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# **Beyond Revenue Management: Principles for an Oil-Led Development Strategy in the 21st Century**

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Beyond Revenue Management: Principles for an Oil-Led Development Strategy  
in the 21st Century

—*Zainab Usman, PhD*

# Beyond Revenue Management: Principles for an Oil-Led Development Strategy in the 21st Century

by **Zainab Usman, PhD**

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## Summary

Guyana is one of the world's newest producers of oil and gas (O/G). These resources could help propel the country to unprecedented levels of income, prosperity and well-being. Hydrocarbons endowments can also contribute to the persistence of poverty, inequalities and political instabilities. No pathway is predetermined. The success in achieving set objectives – of transforming non-renewable natural resources to long-lasting national wealth that underpin shared prosperity – will depend on strategic and flexible policy choices. These are policy choices that correctly diagnose Guyana's development challenges in this new era, draw on lessons from the successes and failures of other resource-rich countries around the world in addressing these challenges, and harness new opportunities and mitigate risks of the rapidly changing global economy. In short, Guyana is not bound to its history or to a "resource curse" or to the experiences of other countries; it can forge

its own unique path of using its natural resources as a springboard for national development. Guyana must balance the short-term goals of leveraging the O/G sector to sustain high levels of economic growth through good practices in managing revenues and protecting against volatility with long-term aspirations to achieve structural economic transformation and human development by building productive capabilities and focused social investments, while navigating emerging opportunities and risks in the global economy. We know well how to do the first: designing effective systems of O/G revenue management that also create buffers against price volatility. We know very little about the second: achieving structural economic transformation in resource rich countries. And we cannot control the third: the exogenous factors in the global economy that present unanticipated uncertainties.

## What We Know: How to Maximise and Manage Oil Revenue Flows and their Volatilities

Hydrocarbons resources can have a transformative impact on a country's economy, environment, institutions and society. This impact occurs primarily through the mechanism of revenues or 'rents' earned from O/G production and trade. Another mechanism of impact is the environmental footprint from the physical process of extraction especially, in the case of onshore deposits, as well as the emission of greenhouse gases. For this policy brief, we focus on the impacts of O/G revenues since Guyana's hydrocarbons endowments are offshore. O/G revenues can be so disruptive, in transformative or distortionary ways, that are distinctly different from other natural resources – whether minerals, metals or agriculture products – due to their specific characteristics. These disruptive characteristics of O/G revenues are their “Scale (volume of oil rents), Source (not from taxes), Stability (volatile and unpredictable) and Secrecy (easily hidden)”<sup>1</sup>.

These disruptive features of hydrocarbons revenues interact with a country's other characteristics to produce a variety of outcomes. In other words, these characteristics of hydrocarbons revenues do not occur in a vacuum neither do they exert an independent impact on a country's economy, environment, institutions and society. The *Scale* of revenues is determined by a combination of: the fiscal regime negotiated between the country and oil companies, the existence of a state oil corporation upstream to capture more of the O/G rents, the price of oil in the global market, the O/G share of the country's GDP and population size. The *Stability* of revenue flows, which can be severely distortionary, is influenced not just by global oil prices at any point in time but by the size of the economy, the extent of economic diversification<sup>2</sup> – how dependent the economy is on these revenues for exports, fiscal earnings and GDP – as well as the effectiveness of countercyclical policies to act as a buffer against oil price volatility. The *Secrecy* of these revenues is shaped by the quality of a country's institutions. That is, whether a country has strong bureaucratic capabilities in its public sector to manage revenues and execute projects and whether it has an effective mechanism of checks and balances to engender accountability.

Guyana is positioned for a large hydrocarbons windfall due to these characteristics of oil revenues as well as

the country's starting conditions. Its oil and gas endowments are offshore in the Guyana and Takutu Basins<sup>3</sup>. The Stabroek block is 120 miles off the country's coast which minimises the prospects of severe environmental and social complications with the host community. With estimated reserves of 13.6 billion barrels of oil and 32 trillion cubic ft of gas reserves, the Guyana Basin represents one of the largest oil and gas finds of the 21st century<sup>4</sup>. In 2020, Guyana produced an average of 74,300 barrels of oil equivalent daily placing the country as the 57th largest oil producer globally. When current projects in development enter into the production phase, daily output is projected to reach 750,000 b/d by 2025<sup>5</sup>, a situation that will propel Guyana to 24th place globally, above Azerbaijan's 700,400 b/d. Depending on the *progressivity* of the fiscal regime, global oil prices and the high likelihood that the country's deepwater oil discoveries could keep growing as companies continue oil exploration, hydrocarbons *will* represent a disproportionately large share of export earnings and fiscal revenues. These O/G financial flows from initial projects are already estimated at 56% of total exports in 2021 with government revenue estimated at \$50-\$200 billion through to 2050<sup>6</sup>. To put it in perspective, Guyana's total government revenues were \$1.4 billion in 2018. Hydrocarbons revenues *will* thereby dwarf all other sources of revenues given the size of Guyana's small non-oil revenue base, and oil production is expected to be the drive of economic growth in the medium term.

With a small population size of 786,000 people, Guyana will earn high oil rents per capita. In other words, Guyana is positioned to produce a lot of oil and earn a lot of revenues for each of its citizens. Currently, the country produces the equivalent of roughly 24 barrels per citizen every year (Figure 1a). When output gets to 750,000 b/d by 2025, this could be the equivalent of 238 barrels per citizen for the year, higher than all of the current top 10 producers. Ballpark estimates suggest that Guyana's oil earnings per capita by 2025 could exceed those of the wealthy Gulf Cooperation Council (GCC) countries such as Qatar, Bahrain, Kuwait, Oman and UAE; Norway in Europe; as well as Gabon and Equatorial Guinea in Africa (Figures 1b and c). Whether revenues remain hidden and aggravate socio-political problems depend on Guyana's mechanisms for checks and balances. Taking all these factors into consideration, Guyana's large revenue windfall will have a decisive impact on its economy, institutions, and society.

1 Michael Ross (The Oil Curse: How Petroleum Wealth Shapes the Development of Nations, 2012)

2 For more on economic diversification, see Zainab Usman and David Landry (Economic Diversification in Africa: How and Why it Matters, 2021)

3 Lenin H. Balza, Emily Brearley, Dillon Clarke and Victor Gauto (Traversing a Slippery Slope: Guyana's Oil Opportunity, 2020, p. 8)

4 Estimates derived from the United States Geological Survey (USGS) assessment in 2000

5 Balza et al. (2020, p. 18)

6 World Bank Group (A Pivotal Moment for Guyana: Realizing the Opportunities - Systematic Country Diagnostic, 2020)

Figure 1 a. Annual oil production per capita in 2020

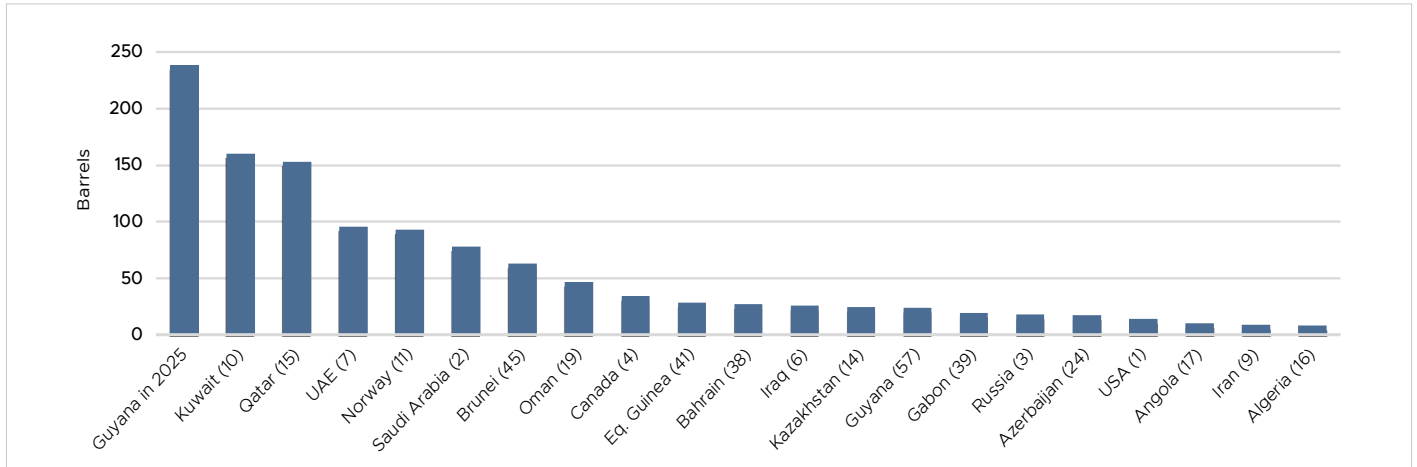


Figure 1 b. Scenarios for gross annual oil earnings per capita

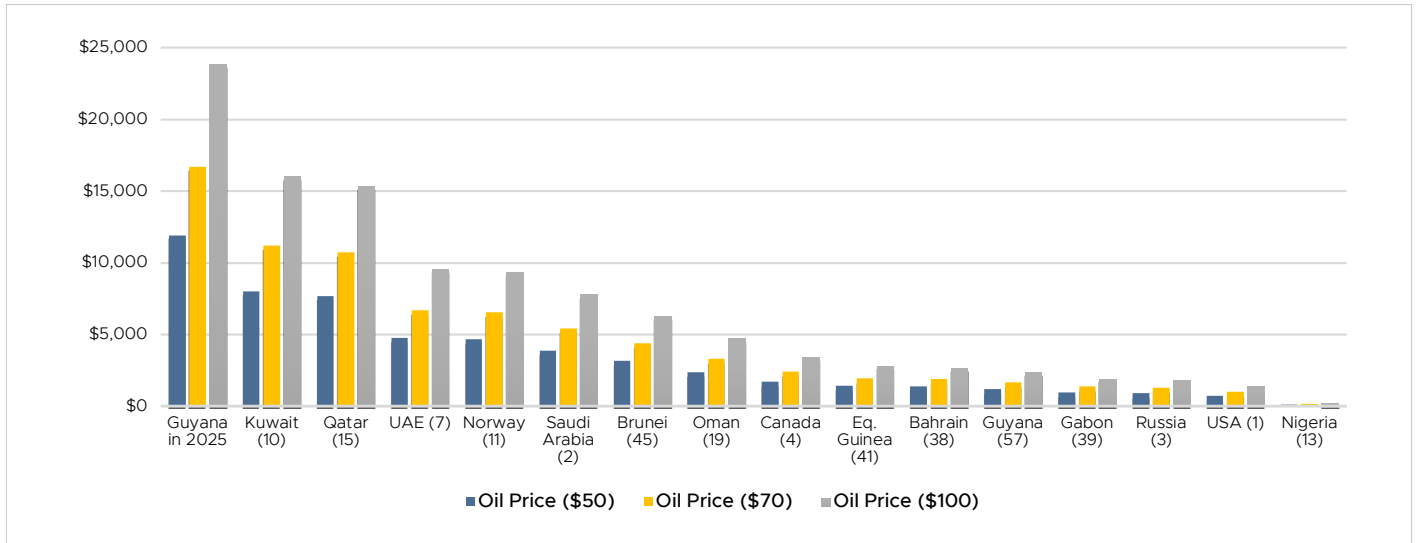
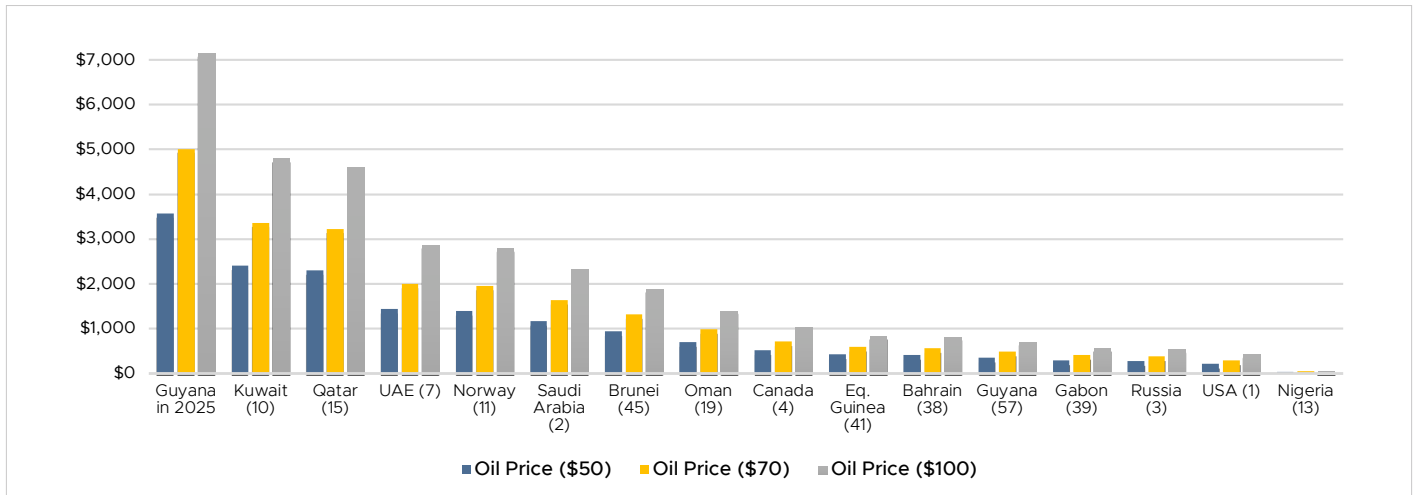
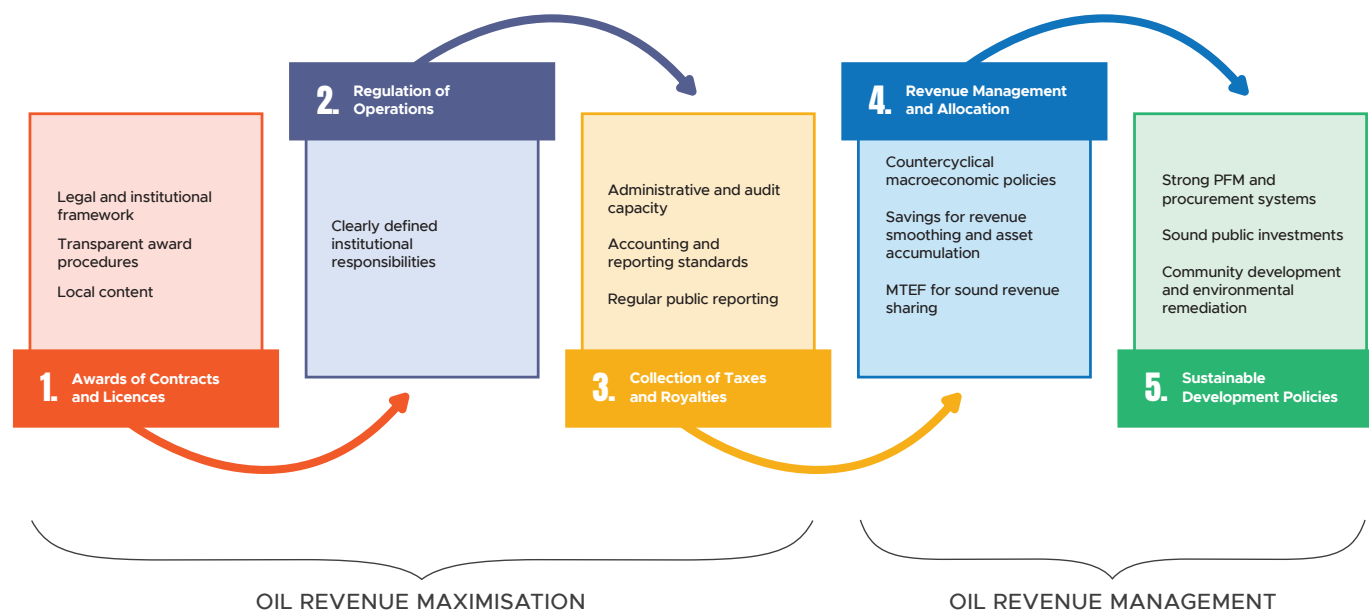


Figure 1 c. Scenarios for net annual oil earnings per capita



Source: author's calculations based on data from the U.S. Energy Information Administration and the World Bank's World Development Indicators  
 Note: Calculations are for illustrative purposes only. In all panels, annual oil production is calculated based on an assumption of 250 working days in a year. Figures for gross oil earnings are derived by multiplying annual production estimates by an assumed oil price (\$50, \$70 or \$100). Estimates for net oil earnings are derived based on assumed earnings of 30% of gross figures (to account for relevant deductions such as cost recovery, profits, and other provisions in the fiscal regime).  
 Development Series; no. 3. World Bank, Washington, DC.

Figure 2: Policies for Revenue Maximisation and Management along the Extractive Industries Value Chain



Source: Author's illustration adapted from Mayorga Alba, Eleodoro (2009) "Extractive Industries Value Chain: A Comprehensive Integrated Approach to Developing Extractive Industries." Extractive industries and Development Series; no. 3. World Bank, Washington, DC.

Managing the impact of hydrocarbons revenues falls within the realm of what we know. Guyana must put in place systems to maximise earnings, manage revenues transparently and create buffers against volatility of global oil prices. Per Figure 2, this will entail legislation, policies and regulations across the oil and gas value chain on: the design of a strong fiscal regime that maximises revenue earning potential; countercyclical macroeconomic policies to protect against volatility and the 'Dutch Disease', public expenditure smoothing policies to build the absorptive capacity of institutions of the large volume of oil revenues; a savings fund to manage exchange rate pressures and convert the finite O/G resources into national assets; transparent management of natural resources through parliamentary oversight commissions and multistakeholder initiatives like the Extractives Industries and Transparency Initiative (EITI) and managing societal expectations on the oil wealth to prevent debilitating distributional pressures. The Extractives Industries Value Chain (Figure 2) identifies links of the EI value chain with steps to improve revenue management, transparency, and accountability at each link of the value chain<sup>7</sup>.

The *purview of what we know* can help maximise earnings, manage revenues transparently and create buffers against volatility of global oil prices to sustain growth. The Government of Guyana should

accelerate its efforts on this front: designing legislation, regulations and policies to oversee the upstream sector (exploration, development and production), monitor O/G operations, build up technical capacity, promote governance and transparency, and undertake financial and economic planning. These commendable strides are, however, insufficient to position the O/G sector as a springboard for national development – to achieving economic diversification, structural transformation and high-levels of human development in the long term.

### What We Don't Know: How to Diversify, Transform and Industrialise an Economy

We know very little about how countries, especially those that are resource-rich, transition from poverty to prosperity. In fact, between 1960 and 2014, less than 10 percent of economies (16 out of a sample of 182) have reached high-income status, relative to the United States<sup>8</sup>. Seven of these economies are European countries, which were already upper-middle income economies to begin with, and later became part of the European Union, including a small Dutch Caribbean Island of Aruba. Other countries such as Equatorial Guinea, Oman, and in fact Aruba, grew fast due to oil discoveries. The four economies reaching the high-income status without the proximity to advanced Europe or natural resource discoveries are the Asian

<sup>7</sup> Mayorga Alba, Eleodoro (2009) "Extractive Industries Value Chain: A Comprehensive Integrated Approach to Developing Extractive Industries." Extractive industries and Development Series; no. 3. Africa working paper series no. 125. World Bank, Washington, DC

<sup>8</sup> Reda Cherif and Fuad Hasanov use a definition of income not in absolute terms based on World Bank income classifications but relative to the United States (The Return of the Policy that Shall not be Named: Principles of Industrial Policy, 2019)



Tigers—Hong Kong (China), Korea, Singapore, and Taiwan Province of China. Korea, Singapore, and Taiwan Province of China.

This reality confirms a number of facts about the relationship hydrocarbons resources and development. Oil wealth does not guarantee high incomes. Angola, Indonesia and Nigeria are all among the world's top 20 oil producers but they remain lower-middle-income due in large part to their low-rents per capita (Figure 1). Secondly, attaining high-income status from natural resources wealth does not always translate into improved human development outcomes. While the oil-rich monarchies especially in the GCC countries – of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates –have achieved very high levels of human development and standards of living, it is not the case for other high-income oil producers such Equatorial Guinea and Gabon. Clearly, the ability to invest this resource wealth to build physical and human capital is a determining factor. Third, even quality investments of resource wealth in health, education, infrastructure and other public goods does not easily translate into economic transformation and resiliency. Despite their high human development achievement and world-class infrastructure, the GCC countries – alongside other wealthy oil producers like Azerbaijan – have not built significant industrial capabilities. In fact, their economies are highly dependent on the O/G industry for most of their exports and government revenues; they are highly vulnerable to price shocks and future reserves depletion. Although some oil producers have been able to achieve significant industrial expansion, increased incomes and raised living standards, such as Malaysia which is now upper-middle-income but with low-oil-rents per-capita. Several oil-rich countries in Africa, parts of the Caribbean, and parts of Asia have achieved limited industrial expansion, have lower per capita incomes, and human development achievement.

Achieving structural economic transformation is therefore a very difficult process and even more so for resource-rich countries. Yet envisioning successful oil-led development in Guyana is not an insurmountable aspiration. In fact, today's advanced industrialised countries like Australia, Canada, the Netherlands, Norway, USA the UK which are still major oil producers. There is no need to reinvent the wheel because there are important lessons to draw from the successes and failures around the world. In drawing on these lessons, Guyana can forge its own path and should not be strait jacketed into blindly copying from elsewhere as the global environment is radically different today in the 2020s than it was in the 20th century. We can distil these lessons into at least five general principles at the

intersection of politics, policy and economic outcomes<sup>9</sup>: an accurate diagnosis of Guyana's development challenge; frame the development challenge as a political project of national survival; insulate political competition from the impacts of the oil windfall; create a shared vision for addressing this development challenge and outline the most urgent policy priorities to addressing this development challenge.

1. **Accurately Diagnose Guyana's Central Development Challenge:** The people of Guyana should precisely define their central development challenge and aspiration. This definition should be an endeavour that is contextual to the country's history, culture and endowment structure and should entail an inclusive process that incorporates perspectives from academia, business, civil society, politics and technocracy. Using Guyana's natural resources, especially oil and gas, *as a springboard for national development in ways that avoid resource dependence*, accelerates structural transformation, achieves economic diversification, increases human development, is environmentally sustainable and generates equity seems to be articulated in the Vision 2040<sup>10</sup> document. The challenge of oil-led development is not only to effectively and transparently manage oil revenues or "avoid a resource curse", but to use these resources *as a springboard for national development in ways that avoid resource dependence*.
2. **Frame this Central Development Challenge as a Political Project of National Survival:** Achieving economic transformation from low to high-income via industrialisation is a very difficult process. Many countries have tried; few have succeeded. An essential feature of the successes is that economic transformation is framed and socialised in society as a political project of national survival. The aim of this political project would be to create a stable political economy, generate shared prosperity, build a country resilient to external aggression and geopolitical shocks, rather than just aiming to 'build a strong economy' or achieve 'industrialisation' as an end in itself. As the experience of late industrializers in Europe and East Asia show, the drive for successful economic transformation was a political objective of attaining self-sufficiency against external aggression. The threat of military aggression from neighbours North Korea, China

<sup>9</sup> Zainab Usman (Economic Diversification in Nigeria: the Politics of Building a Post-Oil Economy, 2022)

<sup>10</sup> The three pillars in the Guyana Green Strategy 2040 document are: manage natural resource wealth, support economic resilience and build human capital and institutional quality. (Green State Development Strategy Vision 2040: Volume 1 Policy Recommendations, Financing Mechanism and Implementation, 2019)

and Malaysia impelled the ruling elites in South Korea, Taiwan, and Singapore respectively to drive industrial transformation for their national security<sup>11</sup>.

**3. Stabilise Political Competition to Underpin not Undermine this Political Project:** The stabilisation of political competition (elections, party system, inter-governmental relations etc.) is essential to avoid situations where large revenue windfalls distort politics towards violent competition to capture the O/G rents at the expense of longer-term objectives. This stabilisation is crucial to resolving the collective action problems that plague efforts at long-term development and institution-building especially in culturally heterogenous societies: Nigeria being a prime example where electoral transitions are highly volatile and destabilising to the country's policy agenda. Papua New Guinea is another. Guyana's political actors, groups and organisations must negotiate a stable balance of power that allow for the periodic peaceful transfer of power, that is not zero-sum and can therefore resolve the collective action problems needed to pursue the political project of economic diversification. The stabilisation of political competition can help insulate politics from the debilitating impacts of large revenue windfalls to ensure that a country remains focused on the collective task of long-term national development.

**4. Create a Shared Vision for Addressing this Central Development Challenge:** There needs to be a shared vision for how Guyana's economy can be best positioned to work for all Guyanese. Developing this shared vision is critical to addressing the deep structural challenges of the economy: lack of economic diversification, weak manufacturing and industrial base, regional disparities, lack of specialised workforce skills, small population density in hinterland regions and high rates of emigration. Economic policies must be proactively focused on long-term structural economic transformation rather than a short-term stabilisation or revenue management orientation that continuously reacts to the oil industry's boom and bust cycle. In Nigeria, even the rare reform episodes have been ad-hoc reactionary responses to external constraints of oil shocks rather than proactive attempts at sustained economic transformation. Thus, once global oil prices revert to historic highs of over \$100 per barrel, the reform momentum decelerates as the status-quo prevails. Long term reform plans are also frequently

thwarted by the short-term political calculations of Nigeria's chaotic electoral transitions. Saudi Arabia also struggles to sustain the pace of implementing its ambitious plans for economic diversification when oil prices are high. The universal difficulty of maintaining a long-term planning horizon should by no means induce complacency in Guyana. This shared vision for economic transformation can be built on at least three core pillars.

- i.* First Guyana's intelligentsia should clearly define the balance of state-market relations in organising Guyana's economy. This definition should be attuned to the realities of the 21st century, considering the Fourth Industrial Revolution, decarbonisation, climate change, trade integration and protectionism etc. What roles can and should governments play: in supporting business; in providing public goods like infrastructure, education, security; in effective regulation for consumer and environmental protection; in helping the poor and the vulnerable; in preventing capture by monopolists? Crucial areas relevant for O/G include the extent of Guyanese State-Owned Enterprises (SOE) participation in the industry; the approach to private sector and local content development etc. These questions have to be put forward, debated and settled upon.
- ii.* A second pillar of this shared vision should be an appreciation of socio-ethnic differentiations within Guyana's society and their complimentary policy needs. What are the horizontal inequalities within Guyana's diverse society? How can public policy meet the specific needs of diverse communities? There are large human capital and physical infrastructure gaps between the wealthier coast where 90% of the population resides and the hinterlands regions. This shared vision should seek to address the horizontal inequalities among Guyana's ethnically and religiously diverse society: the Indo-Guyanese predominantly in rural coastal areas in the agricultural sector; the Afro-Guyanese predominantly in urban areas engaged in the services and the public sector and the indigenous Amerindian Guyanese mainly in inland rural areas engaged in smallholder agriculture, forestry, craftwork, mining, and traditional livelihoods<sup>12</sup>.
- iii.* The final pillar for a shared vision is a

<sup>11</sup> Richard Doner, Bryan Ritchie and Dan Slater (Systemic Vulnerability and the Origins of Developmental States: Northeast and Southeast Asia in Comparative Perspective, 2005)

<sup>12</sup> World Bank Group (2020)

mechanism for the management of oil revenues in equitable and pragmatic ways. This is crucial since the sector provides the bulk of foreign exchange and government revenues.

**5. Outline the Most Crucial Policy Priorities for**

**Addressing this Development Challenge:** The political project of transforming Guyana's economy should also outline the urgent policy priorities to achieve this aspiration. A stable distribution of power with a shared vision for Guyana's economy should allow for a policy orientation that is not only focused on narrow revenue maximisation and management objectives but a bigger vision of supporting economic transformation. What should a policy orientation of supporting structural economic transformation entail? In addition to coordinating Guyana's resource endowments, it should proactively tackle the market failures of economic transformation. These market failures include the supply-side constraints on the productivity of firms and workers and the demand-side constraints on people's incomes and their capacity to consume goods and services.

- i.* On the supply-side, policies are needed that increase productivity of workers and firms. These include the provision of physical infrastructure (electricity, transportation, and digital infrastructure), access to business finance, closing the knowledge and technological gap among firms and workers, and institutional reform all of which help to increase the output of workers and firms..
- ii.* Pro-poor policies can also help address market failures on the demand side. Social protection instruments that help individuals and households to increase incomes and consumption, strengthen their resilience to shocks and prevent destitution. Guyana must prioritise sustained investments in social protection to increase resilience of informal enterprises to shocks that disrupt their incomes and wipe off their assets. The Bolsa Familia in Brazil gained global acclaim for helping to pull millions out of poverty by providing cash transfers to poor households. Guyana has a huge advantage here: by virtue of its small population and large volumes of oil revenues, it should be able to afford direct transfers of a portion of oil revenues to all citizens – a form of universal basic income. Examples can be adapted from the GCC countries, Alberta in Canada and Norway all

of which have elaborate and generous social protection schemes<sup>13</sup>.

- iii.* To successfully tackle these market failures in Guyana's economy requires a capable government. Such a capable government supports and facilitates economic activity without being overbearing, designs and implements effective regulation, is responsive and dynamic to the changing global economy. These are the tasks undertaken by the civil service or the bureaucracy. An ill-equipped and understaffed bureaucracy cannot take on the daunting tasks of addressing market failures in an era of a fourth industrial revolution and climate change. Comprehensive civil service strengthening must be on the policy agenda including the prospect of tapping into Guyana's large diaspora. Drawing on the experiences of peer countries – in CARICOM, in Africa – for instance countries like Ghana and Nigeria in areas where they have implemented good policies such as local content development and gas masterplans – and also in South Asia.

## **What We Can't Control: Exogenous Opportunities and Risks in the Global Economy**

There are also exogenous factors in the global economy which no one can fully prepare for. These exogenous factors create uncertainties in terms of opportunities to accelerate a policy agenda or pose risks that derail such objectives. A constellation of trends can erupt in a landmark event; and vice versa – a historic event can catalyse new trends. The focus for any country, in this case Guyana, should be an ability to navigate the changing opportunities and risks in the global economy with bold decision-making, dynamic institutions, responsive policies and a competent bureaucracy. At the minimum, these four exogenous factors should be considered: global climate action, the changing patterns of international trade, eastward shift of economic power and the digital revolution.

- 1. Global Climate Action:** since the Paris Agreement in 2015, the momentum has been accelerating for a global transition towards low-carbon systems to drastically reduce greenhouse gas emissions to avert a climate catastrophe. This impending low-carbon energy transition creates opportunities and risks for resource-rich countries. Guyana, as other

<sup>13</sup> Todd Moss, Caroline Lambert, and Stephanie Majerowicz (Oil to Cash: Fighting the Resource Curse through Cash Transfers, 2015)

oil and gas producers, faces the risk of declining O/G investment flows due to policies and activist pressure in the home countries of oil majors. A structural disruption in oil markets resulting from declining global demand in the long term will reduce export and government revenue intake. The risks of stranded O/G assets in the long term looms large although this is a highly debated prospect. Opportunities abound for Guyana to be propelled by the climate change imperative to envision an oil-led development beyond the extraction and sale of raw crude to focus on expanding activities and capabilities along the entire O/G value chain particularly in fuel refining, petrochemicals and gas-to-power initiatives. To successfully navigate the opportunities and risks of global climate action, Guyana should seek like-minded allies in international climate negotiations in CARICOM, the African Union, the Middle East and ASEAN.

2. **The Changing Patterns of International Trade:** global trade is coming under the assault of political forces of deglobalisation through tariffs, sanctions, and “decoupling”. However, rather than slow-down connectivity, the world is becoming more interconnected but in an increasingly regional manner i.e. Globalisation is giving way to Regionalisation. Parts of the world beyond the Western Hemisphere are becoming more integrated on a regional basis. Regional trade agreements are being negotiated and consolidated in Asia, Africa and also on a bilateral basis. Guyana should strengthen its links to its immediate region in Latin America and the Caribbean for potential export markets for processed goods including agro-products, refined fuels, petrochemicals etc. Guyana should also see to expand to other markets to diversify risk beyond traditional partners of the U.S., U.K., Canada and CARICOM. Africa and ASEAN are destinations for forging new partnerships given the historic-cultural ties with Afro-Guyanese and Indo-Guyanese populations. Consider providing investor visas to entities in these regions. Regionalisation amidst U.S.-China-E.U. trade wars could herald a Cold War 2.0. Where possible, Guyana should leverage alliances with like-minded small-state, oil-producing and other developing countries to navigate this new geopolitical landscape.
3. **Eastward Shift of Economic Power:** The gravity of global economic activity is shifting eastward. China is poised to become the world’s largest economy by end of the decade. It is a factory of the world, constitutes 15% of global trade, already leads the world in Artificial Intelligence, Patents and the

manufacturing of solar and wind power hardware, 5G digital infrastructure construction, e-commerce and digital payments among others. Beyond China, other Asian economies are global leaders in financial services, chips and electronics etc. – Singapore, South Korea, India etc. – all resulting in an emerging multipolar order. Opportunities abound for Guyana to diversify its economic partnerships with emerging powers. It will be important to avoid getting caught in great power rivalry.

4. **The Digital Revolution:** Digital transformations referred to as the “fourth industrial revolution” are transforming business models, production processes, end user experiences and labor dynamics. The diffusion and adoption of digital technologies such as artificial intelligence, advanced robotics and autonomous vehicles, big data and analytics, blockchain, 3D printing, and the internet of things (IoT) are shaping industries in profound ways. Digital innovations can increase efficiency and economy-wide productivity; across the entire O/G value chain are examples of use-cases of various innovations. Yet, serious risks abound around vulnerability to cyberattacks, the difficulty of regulating the monopoly instincts of ‘Big tech’ and the U.S.-China-E.U three-way race to set global tech standards.

## References

1. Balza, L. H., Brearley, E., Clarke, D., & Gauto, V. (2020). Traversing a Slippery Slope: Guyana's Oil Opportunity. Infrastructure and Energy Sector: Inter-American Development Bank.
2. Cherif, R., & Hasanov, F. (2019). The Return of the Policy that Shall not be Named: Principles of Industrial Policy. Working Paper No. 19/74. Washington D.C.: International Monetary Fund.
3. Doner, R. F., Ritchie, B. K., & Slater, D. (2005). Systemic Vulnerability and the Origins of Developmental States: Northeast and Southeast Asia in Comparative Perspective. *International Organization*, 59(2), 327-361.
4. Ross, M. (2012). *The Oil Curse: How Petroleum Wealth Shapes the Development of Nations*. Princeton, N.J.; Oxford: Princeton University Press.
5. Usman, Z. (2022). *Economic Diversification in Nigeria: the Politics of Building a Post-Oil Economy*. London: Bloomsbury.
6. Usman, Z., & Landry, D. G. (2021). *Economic Diversification in Africa: Concept, Measurement and Application*. Washington D.C.: World Bank.
7. World Bank Group. (2020). *A Pivotal Moment for Guyana: Realizing the Opportunities - Systematic Country Diagnostic*. Washington D.C.: World Bank Group.



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Dr. Zainab Usman is a Senior Fellow and Director of the Africa Programme at the Carnegie Endowment for International Peace in Washington, D.C. Her fields of expertise include institutions, economic policy, energy policy, and emerging economies in Africa. Her forthcoming book, *Economic Diversification in Nigeria: the Politics of Building a Post-Oil Economy*, is set to be published by Zed/Bloomsbury Press in June 2022.

Prior to Carnegie, Usman was at the World Bank initially as part of the prestigious Young Professionals Programme and later as a Public Sector Specialist. At the World Bank, she worked on social sustainability, policy reforms, natural resources management, and disruptive technologies. She has worked on these issues in Cote d'Ivoire, Morocco, Nigeria, Papua New Guinea, the Republic of Congo, Serbia, Tanzania, and Uzbekistan. She has also worked at the Blavatnik School of Government at the University of Oxford and has consulted for the Department of International Development (DfID) and the Office of the National Security Adviser (ONSA) in Nigeria.

Usman's research has been published on various academic, policy, and media platforms. She is co-editor of the book, *The Future of Work in Africa: Harnessing the Potential of Digital Technologies for All*. She also contributed to World Bank's flagship report on *Rethinking Power Sector Reforms in Developing Countries*. Her recent publication in the *New York Times* on *How African Countries Can Overcome the "Resource Curse"* has been making tremendous in-roads amongst policy makers globally.

Usman's other analytical pieces have been published with the journal of *African Affairs*, the World Bank's Policy Research and Working Paper Series, and as book chapters in edited volumes with Oxford University Press and James Currey. Her written and broadcast commentary has appeared in *Al-Jazeera English*, *African Arguments*, *CNN*, and *Washington Post*, among others.

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