



# The economic impact of piracy: a critical assessment of maritime security and trade disruptions in the Gulf of Guinea

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## Abstract

The Gulf of Guinea (GoG) is a region that is used as a hub for piracy. In 2020, more than 95% of global piracy incidents took place in this region. The high incidence of piracy places a significant economic burden on trade, resulting in increased operational costs, higher insurance premiums, and reduced port efficiency. This study provides a comprehensive analysis of the economic impact of piracy in the GoG, based on both quantitative data and qualitative findings. Key drivers of piracy include poverty, unemployment, poor governance, and corruption in maritime security institutions. The study also assesses key projects in the fight against piracy, such as the Nigerian Deep Blue Project, the Yaoundé Code of Conduct (YCoC), and international cooperation, as well as technical issues such as shiprider agreements, unmanned systems, and advanced maritime surveillance systems. Despite some decline in piracy incidents in the GoG and some initiatives, foreign investment in the region remains insufficient, and regional trade cannot develop. The analysis concludes that piracy will continue to hinder the region's development unless regional coordination is improved, legislation is harmonised, and comprehensive economic development is achieved. Addressing maritime security in the region, supporting strategic and security-related infrastructure reforms, and managing them with sustainable investments will also contribute to the region's economic development.

**Keywords** Gulf of guinea · Piracy · Economic impact · Maritime security · Regional trade · Counter-piracy strategies

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## 1 Introduction

Maritime transport is essential for global trade, accounting for over 90% of international trade (UNCTAD 2021). However, disruptions such as piracy, armed robbery, and other forms of maritime crime pose significant threats to supply chain stability, increase operational costs, and deter investment (Bueger and Edmunds 2021). The Gulf of Guinea (GoG) is considered a high-risk zone for piracy and was responsible for almost 95% of global maritime kidnapping incidents in 2020 (IMB 2022).

The GoG stretches from Senegal in the north to Angola in the south, comprising 19 coastal countries on the west coast of Africa and extending over six thousand kilometres of coastline. The region is divided into two geopolitical and economic areas: the Economic Community of West African States (ECOWAS) and the Economic Community of Central African States (ECCAS). The GoG is part of one of the most strategic maritime routes worldwide. Its location makes it a nexus for maritime trade, and crude oil, gas, bulk goods, and container traffic all transit its waters. Given the dense traffic, any disruption in the GoG has disproportionate ripple effects on global supply chains (Ofosu-Boateng 2018) (Fig. 1).

Economic dependence on the GoG is high. It serves as a vital locus for the export of crude oil, gas, and other commodities important to the regional and global economy (Chatham House 2020). Nevertheless, the maritime governance framework of the region remains fragmented and is undermined by weak legal structures, corruption, and insufficient surveillance capacity (Murphy 2009a, b). In practice, socio-economic factors such as poverty, unemployment, and marginalisation lead people to



**Fig. 1** Gulf of Guinea Region. *Source:* Stable Seas; Gulf of Guinea, modified by the authors



engage in criminal activities at sea (Onuoha 2012). Recent studies have indicated that ongoing insecurity in the GoG undermines broader intra-African trade initiatives, including the African Continental Free Trade Area (AfCFTA). Additionally, rising logistics costs and the reluctance of shipping companies to call regularly at ports are weakening the trade potential of the region (UNCTAD 2023). Combating piracy in the GoG is, therefore, not only a matter of maritime security, but it is also critical to promoting economic growth, protecting food supply chains, and ensuring long-term regional stability. These dynamics underline the urgent need for coordinated and long-term reforms.

### 1.1 Identified knowledge gap

Despite a growing volume of literature on maritime insecurity, the economic impact of piracy in the GoG remains insufficiently addressed. Most extant research focuses on tactical responses, naval interventions, and international cooperation, but it often overlooks a rigorous, data-driven assessment of how piracy affects trade, port efficiency, investment climates, and regional economic integration. Studies from institutions such as the International Maritime Bureau (IMB) and Oceans Beyond Piracy emphasise incident counts and response measures, but they do not comprehensively model the financial burden on maritime logistics, insurance, and supply chain resilience. Furthermore, few studies have analysed how piracy undermines the objectives of regional frameworks such as the AfCFTA. This study aims to address this critical gap by providing a multidimensional economic analysis of the direct and indirect effects of piracy on maritime trade and regional development in West and Central Africa.

### 1.2 Research questions

To systematically explore the economic consequences of piracy in the GoG, answers to the following research questions are sought in this study:

1. What are the direct and indirect economic implications of piracy in the GoG for maritime trade, port operations, and shipping insurance?
2. To what extent have current regional anti-piracy initiatives, social and legal measures, the roles of external actors, and emerging technologies reduced the long-term economic impact of piracy?

The paper seeks to critically assess the economic implications of piracy in the GoG, particularly in the context of maritime trade disruptions, security expenditures, and regional economic development. While numerous studies have explored maritime insecurity from a legal or tactical perspective, fewer have examined the broader economic costs borne by both state and non-state actors, including port authorities, shipping companies, and coastal communities.

Therefore, the central objectives of this study are the following:



1. To analyse the economic impact of piracy-related incidents on maritime transport costs, trade flows, and insurance premiums in the GoG.
2. To evaluate regional and international maritime security responses, including the effectiveness of initiatives such as Nigeria's Deep Blue Project, the YCoC, and multilateral naval interventions (Bueger and Edmunds 2017).
3. To identify the drivers of maritime insecurity in the region, such as poverty, unemployment, and governance deficiencies, thereby linking piracy to deeper developmental challenges.
4. To propose an integrated policy framework that balances legal reform, regional cooperation, surveillance technologies, and socio-economic investment to sustainably reduce piracy and its economic consequences.

By pursuing these objectives, the study is expected to contribute to a growing body of interdisciplinary maritime research and provide actionable recommendations for policymakers, security agencies, and economic planners operating within or around the GoG.

## 2 Literature review

### 2.1 Background

The philosophical foundation of this study draws on realism and critical theory—two paradigms that help explain both the persistence of piracy in the GoG and the structural factors that undermine regional maritime governance. From a realist perspective, the maritime domain is viewed as an arena of national self-interest, where states prioritise sovereignty and security over cooperation. Classical realist thinkers such as Morgenthau (1948) have long argued that power and national interest dominate international relations, and this is relevant when analysing state responses to piracy. In the GoG, countries often act unilaterally, focusing on the protection of economic assets—particularly offshore crude oil infrastructures—rather than committing to collective security frameworks. As Waltz (1979) suggests, the anarchic nature of the international system compels states to act primarily in their own interest, which explains the uneven and fragmented maritime security efforts across West Africa.

Nevertheless, realism alone cannot fully account for the underlying structural causes of piracy in the region. Here, critical theory provides additional depth. Critical scholars argue that issues such as poverty, inequality, and historical marginalisation, particularly in coastal communities, are central to understanding why piracy thrives. As Cox (1981) notes, theory is always for someone and for some purpose, meaning that analysing piracy requires a conscious inquiry into whose interests are served or undermined by existing systems. The piracy crisis of the GoG cannot be separated from broader social injustice and institutional failure, aligning with Gramscian thought on hegemonic power structures and subaltern resistance (Gramsci 1971). Furthermore, critical theorists such as Habermas (1984) emphasise the importance of dialogue and emancipatory knowledge. Applied to maritime governance, this study calls for inclusive decision-making that empowers coastal populations rather than



imposing top-down, externally driven security models. This approach also resonates with the post-colonial critique of maritime security, which highlights how international anti-piracy strategies often replicate neo-imperial patterns of control without addressing local needs (Chabal and Daloz 1999). The Fisheries Surveillance and Community Engagement Programme in Ghana is an example of this model. Ghana has implemented community-based surveillance initiatives that actively involve local fishing communities in protecting the marine environment. These initiatives were introduced in response to both overfishing by foreign vessels and the increase in piracy and armed robbery incidents at sea.

In summary, combining realism and critical theory allows for a holistic understanding of piracy, not only as a threat to global trade but also as a symptom of deeper regional dysfunctions that require both operational and developmental responses. This dual lens frames the analysis of economic losses, governance failures, and the potential for sustainable maritime cooperation in the GoG.

## 2.2 General outlook

The strategic location of the GoG has made it one of the most vulnerable maritime regions in the world, constantly threatened by piracy and armed robbery. However, these issues extend far beyond security, disrupting trade, undermining economic stability, and reducing the efficiency of maritime activities in West and Central Africa (Ahorsu et al. 2024). Additionally, piracy continues to affect shipping routes and imposes a heavy economic burden on the region (Bueger and Edmunds 2021). The causes of this problem are deeply rooted in socio-economic issues, including poverty, high unemployment rates, and poor resource management, which drive many people to criminal activities (Ezeoba 2021). Beyond its financial impact, piracy also endangers human lives, as seafarers are often injured, kidnapped, or killed in armed attacks (IMO 2020). Furthermore, alarming figures from the IMB show that in 2020, 130 of the 135 reported kidnappings of seafarers worldwide occurred in this region. Nigerian piracy is marked by particular intensity and violence. Between 2009 and 2018, there were 694 violent incidents and 254 cases of theft. These statistics highlight the central role that piracy plays in Nigerian waters and underscore the urgent need for stronger, coordinated regional strategies to combat this persistent threat (Peters 2020).

Piracy in the GoG significantly disrupts trade and poses a persistent economic challenge for the foreseeable future (Bueger and Edmunds 2021). In addition to the immediate impact of this threat on shipping, insecurity at sea increases transport costs, reduces the efficiency of port operations, raises insurance premiums, and threatens food supply chains (Okafor-Yarwood and Pigeon 2021). Chatham House (2020) emphasises that these problems are not isolated incidents but are rooted in systemic governance failures, making institutional reform (e.g., judicial reforms) both urgent and necessary. Calls for greater international cooperation are also growing. The United Nations Office on Drugs and Crime (UNODC 2021a, b) highlights this need in response to the escalating trend of violent kidnappings in the region. Recent studies indicate the increasing sophistication of GoG piracy, which is linked to organised criminal gangs and illicit trafficking corridors (UNODC 2024). Authors such



as Murphy (2009a, b) argue that piracy must be understood in the context of weak state institutions, limited familiarity with the maritime domain, and socio-economic deprivation. Furthermore, Bueger (2015a, b, c) discusses the blue economy approach to maritime crime,<sup>1</sup> in which the sustainable development of the seas is paramount. However, it is important to balance immediate and sustainable measures. Onuoha (2012) cites research indicating that persistent youth unemployment and government corruption play a significant role in sustaining pirate networks. UNCTAD (2023) also notes that piracy disrupts freight prices, regional competitiveness, and the maritime supply chain. Although the number of pirate attacks is declining worldwide, the GoG remains the riskiest region for seafarers, with ongoing risks of violent attacks and crew kidnappings (IMB 2022).

In recent years, numerous efforts have been made to combat maritime crime in the GoG. One of the most important initiatives is the Deep Blue Project, which was introduced by Nigeria in cooperation with the International Maritime Organisation (IMO). This is a broad-scoped initiative that brings together resources from the air, land, and sea to improve maritime security (Maritimafrica 2024). The main objective of the project is to combat piracy through improved surveillance and enforcement measures (ICS 2022). Notwithstanding, the long-term success of the project will depend heavily on strong regional partnerships and adequate funding. The YCoC also aims to promote regional cooperation through joint patrols, information sharing, and coordination centres to improve surveillance and the ability to respond effectively to piracy (UNODC 2021a, b). However, challenges such as lack of resources, corruption, and inconsistent legal frameworks have hampered the effectiveness of these initiatives. While the framework has improved regional dialogue, implementation challenges remain, particularly in legal standardisation and capacity building (Okafor-Yarwood and Pigeon 2021). Although initiatives such as the YCoC aim to promote cooperation, mistrust between regional actors and concerns over sovereignty often prevent comprehensive cooperation (Bueger 2015a, b, c). Effective information sharing, joint operations, and the sharing of resources remain sporadic and prone to political tensions.

International naval deployments have played a crucial role in strengthening security in the GoG. The European Union's (EU) Coordinated Maritime Presence (CMP) programme, along with operations by the United States (US), France, China, and Denmark, has provided critical support through patrol missions, joint exercises, and capacity-building initiatives (UNCTAD 2023). These efforts have increased deterrence and facilitated knowledge transfer. Still, long-term solutions must prioritise local ownership and sustainable regional capacities. The UNODC and IMO have invested heavily in capacity-building programmes to strengthen the legal framework, train coastguards, and improve maritime domain awareness (UNODC 2021a, b). These programmes support the professionalisation of regional maritime forces and promote the adoption of best practices in maritime governance. The recent US initiative "Restoring America's Maritime Dominance" has indirectly supported security in

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<sup>1</sup> A paradigm shift—from punishing maritime crime to preventing it through development and inclusion. This makes the 'blue economy approach' both a security strategy and a development model, where sustainability and community empowerment are key to safer seas.



the GoG through the revitalisation of US shipbuilding and the expansion of cooperation programmes with African nations under the Africa Maritime Security Initiative (gCaptain 2025; White House 2025). Improved maritime reconnaissance and logistical support for African navies and coastguards have strengthened regional efforts to combat piracy.

### 2.3 Maritime trade in GoG

Piracy and armed robbery in the GoG have caused significant disruption and financial strain in maritime trade, both within the region and globally (Oceans Beyond Piracy 2021). The shipping industry, which depends on safe and efficient sea routes, faces various economic consequences resulting from insecurity in the region (UNCTAD 2021; Okafor-Yarwood and Pigeon 2021). Shipping companies operating in the GoG are compelled to take extensive precautionary measures to mitigate the threat of piracy. These include hiring private maritime security companies, implementing ship hardening procedures, and diverting ships to safer but longer routes<sup>2</sup>—all of which increase fuel consumption and voyage duration. These additional security measures can result in operating costs of USD 25,000 to 50,000 per voyage. The estimated total costs in 2020 amounted to USD 818.1 million (Oceans Beyond Piracy 2021). Furthermore, the employment of armed guards and the use of escort vessels are increasingly becoming standard practice, especially for high-risk cargo such as crude oil and gas. The Nigerian Deep Blue project, while promising, is still in its early stages and has not yet eliminated the need for private security services (ICS 2022). Piracy-related disruptions have also forced ships to stay at anchor longer or delay entry into high-risk areas, further straining logistics and crew safety (Okafor-Yarwood and Pigeon 2021). Additionally, the perceived risk in the region has prompted insurers to charge higher premiums. Insurance policies for war risks and kidnap and ransom (K&R) are often mandatory for ships transiting the GoG. According to the International Union of Marine Insurance (IUMI), these premiums have increased by 50–70% since 2019, especially for ships without armed protection or escort on board (IUMI 2021). In competitive markets, these costs are ultimately passed on to consumers and stakeholders in the maritime supply chain, affecting the cost and efficiency of transporting goods (Oceans Beyond Piracy 2021; Okafor-Yarwood and Pigeon 2021).

The continuing threat of piracy is affecting the willingness of ships to call at ports in the GoG. Delays in port operations, longer clearance times at sea, and security protocols for crews lead to longer stays of ships in port, and thus, to port congestion (Onuoha 2012). These delays discourage international freight forwarders from frequent visits to GoG ports and hinder regional trade under the AfCFTA agreement (UNCTAD 2021). Competition between ports on the West African coast, coupled with insufficient investment in port expansion and modernisation, has also led to frequent congestion, affecting the region's economy (Sahoo et al. 2024). The AfCFTA is a driving force behind the intensification of intra-continental trade. Piracy in the GoG undermines efforts to boost regional trade by making it more expensive and risky for

<sup>2</sup> Safer but longer routes involve taking offshore routes farther from the West African coast to avoid attacks in the GoG.



smaller nations with limited naval capacity to engage in maritime trade (UNCTAD 2021; Okafor-Yarwood and Pigeon 2021). Crude oil theft and piracy in Nigeria's offshore sectors are estimated to cost the country over USD 1.5 billion per year in lost revenue (Bueger and Edmunds 2021). The fishing industry is also reporting declines due to fear of attacks on artisanal vessels, affecting food security and the livelihoods of coastal communities (Bueger and Edmunds 2021). This economic insecurity exacerbates the very conditions—poverty and unemployment—that drive piracy and create a vicious cycle of underdevelopment and maritime crime.

UNODC (2021a, b) reports that piracy in the GoG leads to estimated annual financial losses of approximately USD 1.925 billion. These significant losses slow economic progress, deter foreign direct investment, and limit funds available for important development initiatives. Ongoing instability in West and Central Africa is a significant obstacle to improving regional cooperation and advancing sustainable development efforts (UNODC 2021a, b).

## 2.4 Effects on socio-economic and legal structures

Corruption remains a major threat to maritime security, particularly in the fight against piracy. When law enforcement officials or officials in judicial proceedings collaborate with bribery networks or engage in illegal activities, they jeopardise efforts to combat piracy. Furthermore, mistrust between nations hinders joint maritime operations and undermines regional co-operation. To ensure maritime security in the long term, it is essential to promote transparency and enforce strict anti-corruption measures. Corruption weakens the impact of anti-piracy initiatives. Officials who accept bribes may turn a blind eye to illegal activities or even provide pirates with important information, such as patrol plans or safe locations. These vulnerabilities create space for pirates to act without fear of being caught (Ehizuelen 2023).

Pirates use these vulnerabilities to continue their activities without fear of arrest. Corruption leads to the inappropriate use of funds allocated for maritime security operations, the procurement of equipment, and the training of personnel. These funds are appropriated by private interests rather than purchases of surveillance technologies, patrol boats, or intelligence-sharing platforms, resulting in the inability of security forces in the region to combat piracy (Jacobsen 2017). Naval forces that lack adequate equipment contribute to the rise in piracy because they are not adequately prepared to patrol the area or intervene in pirate attacks.

The inconsistency of piracy laws in the countries of the region is also a major problem. Although piracy is a transnational crime, many countries around the GoG have different legal definitions and methods of prosecuting piracy.<sup>3</sup> These differences complicate regional cooperation and make it difficult to take uniform measures against piracy (UNSG Report 2022). Pirates often exploit legal loopholes by entering the territorial waters of countries with weak laws or weak law enforcement agencies.

<sup>3</sup> In 2013, pirates who attacked an oil tanker off the coast of Togo were captured by the Nigerian Navy, but they could not be prosecuted because Nigeria did not have specific anti-piracy legislation at the time. This situation demonstrates how differing legal frameworks can enable pirates to evade prosecution. Therefore, the “inconsistency of anti-piracy laws” means that there is no unified legal definition and prosecution mechanism in the region, resulting in weak enforcement in GoG countries.



Efforts such as the YCoC, which prioritise regional cooperation, have had limited impact due to the lack of uniform legal standards. Even in countries where anti-piracy laws are in place, weak judicial systems often fail to prosecute pirates effectively. Courts may lack the capacity or expertise to handle complex piracy cases, resulting in delayed or failed prosecutions. Furthermore, many cases are either dropped, or suspects are acquitted, due to a lack of evidence or inadequate legal procedures (Ahorsu et al. 2024). The failure to consistently prosecute pirates undermines deterrence. Criminals operating in the GoG view piracy as a low-risk activity and believe that they can evade justice.

The socio-economic factors that drive piracy must be addressed to ensure the long-term success of security measures. Coastal communities must be involved in anti-piracy efforts through education programmes and community-based information gathering.<sup>4</sup> Vocational training and economic development programmes can be created as alternative sources of income to reduce the attractiveness of piracy as a source of revenue (Ezeoba 2021). The decline in income from fishing can be considered an example of why some people turn to piracy to compensate for this loss (Phayal et al. 2024).

To effectively combat piracy, people in the region must understand its negative impact on their communities. Piracy not only threatens ships but also harms local economies, disrupts regional stability, and jeopardises the safety of the local population. However, in some communities, piracy is misunderstood. For example, sometimes, it is even viewed as a form of resistance against government negligence. For this reason, raising awareness is extremely important. When people understand the true cost of piracy and why combating it is essential to a safe, stable, and prosperous life, they are more willing to support efforts to address this problem. Awareness campaigns, local gatherings, and direct communication with the public can be very effective in changing public perception and encouraging people to cooperate with security forces and report suspicious activity (Jacobsen 2017).

## 2.5 Operational measures and technologies in the fight against piracy

Shiprider agreements<sup>5</sup> are particularly valuable in high-risk maritime areas (HRAs), as they enable countries to cooperate directly and in real time, pooling resources and sharing responsibilities. By working side by side on the same vessel, officials from different nations can investigate incidents and respond effectively to crimes such as piracy and smuggling (Duffy 2020). These agreements strengthen the col-

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<sup>4</sup> Coastal citizens are essential partners in anti-piracy strategies. By participating in early warning systems, reporting unusual vessel movements, and collaborating with maritime authorities, they help fill gaps in coastal surveillance. Their involvement in educational outreach, local watch programmes, and youth engagement initiatives fosters a sense of responsibility and resilience within vulnerable communities. When supported with training, communication tools, and livelihood alternatives, such as ecotourism, aquaculture, or artisanal fishing, coastal populations can contribute meaningfully to both maritime safety and socio-economic development, thereby addressing the root causes of piracy (Bueger and Edmunds 2021).

<sup>5</sup> Shiprider agreements provide a unique legal framework that allows law enforcement officers from one country to board and operate on vessels registered in another country.



lective ability to monitor illegal activity. Furthermore, these agreements help close security gaps by eliminating delays caused by jurisdictional boundaries or stopovers at national borders, thus facilitating international cooperation at sea. Overall, such dynamism highlights the urgent need for coordinated and long-term reforms. This would make the fight against piracy smoother and more effective (UNODC 2020). The US has concluded such agreements with several Caribbean states, for example, to combat drug trafficking. As a result, US Coast Guard personnel can legally operate on foreign vessels, which has led to many successful operations (US Department of State 2024). It is believed that similar cooperation between GoG countries, such as Nigeria, Ghana, and Togo, could strengthen regional efforts and curb piracy.

Importantly, designating the GoG as a high-risk area, similar to the Internationally Recognised Transit Corridor (IRTC) in the Gulf of Aden, could help curb piracy. If ships in these zones were permitted to have specially trained, armed security personnel on board, they would be better prepared against attacks. This classification would also allow for stricter security protocols, provide a legal basis for self-defence, and help ships obtain comprehensive insurance coverage to reduce financial losses from potential threats (Combined Maritime Forces 2024; Maximo et al. 2013). Labelling the region in this way could motivate governments and shipping companies to work more closely together on maritime security, leading to faster and more coordinated responses to piracy. For example, establishing planned shipping corridors and checkpoints in vulnerable waters would be a prudent measure. Ships could then be organised into groups, escorted by naval vessels,<sup>6</sup> to provide additional protection. These convoy-like movements enable the pooling of security resources and faster intervention in the event of an attack (Bueger et al. 2020). The introduction of such systems in the GoG could also create opportunities for joint patrols by regional naval forces, encourage the pooling of resources, and support international cooperation to protect vital trade routes. However, these measures would require significant regional coordination and financial investment. There would still remain other challenges, particularly the difficulty of synchronising naval operations across countries and ensuring reliable, uninterrupted communication between ships at sea and land-based security units (UNODC 2020). Overall, the results of research on these issues indicate a network of mutually reinforcing pressures that require comprehensive strategies.

Research suggests that the GoG continues to face serious maritime situational awareness challenges, as authorities often lack an accurate and timely picture of what is happening at sea (Okafor-Yarwood et al. 2024). To address this problem, modern technologies such as automatic identification systems (AIS) and drones are increasingly being used to monitor ship movements and enhance safety at sea (Nguyen et al. 2018). Tools such as AIS and vessel monitoring systems (VMS) are particularly valuable, as they allow authorities to track the position of vessels, detect unusual or suspicious behaviour, and respond more quickly in emergencies (CLS Group 2023). Drones such as unmanned aerial vehicles (UAVs) and satellite imagery also provide

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<sup>6</sup> While some argue that protecting shipping lanes is a public good best funded by governments, others believe the shipping industry, as the direct beneficiary, should share the costs. Public-private partnerships have emerged as a practical solution, combining state support with industry contributions to maintain naval escorts in piracy-prone areas (Bueger 2015a, b, c).



an additional layer of surveillance, enabling a broader and more detailed understanding of maritime activity in the region (Unmanned Systems Technology 2023). Systems such as radar and AIS are crucial to obtaining a complete picture of the maritime environment. In recent years, drones have been used increasingly more frequently for surveillance and intelligence gathering, enabling authorities to better detect and respond to threats at sea (US Joint Maritime Operations 2013). There are also ongoing efforts to integrate underwater vehicles and other unmanned maritime technologies into daily operations. In summary, the use of technology improves awareness, accelerates response to threats, and increases the overall success of maritime security efforts. However, it is important to find a balance between immediate response and sustained action.<sup>7</sup>

### 3 Methodology

To properly understand the economic impact of piracy in the GoG, this study adopts a mixed-methods approach. This choice is intentional, as the subject involves both quantifiable economic data and qualitative information. In other words, numbers alone cannot provide the full picture, and purely narrative accounts may overlook measurable trends. By combining both methods, we aim to achieve a more comprehensive understanding.

Piracy is a security and economic issue that is also deeply embedded in the region's political, social, and governance frameworks, requiring a mixed-methods design. As Creswell and Plano Clark (2011) explain, mixed methods are ideal when researchers seek both breadth (through quantitative data) and depth (through qualitative narratives). This dual approach enables us to explore not only the economic costs of piracy but also the reasons for its persistence and the most effective solutions. For example, we use quantitative data to analyse trends in piracy and its economic costs. These data are sourced from reputable international agencies such as the IMB, UNCTAD, and IUMI. These figures help us assess the economic scale of piracy. As Bueger (2015a, b, c) and Murphy (2009a, b) argue, these contextual insights are crucial for understanding the motivations behind maritime crime and evaluating the effectiveness of existing anti-piracy strategies.

The strength of this design lies in its integration. For example, when shipping costs spiked in 2020, qualitative sources identified increased piracy near Nigerian waters and a reduction in naval patrols as key reasons. This triangulation enhances the validity of our findings and increases the reliability of our conclusions. Furthermore, the study evaluates how regional responses, such as Nigeria's Deep Blue Project and the YCoC, interact with economic trends. Mixed methods enable us to both measure the outcomes of policies and interpret their significance based on regional contexts and stakeholder perspectives.

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<sup>7</sup> Armed UAVs have been employed for counter-terrorist operations, as seen in Northern Syria and Iraq by Turkish security forces (International Crisis Group 2024). The success of UAVs and armed UAVs was evident in the Nagorno Karabagh conflict between Azerbaijan and Armenia (Insight Turkey 2024), and they are currently being employed in the Russia-Ukraine war (The New Yorker magazine 2024).



As Tashakkori and Teddlie (2003) argue, when a problem is complex, using both qualitative and quantitative methods is not merely beneficial, but it is essential. Piracy in the GoG is such a problem, requiring this form of comprehensive analysis. Figure 2 shows the methodology adopted in this study.

## 4 Analysis and results

The GoG has emerged as a focal point for maritime insecurity, as the region witnesses the highest number of reported hijackings and piracy incidents worldwide. The GoG, not merely as a maritime hotspot but as a geopolitical and economic flashpoint, draws global attention due to its strategic location and vulnerabilities.

Piracy in the GoG is examined through the dual lenses of realism and critical theory, providing a nuanced understanding of both the structural and socio-political dimensions of maritime insecurity in the region. In realist theory, referencing Morgenthau (1948) and Waltz (1979) to argue that states prioritise national interest and security, which explains the fragmented and unilateral approach to maritime governance in the GoG. Realism posits the international system as anarchic, where individual state actors focus on safeguarding their economic assets, particularly offshore oil infrastructure, without adequately participating in collective security efforts. This realist framework explains why regional collaboration is inconsistent, despite the growing threat of piracy. However, realism alone fails to account for deeper social drivers. Critical theory is introduced to highlight poverty, inequality, and historical marginalisation as key underlying factors. Here, Cox (1981), Gramsci (1971),

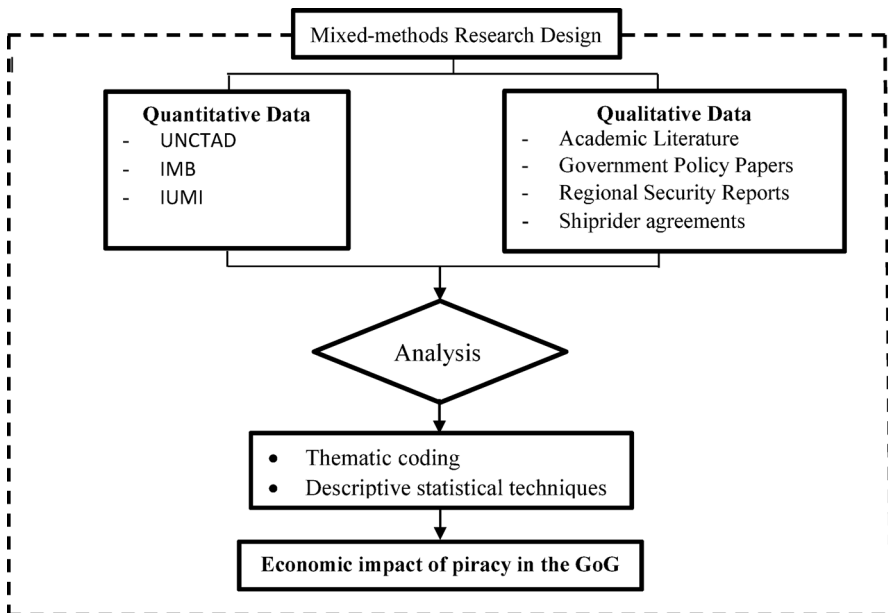


Fig. 2 Research methodology. Source: The authors



and Habermas (1984) emphasise the necessity of understanding whose interests are served or undermined by current maritime systems. Piracy in this context is viewed as a form of subaltern resistance and a reaction to institutional failure, rather than just a criminal enterprise.

Statistical data, such as 130 out of 135 global seafarer kidnappings in 2020 occurring in the GoG, provide alarming evidence of the region's maritime volatility (IMB 2022). This high incidence is linked not only to poor enforcement but also to youth unemployment, weak judicial systems, and resource mismanagement, aligning well with the emphasis of critical theory on structural and institutional dysfunction.

Structural drivers of piracy in Fig. 3 are consistently highlighted as root causes. This aligns with perspectives in critical security studies, which argue that security challenges are often symptoms of broader socio-economic disenfranchisement rather than isolated criminal acts.

Although there are several regional and international initiatives in the GoG, the analysis highlights key limitations: lack of resources, corruption, inconsistent legal frameworks, and mistrust among regional actors, as shown in Fig. 4. This underscores a critical qualitative insight: cooperation is effective only when supported by mutual trust, legal standardisation, and sustained political will.

The role of international actors, including the EU, US, China, France, and Denmark, has been instrumental in naval patrols, capacity building, and legal and institutional reforms. However, reliance on external actors raises concerns about local ownership and the sustainability of these interventions. This reflects post-colonial critiques of externally imposed security models.

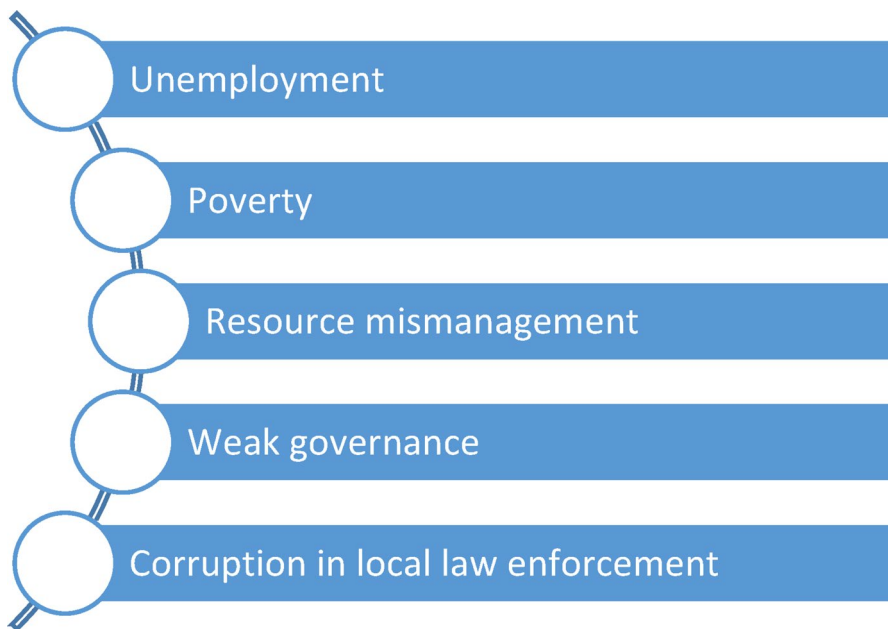
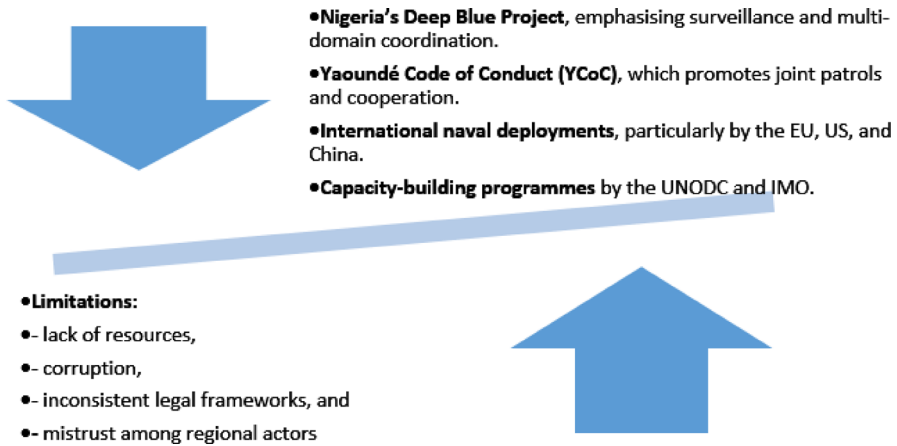


Fig. 3 Structural drivers of piracy





**Fig. 4** Security and governance responses in GoG

Piracy in the GoG represents a complex interplay of security, governance, and economic failure. Both qualitative vulnerabilities, such as weak institutions and poverty, and quantitative losses amounting to billions of US dollars annually, make it clear that addressing maritime insecurity must go beyond military or policing interventions. Sustainable development, institutional reform, and enhanced international collaboration, tailored to local contexts, are essential for long-term resilience.

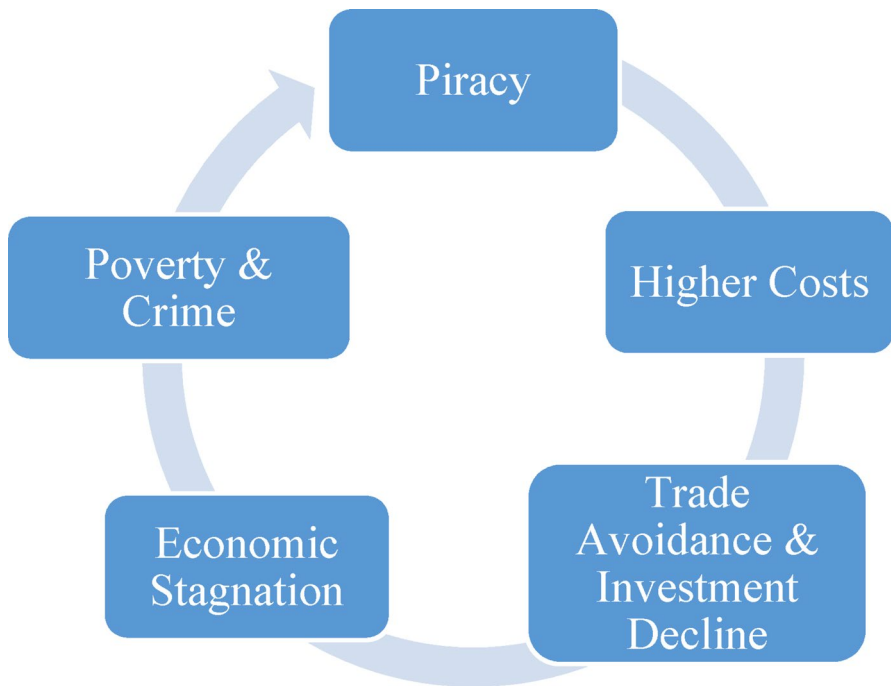
#### 4.1 Economic impact on maritime trade

Piracy and armed attacks in the GoG have caused significant disruptions in maritime traffic. Consequently, shipping companies now incur much higher costs due to the need for private security services, armed guards on board, ship escorts, and offshore routes that avoid dangerous areas. The economic, logistical, and security implications of piracy in the GoG are summarised below:

- Increased operational costs due to private security and rerouted voyages (offshore routes).
- Insurance and financial burdens on maritime stakeholders.
- Port inefficiencies and deterrence of trade.
- Socio-economic impacts, particularly on food security and local industries such as fishing.
- Obstacles to regional cooperation and sustainable development.

Piracy in the GoG is both an economic and security issue, with cascading consequences for regional stability, trade, development, and governance. The economic impact of piracy is multifaceted, affecting not only direct stakeholders such as shipping companies but also national economies, foreign investors, and food security systems. A recurring theme is the link between piracy and underdevelopment, creating a feedback loop that perpetuates insecurity.





**Fig. 5** Causal linkages and feedback loops of piracy

**Table 1** Piracy data in GoG

Indicator	Value	Source
Security cost per voyage	USD 25,000–50,000	Oceans Beyond Piracy (2021)
Total piracy-related costs (2020)	USD 818.1 million	Oceans Beyond Piracy (2021)
Insurance premium increase (K&R policies)	50–70% since 2019	IUMI (2021)
Estimated loss due to oil theft (Nigeria)	USD 1.5 billion annually	Bueger and Edmunds (2021)
Annual financial loss due to piracy (GoG)	USD 1.925 billion	UNODC (2021a, b)
Kidnappings in global seafaring (2020)	130 out of 135 occurred in GoG	IMB (2021)
Violent piracy incidents (Nigeria 2009–2018)	694 incidents+254 theft cases	Peters (2020)

This model (Fig. 5) captures the self-reinforcing nature of the crisis and underscores the insufficiency of short-term fixes. Without addressing root causes—like unemployment and governance failure—the loop persists.

Table 1 shows the available statistics regarding piracy in the GoG. Economic losses for the region are significant. Therefore, it is a critical issue to address.

These losses hinder economic development, discourage foreign investment, and undermine regional integration efforts in West and Central Africa. These economic losses reduce national revenues, discourage foreign direct investment, and slow



down sustainable development initiatives. Table 2 summarises the economic impact of piracy on GoG countries over the last 10 years.

Piracy in the GoG has placed immense strain on regional economies, significantly disrupting maritime trade and international shipping operations. Armed attacks on vessels not only endanger lives but also force shipping companies to reroute vessels, increase security expenditures, and pay substantially higher insurance premiums. These rising operational costs are often passed on to global consumers as higher prices for goods and commodities. Consequently, piracy in the GoG has a ripple effect that extends far beyond the region, affecting global trade flows and market stability (Bueger and Edmunds 2021).

The threat of violence at sea also deters foreign direct investment, as businesses perceive the region as unstable and risky. Ports in countries such as Nigeria, Ghana, and Togo experience reduced traffic, while port congestion and longer clearance times increase logistics costs (Okafor-Yarwood and Pigeon 2021). Moreover, piracy undermines regional trade integration efforts, such as the AfCFTA, by making maritime transport more costly and unpredictable for West African economies (UNCTAD 2021).

Consequently, piracy does not merely threaten vessels, it undermines economic development, erodes investor confidence, and hampers the broader ambitions of African nations for trade-led growth. Quantitatively, the financial damage is substantial—amounting to billions—and continues to grow without sustained intervention.

## 4.2 Analysis of social and legal issues

Systemic corruption within maritime security institutions is a major enabler of piracy in the GoG. Bribery and collusion between law enforcement or judicial officials and criminal networks severely undermine the integrity of anti-piracy operations. This issue extends beyond frontline personnel and permeates institutional structures, weakening regional cooperation and preventing coordinated naval operations due to a lack of trust. Security officials leaking patrol schedules for financial gain demonstrates how embedded corruption disrupts enforcement capacity.

Resources allocated for maritime security are often misappropriated. Funds intended for critical infrastructure, such as patrol vessels, surveillance systems, or training, are diverted for personal gain, leaving naval forces underfunded and ill-equipped. This creates systemic vulnerabilities and hampers the ability of relevant

**Table 2** Summary of economic impact of piracy in GoG. *Source:* Authors' synthesis based on Oceans Beyond Piracy (2021), UNODC (2021a, b), IUMI (2021), and Clarkson Research (2024)

Area	Key Impact
Trade patterns and volumes	Longer routes, reduced port call reliability
Operational costs	USD 25–50 K per voyage for additional security
Insurance premiums	Increased 50–70%, driven by elevated threat levels
Direct cost estimates	USD 740–950 million (2012) → USD 1.9 billion (2021)
Macroeconomic ripple effects	Food inflation, investment decline, public revenue erosion



institutions to respond to threats effectively. The lack of patrol assets and modern surveillance tools reflects governance failures beyond mere budgeting and points to weak institutional control mechanisms.

A fragmented and inconsistent legal framework prevails across the region. Pirates exploit legal loopholes and avoid prosecution by operating in jurisdictions with weaker law enforcement. Even where anti-piracy laws exist, court systems often lack resources and capacity, leading to frequent case dismissals and acquittals due to insufficient evidence. This weak legal deterrence incentivises piracy by increasing its perceived profitability and lowering the risk of punishment.

Piracy is not solely a criminal issue but also a socioeconomic one. High unemployment, poverty, and environmental degradation, involving problems such as dwindling fish stocks, drive coastal communities towards piracy as a survival mechanism. These underlying conditions reinforce a cyclical relationship between poverty and maritime crime. The interplay between economic desperation and criminal opportunity sustains the piracy economy in coastal areas.

Community engagement and cultural perceptions highlight the importance of involving local communities in combating piracy. Community-based surveillance, early warning networks, education, and socio-economic development are critical to building resilience. Piracy is also culturally perceived not only as survival but sometimes as a form of resistance to state neglect. This dimension complicates counter-piracy interventions, suggesting the need for culturally sensitive and participatory solutions.

Civil society and the private sector can play a transformative role by promoting transparency, improving oversight, and fostering trust in institutions. Their cooperation with security forces can improve ethical standards and accountability. Supporting grassroots organisations can bridge the gap between the state and disenfranchised populations and strengthen the legitimacy of anti-piracy efforts.

The overarching message is that ad hoc or temporary solutions are insufficient. The persistence of piracy is a manifestation of deep-rooted institutional failures, poor governance, and socio-economic deprivation. Sustainable change requires comprehensive reforms that strengthen governance, legal harmonisation, community resilience, and regional collaboration.

In conclusion, piracy in the GoG is symptomatic of a broader governance crisis. It cannot be tackled solely with military or naval strategies. A multidimensional approach targeting corruption, strengthening institutions, improving legal consistency, and addressing socio-economic inequalities is essential for long-term maritime security and regional stability.

### **4.3 Assessment of anti-piracy measures**

Shiprider agreements, as a form of real-time cooperative enforcement, are a practical mechanism that fosters cross-national collaboration by:

- Reducing jurisdictional barriers, such as national borders, stopovers, and legal constraints.
- Enhancing interoperability between maritime authorities.



- Facilitating rapid responses to piracy and smuggling.

The successful implementation by the US Coast Guard in the Caribbean provides a credible precedent for replication in the GoG. This indicates potential for policy transfer, particularly for states such as Nigeria, Ghana, and Togo, which face similar security threats. These agreements serve as both a deterrent and a capacity-building tool, fostering trust and shared responsibility among states. However, their success depends on mutual legal frameworks and political will.

Labelling the GoG as an HRA—similar to the Gulf of Aden’s IRTC—is presented as a legal innovation that enables:

- The deployment of armed security personnel on board commercial vessels.
- Access to specialised insurance coverage.
- Legal justification for self-defensive maritime actions.

This designation is not merely symbolic. It initiates operational coordination, increases maritime vigilance, and reduces vulnerabilities. The HRA classification shifts risk from shipowners to the international community, potentially increasing international naval presence and private sector engagement. Nonetheless, it requires multilateral consensus, which may encounter friction due to sovereignty concerns.

Strategic convoying and corridor-based routing, inspired by practices in Somali waters, involves:

- Organising ships into defensive clusters.
- Naval escorts to enhance deterrence and survivability.
- Opportunities for joint naval patrols.

This model represents a hybrid security architecture, combining hard power (naval force) with soft coordination (routing and logistics). While promising in theory, convoy systems face challenges related to cost, interoperability, communication infrastructure, and political alignment. Effective implementation requires both hardware (vessels, radar) and software (training, intelligence sharing).

The role of technology in bridging gaps in Maritime Situational Awareness (MSA) is crucial. Key technologies include:

- AIS for vessel tracking.
- VMS for anomaly detection.
- UAVs and satellite imagery for persistent surveillance.

These tools enhance real-time threat detection, emergency response, and decision-making accuracy. The growing reliance on surveillance technology indicates a shift towards data-driven maritime governance. However, sustainability depends on infrastructure, training, and maintenance budgets, which remain inadequate in many GoG states.

In conclusion, a nuanced and actionable framework for addressing maritime insecurity in the GoG is required. This approach combines policy innovation (such as





**Fig. 6** Multi-layered strategy for GoG anti-piracy efforts. *Source:* The authors

shiprider agreements and high-risk classification) with operational tools (convoys, drones, AIS) to provide a multi-layered and adaptive strategy.

#### 4.4 Towards an integrated maritime security vision

Improving maritime security requires a comprehensive and concerted government effort. In particular, this includes the enforcement of legal mechanisms such as the adoption of shiprider agreements, the formal designation of the region as an HRA, and the accelerated deployment of sophisticated surveillance technologies to address identified gaps. Furthermore, the overall measures indicate that long-term restructuring efforts need to be combined with practical and operational solutions. Overall, the results point to a network of mutually reinforcing pressures that require comprehensive strategies.

The findings of this study highlight the urgent need for a comprehensive, multifaceted strategy to counter piracy in the GoG. Maritime security in the region involves more than patrol boats and naval deterrence. It requires economic empowerment, institutional resilience, legal coherence, and regional collaboration. To effectively reduce the long-term economic impact of piracy, the actions outlined in Fig. 6 must be prioritised.

Only by weaving these threads into a cohesive fabric of maritime governance can the GoG move from being a piracy hotspot to a beacon of regional maritime resilience and economic opportunity.



## 5 Discussion

The GoG continues to pose one of the most significant challenges to maritime security worldwide. In 2020, the region, especially the waters off Nigeria, accounted for over 95% of crew kidnappings at sea and continues to be a hotspot for violent and organised piracy. The issues identified in this study in line with the research questions are explained under the following sections.

### 5.1 Economic costs of piracy

The first research question regards direct and indirect economic costs of piracy in the GoG to maritime trade, port operations, and shipping insurance. In response to this, it is found that piracy has imposed significant economic burdens on maritime stakeholders in the GoG. The direct costs include increased shipping insurance premiums, offshore routes, port congestion, and investment in private maritime security services. Shipping companies often incur additional expenses of up to USD 50,000 per voyage due to extended routes (e.g., offshore routes), armed escorts, and security infrastructure. Indirect costs arise from disrupted supply chains, loss of investor confidence, and reduced competitiveness of regional ports. For example, crude oil theft and piracy in Nigerian waters alone are estimated to cost the country over USD 1.5 billion annually. The maritime economy in West and Central Africa is particularly affected. Commercial operations are delayed or deterred, and consumer prices rise due to increased logistical and insurance costs,<sup>8</sup> as well as reduced port throughput and transshipment efficiency.

### 5.2 Evaluating anti-piracy measures: gains and gaps

The second research question pertains to the extent to which current regional anti-piracy initiatives, social and legal measures, the involvement of external actors, and emerging technologies reduce the long-term economic impacts of piracy.

Although measures to combat piracy have been initiated on various fronts, their effectiveness appears limited. Nigeria's Deep Blue Project, for example, represents a significant step in regional maritime security planning. By integrating air, land, and sea surveillance, it demonstrates how coordinated national infrastructure can enhance maritime security. However, the long-term success of the project depends on sustained funding, regional cooperation, and continued political commitment.

The YCoC established a foundation for improved information-sharing and regional cooperation, but practical implementations remain uneven. Trust deficits among neighbouring states, logistical challenges, and gaps in legal frameworks limit the operational effectiveness of this foundation. External actors, including the EU,

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<sup>8</sup> Piracy in the GoG has led to increased insurance premiums and logistical disruptions, which are often passed down the supply chain to consumers. These costs include rerouting of ships, port congestion, and delays, all of which inflate operational costs and ultimately affect pricing for goods in the region. See World Bank, *The Gulf of Guinea Maritime Security Report* (Washington, DC: World Bank, 2022), 18–22; BIMCO, "The Economic Cost of Piracy in the Gulf of Guinea," accessed March 3, 2025, [https://www.bimco.org/news/priority-news/2022/04/01\\_economic-cost-of-piracy-gog](https://www.bimco.org/news/priority-news/2022/04/01_economic-cost-of-piracy-gog).



US, and China have provided naval assets, technical support, and capacity-building programmes. While these efforts have strengthened maritime governance and law enforcement, excessive reliance on foreign intervention may impede the development of autonomous, self-sustaining maritime systems. The main challenge is to achieve local ownership of maritime security, with regional actors leading in both strategy and implementation.

### **5.3 Technology and legal innovation: future pillars of stability**

Emerging technologies are beginning to fill longstanding gaps in maritime surveillance. Tools such as AIS, drones, and satellite tracking enable more precise and real-time monitoring of vessel activity. These innovations provide critical support for early warning systems and more effective enforcement. However, their widespread adoption is limited by technical capacity and resource constraints in many coastal nations. Equally promising are legal instruments such as shiprider agreements, which permit officers from one country to operate aboard the vessels of another, thereby overcoming jurisdictional barriers. The formal recognition of the GoG as a HRA (similar to the Gulf of Aden) could strengthen insurance coverage mechanisms and allow for greater deployment of private armed guards aboard commercial vessels.

### **5.4 Socio-economic roots: the real battleground**

Tackling piracy in the GoG requires more than the increased availability of naval patrols or advanced surveillance systems. It calls for a deeper understanding of the daily realities faced by coastal communities. For many, especially young people, piracy has become a desperate means of survival. Widespread poverty, persistent unemployment, and the collapse of traditional livelihoods, such as small-scale fishing, have left few opportunities. In this context, involvement in piracy activities may seem to be one of the few ways to earn a living.<sup>9</sup> Maritime insecurity, therefore, cannot be addressed in isolation from the socio-economic issues on land. Without genuine investment in development and stability ashore, security efforts at sea are likely to provide only temporary relief. Long-term solutions must integrate social and economic progress at the community level. This includes introducing sustainable, community-driven alternatives to piracy. Providing vocational training, expanding access to small business loans, and investing in sustainable coastal industries such as eco-tourism and aquaculture are some ways to address the root causes. Equally important is engaging local people in maritime safety efforts. Programmes that involve residents in coastal monitoring or early warning networks not only improve surveillance but also help rebuild trust in public institutions. Ultimately, reducing piracy in the GoG will depend on transforming affected communities into key partners in security.

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<sup>9</sup> While poverty is a contributing factor, it is the intersection of geopolitical opportunity, weak governance, environmental degradation, and organised criminal infrastructure that makes the GoG uniquely vulnerable to piracy. Other poor regions lack this specific convergence of enablers, which explains the differing outcomes despite similar economic hardship.



## 6 Conclusion

Solving the piracy problem in the GoG requires a holistic and multi-layered strategy. This should include a stronger rule of law, comprehensive risk assessment frameworks, modern surveillance technologies, and more effective legal tools such as shiprider agreements. Regional cooperation must be prioritised, with technical and institutional support from the international community.

A lasting solution to piracy in the GoG requires a multi-pronged, integrated approach, combining enforcement and surveillance, legal harmonisation and regional cooperation, socio-economic empowerment, and civil society participation.

Central to this strategy is recognising piracy as a developmental issue, not merely a maritime security challenge. Addressing structural factors, such as inequality, exclusion, and weak governance, will be essential to achieving sustainable peace and economic resilience in the region.

In conclusion, the GoG's maritime insecurity is not merely a regional issue. It has global repercussions for trade, investment, and human security. Addressing it requires coordinated efforts that harmonise legal systems, empower local populations, and promote sustainable development. Only through this integrated approach—combining enforcement, inclusion, and economic reform—can the GoG turn the tide against piracy and secure a more prosperous future.

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