

The anatomy of a failed industrial policy: developing an aluminium industry in Trinidad and Tobago

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The literature argues that the industrial policy is most effective in an institutional environment characterized by embedded autonomy, which describes an independent yet collaborative relationship between government bureaucracy and the private sector. However, such embedded autonomy of government bureaucracy in high-growth Asian countries was created under socio-economic and political circumstances that are no longer prevalent today. Analysis of the industrial policy concerning foreign investment projects in the aluminium industry in Trinidad and Tobago in the 2000s shows that embedded autonomy is necessary, but not sufficient, for successful FDI-facilitated development. This paper posits that the institutional framework for implementing industrial policy in today's economic and political context needs to have the characteristics of embedded autonomy, but at the same time it needs to address the issues of accountability and transparency.

Key words: Embedded autonomy, accountability, transparency, FDI-facilitated development, aluminium industry

1. Introduction

Successful industrialization in the latter half of the twentieth century has often been attributed to the implementation of clearly articulated and coherent industrial policy. The extant literature argues that industrial policy formulation and implementation are best undertaken in an institutional environment characterized by embedded autonomy (e.g. Rodrik, 2004a, 2008). The term embedded autonomy, initially coined by Evans (1995),

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refers to a strategic collaborative relationship between government bureaucracy and the entrepreneurial private sector. According to this thesis, government bureaucracy needs to be autonomous of society in the sense of being capable of formulating policies independently of short-term interests of specific groups. At the same time, government bureaucracy needs to be “embedded” in the sense of possessing dense ties with the entrepreneurial elites in strategic industries.

In order to ensure the effectiveness of government agencies, Barclay (2010) further argues that bureaucracy may be bifurcated. It is extremely challenging for resource-indigent, developing countries to establish a highly efficient bureaucracy throughout the government. Hence, the allocation of government resources may be prioritized for those agencies that are critical to the country’s economic development and thus need to be autonomous and competent.

Academic studies in support of the thesis of embedded autonomy have generally drawn on the experience of Japan and the Newly Industrialized Economies in South-East Asia during the period when they were successfully transforming their economies under the guidance of a strong, authoritarian government (Johnson, 1982; Amsden, 1989). But it must be noted that the institutional framework for industrial policy formulation and implementation in those economies was created under specific socio-economic and political circumstances. During the late 1950s to 1960s, some of these economies, notably the Republic of Korea, were economically impoverished, lacked dynamic civil society organizations and were governed by authoritarian leaders.¹ Under these conditions, policymakers, using the institutional framework of embedded autonomy, were able to successfully move their economies away from specializing in traditional commodities

¹ Luiz (2000) describes the Republic of Korea in 1961 as possessing the characteristics of a hard state with a weak society. He argues that the Park Government, which came into office in 1961, was able to effectively consolidate socio-economic power. The constant military threat from the Democratic People’s Republic of Korea, the country’s poor resource endowment and the memory of extreme poverty all contributed to the society’s tolerant attitudes towards sacrificing freedoms and civil liberties for the promise of future economic prosperity. Further, the land reform programmes implemented in the late 1940s and 1950s resulted in a relatively equal distribution of income. This led to the absence of any opposing social and economic forces, for example a land elite in the country. The lack of power among social groups in the country enabled the Government of the Republic of Korea in 1961 to consolidate its power and successfully pursue a state-led, export-oriented growth model.

into non-traditional, higher-productivity activities.² However, the environment for industrial policymaking and implementation has changed dramatically since then. Today, governments, institutions and firms are increasingly held accountable to their stakeholders in every sphere of their activities (Fowler and Kuyama, 2007; Servos and Marcuello, 2007; Weber, 2008). This development thus begs the question: how applicable is the thesis of embedded autonomy to those developing countries, which currently enjoy relative economic stability, uninterrupted democratic rule, have vibrant civil society organizations and do not possess a strong, authoritarian government?

This paper argues that today, embedded autonomy is not sufficient for efficient industrial policymaking and implementation. Policymakers in developing countries also need to address the issues of accountability and transparency. This paper postulates that the industrial policy apparatus needs to be responsive to the general public. The general public needs to be aware of how industrial policy decisions are made and the reasons why specific firms and activities are being favoured. Further, there is need for transparency in the industrial policy process. The decisions taken by the industry policy apparatus should be made freely available to the general public.

This paper explores these issues by analysing the industrial policy process involved in the development of the aluminium smelter projects proposed by the Government of Trinidad and Tobago in the first decade of the 21st century. In so doing, this paper will also analyse the extent to which these projects would have resulted in foreign direct investment (FDI)-facilitated development in the aluminium industry of Trinidad and Tobago.

The focus on the success of resource-seeking, FDI-facilitated development is motivated by the fact that the proposed aluminium projects are driven by transnational corporations (TNCs). Moreover, the extant literature has focused on the role that embedded autonomy has played in the success of the resource-seeking, FDI-facilitated development in developing countries (Barclay, 2010). This paper

² Hausmann et al. (2005) note that Taiwan Province of China exported very little besides sugar and rice in the 1950s, while the Republic of Korea exported virtually no manufactured goods in the early 1960s. Their subsequent phenomenal growth was based on their economic diversification into various manufactured goods.

advances the literature by including the issues of accountability and transparency with embedded autonomy by examining the case of FDI-facilitated development in Trinidad and Tobago.

Trinidad and Tobago provides an excellent case study in which to examine these issues. This twin-island state of approximately 1.3 million people enjoys one of the highest per capita incomes (\$16,167 in 2010) in the Latin America and Caribbean region. Its economy is largely based on oil, natural gas and petrochemicals, which currently accounts for 40 per cent of the Gross National Product and 80 per cent of exports. During the period 1994–2008, its economic growth averaged six per cent, one of the highest in the region. This multi-ethnic country, which possesses a strong body of civil society organizations, is a parliamentary democracy and has experienced relatively uninterrupted democratic rule since its independence from the United Kingdom in 1962.

This paper is organized as follows. Section 2 examines the literature on embedded autonomy in the industrial policy process, highlighting the recent concerns with accountability and transparency. Section 3 discusses of the increasing proclivity of natural gas-rich, developing countries to locate aluminium smelters in their countries, emphasizing the experience of Trinidad and Tobago. Section 4 discusses the institutional environment created for industrial policymaking in the natural gas-intensive industries³ in Trinidad and Tobago, one of which is the aluminium industry. Section 5 examines the possible impact that the proposed aluminium projects would have had on development. The information discussed in these two latter sections was obtained from interviews with key policymakers, industry analysts, and executives of aluminium companies, local supplier and downstream firms, and support institutions as well as from secondary sources. Finally, section 6 presents the conclusion.

2. Creating an institutional environment for effective industrial policy: the importance of embedded autonomy, accountability and transparency

The extant literature argues that industrial policy is most effective when it is formulated and implemented in an environment

³ The term natural gas-intensive industry is used here to describe those industries that are intensive in their use of natural gas. In the context of Trinidad and Tobago, they are petrochemicals, iron and steel, liquefied natural gas and aluminium.

characterized by embedded autonomy (Rodrik, 2004a; 2008). Government bureaucracy should be independent and committed to monitoring firm performance and imposing penalties in the event of non-performance – characteristics described as state autonomy (Chang and Ali, 2002). However, a high degree of state autonomy is not necessarily desirable. Key policymakers need to be “embedded” in a dense policy network with the private sector, which will ensure continuous information flows between the two. In so doing, policymakers would be able to identify where the significant obstacles to business activity lie, and design and implement the type of intervention policies that would most effectively remove them.

Embedded autonomy is not the only variable critical to the effective design and implementation of industrial policy. Government also needs to possess an efficient bureaucracy. Developing countries in Asia that have successfully managed to achieve sustained economic growth possessed a highly efficient bureaucracy. Research conducted on the Newly Industrialized Economies in South-East Asia has identified the “quality” of the bureaucracy as one of the factors contributing to their phenomenal economic success (e.g. World Bank, 1993). A defining feature of the bureaucracy in successful South-East Asian economies was meritocratic recruitment practices, with “the best and the brightest” being selected for employment in key economic agencies (Cheng et al., 1998). In addition, top bureaucrats were promoted from within, thereby encouraging strong loyalty to organizational goals and thus policy continuity. Further, public service careers carried long-term rewards with career structures that produced rewards commensurate with those attainable in the private sector. Moreover, Evans (1998) notes that structures were created to resolve issues of jurisdiction and co-ordination. While there were wide variations among South-East Asian countries, industrial policies were generally built around a pilot agency that shaped development initiatives. It is also significant to note that Cheng et al. (1998) report on the existence of bifurcated bureaucracies in Taiwan Province of China and the Republic of Korea. Not all government agencies could have been described as efficient. Rather, certain government agencies that were critical to the countries’ economic development enjoyed selective recruitment policies and attractive compensation packages. These agencies were also insulated from other branches of government, and from pressures from political and interest groups.

Recent research argues that possessing an efficient, bifurcated bureaucracy, which enjoys a close collaborative relationship with the private sector, is not the only requirement for effective industrial policymaking and implementation. Indeed, Rodrik (2008) argues that the specifics of industrial policymaking depend heavily on the circumstances and institutional capabilities of a country. Studies on developing countries outside of South-East Asia point to other factors as also contributing to the success of industrial policy.

One such factor is the issue of accountability and transparency. In the past few decades, the number of democratic regimes and the use of constitutional measures designed to make politicians accountable to citizens have expanded substantially (Adserà et al., 2003). Indeed, the concept of political accountability, which is the extent to which societies hold political leaders accountable for their actions while in office, is now being used to evaluate the performance of governments (Weber, 2008).

Hence, the issues of embedded autonomy as well as accountability and transparency are now considered as critical to effective industrial policy formulation and implementation. The industrial policy apparatus now needs to be responsive to the general public. The general public needs to be aware of how industrial policy decisions are made and the reasons why specific firms and activities are being favoured. This paper will examine these issues in the context of the recent aluminium investments proposed by the Government of Trinidad and Tobago. First, the recent trend of the relocation of aluminium production from developed countries to energy-rich, developing countries including Trinidad and Tobago, is discussed.

3. The shift of aluminium production to developing countries

Aluminium production is an energy-intensive process, which was traditionally carried out in developed countries where the cost of electricity was low. However, as table 1 shows, since 1995, a shift in aluminium production has taken place from industrialized countries to developing countries, including Asia, specifically China, and the Middle East. The oil and gas-rich Gulf States are increasingly becoming attractive locations for FDI in the aluminium industry. These countries,

in their attempts to diversify their economies from the dependence on oil, have been investing heavily in aluminium smelters (Morgan, 2010). Trinidad and Tobago, which is rich in oil and gas, is attempting to emulate the examples of the Gulf States.

Table 1. Global Aluminium Production, 1995 to 2008
(Millions of tonnes)

Region	1995	2000	2005	2008
Africa	623	1,169	1,744	1,725
North America	5,547	6,041	5,375	5,778
Latin America & Caribbean	2,014	2,173	2,398	2,669
Asia	2,753	3,637	9,479	15,363
China	1,680	2,550	7,806	13,177
Middle East	817	1,149	1,693	2,079
West Europe	3,167	3,794	4,359	4,641
East/Central Europe	3,160	3,934	4,634	5,130
Oceania	1,570	2,094	2,255	2,290

Source: Brown et al. (2010)

The notion to establish an aluminium industry in Trinidad and Tobago dates back as early as the late 1960s when Brewster and Thomas (1967) argued for the economic integration of the Caribbean region based on the integration of production and trade. In the case of aluminium production, they posited that it was only through combining the bauxite resources of Jamaica and Guyana with the energy resources of Trinidad and Tobago to establish an aluminium smelter that the region would be able to achieve significant economic gains. Partially in response to this proposal, the then Prime Minister of Trinidad and Tobago, Eric Williams, entered into an agreement with Jamaica and Guyana to construct an aluminium smelter in 1973, which would utilize the resources of these three Caribbean countries. The smelter, scheduled to be established by 1977, was to be jointly owned by these three Governments. However, this agreement was short-lived. Inter-governmental conflicts between Trinidad and Tobago and Jamaica over the role to be played within the regional economy by powers outside of the Commonwealth Caribbean resulted in the project being abandoned

and Trinidad and Tobago's decision to "go it alone" with a national smelter project (Payne, 1980: 185).⁴

However, it was only in the 2000s that concrete steps were taken to establish an aluminium industry in Trinidad. Two new smelter projects were proposed: a project with the United States firm, Alcoa and another with the Venezuelan firm, Sural. In 2006, Alcoa signed an Agreement in Principle with the Government of Trinidad and Tobago to establish a wholly-owned, 341,000 tonnes per year aluminium smelter, which was scheduled to be operational in late 2008. The bauxite to be used in this facility would have been sourced from Alcoa's subsidiaries in Jamaica and Suriname. Alcoa was to achieve the production integration long advocated by Brewster and Thomas (1967).

Nevertheless this investment was vehemently opposed by civil society organizations in the country.⁵ The proposed site for the smelter was in the south-west peninsula of the country – an area designated by parliament as agricultural and forest land in 1984. Civil society organizations charged that harmful emissions emanating from the proposed smelter would adversely affected the quality of life and the livelihood of this rural farming community (Fernandes, 2006). Alcoa's attempts to convince the locals of the benefits of the proposed smelter were unsuccessful.⁶ In late 2006, the then Prime Minister, conceding to the demands made by local civil society organizations, informed the public that his administration had "decided to immediately discontinue

⁴ The decision of the then Prime Minister of Jamaica, Michael Manley to supply Venezuela with bauxite for the expansion of its aluminium smelter aroused the ire of the then Prime Minister of Trinidad and Tobago, Eric Williams, who perceived that this decision would jeopardise the three countries' plans to establish a regional aluminium industry. He claimed that the Venezuelan policy was a "calculated attack upon the CARICOM scheme" (Trinidad Guardian, 16 June 1975 cited in Payne, 1980, p. 214).

⁵ Several civil society organisations were united in opposition to the location of the smelter in the southwest peninsula of the country. One went as far as undertaking an eight-day march from the proposed site of the aluminium smelter to the capital, some 90 km away. Others even pursued legal channels to stop the construction of the smelter. They vowed to appeal to the highest court of appeal, the Privy Council in London, if the local courts agreed with the Government's position (Fernandes, 2006).

⁶ Alcoa launched a well-designed public relations campaign to persuade locals. The aluminium TNC *inter alia* held at least 36 meetings with stakeholders (Reynolds, 2006) and purchased full page advertisements in local newspapers. Some of these advertisements read, "Alcoa – Investing in communities. Our social investment policies are followed by social actions" and "Alcoa – Longtime steward of the environment" (Fernandes, 2006). It even organised a trip to a smelter site in Brazil for selected journalists and citizens.

plans” to establish the aluminium smelter in the designated area (Richards, 2007). The administration’s later attempts to select another site were unsuccessful (Kublalsingh, 2009a).⁷ Hence, Alcoa suspended the project in 2007. The company is still awaiting for another suitable site to be identified by the Government.

The other project, the Alutrint project, was to become the country’s first aluminium smelter. This 125,000 metric tonnes per year facility was a joint venture formed in 2005 between the majority shareholder, the Government of Trinidad and Tobago (60%) and initially, the Venezuelan firm, Sural. This facility, through its sister company, Alutech Limited, was to engage in downstream activities as well, producing aluminium rods, wires, and cables. The plan was that Alutech Limited, which was a joint venture between the Government and Sural with latter owning the majority equity (60%), would use metal supplied by Alutrint to produce high value-added, aluminium automotive parts and alloy wheels. However, in early 2009, Sural withdrew from the Alutrint venture because of difficulties in accessing international capital. It was replaced by the Brazilian firm, Votorantim Metais, which was to provide the venture with much needed expertise in the downstream aluminium production and marketing.

Civil society organizations adopted a position to the Alutrint project which was very similar to that of the Alcoa venture. They ran a well-orchestrated campaign to protest against the construction of the Alutrint smelter.⁸ Academics, activists and civil society organizations questioned the viability of this project on both economic and environment grounds.

The activities of the civil society organizations were successful. On 16 June 2009, the High Court revoked the Certificate of Environment

⁷ The Government planned to re-locate Alcoa’s operations to an industrial estate, which was to be developed off the Otaheite bank in the southern part of the country. However, to date, the application for a Certificate of Environmental Clearance (CEC) for this proposed industrial estate has not been granted.

⁸ The protest actions of the ‘anti-smelter’ campaign, as it was popularly called, included protests outside the site of the Alutrint smelter, sit-ins, a 40-day fast, unscheduled visits to offices of the local organisations responsible for establishing Alutrint, press conferences held in the capital city, letters sent to the acting CEO of Alutrint and government officials, advertisements and letters placed in the local newspapers and other media, and the hosting of a public symposium on the economics of the smelter (see for example, Kublalsingh, 2009b).

Clearance (CEC) that had been granted to Alutrint by the Environmental Management Authority (EMA) in 2007, ruling that the EMA's decision to grant the Certificate was illegal. The High Court halted construction on the Alutrint site (Richards, 2009). The EMA appealed the High Court's decision to the Court of Appeals in November 2009, but withdrew its petition in July 2011. The Court of Appeal accepted the EMA's request to withdraw its appeal, which negated the need for a ruling. In the meantime, the ruling Government, which strongly supported the development of the aluminium industry in Trinidad and Tobago, lost the general elections in May 2010. The new Government, which aggressively opposed both smelter projects while in opposition, summarily announced that it decided to discontinue the Alutrint project in the first budget speech after coming to power.⁹ While this decision was lauded by those who opposed the Alutrint project, it was strongly opposed by the less vocal and less well-organized civil society organization, representing residents of the economically depressed community, where the smelter was to be located (Richards, 2010).

At the time of this decision, the 316.6 hectare industrial estate on which the Alutrint project was to be located had already been developed. The 720 megawatt power plant was near completion. The construction of the port was completed. The foundation for the storage facilities for inputs such as aluminium ingots were mostly in place. The Government and Alutrint had spent \$166.8 million on the infrastructure and project development, specifically for the aluminium smelter (GOTT, 2010b). Moreover, a Cabinet note dated three months before the first budget speech was delivered not only highlighted the economic advantages of the Alutrint project to Trinidad but also dismissed the environment concerns (GOTT, 2010b: 8–11).¹⁰

It is evident that the policymaking process for the development of the aluminium industry was negatively impacted by the actions of

⁹ The newly appointed Minister of Finance in his first budget speech noted, "...in addition to the health and environment risk, there is also serious concerns as to Alutrint's viability and the optimal use of our gas. This project will cease and an alternative strategy will be put into place for the south-west peninsula." (GOTT 2010a, p. 12).

¹⁰ The report identified several benefits arising from the Alutrint project, the most significant of which was employment creation with gross employment income of US\$ 27 million being generated annually. Additionally, it revealed that Alutrint had reduced and mitigated the potential environment risks.

civil society organizations. Hence, it will be instructive to examine the institutional framework created for policymaking for the gas-intensive sector, including the aluminium industry.

4. The institutional framework for industrial policymaking for the natural gas-intensive sector

Given the inefficiency of the public sector in Trinidad and Tobago (Brown, 1999; Bissessar, 2003, 2009), successive Governments have attempted to by-pass government ministries and created a form of bifurcated bureaucracy, endowed with the requisite human and financial resources, to formulate and implement policy for the natural gas-intensive industries. During the height of its first economic boom, which lasted from 1974 to 1982, the Government created a single organization to formulate and implement policy for the development of its state-owned, natural gas-intensive industries. This was the Coordinating Task Force, which was created in 1975 and then transformed into a formal organization, the National Energy Corporation (NEC), in 1979. This organization, which reported directly to the Cabinet, was solely responsible for industrial policy formulation and implementation for the development of the natural gas-intensive industries during this period (see figure 1).

The following decade, 1983 to 1993, was marked by a dramatic economic decline. In 1986, the party that ruled Trinidad and Tobago for almost twenty-five years, the People's National Movement (PNM), lost the elections to the newly created National Alliance for Reconstruction (NAR). During this period, the new Government privatized many of the state-owned firms in the natural-gas intensive industries. Hence, the NEC lost its mandate and its operations faltered.¹¹ In 1992, it was acquired by the National Gas Corporation (NGC), an entity created in 1975 with the mandate of operating as the sole buyer, seller and distributor of natural gas in the country. With its acquisition of the NEC, the NGC assumed a new role as a "prime mover in gas-based development" (Punnett, 2005). It was now given the responsibility for the development and evaluation of new energy projects as well

¹¹ The NAR government severely reduced the operations of the NEC. In fact, by 1991 this organisation was merely managing the marine assets of the Point Lisas Industrial Estate, which housed the gas-intensive industries created during the period of economic boom.

as investment facilitation and promotion. The merger of these two entities were successful; by 2004, the NEC operating within the NGC group, had attracted private investment in five methanol plants, six ammonia plants and two steel plants (Julien, 2005).

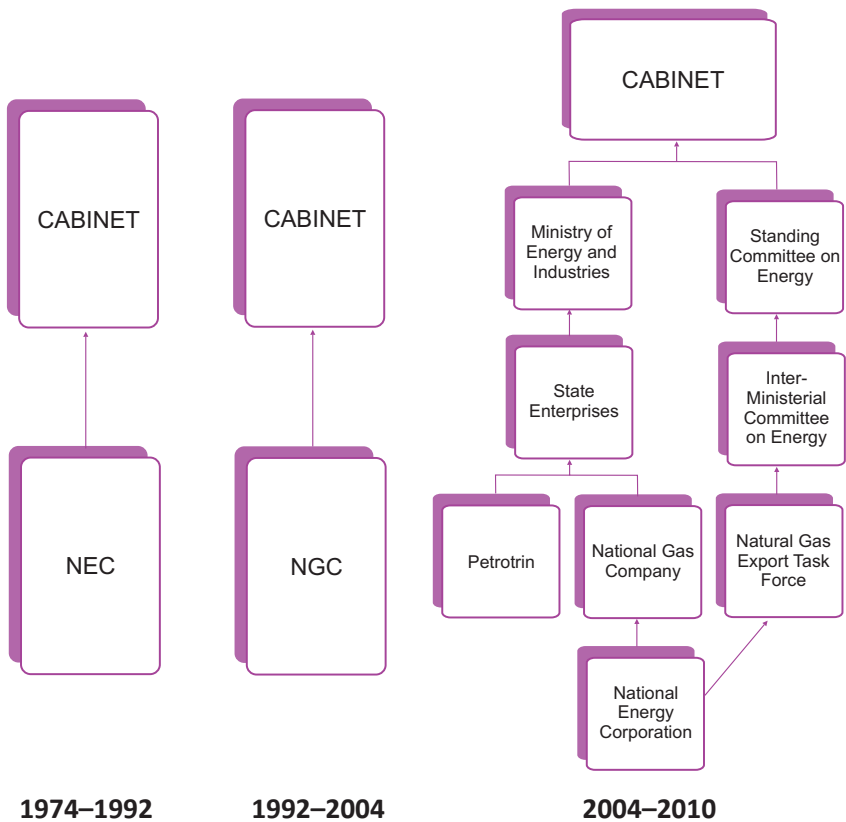
In 2001, the PNM party returned to power. The new Government effected significant changes in the organizational structure of policymaking in the natural gas-intensive industries.¹² First, under a Cabinet mandate, the NGC was forced to rationalize and restructure its operations. As a consequence, the NEC was de-merged from the NGC group and given greater operational autonomy in 2004. It was now responsible for natural gas-based investment promotion and screening, and the provision of industrial sites and the related port and marine infrastructure at the industrial sites earmarked to house new gas-intensive industries (Punnett, 2005). At the same time, a more comprehensive organizational structure to formulate and implement policy for the gas-intensive sector emerged (see figure 1).

New organizations were now given the responsibility for formulating policy for the natural gas-intensive sector. The first was the National Gas Export Task Force (NGETF), which was essentially an ad hoc body staffed by technocrats drawn from various agencies and ministries related to the natural gas-intensive industries. Several members of the NGETF were subsequently employed at the NEC. Hence, while the NGETF still exists, it is the NEC, which currently conducts the major technical work required for policymaking in this sector. The other organizations are the Standing Committee on Energy, chaired by the Prime Minister, and the Inter-Ministerial on Energy, chaired by the Chairman of the ruling party. These two organizations were deliberately created to facilitate the political aspects of industrial policymaking for this sector. Further, the Ministry of Energy and Energy Industries regulates the state agencies involved in this sector. This Ministry, together with the Standing Committee on Energy, reports directly to the Cabinet.

¹² It is noteworthy that the United National Congress (UNC), which ruled the country from 1995 to 2001, made no changes in the organizational structure created for policymaking in the energy sector.

Thus, an institutional framework was put in place to formulate and implement industrial policy for the natural gas-intensive sector. Despite the existence of such a framework, the two aluminium smelter projects failed to materialize. It is worth noting in this context that no mechanisms were created to facilitate dialogue between the policymakers in these agencies and the domestic private sector and civil society. The following sections explore the reasons for this situation.

Figure 1. Institutional Framework created for policymaking in the gas intensive sector of Trinidad and Tobago, 1974 to 2010



Source: Punnett (2005), McGuire et al. (2009) and interviews with industry analysts.

4.1 Embeddedness and the policy process in Trinidad and Tobago

Higman and Monteith (2010) observed that the relationship between the private sector and the Government in the West Indies was always intimate before independence. Although the colonial Government was autonomous, it unofficially included members of the private sector in the policy process.¹³ Moreover, Higman and Monteith (2010) noted that the colonial Government made rules that encouraged and controlled local enterprises, offering them both protected markets and security. However, the immediate post-independence period of the early 1960s witnessed the emergence of a new government, which seemingly challenged the hegemony of the “white-dominated” private sector.

At the cusp of the country’s political independence, the then Premier of Trinidad and Tobago, Eric Williams refused to withdraw the statement “massa day done” that he had made in a quarrel with the leading newspaper in the country and the main opposition party (Cudjoe, 1997). Clarifying this statement in the famous speech, “Massa Day Done”, Williams blamed the plantocracy and the colonial Government for the stunted socio-economic development of the country (Williams, 1997). He characterized the European-descended community, including those in the private sector, as inheritors of the guilt of eighteenth-century slave owners, asserting that they were determined to send Trinidad and Tobago back into slavery. Not surprisingly, some elements of the population, especially the white-dominated private sector, reacted strongly to this speech (Besson, 2009).

Nonetheless, there was a vast difference between Williams’ rhetoric and actions.¹⁴ Although Williams did not design formal mechanisms to facilitate dialogue for policymaking with the private sector, he implemented policies that were strongly supportive of its operations. Williams shielded some of the established firms from

¹³ Williams (1969) explained that under the crown colony system, Trinidad’s legislative council consisted of two types of members – official and unofficial. The former were the Governor’s top civil servants and the latter were mainly drawn from the plantocracy.

¹⁴ In fact, Williams subsequently explained that “Massa is not a racist term. Massa is the symbol of a bygone age. Massa Day is a social phenomenon. Massa Day connotes a political awakening and a social revolution” (Cudjoe, 1993, pp. 238-239).

foreign acquisition by introducing the Alien Landholding Act. He also established the Industrial Court and enacted legislation that were anti-trade union and favourable to the successful operations of the private sector (Besson, 2009). The Government's supportive relationship of the private sector continued despite changes in government, the changing composition of the private sector and its adoption of a state-led, gas-based, industrialization strategy.

By the late 1970s, the old established retail companies divested. While their owners migrated, a new business class emerged. Although some of the new members of the private sector were European descendants, they did not emerge from the traditional plantocracy. In fact, unlike the old business class, these new business owners brought a new managerial perspective to their operations (Besson, 2009). In tandem, other ethnic groups including the Indians, Syrian-Lebanese and Chinese became established members of the private sector business community. Indeed, by the late 1990s, the leading business people in private sector were a multi-ethnic group involved in retail, professional services and light manufacturing. Its members created elaborate mechanisms, including various chapters of the Chamber of Commerce, to facilitate dialogue with the Government.

Nevertheless, the members of the private sector did not enjoy a synergistic relationship with the Government in the policy process. Although mechanisms were created to facilitate dialogues, the private sector was not closely involved in policy formulation. Their involvement was limited to consultations after policies were formulated and implemented.

This situation was even more pronounced for the policymaking process for the development of the state-owned, natural gas-based industries during the 1970s. The Government created an efficient bifurcated bureaucracy to formulate and implement policies for the development of this new economic sector. However, no mechanism was created to facilitate dialogue between the policymakers and the domestic private sector. Indeed, although the domestic private sector was initially involved in the plans to develop an industrial estate to house these industries, they had little say in the formulation and implementation of the requisite industrial policies to develop these new industries. Moreover, it was the Government, not the domestic

private sector, that invested in the natural gas-intensive industries.¹⁵ Additionally, it was foreign investors, not the domestic private sector, which were joint venture partners to the Government.¹⁶ This relationship persisted through to the 2000s. Not surprisingly, the domestic private sector was excluded from the policymaking process for the development of the aluminium industry.

The domestic private sector was not the only segment of society which was excluded from the policy process for the development of the aluminium industry. As the following section discusses, policymakers also failed to include civil society.

4.2 Accountability and transparency in policymaking for the aluminium industry¹⁷

While the country's latest strategic plan, Vision 20-20, highlighted issues of accountability and transparency in policymaking for the natural gas-intensive sector (GOTT, 2004a), no attempts were made to involve civil society in policymaking for the aluminium industry. Civil society organizations have traditionally played a passive role in the policymaking process in Trinidad and Tobago (Bissessar, 2009). However, this was not the case for policymaking for the aluminium industry. As discussed earlier, several civil society organizations vehemently opposed the establishment of the proposed aluminium smelters. In response to their protest, two joint Select Committees of Parliament were convened to consider the economic, social and ecological impacts of the two proposed aluminium smelter projects. However, the major policymakers identified with these projects refused to attend the meetings of these committees. Moreover, they also failed to provide a cost-benefit analysis of the Alutrint project despite repeated requests from civil society organizations and the regulatory requirement, which mandated them to provide this information. Further, questions posed by civil society organizations on the preferential gas pricing and subsidies

¹⁵ During the period 1975–1985, the Government, in its role as lead investor, spent \$3,300 million on developing gas-based industries at the Point Lisas Industrial Estate (GOTT, 2004a).

¹⁶ It is noteworthy that more than thirty years after the establishment of the gas-intensive industries, there is only one locally owned firm currently involved in this activity.

¹⁷ This section draws heavily on Kublalsingh (2009a).

to be enjoyed by these projects were left unanswered. Indeed, the then Chairman of the Select Committee of Parliament complained:

“Nothing has come to Parliament and little to the general public which defines and justifies the creation of an aluminium smelter industry with respect to its feasibility and optimum use of our diminishing natural gas reserves, its impact on the environment, the level of earnings from the sale of gas and comparison with the longer use to which this gas can be put in the context of Peak Oil.” (King, 2006: 10)

Notwithstanding such scepticism, policymakers maintained that the investment in the aluminium industry would contribute significantly to the economic development of the country. The following section examines this assertion by analysing the potential of this industry to FDI-facilitated development.

5. Embedded autonomy, accountability and transparency, and FDI-facilitated development in the proposed aluminium industry of Trinidad and Tobago

As the foregoing discussion demonstrates, Trinidad and Tobago does not appear to have achieved the appropriate balance between state autonomy and embeddedness. Moreover, as clearly seen with the state-initiated investments in the aluminium industry, its industry policy apparatus is not equipped to deal effectively with the issues of accountability and transparency.

The extant literature argues that developing countries could derive specific benefits from resource-driven, FDI-facilitated development. These include enhanced technological and managerial competencies, foreign market access, secondary processing activities and the formation of clusters of resource-related activities (Dunning, 1994). Interestingly enough, in its most recent national strategic plan, the Government of Trinidad and Tobago, recognizing that its natural resources – oil and gas – are finite, posited that the country needed to use these resources to “create a sustainable economic life beyond the era of oil and natural gas” (GOTT, 2004a). In so doing, policymakers proposed local involvement in all aspects of the energy value chain. In

line with the extant literature, policymakers argued that the country needed to develop internationally competitive local firms in the supplier and downstream industries, upgrade its human resources and become more fully involved in research and development.

As stated earlier, one of the objectives of this paper is to examine the extent to which government industrial policies for the aluminium industry promoted FDI-facilitated development. In this regard, the specific policies analysed are those which were outlined in the country's national strategic plan. Hence, the policies examined are those aimed at industrial deepening – stimulating the development of supplier and downstream industries; enhancing institutional capabilities; and developing technical, managerial and industrial research capabilities. These issues were analysed for the Alutrint project, which progressed substantially before it was abandoned.

5.1 Developing local supplier firms

Before 2004, the Government had no formal policies to foster the development of local supplier firms. Rather, organizations such as the NEC, the Ministry of Trade and Industry as well as the Energy Chamber of Commerce used moral suasion to encourage the resident TNCs to employ the services of local supplier firms. However, in 2004, the Government took decisive steps to deepen local content and local participation in the gas-intensive sector. Recognizing that the current levels of local value capture were in the range of a dismal 10 per cent or so, the Government attempted to create a policy framework which would “determine the major mechanisms for local content, participation and capability development; ascertain where, how and by whom these will be delivered; develop performance measurements, assurance and reporting processes; and identify key areas for policy focus” (GOTT, 2004b: 5). In order to achieve these objectives, the Government created the Permanent Local Content Committee (PLCC), which was endowed with the requisite resources to fulfil its mandate. Nonetheless, the local supplier firms were ignored in the policymaking process for the development of the aluminium industry. There were several reasons for this failure.

First, the conditions of the loan financing agreement that the Government secured with the EXIM bank of China for the Alutrint project limited the involvement of local supplier firms. The \$400 million loan

agreement stipulated that the project engage the Chinese firm, China National Machinery and Equipment Import and Export Corporation (CMEC), which was responsible for the technology design for this plant, as the sole source of labour and technology (Shah, 2009). Hence, the CMEC was the only firm involved in the Engineering, Procurement and Construction (EPC) activities for the plant. While there were attempts to involve local engineering firms during the construction phase, their activities were limited to non-specialized, low-technology functions such as path construction, fencing and drainage (Shah, 2009). Further, the CMEC's position as the sole provider of EPC activities, together with the proprietary nature of the Chinese technology used in the plant, precluded the involvement of local firms in the procurement of equipment. Indeed, all the major equipment for the facility was sourced and manufactured in China and subsequently transported to Trinidad and Tobago for assembly by the CMEC.

Second, the loss of relevance of the Permanent Local Content Committee (PLCC) adversely affected the involvement of the local supplier firms during the construction phase of the Alutrint project. With the departure of its political champion in 2007¹⁸, the PLCC lost its political legitimacy since its successor was unconcerned with the issues of local content and local participation in the gas-intensive sector. Hence, the highly vaunted objectives of “determining the major mechanisms for local content, participation and capability development; ascertaining where, how and by whom these will be delivered; developing performance measurements, assurance and reporting processes; and identifying key areas for policy focus” were unrealized. In consequence, despite the concerted efforts made by the Energy Chamber of Commerce to highlight the visibility of internationally competitive, local supplier firms,¹⁹ policymakers failed to meaningfully involve these firms during the construction phase of the Alutrint project.

¹⁸ The political champion was forced to resign from his ministry under allegations of corruption. These allegations were subsequently disproven.

¹⁹ These activities included creating a database of local firms that possess the experience and capabilities to provide support services to the aluminium TNCs; convening meetings with international contracting firms and the local supplier firms to ensure that the former was aware of the latter's capabilities; and engaging in repeated discussions with policymakers to address the involvement of local supplier firms in the proposed aluminium industry.

5.2 Fostering downstream industries

In an effort to develop downstream industries, in 2004, the Government took the strategic decision to no longer approve any stand-alone projects such as ammonia, but only those projects that include significant downstream activity (Coombs, forthcoming). The aluminium investments were supposed to be the country's first venture into downstream activity. The Alutrint plant was to be geared to producing aluminium that would be converted into cables, wire and rods. These products would have been further fabricated into alloy wheels and automotive components by Alutrint's sister company, Alutech Limited, and then all exported.

It is noteworthy that only four per cent of Alutrint's 125,000 annual output would have been made available to local manufacturers. Trinidad and Tobago boasts approximately twenty local firms, which are small and medium-sized manufacturers of aluminium products ranging from doors, windows to roofing sheets. These firms supply the domestic and regional markets with one being the largest exporter of aluminium construction products in the Caribbean region.

The majority of the firms interviewed were enthusiastic about the proposed aluminium investments, stating that they were willing to use the aluminium produced locally since it would allow them to gain a competitive advantage through savings in inventory and logistics costs. Nonetheless, no formal mechanisms were created to facilitate dialogue among the existing local manufacturers of aluminium products, policymakers in the government agencies and the executives of the proposed aluminium smelters. As a result, neither executives of the proposed aluminium projects nor policymakers in the government bureaucracy were aware of the characteristics of the local aluminium product manufacturers. Similarly, the local firms interviewed were unaware of pertinent issues concerning the proposed aluminium projects, including the quality of the aluminium to be produced locally and its compatibility with the imported aluminium, which they used to manufacture their products. Interestingly enough, policymakers suggested that, before the projects were halted, the aluminium TNCs were currently more preoccupied with community relations rather than with the local users of aluminium. Indeed, had the projects been completed, the local aluminium product manufacturers would have

followed the fate of their counterparts in the local steel industry. Similar promises made to the latter firms in the initial years of the steel industry (1970s and 1980s) are still unrealized (McGuire et al. 2009).

5.3 Building technical and managerial capabilities

The natural gas-intensive sector has always attracted the “best and brightest” of the country’s technical and managerial talent because it offers the highest level of compensation and has been resourceful in attracting this talent (GOTT, 2004a). The country also enjoys a long history of training workers for this sector. TNCs operating in the petroleum industry traditionally offered apprenticeship programmes at the craft and technician levels. These programmes subsequently served as models for other craft and technician-level training implemented by industries and national organizations such as the Trinidad and Tobago Institute of Technology. The training of senior professional and managerial workers was initiated at a much later date. Urged by the proponents of the Black Power revolution,²⁰ the Government persuaded TNCs operating in the natural gas-intensive sector to hire more nationals at senior professional and managerial levels. As a result, more nationals received training at the Engineering Department of the local university and at foreign tertiary institutions (GOTT, 2004a).

Despite this fairly comprehensive system to develop skilled workers, by the mid-1980s, there was a critical shortage of trained workers, especially at the craft and technical levels, caused by the increasing number of TNCs operating in the natural gas-intensive sector. Moreover, there were increasing demands by the industry to further upgrade the skills of these workers (Coombs, forthcoming). Further, the system was developing what has been described as a “static technological capability” in the gas-based industry. These are the skills required for the maintenance of a given system. The nationals possessed the technologies that permit them to successfully carry out certain routine tasks, in a more or less fixed fashion and with more or less given equipment. They were not developing a “dynamic technological capability”, which consists of the skills needed for the

²⁰ The Black Revolution, which occurred in 1970, was the culmination of the growing unrest that erupted among large sections of the urban working class and members of the growing Black middle class. These groups believed that despite the growing presence of Blacks in the corridors of political power, they were still excluded from the control over the social and economic arrangements in the country.

long-term development of the industry. The nationals did not possess the complex set of technological skills that were needed to run the industry successfully over time, innovating when necessary to solve its problems (Barclay, 2004).

In response, in 2004, the Government created the University of Trinidad and Tobago (UTT) with the mandate to satisfy the country's needs for a highly trained and qualified technological manpower. The UTT incorporated the existing state-owned, technical training institutes into its operation, and currently operates from nine campuses. This institute, which has well-established ties with industry, offers a sandwich-type programme that involves students spending part of their courses in an operating facility. Its training programmes currently range from the craft to the graduate level. Hence, the aluminium TNCs had access to a cadre of well-trained nationals who could be drawn from the existing educational institutes. Indeed, as table 2 demonstrates, Alutrint,

Table 2. Training of Workers for the Alutrint Plant

Level	Expertise	Numbers to be trained	Strategic Partnerships
1	Semi-skilled	200-300	<p>Local institutes offering craft-level training: National Training Agency (NTA), Youth Empowerment Through Quality Training (YTEPP), Service Volunteered for All (SERVOL)</p>
2	Skilled Operator	250	<p>Local institutes offering craft and technical-level training: National Energy Skills Centre (NESC), Metal Industries Company Limited (MIC)</p>
3	Technical/ Supervisory	100-120	<p>Local Institutions offering craft, technical and supervisory training: The University of Trinidad and Tobago (UTT)</p>
4	Professional	75	<p>Local institutions offering graduate/ professional training: UTT and the University of the West Indies (UWI)</p>
5	Managerial/ Sub-Managerial	50	<p>Local institutions offering graduate/ professional training: UTT and the UWI including the Arthur Lok Jack Graduate School of Business (ALGSB)</p>

Source: Julien (2010).

which planned to have its plant totally managed and operated by locals within three years after start-up, intended to use mainly local training institutions to develop the skills of its workers. Nonetheless, the local training institutions did not offer training programmes that specifically catered to the needs of the aluminium industry. Thus, Alutrint planned to send its managerial and professional workers to China (CMEC and North Eastern University), Brazil (Votorantim Development System) and Norway (Norwegian University of Science and Technology) for plant-specific training (Julien, 2010).

5.4 Developing research and development capabilities

The country's latest strategic plan emphasized the need for "long-term policies to encourage firms in the gas-intensive sector to regard the country as a location for technology, research and development" (GOTT, 2004a, p. 75). However, these long-term policies have not been formulated. Policymakers failed to outline the role that the national system of innovation would play in the proposed aluminium industry. Indeed, the relationship that long-standing R&D institutions such as the Caribbean Industrial Research Institute (CARIRI) would enjoy in this new economic activity was not articulated. Industry analysts warned that the local R&D institutes lacked the capability required to engage in meaningful work with TNCs in the aluminium industry. However, no measures were taken to endow these institutes with the requisite resources for increasing their capabilities. Instead, the Government sought to increase the size and complexity of its national system of innovation with the establishment of the National Gas Institute of the Americas (NGIA).

The NGIA was launched by the UTT in 2006 with the mandate to undertake natural gas-based research, which would impact on the economy. However, its research activities did not focus on the aluminium industry. Rather, this institution was involved in research that examines upstream technologies, midstream and downstream technologies, energy economics and policy, and energy and the environment. It was also involved in collaborative projects with firms in the gas-intensive sector. However, it did not engage in collaborative research with the aluminium companies.

Before the smelter projects were abandoned, the impetus to engage institutions of the national system of innovation in research on the aluminium industry was driven by the aluminium company, not by the policymakers in the government agencies. Indeed, the executives of Alutrint initiated a research-based relationship with the two local tertiary institutions, the University of the West Indies (UWI) and the UTT. This relationship was modelled on the one that the Norwegian University of Science and Technology enjoys with the aluminium companies such as Norsk Hydro, which operate in Norway.

Norway is one of the world's leading countries for R&D in the aluminium industry. The Norwegian University of Science and Technology is one of the few universities worldwide that offers light metal-specific programmes. This university is supported by the aluminium companies in its R&D initiatives that are also of interest to the companies. In this way, the key stakeholders – the university and the aluminium companies – all benefit from this relationship.

Alutrint was attempting to emulate this synergistic relationship with the Norwegian University of Science and Technology and the two local state-funded, tertiary institutions. To this end, its executives held meetings with academics involved in the light metal programme at the Norwegian University of Science and Technology. This was followed by meetings with the heads of the Engineering departments of the two local tertiary institutions. These heads later attended a three-week training programme at the Norwegian University of Science and Technology. In so doing, Alutrint intended to develop a close relationship with the local tertiary institutions as well as one of the world's premier institutes for research in the aluminium industry.

6. Conclusion

The extant literature has convincingly argued that the industrial policy process is most effective when conducted in an institutional environment with a government bureaucracy characterized by embedded autonomy. Much of the support for this thesis draws on the experience of countries which, at the start of their phenomenal economic transformation, were economically improvised, lacked dynamic civil society organizations and were governed by authoritarian leaders. However, the socio-economic and political climate for

industrial policymaking and implementation has since changed for governments, institutions and firms. With the gradual increase in democratic governments worldwide and the growing dynamism of civil society organizations, governments, institutions and firms are increasingly being called to be accountable to their stakeholders. Hence, embedded autonomy is no longer sufficient for effective industrial policymaking and implementation. Policymakers need to be cognizant of the issues of accountability and transparency. This is especially pertinent to policymakers in resource-rich, developing countries that are increasingly being affected by the growing wave of democracy and/or the emergence of vibrant civil society organizations.

Trinidad and Tobago presents an excellent case study in which to explore these issues. This country, emulating the example of other oil and gas-rich, developing countries, attempted to establish an aluminium industry in the 2000s. Its policymakers astutely created efficient bifurcated bureaucracies, endowed with requisite human and financial resources, to formulate and implement policies for this new industry. But this bifurcated bureaucracy was not designed to effectively deal with the issues of accountability and transparency. Thus, when the previously passive civil society organizations began to aggressively demand greater accountability and transparency in the industrial policymaking process for the aluminium industry, policymakers in the bifurcated bureaucracies were ill-equipped to deal with their demands. Indeed, policymakers remained publicly silent on crucial issues such as the preferential gas pricing and subsidies to be enjoyed by TNCs operating in this new industry. In consequence, civil society organizations were instrumental in influencing the decision of the Government to discontinue the two aluminium projects.

Notwithstanding this experience in Trinidad and Tobago, the issue of embedded autonomy remains critical to the industrial policy process. Policymakers asserted that the investment in the aluminium industry would contribute significantly to the country's economic development. This paper attempted to examine the validity of this assertion. It specifically sought to ascertain the extent to which embedded autonomy resulted in industrial policies that would promote FDI-facilitated development.

It appears that the policymakers were not in dialogue with the domestic private sector when formulating and implementing policies for the development of the aluminium industry. As a result, the local firms in the supplier and downstream industries were not consulted in the process of policy formulation. Indeed, despite the Government's stated objective of increasing local involvement in all aspects of the energy value chain (GOTT, 2004a), internationally competitive local supplier firms were not involved in the EPC activities for the construction of the Alutrint project. Moreover, the linkages of the aluminium smelters with the rest of the economy would have been limited since almost all of their output was designated for export. Further, policymakers failed to consider the local firms, which used imported aluminium to manufacture products for the domestic and regional markets, in the policies to develop TNC driven-aluminium production.

Trinidad and Tobago possesses a relatively well developed education system, from which the aluminium companies could have sourced and further trained their workers. However, it seems that this education system is only capable of producing static technological capabilities. It does not appear to be able to develop the dynamic technological capabilities needed for the aluminium industry since Alutrint intended to send its senior professionals and managers to foreign institutes for training.

It is also noteworthy that while policymakers increased the size and complexity of the national system of innovation with the establishment of the NGIA, they failed to improve the capabilities of longstanding R&D institutes such as the resource-starved CARIRI. Moreover, although the NGIA was extensively involved in research activities for the natural gas-intensive sector and was undertaking collaborative research projects with firms in this sector, it did not engage in research on the aluminium industry. More importantly, it was the executives of Alutrint, not the policymakers in the bifurcated bureaucracies, who initiated a research-based relationship with local tertiary institutions. The research undertaken by these institutions in collaboration with the Norwegian University of Science and Technology would undoubtedly have been relevant to the needs of this aluminium company. However, this research was not integrated into an overall strategic plan, developed by policymakers, which would have articulated the role that the national system of innovation played in the

technological development of the aluminium industry in Trinidad and Tobago.

This paper argues that embedded autonomy is critical to effective industrial policymaking and implementing. Policymakers in bifurcated bureaucracies need to enjoy a collaborative relationship with the private sector in order to achieve resource-seeking, FDI-facilitated development. However, this paper also shows that embedded autonomy is necessary but not sufficient for the success of resource-seeking, FDI-facilitated development. In the present socio-economic and political climate, the industrial policy apparatus also needs to be well equipped to deal effectively with the issues of accountability and transparency. As the case of Trinidad and Tobago aptly illustrates, policymakers' neglect of these issues could adversely influence the future of government-inspired, resource-based projects.

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