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CLIMATE CHANGE AND FOOD SECURITY IN THE CARIBBEAN: STRATEGIC IMPLICATIONS FOR GUYANA AND INTERNATIONAL RELATIONS

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Abstract. The study highlights climate change as a major threat to food security and national resilience in the Caribbean, focusing on Guyana's role in regional agriculture. Using qualitative methods, it shows how erratic weather-such as floods and droughts-has disrupted farming, raised food prices, and harmed rural communities. These impacts worsen socioeconomic vulnerabilities, leading to risks like displacement, unemployment, and governance strain. Despite existing adaptation policies under CARICOM and AOSIS, weak implementation and resource gaps hinder resilience. The paper argues that food security should be treated as a national security priority and calls for climate-smart agriculture, stronger infrastructure, and integration of climate security into policy. Ultimately, it stresses the need for coordinated governance to protect Caribbean food systems amid growing climate volatility.

Key words: Climate change, food security, Guyana, Caribbean, agriculture, national security, adaptation, qualitative research

Introduction

Climate change constitutes a multidimensional challenge to state security, with food security emerging as a critical sub-component of national resilience. Disruptions in staple food production threaten not only economic stability but also social cohesion, heightening risks of poverty, political instability, and forced migration – phenomena that directly intersect with national and regional security agendas. This study situates climate change within the broader security discourse of the Caribbean, employing Guyana as a primary case study to examine how environmental stressors – rising temperatures, shifting precipitation patterns, sea-level rise, and intensifying extreme weather events – undermine agricultural productivity and food availability.

The analysis frames food insecurity as a *threat multiplier*, exacerbating pre-existing vulnerabilities and complicating governance responses. Central research questions include: In what ways does climate change reshape food security dynamics in Guyana and comparable Caribbean states? What empirical and projected impacts are observable in agricultural systems and food supply

chains? How do these environmental pressures translate into strategic challenges for national security and state capacity? What policy instruments and adaptive strategies are being deployed – or could be recommended – to safeguard food systems against climate-induced shocks?

Methodologically, the study adopts a qualitative design, integrating semi-structured interviews with key stakeholders – farmers, agricultural policymakers, and climate specialists in Guyana – with secondary sources such as government reports and meteorological data. This dual approach captures both the quantifiable dimensions of climate-agriculture interactions and the lived experiences of affected communities. By foregrounding Guyana as a case study, the research provides a context-specific lens on adaptation strategies and resilience-building, while generating insights applicable to the wider Caribbean security landscape confronting similar climate-induced threats.

Problem Statement. Undoubtedly, climate change has evolved from a peripheral environmental issue into a pressing security challenge with profound implications for vulnerable regions such as the Caribbean. Agriculture - central to food security and economic stability - stands at the frontline of this crisis. In Guyana, where agricultural production underpins livelihoods, contributes substantially to national GDP, and supports regional food supply chains within the Caribbean Community (CARICOM), climate-induced disruptions such as erratic rainfall, rising temperatures, droughts, and recurrent flooding directly undermine state capacity to ensure food availability, accessibility, and stability.

These environmental stressors translate into strategic security concerns, as food insecurity functions as a *threat multiplier*, exacerbating poverty, destabilizing communities, and potentially triggering migration flows across borders. Despite Guyana's comparative advantage in arable land and freshwater resources, the country has experienced repeated climate-related disasters, most notably the catastrophic floods of 2021, which devastated crop yields and livestock production. Such events highlight the fragility of national resilience and the vulnerability of regional food systems.

Yet, scholarly discourse and policy frameworks remain underdeveloped in addressing the nexus between climate change, food security, and national security in Guyana. This gap underscores the urgent need for systematic inquiry into how climate variability is reshaping food systems and what this implies for state resilience, human security, and sustainable development. Situating Guyana within the broader Caribbean security architecture, this research seeks to illuminate the ways in which environmental change intersects with governance, economic stability, and regional cooperation, thereby reframing food security as a critical dimension of national and regional security strategy.

Theoretical and Conceptual Framework. This study is informed by two interrelated theoretical frameworks that provide a lens for interpreting the literature and the research findings.

i. The Sustainable Livelihoods Framework (SLF): originally developed

by the UK Department for International Development. SLF helps analyze how climate change affects the assets, capabilities, and activities that constitute people's means of living. In the context of Guyana, this framework draws attention to how environmental shocks such as floods or droughts can erode household assets (like crops, livestock, and infrastructure), disrupt livelihood activities, and ultimately undermine food security at the community level.

ii Climate Security framework; often summarized by the idea that climate change acts as a *"threat multiplier."* This perspective [1] examines how climate stresses can aggravate social and economic tensions that potentially lead to instability or conflict. It provides a foundation for understanding how climate-driven food insecurity might escalate into broader national security issues for instance, by contributing to economic instability, triggering internal migration, or straining governance.

Together, these frameworks ensure a holistic analysis: the SLF grounds the review in human and developmental impacts (food production, livelihoods, resilience).

Climate change has emerged as a strategic security challenge in Latin America and the Caribbean (LAC), directly undermining food security and nutrition across multiple states. The Caribbean sub-region, in particular, faces distinctive vulnerabilities due to its geographic exposure and structural dependence on external food supplies. A joint report by United Nations agencies underscores that LAC is the second-most exposed region globally to extreme weather events, surpassed only by Asia. Within this context, 20 countries - representing approximately 74% of those analyzed - have endured a high frequency of climate-related disasters in recent decades, while 14 nations (~52%) are classified as highly vulnerable to climate-induced undernourishment [2].

Extreme climatic events - hurricanes, tropical storms, droughts, and floods - have repeatedly devastated agricultural output and rural livelihoods, eroding state capacity to provide for populations. The Caribbean, with its small land areas and disproportionate exposure to tropical cyclones, suffers some of the highest disaster-related economic losses worldwide as a share of GDP [3]. In the immediate aftermath of such shocks, food availability collapses: crops are destroyed, fisheries disrupted, and imports delayed by damaged infrastructure. Hurricane Maria's impact on Dominica in 2017, which obliterated 80–90% of the island's crops, exemplifies how climate disasters can precipitate acute food shortages and force reliance on external aid. Similarly, the prolonged 2014–2016 drought, exacerbated by El Niño, reduced crop and livestock production, triggered water rationing, and inflated food import bills in Jamaica and St. Kitts and Nevis.

Regional Trends and Security Implications

- Hunger has risen in the Caribbean even as other LAC sub-regions stabilized. In 2023, undernourishment reached 17.2% of the population, reflecting the compounded effects of climate shocks, the COVID-19 pandemic, and economic slowdowns [2].

- Between 2019 and 2023, countries most exposed to climate variability experienced greater increases in undernourishment, underscoring the causal link between climate extremes and food insecurity.
- Rural and coastal communities face chronic livelihood instability, with Haiti serving as a stark example: cycles of drought and hurricane damage have repeatedly undermined domestic food production, fueling a protracted food crisis [4].

Structural Vulnerabilities in the Caribbean

- Import dependence exposes Caribbean states to global climate-induced supply shocks, translating into local shortages and price volatility.
- Limited domestic agriculture, often concentrated in a narrow range of crops or export commodities, remains highly vulnerable to weather volatility.
- Constraints on arable land and freshwater resources further limit agricultural expansion, intensifying reliance on external supplies [3].

Regional Response and Strategic Imperatives CARICOM's "25 by 2025" initiative, spearheaded by Guyana and other member states, seeks to reduce the region's food import bill by 25% by 2025 [5]. This policy agenda implicitly recognizes climate threats by aiming to shorten supply chains, strengthen resilience against global disruptions, and enhance regional self-sufficiency in key commodities such as poultry, rice, and vegetables. Yet, achieving these objectives requires overcoming climate-exacerbated production challenges, including water scarcity, soil degradation, and intensifying extreme weather events.

In international relations terms, the intersection of climate change and food security in LAC - particularly the Caribbean - constitutes a sovereignty and security issue. Addressing it demands:

- Regional solidarity to pool resources and build collective resilience.
- International support, including climate finance and debt relief mechanisms, to strengthen adaptive capacity.
- Integrated strategies that link climate adaptation, sustainable food systems, and security preparedness.

Ultimately, food security in the Caribbean is not only a developmental priority but a strategic necessity for safeguarding sovereignty, stability, and long-term resilience.

Climate change in the Caribbean must be understood not merely as an environmental or economic concern, but as a core national security challenge. Its impacts are deeply intertwined with food security, threatening the stability of states and the resilience of societies. Ensuring that Caribbean populations retain reliable access to food, water, and other essentials in the face of climate disruptions is indispensable to maintaining social order, safeguarding sovereignty, and consolidating development gains across the region.

Within both academic and policy circles, an emerging consensus highlights the need for an integrated strategy - one that bridges climate adaptation**,** sustainable food systems**,** and security preparedness [6]. By elevating climate-related food

insecurity to the level of a security priority, Caribbean states can more effectively protect their citizens and secure their collective future.

Achieving this objective will require:

- Strong advocacy for international support, including enhanced climate finance and innovative mechanisms such as debt relief.
- Regional solidarity, fostering cooperative capacity-building to withstand the intensifying climate pressures of the coming decades.
- In this framing, climate resilience is not only a developmental imperative but a strategic necessity for the preservation of Caribbean sovereignty and stability.

Climate Change and Food Security in Guyana

The following section is organized into four main thematic sections that emerged from data collection and analysis in Guyana.

i. Observed Climate Trends and Extreme Events
ii. Impacts on Agriculture and Food Availability
iii. Community Experiences and Adaptation Strategies
iv. Policy Responses and Institutional Challenges

These qualitative insights are complemented by quantitative or documentary evidence where relevant [7].

Observed Climate Trends and Extreme Events in Guyana

- Rising Temperatures: Interviewees from the interior regions as well as the coast reported a perceptible increase in hot days. Farmers spoke of "longer hot spells" and more days where working in the fields becomes uncomfortable or even dangerous due to heat. An officer from the Guyana Meteorological Department confirmed that national records show a 0.5–1°C increase in average temperatures in many parts of Guyana when comparing the 2010s to the 1990s. This may seem modest, but it is significant in a tropical climate where baseline temperatures are already high.
- Erratic Rainfall Patterns: Changes in rainfall were a major concern. Traditionally, Guyana experiences two wet seasons (approximately May–July and November–January) and two dry seasons. Many participants observed that these seasons have become less predictable Guyana has also witnessed a series of extreme weather events consistent with these trends:
- The 2015-2016 Drought: Linked to a strong El Niño event, this period brought unusually low rainfall. Farmers in Rupununi (a savannah region in southwestern Guyana) and parts of the coastal plain experienced water shortages. Cattle farmers had to travel further to find watering holes, and crop farmers reported stunted growth in cassava and vegetables [8].
- Intense Rainfall and Flooding (2017 and 2019): Several interviewees pointed to localized flooding events in recent years that were precursors to the big 2021 flood. For instance, in 2017, heavy rains caused flooding in Georgetown and along the East Coast Demerara, inundating urban areas and some agri-communities.

- The Nationwide Flood of 2021: Virtually all participants discussed the 2021 flood as a watershed moment (no pun intended) for Guyana's climate impacts. Torrential rains over several weeks resulted in all regions of Guyana experiencing flooding by mid-year 2021. Rivers overflowed the banks, and low-lying villages were submerged.

Impacts on Agriculture and Food Availability

- The climatic changes and extreme events outlined above have had direct, tangible impacts on agriculture the backbone of Guyana's food security. Participants provided numerous examples of how weather anomalies translated into agricultural challenges:
- Crop Yield Reductions and Losses: Both gradual climate trends and sudden events have affected crop yields. Rice, being Guyana's most important staple and export crop, has faced multiple threats. In hotter years, farmers have observed issues like increased sterility in rice flowers (leading to fewer grains formed) and more pest outbreaks such as paddy bugs, which some agricultural experts link to weather changes. Drought periods, like 2015–2016, forced some rice farmers to skip a planting season due to inadequate irrigation water, directly reducing annual output.
- Livestock and Fisheries: The agricultural impact is not limited to crops. Livestock farmers have also been hit. During the 2021 floods, it was reported [8] that thousands of head of cattle and other livestock drowned or died from disease outbreaks (such as foot rot and other water-borne illnesses) that spread in the aftermath. Poultry farms on the coast had to cull chickens that got sick due to the damp conditions and stress.
- Food Availability in Markets: The cumulative effect of the agricultural impacts above is seen in local market availability and prices is a key aspect of food security (availability and access) [9].
- Nutrition and Dietary Impacts: While not quantitatively measured in this study, several participants voiced concerns about nutritional impacts. A health officer interviewed (Interviewee 10, 2025) mentioned that after disasters like floods, there's often a spike in cases of malnutrition among children in affected rural areas, not necessarily severe starvation, but deficiencies because families are eating mostly non-perishable relief.

Community Experiences and Adaptation Strategies

Guyana's farmers and communities are not passive in the face of climate challenges; they have been actively noticing changes and, in many cases, innovating or adapting to sustain their livelihoods. The interviews revealed a range of adaptation strategies being employed at the grassroots level, though also some barriers to effective adaptation.

Adjustments in Farming Practices: Many farmers have started altering what they grow and how they grow it:

- Crop Diversification: A rice farmer (Interviewee 5, 2025) shared that after losing rice to floods, he began to diversify by planting some fast-growing

cash crops on a portion of his land during the dry season, such as legumes and vegetables, which can be harvested before the peak of the rainy season. The idea is not to "put all eggs in one basket."

- Water Management: On the adaptation front for droughts, a notable practice is rainwater harvesting and farm ponds. In Regions 2 and 3, extension officers have been encouraging farmers to dig small ponds or water reservoirs on their property. One farmer mentioned, "We built an earth pond at the back of our farm two years ago. In the dry season, we use that water to drip-irrigate our kitchen garden. It helped us save our crops last year when the dry spell hit" (Interviewee 3, 2025).
- Planting Calendar Shifts: A few farmers indicated they are attempting to shift their planting calendars in response to the changing seasons. For instance, if the rains now come later, they plant rice a few weeks later than they used to, to avoid the crop being at a vulnerable stage during peak rains. This is tricky because it's based on guesswork and emerging patterns; a wrong guess could mean missing the rains altogether.
- Community Solidarity and Traditional Knowledge: Communities have shown resilience through cooperation. In flooded villages, interviewees described how neighbors pooled resources and shared whatever dry space and food they had. One community leader said, "During the flood, our community kitchen cooked large pots of food and everyone ate together, so that those who had lost everything were still fed". Such solidarity can be life-saving in crises.
- Migration and Livelihood Changes: Unfortunately, adaptation is not always successful or sufficient, and some people choose to leave agriculture or relocate. As discussed earlier, a proportion of youth in rural farming communities have shown declining interest in farming as a viable future, especially after witnessing repeated losses due to weather [10].

Policy Responses and Institutional Challenges

Guyana, supported by regional and international partners, has advanced several policy and institutional measures to address climate change and food security:

National strategies: The Green State Development Strategy: Vision 2040 prioritizes low-carbon growth, resilience, and climate-smart agriculture. Draft Climate Change and National Adaptation Plans further target agricultural adaptation.

Disaster risk management: Since the 2005 flood, the Civil Defence Commission has strengthened preparedness, coordinating relief and pre-positioning supplies to safeguard food security.

Regional collaboration: Guyana plays a leadership role in CARICOM initiatives, including the "25 by 2025" program to reduce food import dependence, and engages with the Caribbean Community Climate Change Centre (5Cs).

Infrastructure investment: Significant resources (over GY$18 billion) have been allocated to upgrading drainage, pumps, and sluices to mitigate flooding impacts.

Emergency response: The government's rapid mobilization during the 2021 floods, aided by international partners, prevented a humanitarian crisis, showing improved capacity.

Knowledge sharing: Platforms such as climate-smart agriculture forums are emerging to spread best practices among farmers.

Overall, Guyana has made notable progress in policy design, disaster response, and infrastructure resilience, though implementation challenges remain in scaling and sustaining these efforts.

Discussion

Climate Change as a Present Threat to Food Security

The Guyana case study demonstrates that climate change is not a distant prospect but a current reality undermining food security. Altered rainfall patterns, rising temperatures, and more frequent extreme events are already disrupting agricultural production and livelihoods, reflecting global and regional warnings [6].

Impacts span all four pillars of food security:

- Availability**:** Floods and droughts have sharply reduced crop yields and livestock, shrinking domestic food supply.
- Access**:** Disasters cut off communities physically and economically, limiting reliable access to food.
- Utilization**:** Post-disaster diets shift toward less nutritious options, raising risks of malnutrition.
- Stability**:** Volatility in production and supply means communities can swing from security to crisis within a year.

Overall, the findings highlight that climate change is eroding not just food production but the stability and resilience of food systems, making adaptation and resilience planning a strategic priority for Guyana and other vulnerable states.

From Food Insecurity to National Security Risks

Climate-induced food insecurity in Guyana illustrates how environmental shocks scale into national security challenges. The 2021 floods, which caused damages of about 20 billion Guyanese dollars, show how disasters devastate agriculture, erode livelihoods, and weaken state capacity, creating risks of economic instability and discontent.

Other pathways include:

- Social unrest and migration: While no food riots have occurred, rising frustration suggests potential for protests or resource conflicts if food insecurity persists.
- Institutional strain: Repeated crises stretch government, military, and civil defense capacities, risking legitimacy and political stability.
- Regional security dimensions: Guyana's role in CARICOM food security means its vulnerabilities reverberate regionally, raising risks of dependence on external aid and geopolitical influence.

These findings align with broader research linking climate impacts to state

fragility. Guyana's experience serves as a cautionary tale for other Caribbean states, with Haiti showing how food insecurity can compound political instability. From a human security perspective, climate change directly threatens wellbeing - food, health, and shelter - underscoring the need for national security strategies to integrate climate and food security into risk assessments [10].

Adaptive Strategies and Future Prospects

When discussing adaptation and responses, a key question is: Are the current efforts enough, and what more is needed to safeguard food security against climate change? From the community level adaptations observed, it is clear that local initiative is strong. Farmers are innovating out of necessity. However, local efforts have limitations without enabling support.

Regional cooperation also appears vital. Guyana alone tackling these issues is fine, but a collective Caribbean approach can pool knowledge and resources. The findings here could be shared with Caribbean neighbors, so they can learn (and vice versa, Guyana can learn from, say, Jamaica's experience with climate-smart agriculture or Cuba's disaster preparedness system). There are indications that such knowledge exchange is happening through CARICOM and 5Cs, but it can be deepened.

National security strategy adaptation: It may also be prudent for Guyana to formally integrate climate security into its national security strategy. The defense forces might plan for more frequent domestic deployments in climate disasters, requiring training and resources. Additionally, the government might explore scenario planning: e.g., what if a flood and a pandemic and an economic downturn coincide (compound risk scenarios); do we have enough reserve food, what emergency plans ensure order and fairness in distribution, etc.

International support: Guyana has benefited from aid and could be eligible for climate finance mechanisms (like the Green Climate Fund) for large adaptation projects. The findings highlight projects needed such as major irrigation upgrades and livelihood diversification programs these often require funding beyond domestic budgets. International cooperation will be key, not only in funding but in technology transfer (e.g., Dutch expertise in water management, Israeli know-how in drip irrigation, etc., could be harnessed). In reflecting on the findings and the broader context, one can say there is reason for cautious optimism. Guyana and Caribbean states are not ignoring the problem; they are actively seeking solutions.

Conclusion and Recommendations

This paper set out to investigate how climate change is affecting food security in the Caribbean, using Guyana as a case study, and to understand the implications for national security. Through qualitative research involving interviews and document analysis, the study has illustrated that climate change is already altering Guyana's climate patterns (with higher temperatures and more erratic rainfall), leading to tangible negative impacts on agriculture and food security.

Recommendations for Climate and Food Security Resilience

To strengthen resilience against climate change and its security risks, Guyana and other Caribbean states should:

- Expand climate-smart agriculture: Promote resilient crop varieties, water management, and sustainable soil practices.
- Invest in infrastructure resilience: Upgrade drainage, irrigation, coastal defenses, and rural roads, supported by international climate finance.
- Enhance early warning and preparedness: Build advanced systems to anticipate agricultural impacts and improve disaster response.
- Integrate climate into security planning: Include food and water security in national security agendas, conduct risk assessments, and train defense forces.
- Strengthen social safety nets: Expand crop insurance, emergency cash transfers, and livelihood diversification.
- Engage communities: Incorporate local knowledge and formalize community input in adaptation strategies.
- Deepen regional collaboration: Lead CARICOM initiatives, expand regional insurance schemes, and coordinate food security responses.
- Support monitoring and research: Resource meteorological and agricultural institutions for continuous data collection.
- Advance international advocacy: Position Guyana as a climate-security leader in global forums to secure adaptation funds and technology transfers.
- Forge strategic partnerships: Cooperate with regional neighbors and global partners on climate-resilient agriculture and food diplomacy.
- Plan for human security and migration: Integrate food security into disaster frameworks and prepare protocols for climate-induced displacement.

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КАРИБ ТЕҢІЗІ АЙМАҒЫНДАҒЫ КЛИМАТТЫҢ ӨЗГЕРУІ ЖӘНЕ АЗЫҚ-ТҮЛІК ҚАУІПСІЗДІГІ: ГАЙАНА ЖӘНЕ ХАЛЫҚАРАЛЫҚ ҚАТЫНАСТАР ҮШІН СТРАТЕГИЯЛЫҚ САЛДАРЫ

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Аңдатпа. Бұл зерттеу Кариб аймағындағы азық-түлік қауіпсіздігіне және ұлттық тұрақтылыққа төнетін негізгі қатер ретінде климаттың өзгеруін атап көрсетеді, әсіресе өңірдің ауыл шаруашылығындағы Гайананың рөліне назар аударады. Зерттеу сапалық әдістерді қолдана отырып, ауа райының құбылмалылығы - су тасқындары мен құрғақшылық сияқты құбылыстар - ауыл шаруашылығын бұзып, азық-түлік бағасының өсуіне және ауылдық қауымдастықтардың зардап шегуіне әкелгенін көрсетеді. Бұл ықпалдар әлеуметтік-экономикалық осалдықтарды тереңдетіп, қоныс аудару, жұмыссыздық және басқару жүйесіне түсетін қысым сияқты қатерлерді күшейтеді. CARICOM және AOSIS аясындағы бейімделу саясаттарына қарамастан, олардың әлсіз жүзеге асырылуы мен ресурстардың жеткіліксіздігі тұрақтылықты нығайтуға кедергі келтіреді. Мақала азық-түлік қауіпсіздігін ұлттық қауіпсіздіктің басым бағыты ретінде қарастыру қажеттігін алға тартады және климатқа төзімді ауыл шаруашылығын дамыту, инфрақұрылымды күшейту, сондай-ақ климаттық қауіпсіздік ұғымын саясатқа біріктіруді ұсынады. Соңында, өсіп келе жатқан климаттық тұрақсыздық жағдайында Кариб аймағының азық-түлік жүйелерін қорғау үшін үйлестірілген басқару тетіктерінің маңыздылығына назар аударады.

Тірек сөздер: климаттың өзгеруі, азық-түлік қауіпсіздігі, Гайана, Кариб теңізі, ауыл шаруашылығы, ұлттық қауіпсіздік, бейімделу, сапалы зерттеулер

ИЗМЕНЕНИЕ КЛИМАТА И ПРОДОВОЛЬСТВЕННАЯ БЕЗОПАСНОСТЬ В КАРИБСКОМ РЕГИОНЕ: СТРАТЕГИЧЕСКИЕ ПОСЛЕДСТВИЯ ДЛЯ ГАЙАНЫ И МЕЖДУНАРОДНЫХ ОТНОШЕНИЙ

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Аннотация. В исследовании подчеркивается, что изменение климата представляет собой серьезную угрозу продовольственной безопасности и национальной устойчивости в Карибском бассейне, при этом особое внимание уделяется роли Гайаны в региональном сельском хозяйстве. Используя качественные методы, он показывает, как неустойчивые погодные условия, такие как наводнения и засухи, нарушают работу сельского хозяйства, повышают цены на продовольствие и наносят ущерб сельским общинам. Эти последствия усугубляют социально-экономическую уязвимость, приводя к таким рискам, как перемещение населения, безработица и проблемы с управлением. Несмотря на существующую политику адаптации в рамках КАРИКОМ и АОСИС, слабая реализация и нехватка ресурсов препятствуют повышению устойчивости. В документе утверждается, что продовольственная безопасность должна рассматриваться как приоритет национальной безопасности, и содержится призыв к ведению сельского хозяйства с учетом климатических условий, укреплению инфраструктуры и интеграции вопросов климатической безопасности в политику. В конечном счете, в нем подчеркивается необходимость скоординированного управления для защиты продовольственных систем Карибского бассейна в условиях растущей нестабильности климата.

Ключевые слова: изменение климата, продовольственная безопасность, Гайана, Карибский бассейн, сельское хозяйство, национальная безопасность, адаптация, качественные исследования

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