Petroleum and Climate Change in Guyana’s Future

Jay R. Mandle
Foreword

Research is formalized curiosity. It is poking and prying with a purpose.
– Zora Neale Hurston

Research – by faculty and students – is one of the cardinal features of the Academic Enhancement Pillar of Project Renaissance. This enhancement of the University of Guyana’s (UG’s) ‘formalized curiosity’ has several dimensions to it. It includes supporting faculty presentations at conferences abroad, hosting research forums on campus, establishing the Undergraduate Research Program, holding annual undergraduate research conferences, joining the Council on Undergraduate Research, the foremost international organization on the matter, and the impending establishment of a Deanship for Research and Graduate Studies.

Yet, while the above pursuits are necessary to incentivize and support this ‘poking and prying with a purpose’, these are not sufficient. Needed, too, are more opportunities for faculty and students to share the outcomes of their research endeavours. The University of Guyana Press (UGP) was established precisely for this. Importantly, it did not take much persuading by me of the UGP Editorial Board that it should go beyond publishing books. Thus, the UGP mission includes publishing books, journals and creative expressions, and making that work accessible to academics, civil societies, the diaspora, and online communities.

The Renaissance Papers is one such product. They will be published occasionally, and only electronically. As well, they will be linked to some of Project Renaissance’s public intellectual engagements, in that works under the Renaissance Lecture series, the Conversations on Law and Society series, the Yesu Persaud Lectures and the distinguished lectures honoring Professor Clive Y. Thomas, Professor Sister Noel Menezes, and Dr Neville Trotz will be presented as Renaissance Papers. I take this opportunity to express my deep appreciation to the editorial and management teams involved in this project, including Chair of the UGP Editorial Board George ‘Ken’ Danns, UGP Manager Danniebelle Mohabir, Ian Randle Publishers Managing Director Christine Randle, and UG Director of Strategic Initiatives Gerry Yaw.

I take special pride in inviting you to read and share these first Renaissance Papers, and in congratulating the authors – Professors Jay Mandle, Michael Scott and Gomathinayagam Subramaniam, and Mr Charles Ceres. I commend these papers to you confident that you will find them to be excellent results of ‘formalized curiosity’, of ‘poking and prying with a purpose’. Keep on keeping on!

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Petroleum and Climate Change in Guyana’s Future

Jay R. Mandle, Colgate University

Inaugural C.Y. Thomas Distinguished Lecture, Pegasus Hotel
Georgetown, Guyana, October 27, 2016

I am greatly honoured to deliver the Inaugural C.Y. Thomas Distinguished Lecture. I first met Professor Thomas in 1966 as an Assistant Lecturer at the Mona Campus of the University of the West Indies where my wife Joan and I were privileged to attend and participate in the meetings of the New World Group on that campus.

It is merely to state the obvious to acknowledge that Professor Thomas has been Guyana’s leading public intellectual for more years than either he or I would care to count.

The importance of the role of the public intellectual is one that cannot be overestimated in a functioning electoral democracy. The conclusions, recommendations, and most importantly, analysis that such an individual provides are of great importance in guiding public policy. The list of subjects to which Professor Thomas has lent his expertise is a long one, ranging from the potential that resides in the chemistry of sugar, or the rise of authoritarian states, to a general theory of society’s transition to development and socialism.

But even more significant than his positions on the individual issues he has addressed is the fact that he has taken advantage of his role to demonstrate how a public intellectual reasons. His current contributions to the Stabroek News vividly portray that reasoning. With whatever subject he engages, the logical development of his analysis is on full display. In this, Professor Thomas has no peer. He never, ever fails to provide a full explanation for the positions he adopts.

An important example of Professor Thomas’s analysis and judgment is his response to the implosion of the Grenada Revolution in 1983. His bottom line is straight-forward. Not only was the collapse of the ‘Revo’ ‘traumatic’ to the political Left in the region, but what happened in Grenada revealed that ‘no regime, no matter how popular it may initially be, will be able to sustain the support of the popular forces of the region if its political rule is not grounded in constitutionality, legality and due legal process.’

But Professor Thomas is not content simply to offer that judgment. Rather, he argues that the need to adhere to democratic norms is rooted in the historical experience of the Caribbean people. Thomas explains, ‘In the English-speaking Caribbean, the struggles against slavery, indentured servitude and colonial bondage had more frequently than not taken on a legal and constitutional form.’ He goes on, ‘there is therefore a deeply embedded tradition which views constitutional and socioeconomic issues as inseparable. This is not simply the product of ‘colonial propaganda’ about the virtues of the Westminster parliamentarianism as some would glibly dismiss it, but reflects a deep recognition on the part of the popular forces that the prevailing levels of constitutionality, representative

government, legality, due process and so on are the product of successful struggles waged both under colonialism and since independence....’ In short, the struggles of the past shape the contours of contemporary political acceptability. Thomas concludes ‘to ignore these truths is to imperil the mass movement in the region and thus the long-term project of creating an egalitarian, democratic, and socialist society.’

It is my hope that from this lecture you will be able to discern why by engaging in the kind of deep discussion that Professor Thomas exemplifies, that Guyanese society will be able to successfully confront the challenges that it soon will face.

The Coast
At present, an elaborate water control system allows almost all of Guyana’s population to reside on a narrow coastal plain that extends from the Essequibo River in the west to the Berbice River in the east. A sea wall and mangrove forests defend the Coast against the ocean, and rivers and canals channel the water flow from the country’s Interior through the plain to the Atlantic Ocean. When the sea is at high tide, sluices are shut to prevent inundation, an operation that at the same time blocks the Interior drainage flow. At lower tide, the sluices are opened to allow the flow from the Interior to pass through to the ocean.

This system, however, offers only limited protection. It fails when the country experiences unusually intense rainfall, and also when the ocean tide is abnormally high. In 2005, for example, torrential rain caused severe flooding on the Coast, inflicting damage estimated at US $465 million, almost 60 per cent of the country’s gross domestic product in that year. Other, though less serious flooding has occurred since then. Despite these setbacks, however, the water control mechanisms that are in place have allowed the coastal plain to remain the geographic locus of the Guyanese nation.

That protective arrangement is now in jeopardy. The warming of the earth’s atmosphere means that, with the passage of time, Guyana will have to cope both with a rise of the Atlantic Ocean and an intensification of storms. In combination, these events will create water management problems that are beyond the capability of the plain’s water control system. The sea wall will be breached, the flow from the Interior will increase beyond the capacity of the drainage canals, rivers will rise above their banks, and the resulting damage will undermine the water control infrastructure itself. Not even the mangrove forests that have protected the Coast against the sea will be spared. As the ocean rises, the trees will be crushed between the encroaching sea and the settlements on the plain. In short, global climate change means that the Guyanese Coast will be invaded by both salt and fresh water flooding.

A summary assessment of what confronts Guyana in this regard is terrifying. The report issued by the Caribbean Planning for Adaptation to Global Climate Change Project (CPACC) concludes that ‘the entire fabric of Guyanese society – population, agriculture, industry, and infrastructure – are vulnerable to even slight increases in sea level rises, rainfall intensities, salt water intrusion and droughts....’ According to CPACC, the result will be ‘disastrous’, the most important consequence of which will be ‘large scale disruption of population centres. Movement of people will be inevitable, as increasing inundation and floods will result in destabilization of infra-structure, including buildings, roads, bridges, dams.’ Furthermore, ‘floodwaters will remain stagnant for longer periods over land which will increase the possibility of the spread of disease. Agriculture will suffer irreversible damages because of salt-water intrusion and inundation. Coastal ecosystems will disappear.’

3. Ibid.
Petroleum

However, even as the country is threatened in this way, a new opportunity for growth has appeared on the horizon. As Professor Thomas discusses in his weekly Stabroek News column, the discovery of commercially exploitable reserves of petroleum in Guyana’s territorial waters means that by about 2020 the country will probably start to earn petro-dollars. When that day arrives, a Guyanese president may be able to repeat what Trinidad and Tobago’s first Prime Minister, Eric Williams, is reputed to have said about the public sector: ‘Money is no problem.’

There has been a long history of searching for petroleum in Guyana, but these efforts picked up pace in 2008 with offshore explorations by ExxonMobil. Hope and excitement increased in 2015 when one of its wells struck pay dirt. Those expectations were further reinforced when, in June 2016, ExxonMobil reported that a second well, Liza 2, had been successful in tapping into a large source of recoverable petroleum. Two months later, that firm’s local subsidiary, Esso Exploration and Production Guyana Limited (EEPGL), applied to the country’s Environmental Protection Agency for permission to begin the development of production facilities. As reported in the Stabroek News, ‘this marks the first time that a company has applied to begin development of oil production facilities...’ in the country.

Though Professor Thomas struck a cautious note in last Sunday’s Stabroek News, trade publications are optimistic that Guyana’s time has come. The online journal OILPRICE reports that ExxonMobil doubled its estimate of its petroleum reserves, calling it a discovery that is ‘one of the biggest new finds anywhere in the world the last several years.” Another trade journal, Offshore, quotes an oil analyst as saying that the development of the site by ExxonMobil, ‘...while capital-intensive, could provide large potential returns on investment’ for the firm. Paradoxically, even current low petroleum prices seem to benefit Guyana’s position, because they mean leasing costs for drilling equipment are relatively low. As OILPRICE puts it:

With the shale boom of the last five years, offshore drilling took somewhat of a backseat to onshore drilling and fracking work. But with the recent collapse of the oil price, that shift has reversed – with majors...recently saying they see offshore development as a critical area of focus going forward.

What may be at work as well in enhancing the likelihood that production will occur are the terms of the agreement between ExxonMobil and the Guyana government, though that agreement is not publicly available. Offshore reports that ‘although cost metrics for the Liza scenarios are consistent with other projects..., economic metrics are more favorable than global averages...due to the competitiveness of the Guyanese production sharing agreement regime.’

Not surprisingly, the fact that Guyana might join its CARICOM neighbour to the North, Trinidad and Tobago, as a petroleum exporter has triggered the anticipation that Guyana will soon shed its status as one of the poorest nations in Latin America and the Caribbean. As Professor Thomas himself has noted, ‘there is no doubt the commercial production and export of oil/natural gas from Guyana would make a huge difference to its overall economic performance and

6. As quoted in Scott B. MacDonald, Trinidad and Tobago: Democracy and Development in the Caribbean (New York: Praeger Publisher, 1986), 191.
11. David Forest, ‘Exxon’s Mega Discovery Could be A Boon for Offshore Investment.’
potential.' Overes observers go even further. Writing in the journal OILPRICE, Michael McDonald believes that oil will prove to be a bonanza for Guyana. He argues that the discovery of ‘a massive offshore column of oil’ in Guyana’s territorial waters ‘changes everything.’ He continues, ‘within a decade Guyana could be completely transformed by the find, going from unpaved roads and sporadic power to being a developed nation.’ Most importantly, the government of Guyana, too, foresees petroleum producing a bright future for the country. In a June 2016 interview, Guyana’s Minister of Natural Resources, Raphael C.G. Trotman remarked that in assessing the impact of petroleum on the Guyanese economy, ‘you can use the word transformative, but even that word doesn’t capture correctly what is going to happen to Guyana if we manage to carry out this development.’ He anticipates the government’s receiving:

Hundreds of millions of dollars’ which ‘for an economy such as ours, where we are accustomed to spending US$100 million per year on different projects [for which] we rely heavily on grants and loans from financial institutions and friends of Guyana...having this kind of wealth is going to be beyond transformative.

Since the extraction of petroleum from the seabed will be undertaken by a global firm and is a capital-intensive project, this new sector will create relatively few employment opportunities for Guyanese, and it will enlist the services of only a handful of local firms. The degree to which Guyana will benefit from the presence of the industry largely therefore depends on the extent to which it receives a substantial share of the industry’s revenue in the form of taxation. For this reason, the country may wish to revisit the terms of its agreement with ExxonMobil. If as Offshore reported, that agreement is favourable to the firm, there may be room for adjustment in order to increase the revenue flow to the government.

But more than the collection of taxes will be required if petroleum is to be transformative in Guyana. Fundamental is the need to attack the level of corruption that disfigures the country. The most recent Global Competitiveness Index ranks Guyana among the worst countries in the world with regard to both ‘Irregular payments and Bribes’ (119 of 140 countries) and ‘Favoritism in Decisions of Government Officials’ (104 of 140 countries). With the domestic revenue stream from petroleum to a large extent confined to the government, opportunities will abound for strategically located officials to illegally redirect those flows to themselves or others. To the degree that such diversions flourish, the country will be denied the opportunity fully to benefit from its natural resource windfall. Recently, Professor Thomas suggested that even Guyana’s participation in the Extractive Industries Transparency Initiative might not be sufficient to satisfactorily resolve this problem.

Petro-dollars

The question of how the public revenues generated by petroleum will be used is a critical one. There are four obvious claims on those funds. The first claim will be from those, following the precedent of other petroleum countries, including Trinidad and Tobago, who advocate the creation of a dedicated fund to deal with unforeseen budget deficits and surpluses. A second claim on petro-dollars will be to provide income to the many poor individuals in the country. About a third of the Guyanese population lives below an officially defined poverty threshold. Simple justice calls for a positive response to this claim. A third claim will be for the petro-dollars to be used to raise the level of spending for functions the government already undertakes, but which are presently underfunded. A recent Stabroek News editorial suggests increased expenditures

15. ‘Guyana Transformation,’ Interview with Raphael G.C. Trotman, Minister of Natural Resources, The Oil and Gas Year, June 27, 2016.
16. Global Competitiveness Index.
for the country’s Environmental Protection Agency and Marine Administration Department. And a fourth claim will be the creation of a sovereign wealth fund with revenue not immediately needed, and with which sound portfolio investments could be made.

Though these four claims will likely be seen as not only legitimate but necessary, there is yet another claim, and this one is likely to be the subject of fraught debate. It will concern nothing less than the future physical location of the people and economy of the nation. This is because Guyana will, over the medium term, have to contend with the damaging consequences of climate change. However the country chooses to respond, it not only will be very expensive, but will also necessarily take precedence over the other four claims. Despite what Dr Williams might have said about the abundance of public revenues, not even petro-dollars will be available in unlimited amounts.

The Problem of Adaptation

With the consequences of climate change looming, Guyana would seem to be facing the need to choose between two competing strategies: whether to try to protect the Coast with adaptation, or alternatively, to initiate a substantial if not total relocation to the Interior. In fact, however, the belief that two viable alternative strategies exists almost certainly is illusory. Coastal adaptation, the more conservative of those options, seems likely to prove to be untenable. The most important study of this issue, carried out by the Economic Commission for Latin America and the Caribbean (ECLAC), concluded that known technologies will not be able successfully to withstand the floods that Guyana’s coastal plain faces. The problem is that the adaptation assets that are currently in place, and upon which future investments will have to be constructed, represent only an ‘upgrading of engineering work done by the Dutch’ in the seventeenth and eighteenth centuries.

It is true that since the flood of 2005, the government has increased its level of investment in adaptation. Nevertheless, even today, flooding is frequent and the Coast remains at risk. ECLAC assessed the efficacy of future adaptation by comparing the vulnerability that would face the country with enhanced adaptation, compared to the vulnerability that would exist under a business-as-usual scenario. The results are disquieting. It is true as shown in the chart that with enhanced adaptation, vulnerability stands at a lower level than it would with business as usual. But as the chart also indicates, even so vulnerability steadily increases with the passage of time. The estimates embodied in the chart suggest that between the base year 2010 and 2035, the level of vulnerability increases fourfold even with enhanced adaptation. In ECLAC’s modelling, adaptation does not keep pace with the increasing threat. The ECLAC study reports, ‘even with adaptation the vulnerability of the Guyanese economy to climate change is increased each year.’ The stark fact is that there will be ‘a residual vulnerability which cannot be adapted away, even with the best of technology and optimal adaptation.’ The ECLAC study concludes that Guyana ‘may require the progressive abandonment of land and structures in high vulnerable areas and resettlement of inhabitants.’ It goes on, ‘where this is the case, alternative settlement plans must be designed and implemented as part of the sustainable plans for the economy.’ In short, ECLAC believes that adaptation on the Coast is not a viable option over the long run.

Interior Development

To the extent that adaptation falls increasingly short of providing the protection required by the Coast, relocation becomes the country’s only realistic option. Guyana will have to relocate at least sections of its population, economy, government, and civil society to the Interior. Doing so will be a radical departure for the country. For years there has been talk of

21. ECLAC, An Assessment of the Economic Impact of Climate Change on the Coastal and Human Settlement Sector in Guyana, 61.
22. Ibid., x.
relocating to the Interior, but no clear strategy for doing so has ever been articulated. The coalition government that has led Guyana since 2015 has expressed an interest in Interior development, though to date it has not moved decisively in that direction. Guyana’s Minister of Agriculture, Noel Holder, for example, made the case that ‘due to climate change, we really have to look at moving our main economic base from this narrow coastal strip into the vast interior that we have.’ But as Catherine Hickey and Tony Weis write ‘massive-scale relocation’ is ‘not currently seen as a serious possibility and sits on the extreme fringe of public policy thinking...’

Relocation would require a fundamental restructuring of the Guyanese economy. Rice, sugar, and ground provisions are grown on the Coast. None of these is likely to be part of the country’s comparative advantage structure in the Interior. Entirely new crops will have to be cultivated and new industries will have to be built there in order to attract and provide employment to the population vacating the Coast. For this to occur, Guyana needs to urgently develop an enhanced power supply, most likely in the form of hydro power. Economic viability will also require road construction to be a top priority. Access to and from the Interior at the moment is too limited for it to support the level of economic activity that will be necessary.

With abundant electrical power and the ability to transport goods and services, the Interior’s bauxite, timber, diamonds, and gold resources could allow Guyana to become a source of high value-added final or intermediate products. A jewellery industry might prosper, and it might be possible to resume the profitable refining of bauxite into alumina. Perhaps even aluminium could be extruded using local hydro power sources, and if that were done the country could become an exporter of manufactured aluminium products. The same kind of development could occur if the country’s timber resources were carefully managed and used in production. Interior agriculture too could develop in a way that is responsive to the region’s soil and climatic conditions, as well as to available market opportunities.

Petro-dollars will make it possible to finance much of new investment. But adequate financing alone will not be sufficient for success in the relocation effort. The adoption and implementation of an Interior economic development strategy will require something that Asian developing societies have done but that Caribbean governments have not. The Guyanese government will have to be transformed into a developmental state. It will have to identify the industries that, given the resources available in the Interior, are most likely to succeed. Having done so, it will then have to ensure that pioneering entrepreneurs are able to gain access to the financing and market outlets that start-up businesses require. In this, of course, petro-dollars will be of importance. But it will be the vision and commitment of policymakers that will be the necessary condition of success in the relocation effort. The region’s history is not a friend in this regard, and Guyana is not an exception to the regional pattern. Becoming a developmental state was out of the question under British colonialism. But the English-speaking Caribbean nationalist movements, too, were largely uninterested in moving in that direction. The trade unionists, socialists, and intellectuals who led the West Indies’ anti-colonial movements were not inclined either by experience or ideology, to actively promote would-be Schumpeterian entrepreneurs. Furthermore, the sometimes coercive tutelage imparted to the region by the World Bank, International Monetary Fund, and aid donors all pushed against an active role for the state in directing the economy. Yet, the fact is that the spread of economic development that has occurred in recent years, most notably in Asia, has almost always happened in the context of and at the behest of an activist government. And certainly if the Guyanese Interior is to become a new location of economic activity, it will only occur if the government leads the way.

Interior development will have to be launched in the two locations south of the Coastal Plain that are identified in the Land Use Plan issued by the Government in 2013, as ‘hotspots’ – ‘areas with high development potential.’ One is the Bartica-
Linden area, and the other is referred to as the Intermediate Savannah. The *Land Use Plan* reports that the Linden-Bartica region’s potential lies in the fact that it can be ‘a centre linking areas of production to transport links and particularly to coastal ports’. Linden is located on the Demerara River and with a population of about 30,000 is larger than Bartica. It grew as an urban place providing services to nearby bauxite mining sites. Bartica is a town of about 15,000 that serves as a transportation hub for gold and diamond miners who work nearby. The *Plan* adds that mined out land in the area could be used as an export processing zone, particularly since a pool of labour is already present. The second ‘hot spot’, the Intermediate Savannah promises to be a new location for Guyanese agriculture. The *Land Use Plan* argues that this region possesses the ‘potential for agriculture, livestock and plantation forestry or biofuels coupled with an expansion of bauxite mining’. Important in this regard is the fact that ‘there is also the potential for developing the Tiger Hill hydropower site on the Demerara River to power agro-processing industries.’

### The Need to Debate

All of this obviously will be very expensive, though no detailed estimates of that price tag are currently available. The reality is that the financing of Interior development will absorb most, if not all, of the petro-dollars that are on the horizon. And as noted, that claim will be a source of great contention. Money spent on the Interior obviously is money not available for other claims.

The principle source of that contention will stem from the fact that the biggest cost associated with an Interior development strategy will not be financial. An even greater cost than financing will be the psychic and emotional toll that will be inflicted on the Guyanese population. Interior settlement will require a large percentage of coastal residents to be uprooted and learn to live in an environment that, though part of their country, is in fact territory foreign to them. Intense opposition is to be expected. What this means is that the first and most important step in successfully responding to climate change is to convince as many Guyanese as possible that a geographic and economic revolution is the least bad option for their country. It is hard to build a new economy, and it is certain that many false starts and failures will occur. The resistance to the move that these inevitable shortcomings will generate can be minimized, but only if the Guyanese people become convinced that global warming requires fundamentally changing the way they have ordered their lives.

It will take a long time to mobilize the human resources needed to plan the transition and even longer for those involved to think through how actually it will be accomplished. This interregnum provides an opportunity for the government to initiate the society-wide discussion that will be required to convince the public of the need for relocation. It will not be an easy sell. But the kind of careful reasoning and analysis that Professor Thomas brings to his work represents a model that the country will be well-advised to follow. The process...
of global warming is unrelenting, and though the people of this country have contributed precious little to its damaging existence, they are its victims and will be compelled to respond.

There is much justified excitement concerning the country’s future as a petroleum exporter. But the need to use those funds to settle the Interior has not been the subject of public discussion. The Stabroek News’ editorial concerned with spending priorities when oil revenue is received does not mention either climate change adaptation or relocation. Overcoming this reticence and debating the merits of Interior development is something that should begin as soon as possible. Without a society-wide dialogue on climate change, the opportunity to forge a consensus on how to use petroleum revenues in responding to coastal flooding will be lost. The risk of such a failure is that, when circumstances do finally force the society to relocate, it will be unprepared to do so in an orderly and systematic way.


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ABOUT The Renaissance Papers

The Renaissance Papers is an occasional paper series intended to capture scholarly, policy-relevant or otherwise intellectually provocative thought expressions by scholars, and members of the policy, civic, diplomatic or business communities. Renaissance Papers are published only electronically. The series is linked to the public intellectual engagements of Project Renaissance. It will publish presentations made under the Renaissance Lecture series, the Conversation in Law and Society series, the Yesu Persaud Lecture series, and the Distinguished Lectures honouring Professor CY Thomas, Professor Sister Mary Noel Menezes, and Dr. Neville Trotz.

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The University of Guyana Press advances the research and teaching of Guyana’s national university by publishing excellent peer-reviewed work through books, journals and creative expressions, from scholars, intellectuals, writers and other creators and making that work accessible to academics, civil societies, the diaspora and online communities. As the publishing arm of the University of Guyana, the UG Press is at the forefront of the interface of critical knowledge systems, sustainable development and innovative public policy issues.

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