical framework. Based partly on a synthesis of the works of Hall (1989) and Hurrell (1991, 1992), it is also indebted to the insights offered by Evans' (1979) and Baer's (1975) analyses of Brazilian development. Following their lead, the present framework departs from the premise that no single set of interests has been responsible for shaping in Brazilian and Amazon policy. On closer examination it is quite clear that a whole array of interests have benefited from what appears, at the surface, to be an irrational pattern of development with severe environmental side-effects.

This is a tentative outline of what is in fact a very complex web of interaction between a variety of actors within the specific policy subsystem (environment) and who are capable of networking and influencing outcomes at several levels (local, national or international) (Figure 1). From a theoretical perspective, this framework contains insights from various theoretical approaches, and attempts to integrate elements of several of the perspectives discussed above. The

¹²Other works in this line would be Aragón (1992), Ximena (1995), D'Incao and Silveira (1994).

¹³Not to mention the issue of effects for future generations (intergeneration equity), as discussed at length in *Our Common Future* (1987) and by Weiss (1993).

emphasis of this framework is on trying to flesh out some of the intersecting, and many times blurred, interests involved in the Amazon policy process and how the interaction between these interests has evolved overtime.

A) Local Actors

At the local level it is important to consider the role of two elements: a) local economic elites, both in their traditional landed element and in the newer element that has been attracted to the region since 1964, and b) groups resisting the development model. The local economic elites played an active role in supporting the efforts undertaken by the state to develop the region through the implementation of large-scale projects during the military regime such as the opening up of the region through road construction and through the implementation of large projects such as Carajás. However, given the centralized style of development planning during the military period, the role of local elites was actually quite limited in scope. In spite of controlling the local political environment, this sector had very little input in the policy making process up to 1985, when the government returned to civilian hands. After the transition, the role of local elites have remained somewhat limited in its ability to influence policy, nevertheless, this sector there are two significant changes in its insertion on the policy process that have been documented. On the one hand, this sector has become increasingly connected to national elites, being able to indirectly influence the policy debate through that channel, and on the other hand, with the decentralization of policymaking decisions in some sectors since the democratic transition, local elites have been allowed to become more actively engaged in decision making processes (Carneiro 1994).

The other element that should be considered at the local level is comprised of smaller groups that have at different points in time, passively or actively, resisted the Amazon development model. This element of resistance was added to the political and policy equation rather recently, mostly as an effect of the democratization process. The return to civilian rule allowed the emergence of new political actors representing interests of societal sectors previously excluded by the regime. Even if these actors have not been central to the policy process, they have in many cases managed to form alliances with other national and international actors resisting predatory development in Amazônia, thus participating in the policy debate (Keck, 1995).

Two such groups are the small peasantry and the indigenous communities. The small peasantry, albeit not indigenous to the region in its majority, was attracted to the region in the first attempts to colonize and settle the region with a smaller scale of action in mind (during the National Integration Plan - PIN and the Transamazonic Schemes in the 1970s). The small peasantry has voiced reservations about the predatory large-scale model of development that has led to extreme degrees of land concentration, rural violence and degradation in Amazônia. Although, traditionally weak in its ability to shape Amazonian policy, the small peasantry has been able to organize rather well, in many cases with the help from the church and national unions, forming farmer cooperatives and small agricultural producer unions (*Sindicatos dos Pequenos Produtores Rurais* and *Sindicatos dos Trabalhadores Rurais*) that have given the movement a great deal more legitimacy and bargaining power in their relationship with the State and bureaucracies (Hebette, 1989).

Perhaps not so early to organize its efforts against the model of Amazon development, but equally strong in resisting, was the indigenous community(ies) of Amazônia. These communities in many cases bore the brunt of the development costs by losing their land, becoming acculturated, and seeing their lifestyle all but disappear in a short period of time. The main interest of the indigenous groups is to preserve their traditional lands and cultural ways. The preservation of indigenous lands however have been made almost impossible by the development model adopted in Amazônia. These groups have since the mid-1980s organized and participated in the resistance effort alongside with groups such as environmentalists, and sectors of the church. The main resource available to this resistance sector has been organizing and aligning itself with national and foreign NGOs to pressure the State and its agencies, as well as international actors such as the World Bank and the European Union into changing Amazon development policy. Since the mid 1980's this strategy has been fairly successful in raising awareness of the negative impact of

existing policies. However, the concrete results of such mobilization must be examined more closely to determine success.

B) National Actors

At the national level the State, national elites and the resistance sector (environmental movement, NGOs, etc.) have been the main actors shaping Amazon policy.

The importance of the State and its agencies is undeniable. Several studies have attributed to the state a definitive role in the development of Amazônia for it was the main impetus behind the development drive that started in the 1967 with the announcement of Operation Amazônia¹⁴. It is the State, through its bureaucracy, that acts in both direct and indirect ways to effectively formulate the resulting policies of Amazon development (cattle ranching and its subsidies, small scale farming, timber extraction, and large-scale projects). It is also the State that formulates and implements environmental protection policy through agencies such as IBAMA- Brazilian Institute for the Environment and Natural and Renewable Resources, INPA- National Institute for Amazon Research, and FUNAI - National Indian Foundation. Thus, at the national level, the state can be considered the main actor shaping Amazonian policy.

The interests guiding State Amazon policy are of a strategic, social and economic nature, as discussed in some of the complex state action models developed by Hurrell (1991, 1992), Hall (1989) and Nitsch (1994). From the strategic point of view, the State controlled primarily by the military during the period between 1964 and 1985, reflected in its policies the military's geopolitical perception of the region as vulnerable to foreign interests and unprotected. This geopolitical view tended to recede to a secondary concern with the return to civilian rule (Foresta, 1992).

On the other hand, social interests have played an increasingly important role in determining Amazon policy. As social conflict became more frequent and violent in the Amazon during the 1980's, as the land reform movement gained momentum and the peasantry and indigenous communities stepped up their resistance against the development model in the same period, social preoccupation became progressively important in the state's calculations, although not quite the prevailing criterion in policy making.

Economic interests can be said to have been the most important element underlying in the policy formulation throughout since the 1980's. First, one needs to consider the fact that the incorporation of Amazônia economically was at the very heart of the "National Developmentalist" model pursued by the military¹⁵. This perception, with roots back in Vargas' period, held that the country's potential to become a major player at the international level depended, to a large extent, on utilizing the natural resources of the Amazon to their full capacity.

Second, as this national development model was progressively implemented and its contradictions became increasingly apparent (particularly after the oil crisis, when the economy that had been expanding at 8-10% a year came to a crashing halt) the Amazon region became the emergency source of economic resources to keep the economy from collapse and to keep on servicing a growing external debt. Many of the mammoth projects that were proposed in the late 1970's were viewed as the "goose that would lay the golden egg" by the State (Neto, 1990), generating much needed exportable resources and thus hard currency to service a growing debt that could potentially cripple the Brazilian economy (as it did ten years later). Carajás was perhaps the best example of this strategy. It has been frequently argued that one of the main motivations of the Geisel and Figueiredo administrations to go ahead with the project was the cash

¹⁴The State has taken an interventionist role in Brazilian development in general. According to Werner Baer's (1975) interpretation Brazil develops a form of "State capitalism" whence government intervenes to encourage a particular development model based on import-substitution and export-oriented sectors. In order to achieve such goals Baer posits that the State makes concession to the interests of domestic and international capital.

¹⁵ For a discussion of the model see Franz Brüseke's excellent study "O Nacional-Desenvolvimentismo Brasileiro" (1993).

generating potential of exporting 18 different minerals in the long term, not to mention the short term foreign investment it would attract (via World Bank, EEC and Japan).

Finally, a third economic consideration of the state has had very real political ramifications. The development strategy for the Amazon was very much based on specific sectors that benefited particular domestic interests. The construction industry, for instance, made astronomical profits in many a shady contract and became a force to be reckoned with in Brazilian politics. Furthermore, by establishing subsidies for many of the sectors to be developed in the Amazon, several groups were highly benefited. For instance, the cattle ranching subsidies established via the regional development agency made that sector highly profitable.

More recently, as the democratization process took root, allowing for voicing of opposition to the large-scale model of Amazon development, other interests have also been taken into consideration in Amazon policy formulation. First, it has become increasingly difficult for the State to justify Amazon development projects that are based solely on economic interests with dire environmental consequences, the opposition to such projects by social actors has become very strong. Adding to that, one can genuinely talk of the emergence of more progressive (socially and environmentally) sectors within the State that have at least partially shaped environmental policy in the last decade or so¹⁶. Furthermore, these more progressive sectors have been joined by some sectors that previously supported the predatory model. As more information about the unsustainability of predatory Amazon development has become available there has been a small, but noticeable, shift in attitude even in more conservative sectors of the State, such as the Army, towards the importance of environmental protection of the Amazon (Uchôa 1994, Pizzato, 1996). This progressive attitude may actually result in improved environmental Amazon policy, although so far the track record has been quite poor.

As far as alliances, Peter Evans' (1979) diagnosis of the triple alliance, and Werner Baer's (1975) parallel argument are particularly useful for the understanding of Amazon development policy. Domestically, the state has primarily, although by no means exclusively, defended the interests of national economic elites, who benefited from the model of development chosen for the region. Internationally, the state allied itself with actors that were interested in funding and profiting (directly or indirectly) from said model of development. However, as the democratization process advanced, the interests defended by the triple alliance were somewhat displaced by the demand of new actors that Amazon development be more environmentally responsible.

At the national level one can also locate a number of social (non-state) actors that have participated in differing ways in the process of Amazon policy formation. As the state policies evolved they created or helped to consolidate groups that were either able to use the state and its apparatus for its own purposes, or resist it in effective ways.

The primary group benefiting from Amazon development policies were domestic economic elites. Whichever way one looks at Amazon development since the 1960s it is evident that the benefits have been reaped mainly by these elites. Their main interest in pursuing Amazon development has been based (and remains based) on economics. The different sector groups that fall under the economic elite umbrella clearly had their own agenda in mind when pressuring the state in different capacities to direct policy in given directions, ranging from maintaining farming subsidies to establishing a pig iron sector along the Carajás railroad. These groups have created powerful organizations that given them strong access to the policy formation process and the policy implementation apparatus. For instance, under the umbrella of the infamous União Democrática Ruralista - UDR which has elected several congressmen forming a powerful block within congress (Bancada Ruralista), the local ranchers (latifundiários) have been able to stall any meaningful attempts at agrarian reform in the region in spite of the high levels of land concentration and rural violence. And if industrial groups are not so strongly represented in Congress, they are often part of powerful lobbies such as the AEA- Amazon Entrepreneurs Association (based in São Paulo), and

¹⁶For instance the President of IBAMA, Eduardo Martins has a history as an activist for NGOs, as did several of the top officials at the Environmental Ministry (Ministerio do Meio Ambiente - MMA).

the ASICA- Association of Carajás Metallurgical Industries that have consistently influenced the policy process.

Although, relatively, the sector's influence in shaping Amazon policy has decreased since the democratic transition, as it is no longer the sole group with access to the State and the Amazon policy process, it is still a powerful sector. Powerful economic groups still have direct transit to most sectors of the State and bureaucracy and their interests are still disproportionately represented in Amazon policy. Again, Evans' and Baer's frameworks are useful to discuss the position of national elites within the policy subsystem. Given the coincidence of interests between sectors of the State, national economic elites, and foreign capital in regard to Amazon development, these sectors have formed a triple alliance' which has to a large extent molded policy for the region.

At the national level on the resistance side, as a vast literature has highlighted (Gross 1990, Rodrigues 1996, Keck 1995, Bustani 1994) the actions of national NGOs, churches, unions and the emerging national environmental movement and their efforts have become an active element shaping Amazon policy since the mid 1980s. While during the military rule the policy process remained closed and restricted to few economic interests, the democratization process allowed, to a large extent, the insertion of such groups the Amazon policy debate. These actors, often with differing interests, have as unifying characteristics their opposition to Amazon development strategies and their style of action.

As a whole, they have attempted to pressure the state and involved international organizations¹⁷ into becoming more socially and environmentally aware in their actions in Amazônia. To do so they have established alliances with both local groups (mainly the Indigenous communities and the small peasantry) and international groups with similar interests, organizing into transnational issue networks, launching campaigns aimed at changing policy, and actively lobbying the State. While these groups have been playing increasingly important roles in the Amazon policy shaping, they also face severe problems such as limited human and financial resources.

C) International Actors

At the international level, as highlighted by the dependentista literature, it is important to discuss the role of international capital in Amazon development both in the form of direct private investment and through multilateral funding of projects. It is also important to consider the role of the international market given the fact it is the main consumer for the resources exported by Amazônia, as well as the role of the transnational coalition which together with the national resistance sectors has attempted to pressure the Brazilian government into addressing the environmental effects of its Amazon policy.

The role of international capital is a rather controversial one. One of the prevailing interpretations, put forth by several Brazilian authors, casts transnational capital as the main villain and the root of the destructive process unleashed in Amazônia. However, as we have seen throughout this section, this is a rather simplistic perception of the issue. A more elaborate version of this argument is found again on Peter Evans' (1979) reading of the development model in Brazil. Evans sees the triple alliance as the main force shaping development policy, and making transnational capital a critical part of that alliance, it immediately becomes an important part of the equation. The role of transnational capital in Amazon development is particularly acute in the large-scale development phase started in the 1970's. Carajás, illustrates this point rather well. Foreign investment was the primary source of funding for this project. The role of Japanese and European investors was particularly important in shaping the evolution of Carajás as we know it.

Some authors (Neto 1990, Pinto 1982, Cota 1984) have implied that, given how much it stood to benefit, transnational capital imposed its interests on the Brazilian state and pushed for the development of mineral mega-projects in the region. However, Hall's assessment of the situation seems more compelling: it was rather a "happy coincidence" of economic interests in the part of transnational capital, the state and economic elites, reinforced by social and geopolitical

¹⁷Primarily the World Bank and the European Union.

interests in the part of the state that made attractive the pursuit of the large-scale model of development in Amazônia. Rather than shaping policy after its own interests in isolation, at the expense of Brazilian interests, transnational capital more likely complemented the national agenda and fit within the ongoing model and domestic interests.

Besides the presence of private international capital, it is important to highlight the role played by multilateral public capital as well. The World Bank for instance financed a significant portion of projects such as Carajás, Polonoroeste and Planaflores¹⁸. While most of these international organizations directly funded part of the costs of large-scale projects, they also in many instances functioned as 'guarantor' (avalista) of such projects. In other words, by funding even a small component of any project the World Bank or any of the other funding sources signals to the international investors that it has been stamped with its seal of approval and it can be considered a sound investment, which opens the way for the participation of foreign capital in the project.

By virtue of their funding role in development projects, both during the military rule and the democratization period, private transnational capital and the multilateral agencies gained strong access to the policy formation and implementation processes. This has put international actors in a unique situation of both having been a substantial part of the problem in the past, and of having a potential role in fostering policy change. It was in that capacity, that they were targeted by the transnational issue networks as pressure points. On the one hand they were susceptible to the international pressure from developed countries with which they were associated, and on the other in a position to exert considerable pressure on the Brazilian State by threatening a suspension of funding.

Although the interests of both private international capital and multilateral agencies in financing such models of development lies primarily on the profit resulting from such enterprises, it is interesting that they also stand to take advantage of these development choices as international consumers. The cheap raw materials produced by the Amazon region are mostly aimed at the international market, and specifically at consumer markets such as Japan and Europe, who also happen to be among the major investors in the region. Thus it is not entirely without foundation that authors like Neto (1990) and Treece (1987) have raised the hypothesis that yet another motive of international capital and central states to perpetuate the inadequate model of Amazon development is that they stand to profit from it as consuming markets for the cheap raw materials generated¹⁹.

Much like the role of national economic elites, the role of international economic interests has remained quite central in the Amazon policy making process. By financing a large percentage of Amazon development, before and after the transition period, has given this sector access to policy process. However, as noted above, this influence can actually be channeled to encourage the development of further environmental protection guidelines.

¹⁸ The Bank is estimated to have funded approximately 35% of all large scale projects in Amazonia between 1970 and 1990 (Goodman and Hall 1990). Other international financial institutions and regional development banks such as the Interamerican Development Bank also financed several projects. International Development Organizations (e.g., UNDP, ITTO) and bilateral development organizations (GTZ, European Development Fund, JICA) have also played a role in financing of large scale development projects in the Amazon.

¹⁹ It is also true that one of the main goals pursued by the Brazilian state in Amazon development policy was generation of hard currencies in order to service its enormous external debt and alleviate inflationary tendencies within the national economy. This can be construed as yet another instance of coincidental interests in the triple alliance. As for the facts, they are undeniable: 90% of the aluminum produced in Barcarena is exported to the Japanese market, immediately after the bauxite has been transformed into aluminum sheets with the tax-payer subsidized energy from Tucuruí, in Carajás 98% percent of the iron-ore production goes straight from mine to port (via railroad) and from there to one of three possible destinations: Europe (EU is the main consumer), United States (US Steel as third largest consumer) and Japan (Japanese consortium of enterprises is second largest consumer).

Finally, the role of the transnational coalition that was forged to oppose Amazon development policies in the late 1980's is an important part in this web of relevant actors and interactions. Like at the local and national levels the specific interests of the actors in this segment may vary, while some focus specifically on Indigenous rights, some may focus on deforestation or opposing the inequality effects of the development model. However, these primarily European and American NGOs have been prominent forces behind the transnational issue networks formed to denounce Amazon devastation since the mid 1980's. Besides NGOs, European unions and churches have also actively participated in this coalition with local groups resisting Amazon development strategies.

The role of these foreign actors has materialized in two ways. First, foreign organizations are the source of funding for several of the national and local level organizations that oppose the official development policy in Amazônia (NGOs and Unions primarily), effectively enabling them to exist even if their ideas are not echoed in the larger Brazilian society or supported by local funding. Second, these organizations are advocates for the international campaigns targeting Amazon development policies. It was the experience, resources (human and financial), and access to the international media of these organizations that led to awareness of negative side-effects and dangers of the Amazon situation among the general public in developed countries, which in turn led to increased pressure on funding agencies such as the EU and World Bank which as institutions accountable to member countries were particularly responsive to public pressures and member government pressures. These institutions as holders of substantial portions of the funding for large-scale projects were able to pressure the Brazilian government in regard to the different issues being raised in such campaigns²⁰.

As discussed in this section, the interplay between these local, national and international actors has evolved overtime, especially as the country underwent a democratic transition. The interests of the triple alliance, which had been the interests behind Amazon development policy since the 1960's, began to be seriously questioned by the new actors that were allowed to participate in the political process as the democratization process advanced. The complexity of the situation, unfolds as the motivations of the triple-alliance and resistance sector interact and reflected in Amazon policy. This process is well illustrated by the developments regarding the metallurgical sector along the Carajás Railroad and its related environmental policies.

III- The Metallurgical Sector of the PGC in the Context of Amazon Development

i) Amazon Policy Background

As argued by several authors (Hall 1989, Moran 1981, Bunker 1985, Hebette and Castro 1991, Goodman and Hall 1991, Foresta, 1991), after the onset of military rule in 1964, the relationship that the Brazilian state maintained with the Amazon region was based on a model that largely catered to domestic and international economic interests which allied themselves with the State. The military regime's approach to Amazon development was based on attempts to open up the Amazon frontier and integrate the region to the national and global economy through large-scale development projects such as Operation Amazônia in the 1960's, the National Integration Plan and POLAMAZONIA in the 1970's. This predatory model of development with little regard for the local population and environment, had severe consequences for the region²¹.

During the democratic transition that took place in the 1980's, more specifically in the later years of the Sarney administration, Amazon policy appeared to be headed in a "greener" direction. Furthermore, as Collor came to announced in his inaugural address that the environment and the

²⁰Take the EC Development Fund, it is the largest single investor in Carajás but also, since it is a part of the EC system (and thus directly accountable to governments) which is also the largest consumer of Carajás iron ore, was especially poised to exert pressure on the Brazilian government by threatening to withdraw funding and cease buying.

²¹For further discussion of the environmental degradation taking place in the region see Anderson (1990), Fearnside (1986, 1987, 1989, 1990), Foresta (1991), Hecht and Cockburn (1989), Schmink and Wood (1992).

preservation of the Amazon region were going to become national priorities there were high hopes for Amazon policy. Declaring himself an environmentalist, Collor called for more dramatic change in environmental policy towards ecological degradation in the Amazon and for further inclusion of groups with a stake in the region in the policy process. (Hurrell 1992).

Since the Collor administration, the environment has remained an important issue in the national agenda. In 1992 a Ministry of Environmental Affairs and Legal Amazônia was created adding visibility to the issue. Furthermore, a series of initiatives and policy guidelines such as the Integrated National Policy for the Legal Amazon (July 1995), the Guidelines for a National Policy on Eco-Tourism (1994), and the National Fire Prevention Program (PREVFOGO) among others have been announced during the the Franco (1992-94) and Cardoso administrations (95-present).

This section examines how these Amazon policy objectives have translated into concrete measures of environmental protection in the area over the last nine years, by looking at the policy evolution of metallurgical developments (pig iron smelters) within the Greater Carajás Program (PGC).

ii) The PGC and the Interplay of Local, National and International Interests

The PGC (Greater Carajás Program) was the largest of the large-scale projects implemented by the Military regime in Amazônia, comprising an area of 895,000 square kilometers (slightly over 10% of Brazil's land mass, larger than France and England combined). As an integrated project, the PGC was meant to attract investment in areas such as agriculture, industrial forestry and metallurgy in order to maximize the development potential Eastern Amazônia. The PGC was to be a development corridor, quite literally, for its area was defined as 100 kilometer strip running parallel to both sides of the 900 km railroad linking the Carajás mine to the São Luís port (Figure 2).

The PGC came into existence in 1980, in the form of presidential decree No. 1183. As many of the projects from the military era it was comprised by several financial incentives to attract investments in the areas of agriculture, forestry and metallurgy. It was fashioned after the Preliminary Development Plan for Eastern Amazônia which had been, in its draft form, presented to the Figueiredo government in 1979.

As most projects of the authoritarian period the PGC served political and economic interests. As far as local elements were concerned, there was very little participation in the designing and implementation of the PGC. All the planning behind the PGC was concentrated at the federal level in the hands of CVRD (Companhia Vale do Rio Doce, the state agency in charge of the Carajás iron ore mine and some SEPLAN (Planning Secretariat of the Presidency) officials. Neither the regional agencies, nor any of the state level agencies, nor any municipal governments were ever consulted or brought into the policy formulation process (Cagnin 1996). If the local elites were out of the policy process, the same is not entirely true of national elites. Even a cursory look at the PGC legislation reveals that the national elites were the primary beneficiaries of the PGC policies, this was the sector for whom the established tax incentives were intended. This can be inferred through the goals of the program which was aimed at developing the area by means of large-scale, export oriented projects in the areas of (commercial) agriculture, forestry and industry, all of which required large sums of start-up capital²².

The main role in the development of the PGC, however, was played by the Brazilian State. It was the state, mainly through the CVRD and SEPLAN that chose the large-scale development strategy for the PGC, that designed the Program, and oversaw the implementation of its early stages. Later, it was also the State, through the Interministerial Council, that was responsible for

²²This is quite apparent in the legislation that established the PGC. For instance, Decree Law 1813, Nov. 24th, 1980, defines as the projects that could benefit from tax exemptions those related to the Carajás Infrastructure, and those related to mining, forestry and industry and aimed at the external market. Also the type of projects outline in both the Preliminary Development Plan for Eastern Amazonia (1982) and the Plano Diretor (1989) are large-scale, capital intensive ones, that could only be undertaken by economic elites.

implementing the PGC policies. Not all sectors of the state participated in the process, which was mainly concentrated in the hands of SEPLAN, and which is in turn directly linked to the presidency and a few central ministries (Fazenda, Interior e Minas e Energia). More progressive sectors of the State, such as CNPq (National Research Council) and SEMA (Secretaria do Meio Ambiente), that could have voiced their criticism of the PGC from an early time were kept out of the process entirely (Guimarães 1989, Cota 1984, IBASE 1983).

There was also participation of international interests in the early stages of the PGC. First, Japanese consultant's (through the Japanese International Cooperation Agency - JICA) were the one who drafted the initial document on which the PGC was based (Hall 1989, Cota 1984). Furthermore, 49% of the investment for the PGC came from foreign sources such as the World Bank, the European Development Fund and JICA. International private capital also benefited from the PGC, an example of this were the conditions attached to the signing of many of the loans, whereby the CVRD had to enter a series of 10-20 year contracts with European steel producers and supply 25 million tons of iron ore a year at discounted prices. Also, most of the financing received by the PGC took the form of supplier credits, whereby the resources had to be used to purchase European equipment (Hebette, 1989).

iii) The Metallurgical Component of the PGC- The Pig Iron Industry

As part of the initial plans, the PGC called for the installation of 6 mini industrial poles for Pig-iron and ferroalloy production along the Carajás railroad, with a projected capacity of 3.5 million tons/year. The pig-iron was to be exported along with the iron ore from the Carajás mine, to international markets. However, these pig-iron producing plants were to be fueled by charcoal, produced from local forests, exacerbating the already exponential deforestation process in Eastern Amazônia.

Between 1985 and 1987 as one of the main components of the PGC, it approved 32 metallurgical projects to be installed in the Carajás Corridor area (24 pig iron smelters, 7 ferroalloy plants, and 1 Metallic Silicon plant)²³. Of these plants, 7 were to be located in the state of Pará (concentrated primarily in the Marabá municipality), and 15 in the state of Maranhão (concentrated in the Açailândia and Santa Inês municipalities) (Table 1).

As part of the PGC, these projects were to enjoy a series of special incentives such as facilitated land acquisition, prompt import licenses for machinery²⁴, authorization to borrow from international Banks and from public funding sources (SUDAM, BNDES) with guarantee of such loans by the State (co-signing), among other incentives. To these incentives were added fiscal incentives, such as exemption from income taxes for a period of 10 years, later extended to 15 years, and reduction of up to 50% on import taxes and taxes on industrialized goods (imposto sobre produtos industrializados - IPI, the Brazilian equivalent of VAT taxes)²⁵. (IDESP, 1988).

But, whatever little discussion of the implications of developing a metallurgical pole in the region there was, it centered primarily around the economic benefits that the development of such sector would bring. There were several studies with projections of the economic benefits to be generated by the creation of a metallurgical pole in Eastern Amazônia and even detailed figures for potential employment (direct employment of 14,100 and indirect employment of 42,500, excluding

²³This number excludes the Alumina-aluminium plants in Pará (Alunorte and Albras) and in Maranhão (Alumar).

²⁴Import licenses were severely limited at the time, given Brazil's effort to generate commercial surplus for external debt servicing.

²⁵Furthermore, at the regional level, these projects were eligible for SUDAM benefits, which included, exemption from income taxes for 15 years, reduction of import taxes and IPI (ranging from 50 to 80%), access to FINAM (Fundo de Investimento da Amazônia- Amazon Investment Fund) resources for up to 25% of any owed taxes, deduction of up to 42% on personal income taxes of those who invested in agricultural or industrial projects in the Amazon (IDESP, 1988).

aluminum)²⁶, initial investment (US\$ 143.5 million in pig iron smelters, and 357.7 US million in all of the metallurgical sector, excluding aluminum), and production (1.65 million tons of pig iron/year and 1.1 million of ferroalloy)²⁷. But no official document or analysis prior to 1988 touched upon the environmental and social costs of such development.

There is indication, however, that in early 1988, there was already knowledge of the environmental problems that a charcoal based pig-iron sector would bring to the region. For instance, there is a World Bank memo dated May 1988 (World Bank 1988), in which it is clearly stated that the only way for the sector to be economically viable without subsidies would be for charcoal to be produced from native forest at no cost (other than cutting and transporting the wood). If environmental costs were to be considered, elevating the charcoal costs to around US\$ 27/ton, or worse yet, to require that reforestation charcoal be employed, elevating the costs to approximately US\$ 80/ton, the sector would be rendered completely non-viable (World Bank, 1988).

²⁶The data is inflated because it was supplied by the companies to the PGC secretariat. It was in their interest to inflate the numbers, because it was one of the criteria used by both the PGC and SUDAM to evaluate projects (Monteiro, 1995).

²⁷This data was compiled based on Director Plan data (PGC 1988). For additional figures see Cagnin (1988), Monteiro (1995), IDESP (1988), PGC (1988), Hebette (1989), Valverde (1989, 1993).

TABLE 1 - Metallurgical Enterprises Approved by the PGC by 1987

Company Name	Location	Production	Estimated Production Volume (tons/year)
CamargoCorreia Metais (CCM)	Tucuruí, PA	Metallic Silicon	64,000
Logos Enenharia	Marabá, PA	Pig Iron	120,000
COJAN	Marabá, PA	Metal alloy	150,000
Better	Marabá, PA	Pig Iron	50,000
COSIPAR	Marabá, PA	Pig Iron	350,000
Ferro Ligas do Norte	Marabá, PA	Metal alloy	49,000
Prometal	Marabá, PA	Metal alloy	59,400
SIMARA	Marabá, PA	Pig Iron	120,000
COJAN	Marabá, PA	Metal alloy	150,000
Itaminas Sid. de Carajás	Acailândia, MA	Pig Iron	350,000
Siderurgica Vale Pindare	Acailândia, MA	Pig Iron	55,000
Viena Siderurgica	Acailândia, MA	Pig Iron	54,000
Gusa Nordeste	Acailândia, MA	Pig Iron	53,000
Serveng/Civilsan (SSC)	Acailândia, MA	Pig Iron	120,000
Gusa da Amazônia	Acailândia, MA	Pig Iron	120,000
MARGUSA	Santa Ines, MA	Pig Iron	54,000
METALMAN	Acailândia, MA	Metal alloy	19,000
MARLLOY	Rosário, MA	Metal alloy	49,500
COSIMA	Acailândia, MA	Pig Iron	150,000
Siderurgica Maranhão SA (SIMASA)	Acailândia, MA	Pig Iron	50,000
COVAP	Santa Inês, MA	Pig Iron	84,000
Florice SA	Acailândia, MA	Pig Iron	53,000
Brafer	Santa Inês, MA	Pig Iron	108,000
Construtora Rodominas	Acailândia, MA	Pig Iron	120,000
Siderurgica Paulino	Santa Ines, MA	Pig iron	108,000
Calsete Siderurgica	Santa Ines, MA	Pig Iron	108,000
Anvepar Siderurgica	Pindaré-Mirim, MA	Pig Iron	20,000
Gusamar Ind. Com. Ltda	Acailândia, MA	Pig Iron	283,000
Norte Gusa	Acailândia, MA	Pig Iron	60,000
Serra Norte	Acailândia, MA	Pig Iron	108,000
Siderurgica Gafanhoto	Acailândia, MA	Pig Iron	130,000
Irmaos Ayres	Rosario, MA	Metal Alloy	40,000
Total	Maranhao 23 Para 09	Pig Iron 24 Metal Alloy 07 Metal Silicon 01	3,938,900 ton/year.

Source: PGC (1987), IDESP 1988, Anderson 1991.

There is also evidence that the PGC and the CVRD (which would supply the iron ore to the smelters), also aware of that problem at an even earlier date. A memo from CVRD, circulated to the PGC in April 1987, clearly states the problems of basing the metallurgical sector on charcoal. It

refers to a German consultant's report which expects that the forest in the area would be exhausted in no more than 20 years. Moreover, the memo recommends that the PGC suspend implementing its plan for the pig-iron sector.

The fact that the projected source of energy for these plants was to be charcoal produced from native forest did not appear problematic to those drafting the plans, however. The obvious environmental impact of the sustained long-term use of native forests to supply energy for pig-iron production did not seem to bother PGC policymakers. On the contrary, some documents actually praised the "advantages of a metallurgical model based on charcoal" as "less dependent technologically and energetically on foreign resources" (Cagnin 1988).

Despite all the incentives granted to these projects under the PGC umbrella, on the ground things were slow to concretize. Although the plants were approved in 1985, for a variety of reasons (such as difficulty in raising the capital for initial investment, lack of trained personnel, and lack of established and consistent supply of charcoal) it wasn't until March of 1988 that the first plant started to operate. What eventually emerged from the initial projections of 32 plants, and an estimated production of 1.65 million tons/year, were two pig-iron smelters and one metallic silicium plant in the state of Pará and five pig-iron smelters in the state of Maranhão with production levels of approximately 750,000 tons/year.

Table - 2. Pig-Iron Plants Currently in Operation (1996)

Name of Company	Location	Annual Production (ton/year)	% of Charcoal Produced from Reforestation of Manejo (estimate)	Year Operation Started
COSIPAR	Marabá, PA	180000	20	1989
SIMARA	Marabá, PA	80000	10	*1989
Viena Siderurgica	Açailândia, MA	270,000	25	1989
Vale do Pindare	Açailândia, MA	55,000	20	1989
Gusa Nordeste	Açailândia, MA	53,000	15	1993
SIMASA	Açailândia, MA	52,000	15	1993
Margusa	Rosário, MA	55,000	**45	1991
Total		745,000		

Source: Field Notes, Seminario Consulta, IBAMA, Monteiro (1995).

* SIMARA operated between 1989 and 1992, closed until 1994, reopened for six months and reclosed until December 1995.

** This number is contested by Andrade (1995).

What factors led astray the PGC's plans to develop a metallurgical sector in the region? The following discussion shows that it was a combination of local, national and international factors that shaped the evolution of the metallurgical sector in Eastern Amazônia. While local elites, national elites, the State, and international capital elements tended to push for the development of the metallurgical sector in the PGC area, there was also strong opposition to it coming from local groups, national and international environmental NGOs that managed to somewhat dampen the original enthusiasm for the plan.

This evidence suggests that the primary agent behind the metallurgical sector development was undeniably the State. It was the PGC, a federal program, which drafted, funded and implemented the plan. Following the logic and model of Amazon development that had guided state action in the region since the 1960's, the rationale utilized to justify this component of the PGC was the old motto of economic development and integration of the region into the national economy. Again, the rationale used by PGC was based on the economic benefits to be generated by developing a metallurgical sector in eastern Amazônia. According to government documents, such developments would lead to a) further economic development in the region (by creating conditions favorable to develop an industrial sector) and b) more aggregate value to the region's exports (by

verticalizing the production process by transforming the ore into pig iron) (PGC 1985, IDESP 1988, Cagnin 1989, 1996), at closer examination that argument does not seem to hold.

As it has been remarked by many (Monteiro 1995, Hebette 1989, Carneiro 1994), it was never clear that such benefits could actually be expected from such a small and rudimentary metallurgical pole. Centered around pig iron smelters, neither aggregation of value, nor further industrial development were probable. The technology used in the PGC Pig iron plants is pre-industrial in nature, based (with few improvements) on the iron reduction techniques used before the 18th century, dependent on charcoal as a fuel source and with consistently low prices in the international market. The very reason why these charcoal based techniques were abandoned since the Industrial Revolution, and substituted for coal based ones, was precisely the universal recognition that charcoal based metallurgy has tremendous environmental costs that cannot be sustained in the long run, especially given the low value of the resulting commodity (Valverde 1993, 1989; Hebette 1989).

The PGC's interest in implementing such plans had its roots not only in the State's goal of developing and integrating the region but also in national and international economic interests. On the domestic level, the state (and more specifically the PGC bureaucracy) was under considerable political pressure from the primary beneficiary of the plans - national economic elites (especially the pig iron and charcoal producers from southeastern states) to develop the sector in Amazônia. The state of Minas, for instance by the mid-1980's was so highly deforested that it could no longer meet the demand for 25 million cubic meters of charcoal/year on the short run²⁸. This charcoal shortage in the region led to importing of charcoal from the neighboring states of Goiás e Mato Grosso do Sul, which due to transportation cost, had a higher price that was reflected on the production cost of pig-iron, elevating it by 70%. Given this situation the directors of the ABRACAVE (Associação Brasileira de Carvão Vegetal- Brazilian Association of Charcoal), and the pig-iron entrepreneurs from Minas, urged the government to open the Amazon frontier to the sector (Valverde 1989, Hebette 1989).

Further, albeit indirect, support for the State's plans for a metallurgical sector in eastern Amazônia came from local elites. Local economic elites stood to gain from the plan. Since economic development would more than likely increase property values in the area, and open up new economic opportunities local elites supported the plan from an early date, although they had not participated in its creation (Carneiro 1994, Monteiro 1995). And indeed, as shown by Carneiro (1994) land values in Eastern Amazônia increased exponentially during the 1980's and have since maintained the high value, which in turn has led to even further land concentration in the hands of local elites, in a spiraling process.

On an international level, the tendency begun in the late 1970's, to shift the production of "first cycle" commodities, which tend to be intensive in natural resources and energy, such as aluminum and pig-iron, to the periphery, probably reinforced the PGC's interest in developing its metallurgical component (Monteiro 1995, Hebette 1989)²⁹. In more specific terms, two plants, COSIPAR in Marabá, and Viena in Açailândia, entered into agreements with Japanese steel producing groups that promised to buy at least 90% of their pig-iron production, giving added incentive for the companies to establish themselves in the area (Valverde, 1989) and one company, MARGUSA is controlled (97%) by the Japanese group Yanmar of Brasil S/A (Andrade, 1995).

Another connection between the developments in eastern Amazônia and the larger international conjuncture was the pressure to service the external debt Brazil suffered in the 1980's. The urgent need to generate hard currency income via mega surpluses in the trade

²⁸Even if it attempted reforestation projects and tree plantations to supply the pig-iron sector specifically, it would take 6-10 years for the trees to mature for charcoal production, leaving a considerable time-gap (Jornal do Brasil, 08/19/86).

²⁹Brazil's export of pig-iron increased by 473.5% in the 1980's, while production of pig iron and steel decreased by 50% in average in Japan and the United States, the primary importers of Brazil's pig-iron and steel (Hebette 1989, Valverde 1993).

balance led the state to push for exports in every possible sector. The pig-iron sector was seen in that context by the state, as one that had good short-term export potential.

However, the establishment of metallurgical sector in the PGC area was not without its problems. At the local level there was stiff opposition to the plans coming from those that would be most affected by it. The small peasantry, expected by policy makers and pig-iron producers to shift from agriculture to charcoal production, reacted strongly to the idea. As early as 1987, local agricultural cooperatives and agricultural producers associations such as CAT, COCAT, FATA, SPDDH³⁰ started organizing against the idea of producing charcoal (Barros 1996, Gatão 1996). Although the resistance was initially based on the dehumanizing, and poverty generating aspects of charcoal production, later, this movement developed an environmental aspect, and gained momentum, as it associated itself with national and international NGOs also opposed to the development of the metallurgical sector.³¹

At the national level, several groups related to the Catholic Church, such as the Pastoral Land Commission (CPT), the Missionary Council for Indigenous People (CIMI), plus the Worker's party (PT), Rural Laborers Union (STR), Center for Indigenist Work (CTI) and some Brazilian NGOs (Social-Environmental Institute-ISA, the Society for Protection of Human Right SDDH-both its Pará and- Maranhão sections, Federation of Social and Educational Assistance Agencies FAASE, Brazilian Foundation for the Conservation of Nature-FBCN, Brazilian Anthropology Association-(ABA) were mobilized in opposition to the PGCs plans for development of pig-iron smelters in eastern Amazônia. These organizations, together with the Institute for Popular Law Support (AJUP) brought a law suit against the government in 1988 in which it was argued that the PGC was arbitrary and capricious in approving the pig-iron projects and that the extremely high environmental costs to the region had not been taken into account seriously enough, and that it had, moreover, violated federal law by not requiring that the smelters submit Environmental Impact Statements (RIMAs) (AJUP 1988).

In the same period, linked to these local and national organizations opposing the plans there were several international NGOs, forming what many have called a transnational issue network (Rodrigues 1996). These NGOs, primarily American or European in their origins, together with the above mentioned groups helped to organize opposition to the development of a metallurgical sector in the late 1980's, precisely when Brazil was coming under attack for its environmental record. This opposition took several forms: a) media bombardment of the plans in the US, Europe and in Brazil, b) lobbying of Brazilian, US and European governments, as well as of multilateral actors with any role in funding the PGC, c) massive educational campaign of the population in eastern Amazônia as to what would be the effects of such developments.

The media campaign was primarily orchestrated by the American NGOs, and more specifically by Bruce Rich and Stephen Schwartzman of the Environmental Defense Fund, and Barbara Bramble of the National Wildlife Federation. These NGOs attempted and succeeded in bringing an enormous amount of public attention to the issue of environmental degradation in Amazônia (not only that linked to the pig iron sector, but that resulting from cattle ranching, mining, and other economic activities) through the use of mainstream media such as newspaper articles, television reports, etc. (Myers, 1992). This campaign targeted primarily the dissemination of "damaging" information about the situation in Amazônia, and highlighted the role of the European Union and its member countries, as well as the World Bank in financing the PGC, and thus indirectly its pig iron component.

Linked to the campaign, was a second form of action taken by the resistance was direct lobbying of the Brazilian government, European Union and member governments, and the World

³⁰CAT-Center for Agro-environmental Studies of Tocantins, COCAT- Cooperative of the Center for Agro-environmental Studies of -Tocantins Cooperative, FATA- Araguaia-Tocantins Agricultural Federation, SPDDH - Pará's Society for the Defense of Human Rights.

³¹In 1991, together with the ISA (Instituto Socio-Ambiental - Social-Environmental Institute), local peasant organizations produced a 14 minute video, entitled "No one Eats Charcoal" (Ninguém Come Carvão), which details their opposition to engaging in charcoal production, for both social and environmental reasons.

Bank by national and international NGOs. An excellent example of such lobbying can be found in what is called the MDB campaign, where several NGOs massively lobbied the World Bank to suspend funding to the PGC in 1988 or in the efforts undertaken by European NGOs which eventually led to a boycott of Brazilian Mahogany in Great Britain (Rodrigues, 1996).

Finally, a network of primarily European NGOs and grass-roots groups (such as Bread for the World, Misereor, GKKE) financed the Carajás Consulting Seminar, a broad based local initiative whose goal was to educate the local population and raise awareness about the effects of the top-down development model followed by the PGC, while attempting to include the local population in the planning and development decision-making in the region. This seminar focused especially on evaluating the effects of the pig-iron industry and deforestation linking them to public policies.

This fierce opposition effort to the PGC and its pig-iron component, generated public awareness of the situation in eastern Amazônia (both internationally and domestic) through its media and education campaigns and managed to exert considerable pressure on the Brazilian government and other international elements linked to the PGC through its lobbying effort, but overall it had limited success in altering the situation.

On the one hand, it halted the establishment of new pig-iron smelters after 1990 (the PGC suspended the licenses of all the plants which had not begun installing by 1990) (PGC, 1990a). On the other hand, by that time there were already seven pig iron smelters and one metallic silicium plant in the region. And, although deforestation is not at the catastrophic levels projected in the late 1980s when 24 smelters were expected (around 270,000 ha/year or 2700 km²/year) (Anderson 1990), the environmental and social toll on the region has been high. Moreover, the PGC as a policy coordination program ended in 1990, during the Collor administration, leaving behind the effects of its policies but robbing the resistance efforts of a focal leverage point against which campaign and lobbying efforts could be directed.

In the aftermath of the organized resistance against the sector in the late 1980s and early 1990's several some policy changes were expected to be implemented in order to decrease the environmental impact of the pig iron and charcoal production. First, the ferroalloy plants were required to switch to coal based technology (PGC 1990a, 1990b). This was indeed implemented. Second, fiscal and credit incentives for new projects based exclusively on pig iron, formerly provided by the PGC were cancelled in 1990, with the end of the program. Third, the pig-iron plants in operation were given five years to formulate an Integrated Forest-Industry Plan (PIFI), according to which they should be producing 100 percent of the wood for charcoal production in a sustainable fashion, i.e. through reforestation or "manejo"³² within a period of 10 to 15 years.

However, the policy guidelines and legislation on how this should be achieved are very vague and riddled with loopholes. First, there was a decree law enacted by the IBDF (the Forest agency that was merged with SEMA to create IBAMA) in 1989 (decreto IBDF 1300/89), which was rejected by congress and never became law. Instead, weaker regulation was enacted (Portaria 008 IBDF 1989), extending the period that the smelters would have to present their PIFIs and establish a timetable for self-sustaining reforestation. In theory the deadline for presentation of PIFIs expired in 1995, but at the time only four of the smelters had presented a PIFI and all but one of the smelters had their plan approved by IBAMA³³. Given this situation IBAMA extended again the deadline (IBAMA, Portaria 29, 4/26/1996) for presentation of PIFIs. The new guidelines, really puts the situation "in limbo" as it allows IBAMA to treat the smelters on a case by case basis, setting different deadlines for different plants (Valle 1996, Resende 1996, Souza 1996).

The difficulty in setting policy parameters and pursuing them may be partly explained by the strong lobby organized by certain organizations linked to the pig iron sector, especially ASICA (Association of Carajás Siderurgies), AIMEX (Association of Timber Exporting Industries) and ABRACAVE (Brazilian Association of Charcoal Producers). These organizations, often associated

³²Forest "manejo", is the technique whereby managed cutting is done in a determined area, only allowing to be cut in a given year what can be regrown in that same period.

³³Margusa was the only smelter whose plan was approved by IBAMA to date (IBAMA, Memo 378/90).

with elements of economic elites, have launched lobby efforts to halt any policy developments that may hinder their activities in the Carajás area. There is even an admittance in the part of these organizations that they have strongly lobbied IBAMA, CVRD, and members of Congress (Valladares 1996, Pizzato 1996, Matsununga 1996, Martins 1996). In the case of ASICA, it even attempted to counteract the NGO effort by producing its own literature which was distributed to European donors and World Bank officials (ASICA 1991).

Compounding the lack of clear policy, there are serious questions about the possibility of reforestation and manejo truly working in the area. Reforestation, although currently done in the areas owned by the COSIPAR, Viena, Margusa and Pindaré smelters in large scale are hardly sustainable. Based on single species plantation (eucalyptus), these plans have been severely criticized by environmentalists and even some CVRD and IBAMA officials as unsustainable (Carneiro 1995, Matsunaga 1996, Borgonovi 1996). Adding to that there is lack of adequate knowledge about the region to formulate appropriate PIFIs, no one knows for effect what are the "sustainable manejo" levels for the mature tropical forest and transitional cerrado ecologies of Eastern Amazônia, or even what techniques should be used to achieve the goal of sustainability (Fearnside 1988, Valle 1996, Borgonovi 1996). Furthermore, there is evidence of widespread lack of compliance with whatever little requirements have been set by the current policy, this is done primarily by means of corruption and fraudulent PIFIs (Valle 1996).

Other obstacle to the consistent use of charcoal produced from reforestation or "manejo" can be found in the economics of pig-iron. Historically the price of pig iron has remained between US\$ 100 and 120/ton (the average between 1980 and 1994 was US \$ 110.40) and the FOB cost of production of pig-iron, considering the cost of charcoal at around US\$ 40/ton (market price in Marabá and Açailândia in Aug./96), is of 100.50/ton. If the costs of charcoal is raised to approximately US\$ 80/ton (the average cost of reforestation or "manejo" charcoal) the cost of production of pig-iron would be raised to US\$ 140.50/ton, well above the US\$ 125/ton current price of pig-iron in the international market. In 1996, the percentage of reforestation or sustainable "manejo" originated charcoal was still quite low, at an average of 18 percent³⁴(Valladares, 1996, Uchôa 1996) (Figure 3 and Table 3).

³⁴There is some variation in this figure. While some of the smelters in Açailândia have larger reforestation and "manejo" areas, which are capable of supplying a larger percentage of their needs (25% in the case of Viena) and MARGUSA, in Rosário, claims that manejo and reforestation supply up to 45% of its charcoal needs, however some have practically no reforestation and "manejo" areas (about 7-8% in the case with SIMARA).

Figure 3 - Evolution of Pig Iron Prices in the International Market

(Source: Biocarbo, 1995.)

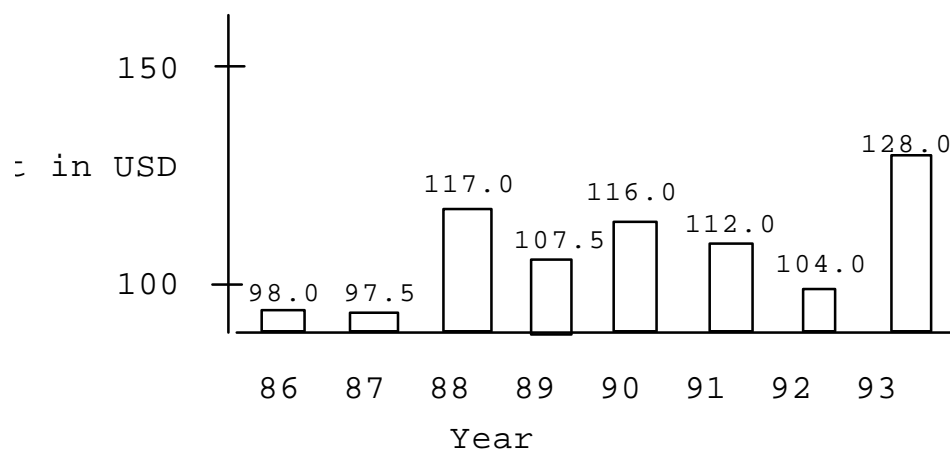


Table - 3. Estimated Average Cost of Production of 1 Ton of Pig Iron

Item	Unit Cost	Amount Used	Total cost
Iron Ore (t)	9.50	1.50t	14.25
Charcoal (t)	42.00	1.00 t	42.00
Calcium Carbonate (t)	15.00	0.005	0.75
Dolomite (t)	25.50	0.006	1.50
Quartzite (t)	13.50	0.10	1.30
Electricity (kw/h)	0.003	70.00	2.10
Other supplies	-----	-----	2.50
Work Hours (man/h)	4.50	-----	11.50
Maintenance	-----	-----	4.30
Depreciation	-----	-----	3.25
Administrative Costs	-----	-----	4.50
Transportation (t)	12.80	-----	12.80
FOB Costs	-----	-----	100.75

Source: Adapted from Monteiro (1994) and field notes.

On the ground the situation remains very similar to what it was in the late 1980's. Even though by 1996 smelters were expected to be consuming charcoal produced from "manejo", 75-90% of the charcoal used in 1995 and 1996 still came from native forests, even if in the attenuated form of residue³⁵. The idea of using sawmill and agricultural conversion residue has been frequently defended by bureaucrats, smelter owners, and World Bank officials as "environmentally sound" and adequate way to protect native forests (Redwood 1994, Cagnin 1996, Uchôa 1996, World Bank 1994). The rationale used to justify use of sawmill residues as non-harmful rests on the premise that forest conversion would take place with or without the demand for charcoal, since they are an integral part of the region's two other central economic activities (cattle ranching and timber

³⁵What is considered "residue" amounts to approximately 40% of the total volume of timber. It has been remarked by some that in most areas the level of timber waste is around 10-15% (Fecury, 1996). The fact that there is demand for this residue may stimulate waste in the local timber industry.

export), and thus it would be less costly and environmentally sensible to make use of the residue that would otherwise be wasted. However, the notion does not seem to hold at closer examination.

Both in Marabá and in the Açailândia areas there are several cases that demonstrate that use of residues for charcoal production has led to increased cutting by sawmills and farmers. For instance in São João do Androbal (municipality of Imperatriz), there is an Açailândia based outfit that operates 32 charcoal producing ovens (rabo quente), which produce approximately 700 cubic meters/month of charcoal. The production is sold to the Vale do Pindaré Smelter. Still in the Açailândia area, in Novo Oriente, in an area registered under the name of a local farmer, which supposedly donated the residue of a 98 hectare area cleared for agriculture, turned out to be an illegal charcoal producing plant, which had indeed cleared an area well above the declared 98 hectares (Carneiro 1995).

In Marabá similar situation can be found. Approximately 55 percent of the residue originated charcoal consumed by COSIPAR and SIMARA comes from either Marabá or the adjoining municipalities of Bom Jesus do Tocantins, Jacundá, Ipixuna, São João do Araguaia, and Itupiranga. The explanation for the use of charcoal generated in the proximity of the smelter is based primarily on reduced transportation costs³⁶. This suggests that the demand for charcoal has put pressure on local forests and has stimulated local land owners to clear their lands at faster rates than they would have otherwise, or to allow third parties to use their wood for charcoal making in exchange for a percentage of the profit. This seems to be confirmed further by growth of interest of the Timber sector in charcoal producing. At first, many sawmills donated the residue, presently the situation is quite different. The sawmills allow their wood to be used in charcoal in exchange for 20-30% of the charcoal price. This has resulted in an increasingly large number of sawmills becoming directly involved in charcoal making, presently it is estimated that in average 20% of the income of sawmills comes from charcoal, and many have come to depend on the activity (Carneiro, 1995).

As far as policy implementation goes, there are several noteworthy problems. First, there is what some have called "institutional schizophrenia". It is never quite clear which agencies are responsible for implementing which policies. For instance, it is quite common to find areas where INCRA (the Agrarian Reform Agency) claims to be resettling peasant families, but it is also under FUNAI's jurisdiction as indigenous reservation, and under IBAMA's jurisdiction as biological reserve area (Santilli, 1996, Gadelha 1996)³⁷.

Second, until very recently, there was a serious lack of human and financial resources in the agencies responsible for implementing environmental policy³⁸. The Marabá office of IBAMA has six agents, which are expected to control deforestation (forest conversion, wood burning, timber extraction, charcoal production), as well as traffic of endangered species in an area superior to one million hectares, with very little technological support (three vehicles, no radio equipment or helicopters). Not to mention, these agents live in constant fear, as they are often threatened by illegal loggers. Financial resources are both scarce and late. Approximately 80% of the resources received by IBAMA are used in the Southeastern region of the country (Martins, 1996), where the environmental problems are neither as urgent nor of such scale. Furthermore, the meager financial resources received by the local IBAMA outfit are frequently late, in 1996 the resources

³⁶The example of Paragominas, the municipality with the highest rate of forest conversion and timber production, where approximately 40 sawmills are concentrated is interesting. Unlike in the areas adjoining Marabá, where 100% of the "residues" are used for charcoal, in Paragominas only 22% is used for that purpose, given the high cost of transporting the charcoal over the 400km distance between Paragominas and Marabá.

³⁷An example is the Gavião Mãe Maria Reservation, where although it is officially indigenous land (FUNAI's jurisdiction), INCRA has twice resettled small peasants, only to have them removed, and IBAMA has a claim of protected area. Not to mention it is under CVRD's influence area since it adjoins the Carajás railroad.

³⁸There has been an actual decrease in the institutional capacity in the Marabá area since 1990. The number of employees in IBAMA, FUNAI, SUCAM and Federal Police in Marabá has steadily declined since 1990 (Prefeitura de Marabá, 1995)..

were not received until August 2nd, which was already past the peak season of deforestation which takes place between the months of May and August.

Third, there are widespread allegations of corruption against some IBAMA employees, and the possibility is even admitted to be true by IBAMA management in Belém and Brasília. For instance, the wood that is confiscated by IBAMA is by law required to be auctioned, but there has never been any such auctions locally, and yet the wood is frequently removed from the storage area (Braz 1996, Uchôa 1996). Finally, there is lack of support for the little enforcement takes place, approximately 50% of the fines given by IBAMA are suspended in the courts to the point that IBAMA has given up fighting over fines in the court system (Valle 1996, Fecury 1996, Ribamar, 1996, Martins 1996, Souza 1996).

There are recent news of an intensive campaign by IBAMA to curb deforestation in the area through the use of satellite data, Global Positioning Systems (GPS), and helicopters to locate fires and fine those responsible (Boston Globe 4/7/97). But the efficiency of such a system remains to be seen, because it will still be ultimately dependent on the number, honesty and training of the fiscalization agents on the ground, and IBAMA has a poor track record in that respect. Furthermore, illegal logging still would not be caught by this hi-tech system which is based on smoke detection.

Corruption and infraction allegations are not a phenomenon restricted to IBAMA though. Investigations have led to uncovering of fraudulent practices in the "Manejo" areas of Pindaré and Margusa, as well as to land title fraud practices. An inspection by IBAMA of the "manejo" being practiced by MARGUSA found 14 irregularities in their practices (Haas 1995, Bernardes 1995), and the engineer who was responsible for the Pindaré "manejo" area admitted to problems in their current practices as well (Valle, 1996). Moreover, an investigation of the origins of the land titles claimed by MARGUSA revealed that the majority of the areas were obtained through fraudulent land titles, although those were subsequently accepted by IBAMA as legitimate (Shiraishi Neto 1995). The same is true of some of the charcoal producers in the Açailândia area, where the among the largest suppliers of Viena and SIMASA, are the Galletti Brothers, who maintain charcoal producing farms manned with 80 armed employees inside the Awá Indigenous Reservation and the Gurupi Biological Reserva tion areas. SIMASA is also know to have been directly involved in "land grabbing" in the areas around Santa Luzia, Santa Inês e Riachão, in the Açailândia area, and where its present charcoal producing farms are located (Carneiro. 1995).

International investors and donors have maintained their links to the Carajás metallurgical sector regardless of the international NGO campaign against it. As mentioned above, MARGUSA is owned by a Japanese conglomerate (Yanmar). The World Bank has continued to fund projects by CVRD, even if its own reports recognize the problems inherent in charcoal based pig iron production in the region (World Bank 1988). At the consumption level, around 80% of the production of the smelters is exported to Europe, Japan and the United States (Table 4)

One of the few serious attempts to force the pig-iron sector to comply with existing regulation and to become more aware of its environmental impact has been undertaken by CVRD. The agency, as the only supplier of the primary product consumed by the smelters is in an ideal position to do so. In 1996 CVRD sponsored a series of meetings with the smelter owners and administration in an attempt to educate them to the legal environmental requirements and try and push the smelters into a greater degree of compliance with such requirements, and more transparency in their charcoal dealing. This effort had two main motivations, first, CVRD was conscious that its relation with the smelters and their problematic behavior could presented a potential public relations problem (as it had in the past, particularly in the European market where boycotts to its products were organized in the late 1980's), and second, CVRD was attempting to become certified by the new international environmental standard for industry (ISO 14000), and in order to do so, it has to pass an independent audition, along with all its suppliers and clients (among them the smelters). Even if CVRD's motivations were not environmental in nature, the result ing effects of its actions could have positive environmental ramifications. The smelters would have to make significant improvements in their modus operandi to meet ISO 14000

standards, especially in regard to their charcoal supply process. And given the fact that the audits are independent and internationally certified, the likelihood of fraud would decrease significantly.

However, the latest development is that CVRD, will be auctioned off to private domestic and international conglomerates. At the moment, it appears that it will be a consortium between the South African based Anglo-American³⁹ conglomerate and the Brazilian conglomerate Votorantim that will buy CVRD for approximately 10.5 billion dollars.

Table 4 - Percentage of Carajás Area Pig Iron Exported by Year (in %)

Year	Açailândia	Marabá	Rosário	Total
1988	100.00	58.5	-----	80.5
1989	62.03	72.1	-----	66.8
1990	86.70	84.6	-----	85.8
1991	95.60	69.0	-----	84.3
1992	84.70	32.6	100	76.9
1993	85.30	58.4	100	79.7
1994	89.90	61.8	100	85.8

Source: Adapted from Monteiro 1995

IV - Conclusion and Prognostic

While the democratization process led to some changes in the policies relating to the metallurgical sector in eastern Amazônia, by allowing the emergence of an organized resistance movement that took place in the late 1980's, the impact of these changes has been limited overtime. As described above, what transpires in the daily reality of Eastern Amazônia is that very little has been done to protect the environment. The region is the most deforested in Brazil (approximately 75% cleared from 48.6% in 1985), and relative deforestation rates there are among the highest.

The interests governing current policy to a large extent are still those of the triple alliance. While the state was pressured into changing the legislation and policies in relation to the sector, the changes were weak, and it has condoned current practices by turning a blind eye, failing to enforce regulations or punish infractions. In this case study, the domestic interests that have benefited from the situation have mainly been those of the economic elites (represented by the pig-iron sector) which has been allowed to continue its use of native forest charcoal. Furthermore, pig-iron is a product that is very intensive in energy and capital, and which aggregates little value. Since the pig-iron produced in Amazônia is being exported, that means the region is indirectly exporting, capital and energy, both factors which cost the region's ecology and economy dearly (Resende 1996, Biocarbo 1996).

Although, at the discourse level a policy shift in relation to environmental matters took place in Brazil in 1988, after the transition to civilian rule, almost eight years after the fact the concrete effects of this shift are at best tenuous. As illustrated by the case study of the pig-iron sector in eastern Amazônia, environmental policy in the Amazon has been shaped by the interests of several actors at the local, national and international levels. As seen above, although Brazilian environmental policy has evolved in the same period, by and large it still obeys the logic of economic interests, represented by the "triple alliance" between national economic elites, the State, and foreign capital, with the support of local elites, just as it did during military rule.

³⁹The Brazilian Senate is currently investigating allegations of fraud. The Anglo-American conglomerate is headed by the South African broker Smith Borkum Hare (SBH), which is owned by Merryll Lynch, which in turn was the company hired to define the value of CVRD, and is now under the suspicion of having undervalued it. Furthermore, the Anglo-American and Votorantim, which were initially going to make separate bids for the company have agreed to present one single bid so as not to drive up the price (Estado de Minas, 3/7/1997, p. 1,5,6 and 8).

It is true that democratization has allowed for the emergence of a vocal resistance movement (at the local, national and international levels), which would not have emerged and participated in the policy process under the military rule. It is also true that, while mobilized and active this resistance achieved considerable success in its campaign against the pig-iron sector and pressured the State into reducing the number of plants from 23 to 7. However, the evolution of environmental policy in this sector has been slow since then. The State has allowed for the continuation of vague legislation, extended deadlines for compliance and impunity of infractions. Meanwhile, economic elites (pig-iron entrepreneurs) and the foreign markets, which consume the product, have been the beneficiaries of development while Amazônia has paid dearly for it.

This is not to say that the actors who resisted the development, and even some environmentally progressive sectors within the State (such as IBAMA, MMA, and even certain blocks within congress) have not been actively engaged in attempting to reform Brazilian environmental policy. On the contrary, there is plenty of evidence to suggest that since the return to civilian rule these actors have flourished and are more active and vocal than ever. For instance, since the democratic transition well developed network of NGOs and grass-roots organizations emerged in Brazil and became involved in the formulation phase of the environmental policy cycle (Rodrigues 1996, Viola 1995). Also, the more environmentally progressive sectors within the State have won some battles. An example of that was the enactment of a presidential Decree on July 25th 1996, reducing the percentage of forest area that can be clear cut in any given property in legal Amazônia from 50% to 20% (Brasil, 1996).

The reality of Eastern Amazônia, nevertheless, is that the interests of the triple alliance have remained strong enough to frequently prevail in the formulation and implementation of environmental policy in Amazônia. This reflects on the overall deforestation levels in Amazônia, which had decreased slightly between 1987 and 1991 (0.3%/year), and increased again since 1992 (reaching 0.4% in 1994). To make matters worse, two more pig-iron plants are scheduled to open in the state of Maranhão within the next two years, adding to the already high environmental toll in the region.

If in spite of the involvement of the State in Eastern Amazônia through CVRD in this period it has failed to enact concrete policy reforms and control the effects of development projects and preserve the environment, now with the privatization of CVRD, environmental protection of the region is even more remote. Reforms and strong policy enforcement will become more unlikely now that public interests will be a smaller component in the equation of development in the region. If one considers the interests soon to be at the helm of the CVRD, how little incentive they have to preserve the environment, the future of the region is quite uncertain

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