



**Project GAIA**

Open-Source  
Global Conflict Analysis Report

**January 2024**



In focus this issue:  
Ghana's Security Risk Profile



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# Table of Contents

<b>Project Update in January 2024</b>	<b>3</b>
<b>Key Event Highlights</b>	<b>5</b>
<b>Risk Assessment Matrix</b>	<b>6</b>
<b>Executive Summary</b>	<b>7</b>
<b>Armed Conflicts</b>	
<b>Executive Summary</b>	<b>9</b>
<b>Security Environment Overview</b>	<b>10</b>
<b>Military Capabilities and Assistance</b>	<b>12</b>
<b>Defence R&amp;D and Industry</b>	<b>16</b>
<b>Strategic Assessments and Recommendations</b>	<b>20</b>
<b>Political Stability</b>	
<b>Executive Summary</b>	<b>22</b>
<b>Political Environment Overview</b>	<b>23</b>
<b>Upcoming Elections and Political Dynamics</b>	<b>25</b>
<b>Corruption and Governance</b>	<b>27</b>
<b>Strategic Assessments and Recommendations</b>	<b>29</b>

## **Infrastructure Security**

<b>Executive Summary</b>	<b>31</b>
<b>Environmental Threats to Infrastructure</b>	<b>32</b>
<b>NSAG Attacks on Infrastructure</b>	<b>35</b>
<b>Infrastructure Development and Resilience</b>	<b>36</b>
<b>Strategic Assessments and Recommendations</b>	<b>38</b>

## **Economic Security**

<b>Executive Summary</b>	<b>41</b>
<b>Inflation and Currency Depreciation</b>	<b>42</b>
<b>Public Debt</b>	<b>44</b>
<b>Unemployment</b>	<b>46</b>
<b>Strategic Assessments and Recommendations</b>	<b>48</b>

## **Cybersecurity**

<b>Executive Summary</b>	<b>50</b>
<b>Cyber Threat Landscape</b>	<b>51</b>
<b>Cybersecurity Capabilities and Infrastructure</b>	<b>53</b>
<b>External Relationships</b>	<b>55</b>
<b>Strategic Assessments and Recommendations</b>	<b>57</b>

## **Notes**

<b>59</b>
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# Project GAIA Update in January 2024

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Since our December publication, we have made a significant shift in our production approach, transitioning from a regional focus to a subject matter model as part of our adaptive learning process. In this publication, we decided to specifically focus on the security environment of Ghana and aimed to provide a more comprehensive assessment by covering multiple domains.

This publication is crucial for two reasons. First, it acts as an essential guide for our student analysts, illustrating the typical framework of a risk assessment. This is particularly valuable as our students embark on this project with no previous experience in producing this kind of reports. Second, this report showcases an experimental use of a pre-trained AI model for the selective extraction of relevant and up-to-date data for risk assessments. By integrating this AI-driven approach with some pre-selected databases, we were able to produce the first draft of this report in just under four hours—demonstrating the remarkable efficiency and potential of technology to augment our analytical capabilities.

As we move into Project GAIA's final phase, we are excited to introduce GAIA:ISDA, a task-orientated initiative aimed at refining our training methodology. The sole mission of ISDA is to develop a methodology report on utilizing Large Language Models (LLMs) for conducting Threat-Risk Assessments, specifically addressing Insider Threats within Canadian Critical Infrastructures. This initiative will unfold through four sequential tasks: creating real-life insider threat scenarios, building an Insider Threat-Risk Assessment Matrix, employing LLMs via prompt-engineering for automated assessments, and evaluating the results with comparative analysis with existing methodologies. The findings from ISDA will be detailed in our methodology report in April 2024, marking the conclusion of Project GAIA's endeavors for this academic year.

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Project Manager, Team GAIA

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# Key Event Highlights

January 29, 2024 | Source: Janes

## IMF Disburses Second Tranche to Ghana, Aiming for Debt Restructure Amid Economic and Social Challenges

Ghana received a second IMF tranche of USD 600 million on January 19, 2024, under its Extended Credit Facility, signaling progress in restructuring its USD 28 billion external debt. This reflects IMF's confidence in Ghana's economic recovery potential despite ongoing challenges. The funding aims to alleviate the debt crisis, reduce inflation from 54% to 35%, and address governance issues. However, economic pressures persist, potentially affecting the December 2024 presidential elections amidst concerns over social unrest and governmental policies. The situation underscores the delicate balance between economic stabilization and social satisfaction.

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November 16, 2023 | Source: Janes

## EU's Limited Deployment to Gulf of Guinea Raises Efficacy Concerns

The EU plans to deploy a modest 20-personnel military-civil mission to assist four Gulf of Guinea countries, focusing on countering jihadist threats from the Sahel region. Despite approval for a EUR 1.25 million budget over six months, only Benin and Ghana have accepted the EU's support. The mission aims to provide capability development, technical assistance, and foster trust between civilians and security forces but faces skepticism over its small scale and limited resources. Set for a December launch with early 2024 deployment, doubts persist on its impact, given the pressing security challenges in the region.

# Risk Assessment Matrix

The analytical confidence and levels of concern assessments presented in this report are based on a foundational matrix, in line with the pedagogical objectives of Project GAIA. It's important to note that the chosen matrix is designed to be illustrative rather than exhaustive or deeply quantitative. Broadly, our assessment framework draws inspiration from the operational risk model developed by the Economist Intelligence Unit and the Capability Assessment Methodology utilized by Jane's.

		Levels of concern			
		LOW fairly stable	MODERATE potentially widespread challenges domestically	ELEVATED poses severe challenges domestically and maybe internationally	HIGH poses severe challenges internationally
Analytical confidence	<b>CERTAINLY</b> >90%				
	<b>LIKELY</b> 60%-90%				
	<b>PROBABLY</b> 40%-60%				
	<b>UNLIKELY</b> 10%-40%				
	<b>RARE</b> <10%				

# Executive Summary

## Ghana's security risk profile

This report provides assessments of Ghana's security risk environment across five critical domains: Armed Forces, Political Stability, Infrastructure Security, Economic Security, and Cybersecurity. Each chapter provides empirical evidence highlights, analysis of current capabilities, strategic assessments, and recommendations for Canadian Nexus.

Risk	2020-2021		2023-2024		Trend
	Level of concern	Analytical confidence	Level of concern	Analytical confidence	
Armed Conflicts	Moderate	Unlikely	Moderate	Unlikely	
Political Stability	Moderate	Probable	Elevated	Probable	
Infrastructure Security	Elevated	Probable	Moderate	Likely	
Economic Security	Elevated	Probable	High	Likely	
Cybersecurity	Data unavailable		Moderate	Probable	

Baseline (2020-2021) assessment is based on Jane's Historical Risk Rating

### Armed Conflicts

**Level of Concern:** **Moderate.** Ghana's defense sector shows robust capabilities and strategic engagements, particularly in peacekeeping and regional security initiatives.

**Likelihood of External Threats:** **Unlikely.** Given Ghana's stable regional relationships and active participation in peacekeeping, significant external military threats are unlikely.

## Political Stability

**Level of Concern: Elevated.** The upcoming elections and historical patterns of political transitions signal potential for political unrest.

**Likelihood of Political Unrest: Probable.** The historical context, coupled with current socio-economic challenges, suggests a probable scenario of political unrest around election periods.

## Infrastructure Security

**Level of Concern: Moderate.** Environmental threats and the vulnerability of critical infrastructure to natural disasters pose significant risks.

**Likelihood of Infrastructure Disruptions: Probable to Likely.** Given recent environmental challenges and past incidents, the likelihood of infrastructure disruptions remains high.

## Economic Security

**Level of Concern: High.** High inflation, public debt, and unemployment rates present substantial challenges to Ghana's economic stability.

**Likelihood of Economic Downturn: Likely.** While there are significant economic pressures, ongoing reforms and international support may mitigate the immediate risks of an economic downturn.

## Cybersecurity

**Level of Concern: Elevated.** The rise in cyber threats and the strategic importance of digital infrastructure highlight significant security challenges.

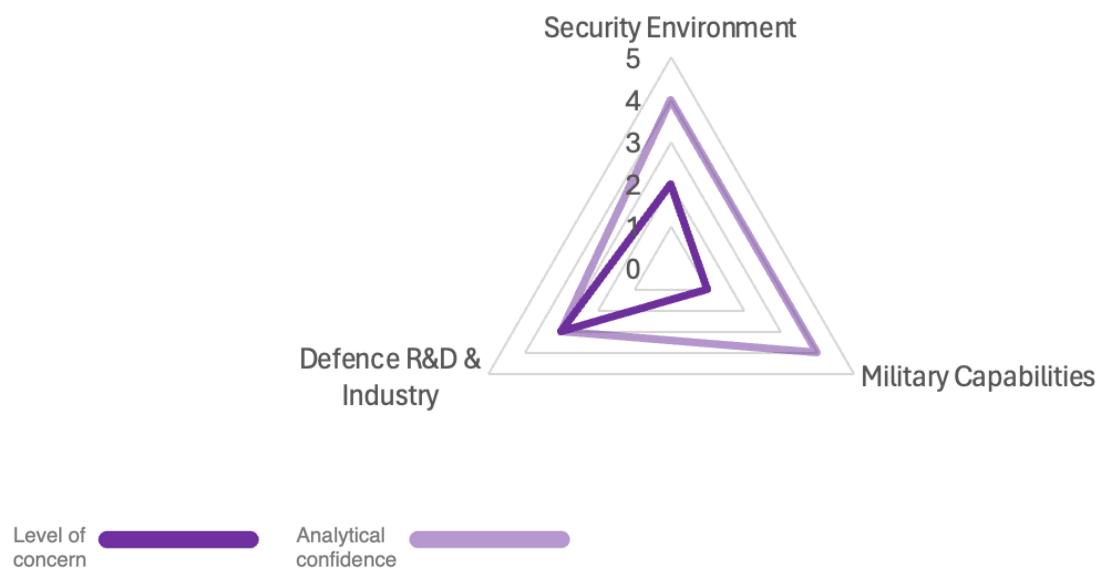
**Likelihood of Cyber Attacks: Probable.** Considering past incidents and the evolving digital landscape, cyber attacks against critical national infrastructure and digital platforms are likely.

# Armed Conflicts

Based on latest data as of: August 11, 2023

## Executive Summary

Ghana's security environment remains moderately stable, with a **low to moderate level of concern** for internal and external threats. The likelihood of large-scale military conflicts is **unlikely** due to Ghana's professional armed forces, stable democratic governance, and effective international partnerships. However, challenges such as sporadic communal violence, illegal small arms proliferation, and regional terrorism present **moderate** concerns. Ghana's strategic focus on peacekeeping, regional security, and gradual military modernization with international assistance, particularly from the United States and China, underscores a proactive stance towards maintaining national and regional stability.



# Security Environment Overview

Ghana's security environment, characterized by internal stability, proactive regional engagement, and strategic maritime security initiatives, presents a landscape of low to moderate concern with focused areas for vigilance. The government's commitment to addressing both internal and external security challenges, backed by empirical data and strategic investments, underscores Ghana's role as a stabilizing force in the region.

## Internal Security

Ghana's internal security landscape is generally stable, marked by a professional national police force and an effective judicial system. However, sporadic communal violence and ethnic tensions, particularly in the Northern and Volta regions,<sup>1</sup> pose moderate concerns. These tensions often arise from disputes over chieftaincy succession and jurisdictional control, with a moderate likelihood of leading to localized violence.

## Empirical Evidence Highlights

- Instances of communal violence are more likely to be resolved through negotiation and arbitration, indicating a robust mechanism for conflict resolution within the country.
- The government's proactive stance in addressing these disputes, coupled with Ghana's strong democratic institutions, contributes to a generally low to moderate level of concern regarding internal security.<sup>2</sup>

## Analysis

The likelihood of communal violence escalating into a broader conflict is considered **moderate**, given Ghana's history and effective governance structures. The level of concern for internal security remains **low to moderate**, reflecting confidence in the country's conflict resolution capabilities.

## Regional Security Threats

The stability of Ghana's regional security environment is occasionally threatened by cross-border crimes and potential terrorist infiltration from the Sahel region, representing an elevated concern. Ghana's participation in ECOWAS and its contribution to UN peacekeeping missions highlight its active role in regional security efforts.

### Empirical Evidence Highlights

- Ghana's dispute with Côte d'Ivoire over maritime boundaries, resolved through ITLOS in September 2017,<sup>3</sup> exemplifies the country's preference for diplomatic solutions to interstate conflicts.
- The establishment of 15 new Forward Operating Bases in the Northern Region, as reported in 2021,<sup>4</sup> underlines Ghana's strategic response to mitigate the risk of cross-border crimes and terrorist infiltration, with a budget increase to USD 353 million demonstrating financial commitment to this end.<sup>5</sup>

### Analysis

The threat of cross-border terrorism is considered **moderate**, given the increasing activity of terrorist groups in the broader Sahel region. The level of concern is elevated, necessitating continued vigilance and regional cooperation to safeguard Ghana's borders.

# Military Capabilities and Assistance

Ghana's military capabilities, supported by significant international assistance, are well-positioned to address both internal and regional security challenges. The strategic focus on modernization across all branches of the armed forces, coupled with beneficial international partnerships, ensures Ghana remains a key player in regional stability and peacekeeping efforts.

## Army

The Ghana Army plays a crucial role in national defense, peacekeeping, and internal security operations. With a focus on mobility and mechanization, the army lacks heavy weaponry but compensates through well-trained personnel and modern equipment.

### Empirical Evidence Highlights

- Recent procurements, including the acquisition of 70 Husky armored vehicles from the UK,<sup>6</sup> demonstrate a commitment to enhancing mechanized capabilities.
- The army's budget increased to USD 180 million in 2023,<sup>7</sup> indicating a strategic investment in personnel and operational readiness.

## Analysis

The Ghana Army demonstrates an overall **moderate** level of capabilities. The likelihood of successfully undertaking its primary roles is **likely**, given its current trajectory of modernization and professional development.

## Navy

The Ghana Navy maintains maritime security in the Gulf of Guinea, with a significant focus on anti-piracy operations and the protection of economic zones. Recent investments in naval capabilities underscore Ghana's commitment to maritime defense.

### Empirical Evidence Highlights

- The procurement of Flex fast patrol boats and the construction of new Forward Operating Bases enhance the navy's operational capabilities.<sup>8</sup>
- An increase in the naval budget to USD 87 million in 2023 reflects prioritization of maritime security, addressing piracy and illegal fishing threats effectively.<sup>9</sup>

### Analysis

The Ghana Navy's capabilities are steadily improving, with investments in new vessels and infrastructure **likely** enhancing its effectiveness in maritime security operations, especially in anti-piracy operations and EEZ protection. The level of concern for maritime threats is **moderate**, mitigated by strategic enhancements and international cooperation.

## Air Force

The Ghana Air Force supports the army and navy through transport, surveillance, and light attack capabilities. Its role in national and regional security, particularly in UN peacekeeping operations, is augmented by strategic procurements.

### Empirical Evidence Highlights

- Plans for acquiring six L-39NG aircraft to complement existing fleets indicate a focus on expanding air capabilities.<sup>10</sup>
- A budget allocation of USD 39 million in 2023, with specific emphasis on procurement and operational enhancement, highlights the air force's modernization trajectory.<sup>11</sup>

### Analysis

The Ghana Air Force's capabilities are **moderate**, with future procurement plans being **probable** to bolster its operational readiness. Concerns regarding air operational effectiveness remain **moderate**, pending the realization of ongoing modernization efforts.

## Military Assistance

Ghana's strategic partnerships, notably with the United States and China, play a significant role in its defense sector's development. This assistance ranges from donations of equipment to funding for infrastructure projects.

### Empirical Evidence Highlights

- The United States has provided military trucks and funded military training and education, with IMET funding allocated for FY2023.<sup>12</sup>
- China's contributions include logistical equipment, construction projects, and the donation of patrol boats, enhancing Ghana's military infrastructure and capabilities.<sup>13</sup>

### Analysis

The impact of military assistance on Ghana's defense capabilities is **likely** to be effective, with external support playing a crucial role in the nation's military modernization efforts. The level of concern regarding Ghana's ability to maintain and enhance its defense posture, with the aid of international assistance, is **low**.

## Defence R&D and Industry

While Ghana faces challenges in establishing a robust defence R&D and industrial base, strategic initiatives and international collaborations offer pathways to gradual improvement. The focus on developing small-scale industries for logistical support and potential expansion into broader manufacturing sectors underscores a commitment to enhancing self-sufficiency and contributing to broader socio-economic development goals. The realization of these ambitions will depend on sustained investment, capacity building, and leveraging international partnerships to overcome existing limitations.

## Defence R&D Capabilities

Ghana's defence R&D efforts are primarily focused on addressing immediate logistical and maintenance needs rather than developing new technologies. The country does not have the financial or technical resources to pursue significant defence-related production or advanced research and development activities.

### Empirical Evidence Highlights

- The establishment of the Research and Defence Cooperation Directorate in 2012 signifies a foundational step towards organizing and potentially expanding Ghana's defence R&D efforts.<sup>14</sup>
- The current lack of significant investment in R&D, coupled with the absence of advanced technological infrastructure, underscores the challenges facing Ghana in enhancing its defence R&D capabilities.

### Analysis

The capability for advanced defence R&D in Ghana is **low**, with existing efforts focused on pragmatic and immediate needs. The level of concern for the development of a robust R&D sector in the defence industry is **moderate**, reflecting the importance of international partnerships in bridging the capability gap.

## Defence Industry Developments

Ghana aims to develop its defence industry to support the Ghana Armed Forces and stimulate socio-economic development. Initiatives such as the Ghana Defence Industries Holding Company (DIHOC) represent strategic steps toward achieving greater self-sufficiency in defence logistics and manufacturing.

### Empirical Evidence Highlights

- DIHOC's establishment and its flagship investment in a shoe factory in Kumasi illustrate initial efforts to localize defence manufacturing. Plans to expand into garments and agro-processing indicate a broader vision for the defence industry.
- The lack of official defence manufacturing facilities and the reliance on artisanal blacksmiths for small arms production highlight the challenges and potential areas for industrial development within the defence sector.<sup>15</sup>

### Analysis

The likelihood of developing a self-reliant defence industry in Ghana is **moderate**, contingent upon sustained investment and the cultivation of technical expertise. The level of concern regarding the current state of the defence industry is **moderate**, with strategic initiatives indicating potential for growth but also reflecting the need for comprehensive support and collaboration.

## Strategic Goals and International Collaboration

Ghana's strategic goals for its defence industry emphasize the importance of civil-military collaboration for socio-economic development. International partnerships, particularly in technology transfer and joint ventures, are crucial for realizing these ambitions.

### Empirical Evidence Highlights

- Ghana's focus on expanding its defence industry into various sectors demonstrates an awareness of the dual-use potential of military and civilian technologies.
- The reliance on international military assistance, as seen in the contributions from the United States and China, provides a foundation for future collaboration in defence manufacturing and R&D.

### Analysis

The potential for Ghana to achieve its strategic goals in defence R&D and industry, through international collaboration, is **moderate**. The concern for ensuring the success of these initiatives remains **moderate**, highlighting the need for targeted investments and partnerships that align with Ghana's long-term defence and development objectives.

# Strategic Assessments

Ghana's strategic position in West African security is defined by its dedication to peacekeeping, military modernization, and contributions to regional stability. Despite challenges, Ghana's defense sector is evolving, supported by international partnerships that enhance its military capabilities.

## Military Modernization

Ghana is modernizing its military to better address security challenges, with significant investments in naval and air capabilities. However, developing a self-reliant defense industry remains a long-term goal. International assistance is crucial for Ghana's defense sector evolution, emphasizing the need for continued partnerships.

## Internal Security

Ghana maintains internal security through effective conflict resolution and security operations. Yet, small arms proliferation and potential regional conflict spillover require ongoing attention. Strengthening law enforcement and promoting social cohesion are essential for enduring stability.

## Regional Security Collaboration

Ghana's engagement in regional peacekeeping underscores its importance to West African security. Facing terrorism and maritime piracy, Ghana advocates for a unified regional response, emphasizing the necessity of intelligence sharing and cooperative security strategies.

# Recommendations for Canada

Canada's support can significantly bolster Ghana's security and defense efforts, aligning with mutual interests in West African stability.

## **Enhance Bilateral Cooperation**

Canada should expand military cooperation, offering training, joint exercises, and technical assistance to support Ghana's defense modernization, especially in maritime security and air mobility.

## **Security Sector Reform (SSR) and Training**

Canada can provide SSR expertise to Ghana, focusing on professional development in human rights, rule of law, and civil-military relations, enhancing the efficacy of Ghana's security forces.

## **R&D Collaboration**

Encouraging R&D partnerships between Canadian and Ghanaian defense sectors can foster technological advancements and innovation, addressing Ghana's R&D challenges.

## **Peacekeeping and Regional Security**

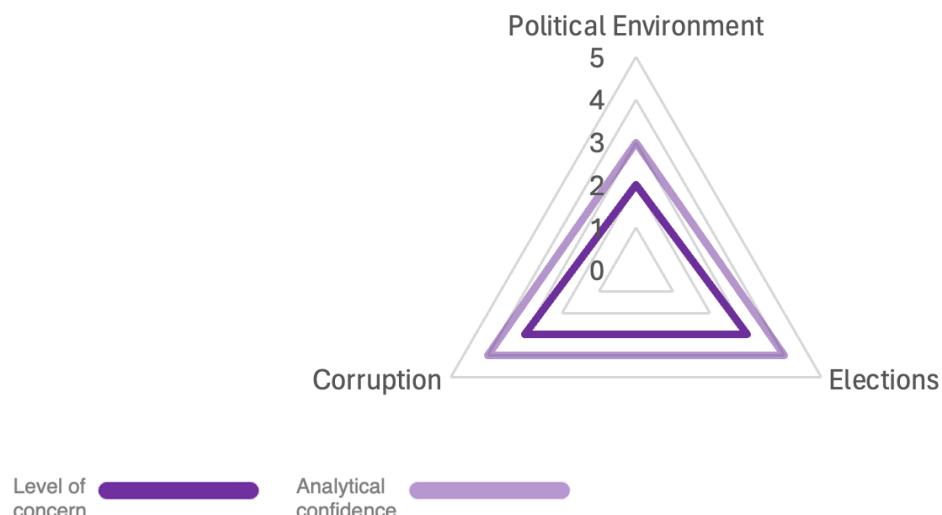
Supporting Ghana's peacekeeping roles through logistical aid, equipment provision, and training can strengthen regional security efforts, benefiting West African stability.

# Political Stability

Based on latest data as of: November 22, 2023

## Executive Summary

Ghana exhibits a relatively stable political environment within a challenging regional context, characterized by its democratic governance, peaceful elections, and proactive anti-corruption measures. Despite this stability, the country faces political risks associated with upcoming elections, the potential for protests, regional security threats, and corruption. The likelihood of maintaining political stability through the 2024 elections is **likely**, with a **moderate** level of concerns over election-related unrest and **elevated** concern regarding regional security vulnerabilities. The risk of significant corruption impacting governmental effectiveness is **moderate**, with ongoing efforts to combat this issue showing **moderate** level of successes.



# Political Environment Overview

Ghana's political environment is marked by its longstanding democratic governance and a history of peaceful transitions of power. Since the return to civilian rule in 1992, Ghana has conducted several rounds of elections that have been largely free, fair, and peaceful. This tradition of democracy is underpinned by strong institutions, an active civil society, and a free press. However, the country faces challenges such as political patronage, corruption, and regional disparities that could affect its political stability.

## Empirical Evidence Highlights

- Democratic Traditions: Ghana ranks highly on the Freedom House Global Freedom Score, with a score of 80/100 in 2023,<sup>16</sup> indicating a status of "Free". This score favorably reflects Ghana's commitment to political rights and civil liberties.
- Election History: The 2020 national elections demonstrated Ghana's commitment to democratic processes. President Nana Akufo-Addo of the New Patriotic Party (NPP) won re-election, and the legislative elections resulted in a near tie between the NPP and the National Democratic Congress (NDC), showcasing the competitive nature of Ghana's political landscape.<sup>17</sup>
- Constitutional Limits: The Ghanaian constitution limits presidents to two terms, necessitating a change in candidacy for the incumbent NPP in the upcoming 2024 presidential election. This constitutional provision has facilitated peaceful transitions of power and ensured political renewal.

## Analysis

### **Likelihood of Continued Political Stability:**

The likelihood of Ghana maintaining its political stability through the 2024 elections is **probable**. Ghana's robust democratic framework, characterized by regular, competitive elections and strong political institutions, underpins this assessment. Furthermore, the precedent of peaceful transitions of power enhances confidence in the country's political stability.

### **Level of Concern:**

Despite the overall positive outlook, there are **moderate** concerns regarding the political environment and stability. These concerns are primarily related to the potential for election-related unrest, the influence of political patronage and corruption on governance, and the challenges posed by regional disparities. The upcoming 2024 elections will be a critical test of Ghana's political stability, especially considering the constitutional limit on the president's tenure and the competitive nature of Ghanaian politics.

### **Impact of Regional Security Threats:**

While Ghana itself is relatively stable, the regional security situation, with threats from non-state armed groups in neighboring countries, poses an **elevated** concern for Ghana's political stability. The potential for spillover effects or the influence of these groups on Ghana's northern border regions could impact the broader political environment.

# Upcoming Elections and Political Dynamics

Ghana's next presidential and legislative elections in 2024. With the incumbent President Nana Akufo-Addo reaching the constitutional limit of two terms, the New Patriotic Party (NPP) will introduce a new candidate, signaling a potential shift in the country's political dynamics. The opposition NDC has nominated several prominent figures, including former President John Mahama, as potential candidates, setting the stage for a highly competitive electoral process.

## Empirical Evidence Highlights

- Constitutional Term Limits: The Ghanaian constitution restricts the presidency to two terms, necessitating a change of candidates for the NPP and potentially favoring the opposition due to the cyclical nature of Ghanaian electoral politics.
- Candidate Nomination: Former President John Mahama, alongside other notable figures such as former Finance Minister Kwabena Duffuor and Kojo Bonsu, has been nominated as potential candidates for the NDC, indicating a strong pool of contenders for the upcoming election.<sup>18</sup>
- Historical Trend of Anti-Incumbency: Analysis of electoral trends since 1992 shows a pattern of anti-incumbent sentiment every eight years, suggesting a high likelihood of an NDC victory in the 2024 presidential election based on historical patterns and the constitutional term limit for the current president.<sup>19</sup>

## Analysis

### **Likelihood of Peaceful Elections:**

The likelihood of Ghana maintaining its tradition of peaceful elections in 2024 is **moderate**.

Ghana's history of democratic engagement and institutional strength supports a peaceful electoral process. However, the competitive nature of the upcoming elections, coupled with the change in presidential candidates for the NPP, introduces an element of uncertainty that warrants careful monitoring.

### **Level of Concern for Electoral Dynamics:**

The level of concern regarding the electoral dynamics and potential for unrest is **moderate**.

While Ghana has a commendable record of peaceful elections, the heightened political competition, especially with the introduction of new presidential candidates and the potential for closely contested results, could lead to tensions and protests. Ensuring transparency, fairness, and security in the electoral process will be critical to mitigating these risks.

### **Impact of Political Competition on Stability:**

The intense political competition, particularly between the NPP and NDC, poses a **moderate** concern for Ghana's political stability in the run-up to and aftermath of the 2024 elections. The potential for election-related demonstrations and the historical trend of anti-incumbency heighten the need for effective electoral management and conflict resolution mechanisms to uphold stability.

# Corruption and Governance

Corruption remains a significant challenge in Ghana, affecting various sectors of governance and public service delivery. Despite efforts to combat corruption through legal frameworks and institutional reforms, the persistence of corruption, particularly in the public sphere, undermines trust in government and hampers economic development. The implementation of a national anti-corruption strategy and the activities of anti-corruption institutions highlight the government's commitment to addressing this issue, yet the effectiveness of these measures is subject to ongoing scrutiny.

## Empirical Evidence Highlights

- Transparency International Corruption Perceptions Index (CPI): Ghana's score on the 2023 TI CPI remained steady at 43/100, mirroring its 2022 score. This consistency indicates a stable yet unsatisfactory level of perceived public sector corruption, placing Ghana in the middle tier of global rankings.<sup>20</sup>
- Public Sector Corruption: The Ghanaian police, along with water and electrical services, are perceived as the most corrupt sectors. The motivations for paying bribes include expediting service delivery and avoiding bureaucratic delays, reflecting systemic issues within the administration.<sup>21</sup>
- Anti-Corruption Measures: The establishment of the Commission on Human Rights and Administrative Justice (CHRAJ) and the Economic and Organised Crime Office (EOCO), along with the implementation of the National Anti-Corruption Action Plan (NACAP), demonstrates Ghana's structural approach to combating corruption.<sup>22</sup>

## Analysis

### **Likelihood of Significant Improvements in Combating Corruption:**

The likelihood of significant improvements in combating corruption in the near term is **moderate**. While the government has implemented various strategies and institutions aimed at reducing corruption, the deep-rooted nature of this issue and ongoing challenges in enforcement and public engagement present considerable obstacles to rapid progress.

### **Level of Concern for Corruption Impact on Governance:**

The level of concern regarding the impact of corruption on governance and public trust is **elevated**. Corruption not only undermines the effectiveness of government services and initiatives but also erodes public confidence in institutions, posing a risk to social cohesion and economic stability.

### **Impact of Anti-Corruption Efforts on Public Perception:**

Despite ongoing efforts to address corruption, the general trend in Ghana's CPI scores suggests that public perception of corruption remains a significant challenge. The **moderate** success of anti-corruption strategies underscores the need for continued reform, public engagement, and strengthened enforcement mechanisms to enhance transparency and accountability.

## Strategic Assessments

Ghana's political landscape is characterized by a robust democratic tradition and relative stability in a region often marked by instability and governance challenges. The constitutional limitation on presidential terms promotes political renewal and has been a cornerstone in preventing the entrenchment of power. The peaceful transitions of leadership following elections are a testament to the country's strong democratic institutions and political maturity. However, the upcoming 2024 elections present a critical juncture, with the ruling NPP required to nominate a new candidate due to term limits, potentially leveling the playing field for the opposition NDC.

Historically, Ghana has demonstrated a pattern of anti-incumbent sentiment, which, coupled with the constitutional mandate for leadership change, suggests a likely shift in government. This presents both opportunities and challenges for Ghana's political stability. The potential for peaceful protests and demonstrations in response to election outcomes, economic conditions, or corruption scandals underscores the need for effective governance and responsive leadership.

Regional security threats, particularly from non-state armed groups in neighboring countries, further complicate Ghana's security landscape. While Ghana has managed to avoid direct involvement, the porous nature of its northern border and regional instability pose latent threats. Moreover, corruption remains a significant concern, with perceptions of graft in the public sector potentially undermining trust in institutions and economic development.

Given these dynamics, Ghana's political stability hinges on the successful conduct of the 2024 elections, the management of regional security threats, and continued efforts to combat corruption. The role of international partners, including Canada, in supporting Ghana through these challenges is pivotal.

# Recommendations for Canada

Canada's engagement with Ghana should be multifaceted, focusing on supporting democratic processes, enhancing security cooperation, and contributing to anti-corruption efforts.

Specifically:

## **Support for Democratic Institutions**

Canada should bolster Ghana's electoral commission and civil society organizations to enhance electoral transparency and fairness. Initiatives could include technical assistance, capacity building, and monitoring missions to support the integrity of the 2024 elections. Promoting dialogue between political parties and fostering a culture of peaceful political competition are also vital.

## **Anti-Corruption Initiatives**

Canada can play a significant role in strengthening Ghana's anti-corruption efforts through knowledge exchange, support for legal and institutional reforms, and capacity building for anti-corruption agencies. Promoting transparency and accountability in public sector management, including the extractive industries, should be a priority. Furthermore, engaging in dialogue on best practices in governance and public administration could provide valuable insights for Ghanaian officials.

## **Economic and Development Assistance**

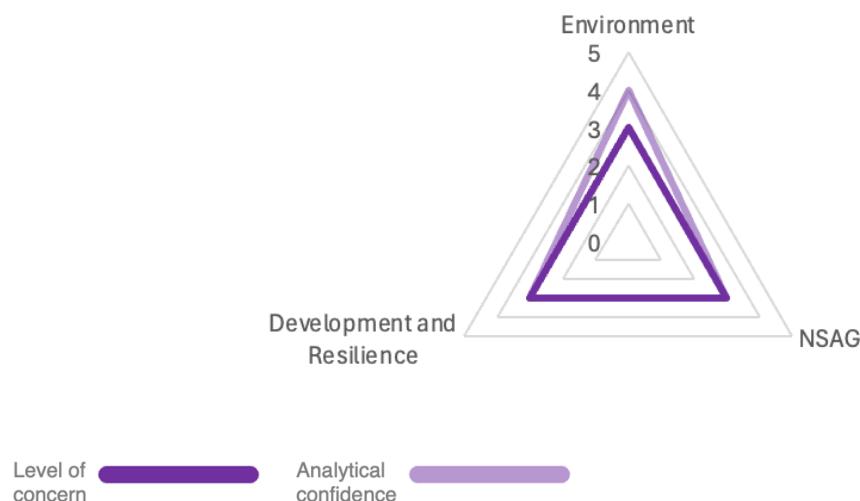
Aligning Canada's development assistance with Ghana's priorities, particularly in sectors vulnerable to corruption such as infrastructure and public services, could have a significant impact. Supporting economic development initiatives that promote inclusivity and reduce poverty will also help address some of the underlying drivers of political discontent.

# Infrastructure Security

Based on latest data as of: November 22, 2023

## Executive Summary

Ghana's infrastructure is confronted with significant risks from environmental threats and attacks by non-state armed groups (NSAGs), amidst a backdrop of ambitious development projects and strategic plans aimed at bolstering the nation's infrastructure resilience and capacity. The World Bank has classified Ghana's infrastructure as "highly vulnerable" to climate change, with recent events underscoring the immediacy of these challenges. Concurrently, the country has witnessed attacks on its critical national infrastructure (CNI), further complicating the risk landscape. Despite these challenges, Ghana's commitment to infrastructure development, evidenced by substantial budget allocations and a comprehensive infrastructure development plan, offers a pathway to mitigating these risks. The overall security environment for Ghana's infrastructure is assessed with a **moderate** level of concern, with climate change impacts being **likely** to occur and NSAG attacks being **probably**, given the historical precedent and regional dynamics.



# Environmental Threats to Infrastructure

Ghana's infrastructure faces significant vulnerabilities due to climate change, impacting its resilience and capacity to support sustainable development. The World Bank's Climate Risk Country Profile for Ghana highlights the "high vulnerability" of the nation's infrastructure to environmental threats, including floods, droughts, and the consequences of rising temperatures. These environmental challenges pose a direct threat to critical infrastructure sectors such as water, energy, transport, and telecommunications, necessitating urgent and comprehensive mitigation and adaptation strategies.

## Empirical Evidence Highlights

In October 2023, Ghana experienced severe environmental stress when heavy rainfall triggered widespread flooding along the banks of the Volta River, notably affecting the Volta Region's South, Central, and North Tongu districts. This event caused the overflow of the Akosombo and Kpong hydroelectric dams, leading to the displacement of approximately 25,000 people, disruptions to essential services, and prolonged power outages. Although local media sources reported no large-scale damages to infrastructure, the incident underscores the immediate and tangible impacts of climate change on Ghana's infrastructure and the well-being of its population. The Ghanaian meteorological department's forecast of more rain and unpredictable weather events in the coming months further exacerbates the concern for infrastructure resilience against environmental threats.<sup>23</sup>

## Analysis

### **Analytical Likelihood of Future Environmental Threats:**

The likelihood of future environmental threats to Ghana's infrastructure due to climate change is **likely**. Given the recent history of climate-related incidents and the scientific consensus on the increasing frequency and severity of such events, Ghana's infrastructure is at a **significant** risk of experiencing similar or worse impacts in the near future.

### **Levels of Concern for Infrastructure Resilience Against Climate Impacts:**

The level of concern for the resilience of Ghana's infrastructure against climate impacts is **elevated**. The recent flooding event, coupled with the forecast of continued unpredictable weather patterns, highlights the urgent need for enhanced infrastructure planning, construction, and maintenance practices that incorporate climate resilience measures. The potential for climate-induced disasters to disrupt essential services, displace communities, and hinder economic development places environmental threats at the forefront of infrastructure risk considerations in Ghana.

### **Strategic Importance of Climate Adaptation and Mitigation Measures:**

Addressing the environmental threats to Ghana's infrastructure requires a strategic approach that integrates climate adaptation and mitigation measures into national infrastructure planning and development processes. Investments in climate-resilient infrastructure, enhanced early warning systems, and community-based adaptation strategies are critical to reducing vulnerability and enhancing the capacity of infrastructure systems to withstand and recover from climate-induced impacts.

# NSAG Attacks on Infrastructure

Ghana's CNI has increasingly become a target for NSAGs, posing a nuanced security risk amidst the country's broader stable environment. While Ghana enjoys relative peace compared to some of its neighbors, the recorded instances of attacks on infrastructure by NSAGs highlight a security vulnerability that demands attention. These attacks, ranging from armed robberies and vandalism to riot-related incidents, not only threaten the physical integrity of infrastructure assets but also undermine public confidence and disrupt essential services.

## Empirical Evidence Highlights

Over the past three years, Jane's has documented 12 attacks targeting Ghana's CNI. These incidents have varied in nature and impact, including:<sup>24</sup>

- May 2022: Unidentified assailants vandalized Benya FM radio station at Elmina, Central Region, potentially in response to discussions on local corruption. The attack on the morning show host underscores the risks faced by communications infrastructure.
- April 2022: An attempted armed robbery at the Yokwa gas filling station in Akropong, Eastern Region, resulted in an exchange of gunfire, demonstrating the vulnerability of energy infrastructure to criminal activities.
- July 2020: Metro Mass Transit workers attacked a deputy managing director over salary disputes in Kumasi, Ashanti Region, reflecting how internal disputes can escalate to physical attacks on transport infrastructure.

Notably, on 25 September 2020, suspected Western Togoland Restoration Front (WTRF) separatists launched a bold attack on the Aveyime-Bator police station, indicating the potential for politically motivated attacks on state infrastructure. These incidents collectively highlight the multifaceted nature of the threat landscape facing Ghana's infrastructure.

## Analysis

### **Analytical Likelihood of NSAG Attacks on Infrastructure:**

The likelihood of NSAG attacks on Ghana's infrastructure is assessed as **moderate**. Given the historical precedence and the evolving security dynamics within the region, infrastructure assets, particularly those related to energy, communications, and public services, remain at risk of being targeted for a variety of motives, including theft, political statements, or disruption.

### **Levels of Concern for Infrastructure Security Against NSAG Activities:**

The level of concern for the security of Ghana's infrastructure against NSAG activities is **moderate**. While Ghana's security apparatus is capable of responding to and mitigating such threats, the potential for these attacks to disrupt essential services, cause economic damage, and instill public fear warrants continued vigilance and proactive security measures.

### **Strategic Importance of Enhancing Infrastructure Protection:**

Strengthening the protection of Ghana's infrastructure against NSAG attacks is of strategic importance. This involves not only physical security enhancements but also intelligence gathering, community engagement to foster public vigilance, and regional cooperation to address cross-border security threats. Investing in surveillance technologies, improving response protocols, and fostering public-private partnerships for infrastructure security are crucial steps in building a resilient infrastructure network capable of withstanding NSAG-related threats.

# Infrastructure Development and Resilience

Ghana's commitment to bolstering its infrastructure is evident in the substantial allocation of resources and strategic planning aimed at enhancing the nation's development and resilience. The government's dedication is highlighted through its ambitious budget allocation and the implementation of significant projects across various sectors, including energy, transportation, and digital inclusion. These efforts are encapsulated in the Ghana Infrastructure Plan (GIP) 2018–2047, which outlines a comprehensive approach to addressing the country's infrastructure needs over the next three decades.

## Empirical Evidence Highlights

- **Budget Allocation:** In 2023, Ghana allocated GHS10.24 billion to the infrastructure sector, representing 12.26% of the country's GDP. This allocation marks the highest commitment to infrastructure development in the last three years, signaling the government's recognition of infrastructure as a critical driver of economic growth and development.<sup>25</sup>
- **Major Projects:** Key projects such as the expansion of the Kumasi and Tamale airports, the Ghana Nuclear Power Programme, and the Ghana Rural Telephony and Digital Inclusion Project illustrate the scope and diversity of Ghana's infrastructure initiatives. These projects aim to enhance connectivity, energy security, and digital access, thereby supporting Ghana's broader development objectives.
- **Ghana Infrastructure Plan (GIP):** The GIP 2018–2047<sup>26</sup> sets forth a visionary framework for infrastructure development, targeting key sectors such as energy, transport, water, ICT, and housing. With an estimated investment requirement of USD1.1 trillion, the plan underscores the scale of ambition and the need for strategic investments and partnerships to realize these goals.

## Analysis

### **Analytical Likelihood of Achieving Infrastructure Development Goals:**

The likelihood of Ghana achieving its ambitious infrastructure development goals as outlined in the GIP is **probable**. While the government's commitment is clear, the realization of these goals will depend on various factors, including the availability of financial resources, effective project implementation, and the ability to navigate environmental and security challenges.

### **Levels of Concern for Infrastructure Resilience:**

The level of concern regarding the resilience of Ghana's infrastructure is **moderate to elevated**. Environmental threats and security risks pose significant challenges to infrastructure integrity and functionality. The recent flooding events and NSAG activities highlight the vulnerability of existing and planned infrastructure, underscoring the need for enhanced resilience measures.

### **Strategic Importance of Infrastructure Resilience Measures:**

Incorporating resilience measures into infrastructure planning and development is of strategic importance. This includes adopting climate-resilient construction standards, enhancing security protocols for critical assets, and leveraging technology for disaster risk management and response. Strengthening the resilience of Ghana's infrastructure is crucial for safeguarding developmental gains, ensuring service continuity, and fostering sustainable economic growth.

## Strategic Assessments

Ghana's infrastructure faces a complex array of challenges and opportunities, shaped by both environmental threats and human activities. The nation's susceptibility to climate change, as evidenced by the World Bank's assessment, places its infrastructure at high risk from natural disasters such as floods and droughts. The 2023 flooding along the Volta River underscores the immediate impacts of these environmental threats, highlighting the vulnerability of critical infrastructure and the need for robust resilience and adaptation strategies. Additionally, the threat to CNI from NSAG attacks, including armed robberies and vandalism, further complicates the security landscape.

Despite these challenges, Ghana has demonstrated a strong commitment to infrastructure development, allocating a significant portion of its GDP to this sector in 2023. The emphasis on major projects like the expansion of airports, the Ghana Nuclear Power Programme, and digital inclusion initiatives reflects a strategic approach to enhancing national infrastructure. The GIP 2018–2047 and the active engagement in Public-Private Partnerships (PPP) indicate a long-term vision for infrastructure improvement and diversification.

The strategic importance of Ghana's infrastructure development and its challenges cannot be understated, particularly in the context of regional security and economic growth. The potential for climate-induced disasters and the threat from NSAGs require a multifaceted response that encompasses risk mitigation, capacity building, and international cooperation.

# Recommendations for Canada

In light of the strategic assessments, Canada can play a pivotal role in supporting Ghana's efforts to bolster its infrastructure resilience and address the multifaceted challenges it faces.

Recommendations for Canadian engagement include:

## **Climate Resilience and Adaptation Support**

Canada should consider providing technical assistance and funding support for climate resilience projects in Ghana. This could involve sharing expertise in flood management, drought mitigation strategies, and the development of resilient infrastructure. Initiatives could focus on areas most vulnerable to climate impacts, as identified by the World Bank's assessments.

## **Security Enhancement for Critical Infrastructure**

Given the threats to Ghana's CNI from NSAGs, Canada could offer security technology, training, and intelligence-sharing mechanisms to help protect critical assets. This could include support for enhancing cybersecurity measures for digital infrastructure and physical security enhancements for key facilities.

## **Infrastructure Development Collaboration**

Leveraging Canada's experience in infrastructure development, PPP models, and sustainable urban planning, there is an opportunity to collaborate on major infrastructure projects highlighted in Ghana's budget and development plan. Canadian firms could contribute to the expansion of airports, the implementation of the Ghana Nuclear Power Programme, and digital inclusion projects, fostering economic growth and development.

## **Capacity Building and Best Practices Exchange**

Canada can facilitate exchanges and capacity-building programs for Ghanaian officials and engineers focused on infrastructure planning, project management, and maintenance. This could help enhance Ghana's own capabilities in managing and sustaining its infrastructure development efforts.

## **Support for Regional Infrastructure Initiatives**

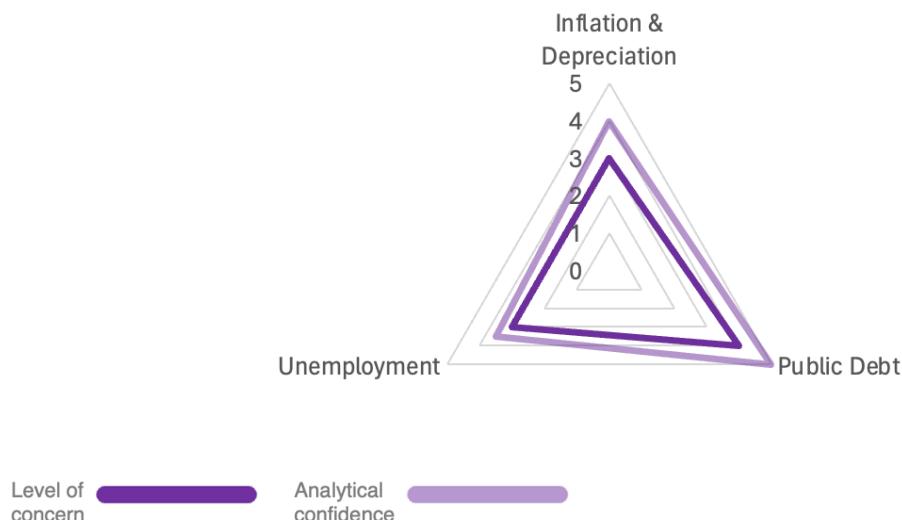
Recognizing the regional dimension of infrastructure security and development, Canada could encourage and support Ghana's participation in regional infrastructure and energy projects. This would not only bolster Ghana's infrastructure resilience but also contribute to regional stability and economic integration.

# Economic Security

Based on latest data as of: November 22, 2023

## Executive Summary

Ghana's economy, as of 2023, faces significant challenges marked by high inflation rates, elevated debt levels, and a depreciating currency, alongside structural vulnerabilities such as unemployment and reliance on natural resource exports. The inflation rate standing at 39.30% and gross debt reaching 85.68% of GDP in 2023 highlight the pressing economic risks. However, Ghana's strategic economic institutions, natural resource production, and recent IMF engagements suggest a pathway towards stability. This report assesses the likelihood of economic risks as **likely** to continue in the short to medium term, with a **high** level of concern due to the potential impacts on social stability and development progress. Strategic recommendations for Canada focus on leveraging bilateral trade and investment opportunities while supporting Ghana's economic stabilization and growth efforts.



# Inflation and Currency Depreciation

Ghana faces a critical economic situation characterized by high inflation and significant currency depreciation, posing substantial risks to economic stability and development. Addressing these challenges requires a comprehensive approach that includes tightening fiscal and monetary policies, enhancing productivity, diversifying the economy, and seeking international cooperation and assistance. The situation calls for urgent attention from Ghanaian policymakers and international partners to stabilize the economy and lay the groundwork for sustainable economic growth.

## Empirical Evidence Highlights

Ghana has been grappling with significant economic challenges, notably high inflation and currency depreciation. In 2023, the inflation rate reached a staggering 39.30%, indicating a severe cost of living and pricing pressure across the economy. This surge in inflation is a continuation of a troubling trend, with the yearly inflation rate in September 2022 hitting 37.2%, the highest since 2001. Concurrently, the Ghanaian cedi has experienced a dramatic decline in value, losing 60% of its value against the US dollar since the end of 2021. As of November 2023, the exchange rate stood at 1 USD = GHS 11.91, marking the cedi as one of the poorest-performing currencies globally in October 2022. This depreciation is attributed to a growing demand for foreign exchange coupled with an insufficient supply, a situation exacerbated by macroeconomic instabilities.<sup>27</sup>

## Analysis

### **Likelihood of Continued Inflation and Currency Depreciation:**

The ongoing macroeconomic challenges, including a significant trade deficit and reliance on importation for essential goods, combined with external debts, suggest that inflation pressures and currency depreciation are **likely** to persist in the short to medium term. The Bank of Ghana's attempts to stabilize the currency through policy interventions have so far not reversed the trend.

### **Impact on Economic Stability:**

The high inflation rate erodes purchasing power, affecting households and businesses by increasing the cost of living and operating. Currency depreciation further complicates the economic landscape by making imports more expensive, contributing to inflationary pressures, and potentially leading to a vicious cycle of inflation and depreciation. Such economic conditions can deter foreign investment, affect the country's debt servicing capacity, and challenge economic growth prospects. Therefore, the concern is **elevated**.

### **Strategic Importance of Addressing Inflation and Currency Depreciation:**

Mitigating inflation and stabilizing the currency are paramount for Ghana's economic stability. Effective monetary policies, increased productivity in key sectors, diversification of the economy, and bolstering foreign exchange reserves are crucial steps toward achieving economic stability. International partnerships and financial assistance, including support from the IMF, can provide temporary relief and support structural reforms aimed at addressing underlying economic vulnerabilities.

# Public Debt

Ghana's high public debt level presents a formidable challenge to its economic management and development objectives. The likelihood of facing debt sustainability issues is high, necessitating immediate and strategic interventions in debt management and fiscal discipline. Efforts to stabilize the debt trajectory, coupled with policies aimed at stimulating economic growth and enhancing revenue collection, are crucial. International cooperation and support, alongside comprehensive fiscal reforms, are imperative to navigate the complexities of debt management and secure Ghana's economic future.

## Empirical Evidence Highlights

Ghana's economic landscape in recent years has been significantly characterized by its escalating public debt. As of 2023, the gross debt-to-GDP ratio in Ghana stood at an alarming 85.68%, underscoring the gravity of the nation's fiscal challenges. This figure represents a critical threshold, signaling potential distress in managing national debt sustainably without compromising economic growth and financial stability. The burgeoning debt levels have implications for fiscal policy, interest rates, and Ghana's overall economic health.<sup>28</sup>

# Analysis

## **Likelihood of Debt Sustainability Issues:**

**Certainly:** The current gross debt-to-GDP ratio of 85.68% in 2023 places Ghana in a precarious fiscal position, with a high likelihood of encountering debt sustainability issues. Such a high debt ratio exerts pressure on the government's budget through increased interest payments, potentially crowding out critical public investments in infrastructure, education, and health services. The situation is compounded by Ghana's currency depreciation, which inflates the local currency value of foreign-denominated debt.

## **Impact on Fiscal Policy and Economic Growth:**

**Elevated Concern:** The elevated debt levels present significant concerns for Ghana's fiscal policy flexibility and economic growth prospects. High debt servicing costs limit fiscal space, reducing the government's ability to respond to economic shocks or invest in growth-promoting initiatives. Moreover, the potential for increased borrowing costs can deter private investment, further stifling economic expansion.

## **Strategic Importance of Debt Management:**

Managing Ghana's public debt is of strategic importance to ensuring the country's economic stability and sustainable development. Implementing sound debt management strategies, such as extending debt maturities, optimizing the debt portfolio to reduce foreign currency exposure, and enhancing domestic revenue mobilization, are critical steps. Additionally, engaging with international financial institutions for debt relief or restructuring could provide temporary relief and support for implementing necessary fiscal and structural reforms.

# Unemployment

The challenges presented by unemployment in Ghana, particularly youth unemployment, necessitate a multifaceted and strategic response. The moderate to likely risk of fluctuations in unemployment rates, especially under current economic pressures, highlights the need for proactive measures to enhance labor market resilience and inclusivity. By focusing on education, skill development, and job creation, alongside broader economic reforms, Ghana can address the critical issue of unemployment and lay the foundation for a more prosperous and stable future. Collaboration with international partners, including Canada, could provide additional resources and expertise to support these efforts, aligning with mutual interests in promoting economic development and stability in the region.

## Empirical Evidence Highlights

Ghana's labor market dynamics present a mixed picture, with the general unemployment rate reported at 3.92% in 2021. This relatively low figure, however, masks the more pressing issue of youth unemployment, which stood at 7.96% in the same year. The discrepancy between the general and youth unemployment rates underscores the specific challenges faced by young Ghanaians, including mismatches between educational outcomes and labor market needs, limited job creation in key sectors, and barriers to entry into the workforce.<sup>29</sup>

## Analysis

### **Likelihood of Fluctuations in Unemployment Rates:**

**Probable to Likely:** The unemployment rate, especially among youth, is subject to fluctuations influenced by broader economic conditions, government policy effectiveness, and the global economic environment. Given the current economic pressures, including high inflation and public debt, there is a moderate to high likelihood that unemployment, particularly youth unemployment, could rise if these conditions persist or worsen.

### **Impact on Economic Growth and Social Stability:**

**Elevated Concern:** High levels of unemployment, and youth unemployment in particular, pose significant concerns for economic growth and social stability. Unemployment not only limits individual economic opportunities and increases vulnerability to poverty but also can lead to broader social and economic issues, including reduced consumer spending, decreased tax revenues, and increased demand for social services. For youth, prolonged unemployment or underemployment can result in a loss of skills and disillusionment with the economic system, potentially fueling social unrest.

### **Strategic Importance of Addressing Unemployment:**

Addressing unemployment in Ghana is of strategic importance for the country's economic and social development. Effective strategies may include investing in education and training programs aligned with market demands, fostering entrepreneurship and small business development, and implementing policies that encourage job creation in emerging sectors. Additionally, targeted interventions to support youth employment can help harness Ghana's demographic dividend, contributing to sustained economic growth and social cohesion.

## Strategic Assessments

The economic landscape of Ghana presents a tapestry of both challenges and opportunities, marked by significant inflation rates, a concerning level of public debt, and a dynamic yet vulnerable employment sector. With inflation peaking at 39.30% in 2023 and public debt reaching 85.68% of GDP, the economic stability of Ghana is under considerable strain. These factors, compounded by currency depreciation, where the Ghanaian cedi has seen a substantial decline in value against the US dollar, present immediate hurdles to sustainable economic growth and development. Conversely, Ghana's rich natural resources and a robust defense budget underscore potential avenues for economic revitalization and security enhancement.

For Canada, these elements of Ghana's economy suggest a nuanced approach towards bilateral and multilateral engagement. The elevated inflation and public debt levels in Ghana necessitate a strategic dialogue centered on fiscal stability and debt management. Canada, with its robust economic framework and international financial acumen, is well-positioned to offer technical assistance, policy advisory, and capacity-building initiatives aimed at stabilizing Ghana's macroeconomic environment. Furthermore, the depreciation of the cedi highlights opportunities for Canada to engage in financial sector support, aimed at enhancing currency stability and fostering investment confidence.

## Recommendations for Canada

Given the economic scenario in Ghana, Canada is recommended to prioritize areas of economic policy support, debt management, and investment in sectors that promise mutual growth benefits.

Firstly, engaging in a partnership to address Ghana's inflation and public debt could involve sharing best practices on monetary policy management, fiscal discipline, and sustainable debt strategies. Such collaboration could extend to the IMF and World Bank initiatives where Canada can play a pivotal role in facilitating discussions and supporting Ghana's engagement with these institutions.

Secondly, considering the currency depreciation and its impact on Ghana's trade balance, Canada could explore mechanisms to enhance trade relations, focusing on sectors where Ghana has competitive advantages, such as agriculture, natural resources, and digital services. Investments in these sectors, coupled with support for SMEs, could stimulate economic diversification, reduce import dependency, and stabilize the cedi over the long term.

Moreover, addressing youth unemployment through targeted vocational training programs and entrepreneurship support can foster economic inclusion and leverage Ghana's youthful demographics for economic growth. Canada's experience in skill development and innovation can significantly contribute to shaping a resilient and dynamic workforce in Ghana.

In conclusion, the economic challenges facing Ghana offer a platform for Canada to deepen its engagement through strategic support and investment. By focusing on areas of mutual interest and leveraging Canada's expertise in economic management and sectoral development, there exists a significant opportunity to contribute to Ghana's economic stability and growth, while fostering a stronger bilateral relationship that benefits both nations.

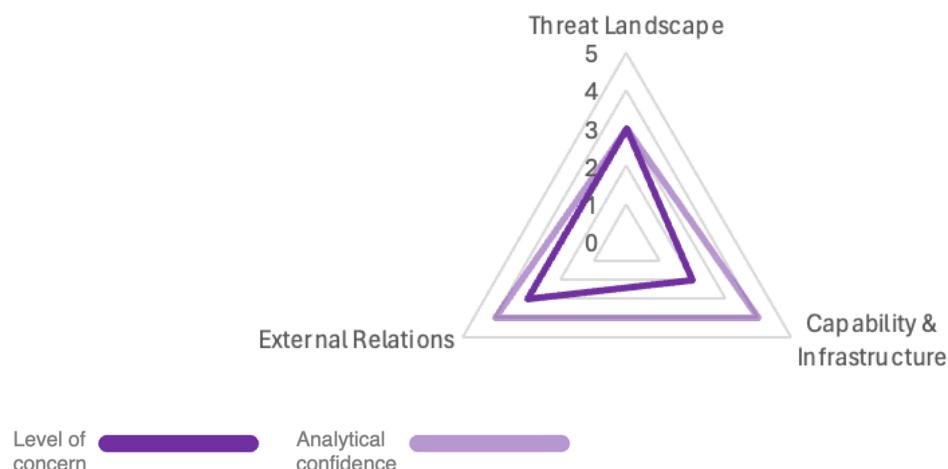
# Cybersecurity

Based on latest data as of: November 22, 2023

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## Executive Summary

Ghana faces a cybersecurity environment marked by both evolving threats and significant strides in capability enhancement. The nation has experienced notable cyber incidents, including distributed denial-of-service (DDoS) attacks on key news websites and phishing attempts targeting the financial sector. Despite these challenges, Ghana has demonstrated a proactive approach to cybersecurity through the establishment of the National Cyber Security Policy and Strategy and the operationalization of the Cyber Security Authority (CSA). With a budget allocation of approximately USD2 million in 2022 for cybersecurity initiatives and active participation in international cybersecurity alliances, Ghana is making commendable efforts to fortify its cyber defenses. The likelihood of significant cyber-attacks remains **probable**, given the historical precedent and the digital transformation of Ghana's economy. The level of concern for Ghana's cybersecurity is **elevated**, emphasizing the need for continued investment in cybersecurity measures and international cooperation to mitigate potential impacts on economic stability and national security.



# Cyber Threat Landscape

The cyber threat landscape in Ghana reflects a pressing need for comprehensive cybersecurity measures and international cooperation to mitigate risks. The variety of threat actors and tactics employed in recent attacks underscores the complexity of cybersecurity challenges. As Ghana continues to advance its digital infrastructure, addressing these threats through strategic investments in cybersecurity capabilities, legislation, and international partnerships will be crucial for safeguarding national interests and promoting a secure digital environment.

## Empirical Evidence Highlights

Ghana has been on the receiving end of notable cyber threats between 2017 and 2020, marking a critical period in the nation's digital security domain. Among these threats were three major cyber attacks, including a significant DDoS attack in April and May 2017 that targeted several Ghanaian news websites such as Ghanaweb.com, Peacefmonline.com, Myjoyonline.com, and Adomonline.com.<sup>30</sup> The attacks disrupted digital services and highlighted vulnerabilities in Ghana's cybersecurity infrastructure. Additionally, in August 2019 and 2020, financial institutions and unspecified targets faced phishing and malware attacks, respectively, attributed to non-state and state actors, including the Silence Group and North Korea's BeagleBoyz.<sup>31</sup>

# Analysis

## **Threat Actors and Tactics:**

The cyber-attacks experienced by Ghana demonstrate a range of threat actors, including both non-state actors and state-sponsored groups. The use of DDoS and phishing tactics indicates a focus on disruption and financial gain. The diversity of these attacks underlines the evolving and multifaceted nature of cyber threats facing Ghana.

## **Likelihood of Future Cyber Attacks:**

Given the historical context and the increasing digitization of Ghana's economy, the probability of future cyber-attacks is **probable**. The broad spectrum of potential targets, from media outlets to financial institutions, suggests that threat actors may exploit various vulnerabilities across sectors.

## **Impact and Concern Level:**

The level of concern regarding the cyber threat landscape in Ghana is **elevated**. Cyber-attacks pose significant risks to the nation's information security, economic stability, and the integrity of critical digital services. The potential for future attacks to disrupt essential services, compromise sensitive information, or cause financial losses necessitates a proactive and robust cybersecurity posture.

# Cybersecurity Capabilities and Infrastructure

Ghana's endeavors to fortify its cybersecurity capabilities and infrastructure reflect a commendable commitment to tackling the multifaceted nature of cyber threats. The strategic allocation of resources towards the CSA, coupled with the adoption of a national cybersecurity strategy and active participation in international cybersecurity alliances, positions Ghana to enhance its cyber resilience. However, the effectiveness of these measures will hinge on continuous evaluation, adaptation to emerging threats, and collaboration with global partners.

## Empirical Evidence Highlights

Ghana has made substantial progress in establishing a comprehensive cybersecurity framework. The National Cyber Security Policy and Strategy,<sup>32</sup> initiated by the Ministry of Communications in 2015, underscores Ghana's commitment to a robust information security framework. This policy aims to enhance awareness of cyber threats across both macro and micro levels of infrastructure. In alignment with this strategy, the CSA was earmarked a budget of GHS16.5 million (approximately USD2 million) in 2022 to spearhead the nation's cybersecurity initiatives. This move demonstrates a significant investment in cybersecurity, reflecting the government's prioritization of digital security. Additionally, Ghana's participation in international cybersecurity alliances, including the International Telecommunication Union (ITU) and the Budapest Convention on Cybercrime, further solidifies its stance on strengthening cyber defenses.<sup>33</sup>

## Analysis

### **Cybersecurity Strategy and Policy Implementation:**

The establishment of a national cybersecurity strategy signifies a proactive approach to addressing cyber threats. The strategy's focus on governance structures, comprehensive legislation, and public awareness initiatives marks a multifaceted attempt to safeguard digital assets and citizens' security online. The allocation of a dedicated budget to the CSA indicates a **likely** effective implementation of cybersecurity measures, contingent on the efficient utilization of resources and ongoing support from both domestic and international partners.

### **International Cooperation and Standards Alignment:**

Ghana's engagement with international cybersecurity frameworks and alliances is highly beneficial, facilitating access to global best practices, resources, and collaborative defense mechanisms against cyber threats. Participation in these alliances enhances Ghana's capability to respond to cyber incidents and aligns its cybersecurity practices with global standards, contributing to a more secure and resilient digital environment.

### **Capacity Building and Infrastructure Development:**

The strategic focus on building cybersecurity awareness and developing a research and development roadmap for cyber self-reliance is critical. These efforts are instrumental in cultivating a knowledgeable populace and a skilled workforce capable of mitigating and responding to cyber threats effectively. However, the challenge remains in ensuring these initiatives are comprehensive, inclusive, and adaptive to the evolving cyber landscape.

## External Relationships

Ghana's proactive stance in establishing and maintaining robust external relationships in the realm of cybersecurity underscores its recognition of cyber threats as a transnational issue that requires cooperative solutions. The strategic alliances formed through membership in international cybersecurity frameworks not only elevate Ghana's standing in the global cybersecurity community but also play a critical role in the continuous improvement of its cybersecurity defenses.

### Empirical Evidence Highlights

Ghana's active engagement in international cybersecurity alliances and agreements demonstrates its commitment to collaborating on global cybersecurity challenges. The country is a signatory to several pivotal international frameworks, including the ITU, the Budapest Convention on Cybercrime, the African Union Convention on Cyber Security and Personal Data Protection, and the Cybersecurity Alliance for Mutual Progress (CAMP). These memberships are instrumental in fostering Ghana's alignment with global cybersecurity standards and practices.<sup>34</sup>

## Analysis

### **Strategic Alliances and Global Standing:**

Ghana's involvement in these international cybersecurity frameworks significantly enhances its global standing in the digital security domain. Being part of such alliances facilitates access to shared intelligence, best practices, and collaborative efforts in combating cyber threats. The likelihood of Ghana benefiting from these relationships is **likely**, as these platforms offer avenues for capacity building, policy alignment, and cooperative responses to cyber incidents.

### **Enhancement of Cybersecurity Capabilities:**

Through these external relationships, Ghana is better positioned to bolster its cybersecurity capabilities. The sharing of expertise and resources, participation in joint exercises, and adherence to established cybersecurity norms and standards contribute to strengthening Ghana's digital infrastructure against cyber threats. The strategic importance of these alliances in enhancing national cybersecurity resilience is **elevated**.

### **Challenges and Opportunities:**

While Ghana's engagement in international cybersecurity alliances presents significant opportunities for capability enhancement, it also introduces challenges related to compliance, resource allocation, and the harmonization of domestic policies with international standards. The analytical likelihood of these challenges impacting Ghana's cybersecurity posture is **moderate**; however, with strategic planning and international support, these challenges can be effectively managed.

## Strategic Assessments

The cybersecurity landscape in Ghana is at a crucial juncture, characterized by an increasing number of cyber threats juxtaposed against significant strides in developing a robust cybersecurity infrastructure. The formulation and implementation of the National Cyber Security Policy and Strategy, alongside the operational enhancements within the CSA, underscore Ghana's proactive stance towards mitigating cyber risks. The allocation of approximately USD2 million to the CSA for the year 2022 marks a tangible commitment to cybersecurity, signaling the prioritization of digital defense mechanisms within the national agenda. Furthermore, Ghana's active participation in international cybersecurity alliances, such as the ITU and the Budapest Convention on Cybercrime, illustrates its dedication to aligning with global standards and cooperative security frameworks.

However, the presence of sophisticated cyber threats, including state and non-state actors targeting financial institutions and media outlets, raises the stakes for Ghana's cybersecurity readiness. The successful DDoS attacks on prominent Ghanaian news websites and phishing attempts against the financial sector reveal vulnerabilities that could be exploited by adversaries to compromise critical national infrastructure, disrupt essential services, or undermine public confidence in digital platforms. Given these dynamics, the strategic importance of bolstering Ghana's cybersecurity capabilities cannot be overstated. Enhanced cybersecurity measures are imperative not only for safeguarding national security interests but also for ensuring the integrity and resilience of Ghana's burgeoning digital economy.

## Recommendations for Canada

In light of Ghana's cybersecurity environment and the shared interests in promoting a secure, stable, and prosperous digital global commons, Canada has a unique opportunity to support Ghana's cybersecurity enhancements. Firstly, Canada can offer expertise and technical assistance to strengthen Ghana's cybersecurity framework, particularly in areas such as critical infrastructure protection, cyber incident response, and the development of public-private partnerships for cybersecurity. This support could be facilitated through bilateral agreements or within the framework of international organizations in which both countries are members.

Secondly, Canada can play a pivotal role in capacity building by providing training and educational programs aimed at enhancing the skills of Ghanaian cybersecurity professionals. Initiatives could include scholarships for Ghanaian students to study cybersecurity in Canada, joint training exercises between Canadian and Ghanaian cybersecurity agencies, and the exchange of best practices related to cyber legislation and policy development.

Moreover, encouraging Canadian cybersecurity firms to explore partnerships and investments in Ghana could foster innovation, support the development of indigenous cybersecurity solutions, and stimulate economic growth. These collaborations could also facilitate technology transfer and contribute to the resilience of Ghana's digital infrastructure against cyber threats.

In conclusion, strategic engagement between Canada and Ghana on cybersecurity can yield mutual benefits by enhancing Ghana's defensive capabilities, promoting regional stability, and opening avenues for Canadian businesses in the growing African cybersecurity market. Through collaborative efforts, both nations can contribute to a safer and more secure cyberspace, reinforcing their commitment to digital security, economic development, and international cooperation.

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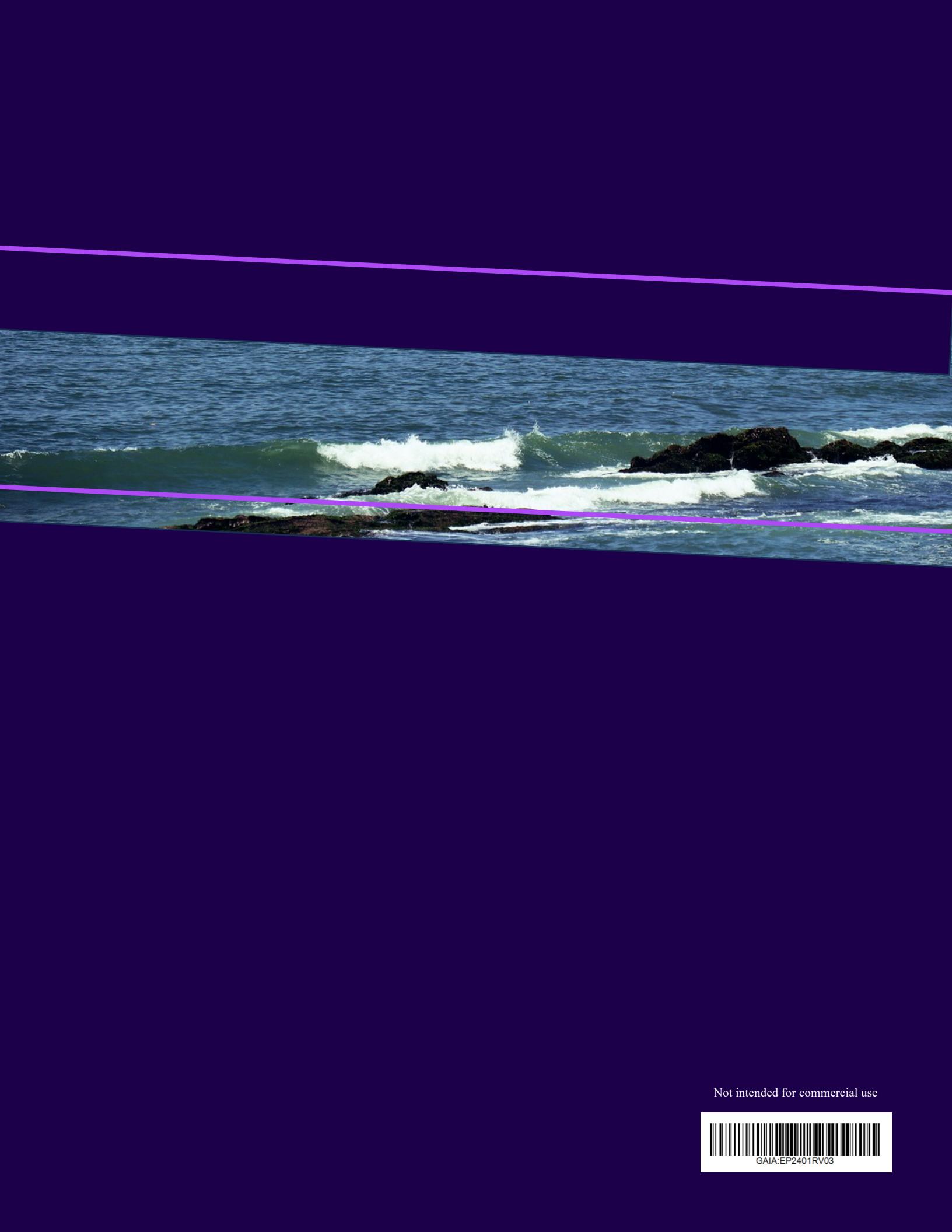
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