International Journal of Advances in Engineering and Management (IJAEM)
Volume 7, Issue 04 April 2025, pp: 580-594 www.ijaem.net ISSN: 2395-5252

Export of Hibiscus Flower to Global Market and Its Impact to Bayelsa State Economy.

Raymond Oti, Ifeoma Sheila Emesiana, Vivian Ikechi Wike
Department Of Marketing, Faculty Of Management Science S, Ignatius Ajuru University Of Education, Port Harcourt, Rivers State,
Department Of Marketing, Faculty Of Management Science S,Ignatius Ajuru University Of Education,Port Harcourt, Rivers State,
Department Of Marketing, Faculty Of Management Science S, Ignatius Ajuru University Of Education, Port Harcourt, Rivers State,

Date of Submission: 05-04-2025 Date of Acceptance: 15-04-2025

ABSTRACT
This paper explores the economic impact of hibiscus flower exports on Bayelsa State, Nigeria. The objective of this study was to examine how various dimensions of hibiscus flower export, such as export volume, export regulations and policies, and market demand, relate to economic impact measures, such as export revenue, foreign exchange earnings, and job creation in agriculture. To achieve this, the study aimed to explore the relationships between export volume and export revenue, export regulations and foreign exchange earnings, and market demand and job creation in the agricultural sector. Using a quantitative approach, data were collected from 230 hibiscus farmers, traders, exporters, and government officials in Bayelsa, with 200 questionnaires returned, representing an 87% response rate. The data were analyzed using Spearman's Rank Order Correlation Coefficient with the aid of SPSS 22.0. The findings reveal significant relationships between these variables, highlighting that increasing export volume enhances revenue, while effective export regulations improve foreign exchange earnings. Furthermore, rising market demand for hibiscus directly correlates with job creation in agriculture. The paper concludes that by expanding hibiscus cultivation, improving regulatory frameworks, and leveraging global market demand, Bayelsa can diversify its economy, create sustainable jobs, and strengthen its position in international trade, fostering long-term economic growth and rural development.

I. INTRODUCTION

One of the crucial goals of any region or economy is to ensure sustainable economic growth, particularly through the strategic development of its agricultural exports. In today's interconnected global market, regions must adopt robust economic strategies to diversify income sources, enhance productivity, and improve local welfare. The export of agricultural products, such as hibiscus flowers, plays a pivotal role in driving economic growth by contributing to foreign exchange earnings, creating jobs, and enhancing the overall economic well-being of local communities (Ukeje et al., 2020). Hibiscus flowers, which have gained significant global demand due to their use in the food and beverage industry, as well as for their medicinal and health benefits, provide a unique opportunity for Bayelsa State to strengthen its economic position in international trade (FAO, 2019).

The economic impact of hibiscus flower exports can be measured through key indicators such as export volume, revenue generation, and employment in the agricultural sector. In 2020, global demand for hibiscus flowers grew significantly, with the industry valued at over $1.5 billion, driven by an increasing demand for hibiscus tea and other value-added products (UNCTAD, 2020). This growing market presents a considerable opportunity for Bayelsa State to tap into, considering its favorable climate for hibiscus cultivation (FAO, 2019). Export volume, which measures the quantity of hibiscus flowers sold to global markets, directly correlates with revenue

International Journal of Advances in Engineering and Management (IJAEM)
Volume 7, Issue 04 April 2025, pp: 580-594 www.ijaem.net ISSN: 2395-5252

generation, reflecting the monetary value generated through international trade (Tisdell, 1996).

Export revenue can be reinvested to further improve agricultural practices, infrastructure, and education, contributing to sustainable development (Tisdell, 1996). Job creation is another critical measure of the export industry's economic impact. The hibiscus sector can provide employment opportunities not only in cultivation but also in processing, packaging, and marketing, significantly reducing poverty and improving local livelihoods (World Bank, 2021). In fact, studies have shown that investment in the agricultural sector is one of the most effective ways to reduce poverty in developing economies, with the hibiscus trade offering a tangible path for local economic transformation (Ukeje et al., 2020).

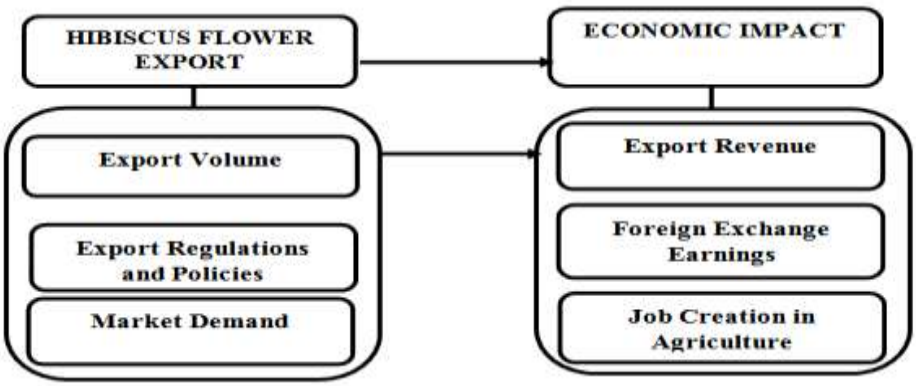
This paper explores the relationship between the export of hibiscus flowers from Bayelsa State and its economic impact, focusing on market demand, export volume, revenue, and job creation. Recent studies, such as those by FAO (2019) on agricultural exports and the economic benefits of floriculture, and by Ukeje et al. (2020) on the role of non-oil exports in Nigerian economic development, highlight the importance of tapping into high-demand agricultural products like hibiscus for economic growth (UNCTAD, 2020). While these studies have examined the broader impacts of agricultural exports on national economies, there is a significant gap in research regarding the specific impacts of hibiscus flower exports on local economies like Bayelsa. By filling this gap, this study aims to provide a comprehensive understanding of how strategic export development, particularly hibiscus flower production, can influence foreign exchange earnings and create sustainable employment opportunities in the region (World Bank, 2021).

Statement of Problem

The economic development of Bayelsa State, like many other regions in Nigeria, has been heavily reliant on the oil and gas sector, which limits diversification and exposes the state to global oil price volatility (Ukeje et al., 2020). As such, there is a growing need to explore alternative sources of income and avenues for sustainable growth. One promising sector is agricultural exports, particularly the hibiscus flower industry. Hibiscus flowers have seen a significant rise in global demand, driven by their use in beverages, medicinal products, and health-related applications (UNCTAD, 2020). Despite this growing market, Bayelsa State has not fully capitalized on the export potential of hibiscus flowers to drive economic development and enhance its export revenues (FAO, 2019).

While global demand for hibiscus flowers continues to increase, there remains a lack of empirical research on the economic impact of hibiscus flower exports on the state of Bayelsa. The existing literature has highlighted the general benefits of agricultural exports, but there is insufficient data on how hibiscus trade contribute to key economic indicators such as export volume, revenue generation, and job creation within the region (World Bank, 2021). Without understanding the full economic potential of hibiscus flower exports, Bayelsa State risks missing opportunities to reduce its dependency on oil revenues and improve local livelihoods through sustainable agricultural practices (Tisdell, 1996). Therefore, this study seeks to bridge this gap by investigating the economic impact of hibiscus flower exports on Bayelsa State's economy, focusing on export volume, revenue generation, and job creation, and offering recommendations to optimize the state's export strategy (Ukeje et al., 2020).

Conceptual Framework



Source: Researcher's Conceptualization (2025)

International Journal of Advances in Engineering and Management (IJAEM)
Volume 7, Issue 04 April 2025, pp: 580-594 www.ijaem.net ISSN: 2395-5252

Objective

The aim of this paper was to examine the export of hibiscus flower to global market and its impact to Bayelsa State economy. The objectives of this paper include the followings:

1. to examine the relationship between export volume and export revenue to Bayelsa State economy.
2. to examine the relationship between export regulations policies and policy and foreign exchange earnings to Bayelsa State economy.
3. to examine the relationship between market demand and job creation in agriculture to Bayelsa State economy.

Research Questions

The research seeks to answer the following questions:

1. What is the relationship between export volume and export revenue to Bayelsa State economy?
2. What is the relationship between export regulations policies and foreign exchange earnings to Bayelsa State economy?
3. What is the relationship between market demand and job creation in agriculture to Bayelsa State economy?

Hypotheses

1. There is no significant relationship between export volume and export revenue to Bayelsa State economy.
2. There is no significant relationship between export regulations policies and foreign exchange earnings to Bayelsa State economy.
3. There is no significant relationship between market demand and job creation in agriculture to Bayelsa State economy.

II. REVIEW OF RELATED LITERATURE

The global demand for hibiscus flowers has seen significant growth in recent years, largely due to its widespread use in the food and beverage industry, as well as its application in the cosmetics and pharmaceutical sectors. Hibiscus flowers, primarily used for the production of hibiscus tea, are valued not only for their refreshing, tart flavor but also for their numerous health benefits, including their ability to lower blood pressure and improve heart health (Ravindran et al., 2015). The increasing demand for herbal teas and other natural, plant-based products has driven the global market for hibiscus flowers, making it an essential crop in several agricultural economies.

In addition to its use in beverages, hibiscus flowers are also used in the production of various cosmetic and pharmaceutical products. The flower's antioxidant and anti-inflammatory properties make it an ideal ingredient in skincare products, while its potential medicinal benefits are sought after in traditional medicine (Singh et al., 2017). This growing recognition of hibiscus as a versatile and beneficial plant has led to an increase in demand, particularly in countries that are known for their health-conscious consumer base, such as the United States, Germany, France, and Japan. According to a market analysis by Grand View Research (2021), the global hibiscus flower market is projected to grow at a compound annual growth rate (CAGR) of over 5% from 2021 to 2028, driven by the increasing adoption of organic and herbal products.

The demand for hibiscus flowers in these countries has created significant export opportunities for producing nations, particularly those in Africa. Nigeria, one of the largest producers of hibiscus flowers globally, stands to benefit immensely from the expanding market. Nigeria's favorable climate and vast agricultural land make it an ideal location for hibiscus cultivation, and the country has already established itself as a major exporter of hibiscus flowers, with the bulk of its exports going to Europe, the United States, and Asia (FAO, 2020). The export of hibiscus flowers is a key component of Nigeria's agricultural sector, offering an alternative to the country's dependence on oil exports. As the global market for hibiscus continues to expand, Nigeria has the potential to significantly increase its market share and strengthen its position as a key supplier of this valuable commodity.

Furthermore, the expanding hibiscus flower market presents an opportunity for Nigeria to diversify its agricultural exports, reduce reliance on oil, and contribute to the economic development of rural areas. Hibiscus farming is typically carried out by smallholder farmers, and increasing global demand could lead to higher income levels, job creation, and broader rural development (Alimi et al., 2019). Moreover, as the market grows, there is potential for the development of value-added industries such as processing, packaging, and the production of hibiscus-based products, which would further strengthen Nigeria's export capacity and enhance economic growth.

The global demand for hibiscus flowers is projected to continue its upward trajectory, driven by growing consumer preferences for herbal, organic, and health-oriented products. Countries

International Journal of Advances in Engineering and Management (IJAEM)
Volume 7, Issue 04 April 2025, pp: 580-594 www.ijaem.net ISSN: 2395-5252

like Nigeria, with the capacity for large-scale production, stand to benefit significantly from this expansion. By tapping into this growing global market, Nigeria can diversify its agricultural sector, enhance its export revenues, and contribute to the broader economic development of its rural communities.

Previous studies have consistently emphasized the significant role of agricultural exports in driving economic growth, particularly in developing countries. Research by Tadesse et al. (2014) highlights that agricultural exports contribute to economic diversification by reducing dependence on a single sector, such as oil or mining. Agricultural exports provide substantial benefits, including boosting employment, fostering infrastructure development, and increasing government revenues. These exports often create both direct and indirect employment opportunities, especially in rural areas where jobs can be scarce. According to studies by Krugman and Obstfeld (2009), agricultural exports create direct employment in farming and processing, and indirect employment in related industries such as transportation, logistics, and packaging. This is particularly critical in regions with high poverty levels, such as Bayelsa State, where rural communities stand to benefit from the demand for agricultural products like hibiscus flowers.

Hibiscus, as a cash crop, offers particular promise for employment generation in rural communities. A study by Oloruntoba and Siyanbola (2018) found that the cultivation of hibiscus and its related industries can create jobs and improve income levels, particularly in economically disadvantaged regions. In Bayelsa State, where oil revenues are often concentrated in urban areas, hibiscus farming can create widespread opportunities for smallholder farmers and rural workers. The cultivation of hibiscus flowers generates employment not only in the farming sector but also in the processing, packaging, and export stages of the supply chain. These sectors create numerous opportunities for women, youth, and other marginalized groups in rural Bayelsa, thereby addressing the region's high poverty and unemployment levels (Ogunniyi et al., 2020).

In addition to direct employment, hibiscus cultivation and export can promote infrastructure development in rural areas. Increased global demand for hibiscus flowers necessitates better transportation networks, storage facilities, and processing plants. The study by Oloruntoba and Siyanbola (2018) also shows that investments in infrastructure, such as roads and storage facilities, help to link rural producers to national and international markets, improving their ability to sell and distribute hibiscus products. As demand increases, the need for improved logistical networks and processing centers also grows, creating a ripple effect on infrastructure development that benefits not just hibiscus farmers but also other local agricultural producers.

Furthermore, agricultural exports such as hibiscus contribute significantly to government revenues. Studies such as those by Ogunniyi et al. (2020) show that revenue generated from export duties and taxation of agricultural exports can be reinvested in local development initiatives. In Bayelsa State, where oil revenues are unstable, increasing agricultural exports can provide a more stable and diversified revenue stream. The additional income can be used to improve local infrastructure, healthcare, education, and other social services, contributing to the overall economic development of the region.

Nigeria, recognized as one of the world's leading producers of hibiscus flowers, faces both significant opportunities and challenges in capitalizing on the growing global demand for this commodity. Bayelsa State, where hibiscus is primarily cultivated by smallholder farmers, plays a central role in this production. While local traders and small enterprises are responsible for much of the export activities, there are several barriers that hinder the full realization of hibiscus' economic potential in this region.

One of the primary obstacles is the inadequate infrastructure in rural areas, which impacts the entire supply chain, from production to export. The lack of well-maintained roads, poor storage facilities, and limited access to modern processing plants all contribute to inefficiencies in transporting hibiscus flowers from rural farms to processing centers and export terminals. According to a report by the World Bank (2020), the absence of robust infrastructure remains a significant bottleneck in the agricultural sector in Nigeria, limiting the country's capacity to increase exports and meet global demand efficiently. Poor infrastructure results in increased transaction costs, delays, and post-harvest losses, thereby reducing the profitability of hibiscus exports and impacting the competitive positioning of Nigerian products in international markets.

Furthermore, limited access to international markets represents a significant challenge for hibiscus producers and exporters in Bayelsa. While demand for hibiscus flowers is

International Journal of Advances in Engineering and Management (IJAEM)
Volume 7, Issue 04 April 2025, pp: 580-594 www.ijaem.net ISSN: 2395-5252

growing, particularly in markets such as the United States, Germany, and Japan, many smallholder farmers and local traders in Bayelsa lack the capacity to access these global markets effectively. As noted by the International Trade Centre (ITC, 2018), a lack of access to market information, insufficient export training, and poor connectivity to international buyers limit the ability of small-scale producers to compete globally. Additionally, the absence of export facilitation services and weak trade networks make it difficult for Bayelsa-based exporters to tap into high-value markets where premium prices could be obtained for hibiscus flowers.

The issue of inconsistent quality standards also poses a major challenge to the export of hibiscus flowers from Bayelsa. International markets often have stringent quality requirements, and the inconsistency in the quality of Nigerian hibiscus products undermines their competitiveness. Inconsistent quality arises from several factors, including lack of proper harvesting techniques, inadequate post-harvest handling practices, and limited access to modern processing technology (FAO, 2021). According to a report by the Food and Agriculture Organization (FAO, 2020), ensuring consistent product quality is vital for maintaining access to high-value export markets. Without an effective quality control system, Nigerian hibiscus producers risk losing market share to competitors who can consistently meet the quality expectations of international buyers. Farmers and exporters in Bayelsa would benefit from targeted training programs on improving farming practices and post-harvest management, which could help them meet international quality standards and ensure long-term market access.

Bayelsa has emerged as a key player in hibiscus flower production in Nigeria, contributing significantly to the country's total output of this valuable commodity. The state's favorable climate and fertile soil have made it an ideal location for hibiscus cultivation, and its farmers are increasingly meeting both domestic and international demand for hibiscus flowers. As one of Nigeria's top producers of hibiscus, Bayelsa plays a crucial role in the nation's agricultural export sector, particularly as global demand for hibiscus products continues to rise (Ukwu et al., 2020).

In response to this growing sector, the Nigerian government has implemented several initiatives aimed at boosting agricultural exports, including those led by the Nigerian Export Promotion Council (NEPC). The NEPC has focused on promoting the export of hibiscus and other non-oil commodities, recognizing the potential of agricultural exports to diversify Nigeria's economy, reduce dependence on oil, and enhance economic resilience. Through various programs, such as export financing, capacity-building for exporters, and trade facilitation, the NEPC has supported the growth of the hibiscus export sector in Bayelsa and other hibiscus-producing regions (Ogundipe&Siyanbola, 2019).

Despite these government efforts and Bayelsa's increasing importance in hibiscus production, there remains a lack of comprehensive research on the direct economic impact of hibiscus flower exports on the local economy of the state. While there is a growing recognition of hibiscus as a valuable cash crop, little is known about its specific contributions to key areas such as employment creation and infrastructure development within Bayelsa. Research into these areas could provide a clearer understanding of how hibiscus exports impact local livelihoods and help to direct future investments and policies that would further support the sector's growth.

Employment generation is one of the most important potential benefits of hibiscus flower exports for Bayelsa's rural communities. While general studies on agricultural exports suggest that such activities can create both direct and indirect jobs, particularly in rural areas (Tadesse et al., 2014), there is insufficient data specific to hibiscus in Bayelsa. A clearer understanding of how hibiscus farming and its related industries (processing, packaging, transport) contribute to job creation could guide local and regional policies aimed at maximizing employment opportunities for Bayelsa's growing population.

Moreover, hibiscus flower exports can contribute to infrastructure development, particularly in rural areas where transportation and storage facilities are often inadequate. Increased demand for hibiscus flowers on the international market requires improvements in logistics, such as better roads, processing plants, and storage facilities, which could have broader economic benefits for local communities. The absence of research into these specific impacts means that policy decisions may not fully reflect the potential benefits of hibiscus export activities in Bayelsa.

III. THEORETICAL FOUNDATION

This study was anchored on the Export-Led Growth Theory, developed by economists such as Charles P. Kindleberger (1967), posits that

International Journal of Advances in Engineering and Management (IJAEM)
Volume 7, Issue 04 April 2025, pp: 580-594 www.ijaem.net ISSN: 2395-5252

export expansion is a central driver of economic development. The theory suggests that economies can achieve sustained growth by increasing exports, which in turn enhances production capabilities, generates employment, and promotes industrialization. According to this perspective, exporting goods and services leads to a rise in income, an improvement in the balance of payments, and an increase in a country or region's foreign exchange earnings (Krugman, 1994). The theory emphasizes the pivotal role of exports in fostering economic growth, particularly in developing regions seeking to boost their economies (Balassa, 1978).

In the context of Bayelsa State, Export-Led Growth Theoryhighlights how exporting Hibiscus flowers could lead to significant economic benefits. The theory suggests that by expanding its Hibiscus flower exports, Bayelsa can stimulate industrial growth, create employment opportunities, and contribute to infrastructural development. Hibiscus flowers, with their global demand, particularly in the production of herbal teas, cosmetics, and pharmaceuticals, present a viable export commodity for Bayelsa. Exporting these flowers can drive growth in the state's agricultural sector, fostering linkages with other industries such as processing, packaging, and transportation (Balassa, 1978). This creates an economic ecosystem that supports the development of local industries and infrastructure.

The justification for the Export-Led Growth Theory is clear when applied to the export of Hibiscus flowers in Bayelsa. First, Bayelsa has a natural comparative advantage in Hibiscus flower cultivation due to its favorable climate and fertile soil. This advantage, aligned with the theory's principles, suggests that Bayelsa is well-positioned to maximize the benefits of exporting Hibiscus flowers. By focusing on this export, Bayelsa can tap into international markets, generating revenue and boosting its economic output (Krugman, 1994). Furthermore, export expansion can attract foreign investments, promote the development of processing industries, and contribute to improved infrastructure, thus catalyzing broader economic growth (Kindleberger, 1967).

Additionally, the Export-Led Growth Theory emphasizes the need for job creation and poverty reduction. As Bayelsa grows its Hibiscus flower export sector, it can stimulate employment in agriculture, logistics, and manufacturing, thereby reducing poverty in the state's rural areas. The influx of export revenues could also fund critical infrastructure projects, such as roads and ports, making it easier to transport goods and further boosting economic activity.

IV. CONCEPTUAL REVIEW

Concept of Hibiscus Flower Export

Hibiscus flower, particularly Hibiscus sabdariffa, has become a significant agricultural export commodity, especially for countries like Nigeria, India, and Mexico. The global hibiscus market is growing, driven by its diverse applications in beverages, cosmetics, and pharmaceuticals. According to Volza (2023), hibiscus flower exports reached over 10,700 shipments globally, with Nigeria leading the export market, contributing to around 61% of global exports. The plant is primarily traded for its use in producing hibiscus tea, a popular beverage known for its health benefits. Exporting hibiscus is not without its challenges, however. Export regulations are stringent, particularly in the European Union and other developed markets, where the flower must meet specific health and safety standards. This includes ensuring that the flowers are free from contaminants and pesticide residues. Compliance with international trade agreements, such as the Convention on Biological Diversity, also plays a significant role in managing the sustainability of hibiscus farming and ensuring fair trade practices (CBI EU, 2023).

The demand for hibiscus flowers is expected to rise in the coming years. The market was valued at approximately $113.2 million in 2021, with a projected annual growth rate of 7.2% from 2021 to 2028 (The Business and Financial Times, 2025). This growth is driven by increased consumer interest in natural, health-oriented products, including herbal teas, beauty products, and dietary supplements. Major importers of hibiscus include the United States, Germany, and Mexico, underscoring the global demand for this versatile flower.

Dimension of Hibiscus Flower Export

Hibiscus Flower Export can be understood through three essential dimensions: export volume, export regulations and policies, market demand.

Export Volume - Hibiscus, particularly Hibiscus sabdariffa, is a significant agricultural export for several countries, notably Nigeria. According to Volza (2023), global exports of hibiscus flower shipments reached 10,784, involving 87 exporting and 102 importing countries. Nigeria emerged as the leading exporter, accounting for approximately 61% of these shipments, followed by Spain with 14% and India with 7%. Major importers include

International Journal of Advances in Engineering and Management (IJAEM)
Volume 7, Issue 04 April 2025, pp: 580-594 www.ijaem.net ISSN: 2395-5252

the United States, Nigeria, and Ukraine. This highlights the substantial role hibiscus plays in global trade and the increasing demand for this versatile plant.

Export Regulations and Policies - Exporting hibiscus requires adherence to various regulations to ensure product quality and market access. For example, the European Union mandates compliance with specific standards for natural ingredients used in health products. This includes ensuring products are free from contaminants, obtaining necessary certifications, and adhering to guidelines set under international treaties like the Convention on Biological Diversity (CBI EU, 2023). These regulations help ensure the product's safety and quality, enhancing its acceptance in international markets.

Market Demand - The global demand for hibiscus is robust, driven by its applications in beverages, pharmaceuticals, and cosmetics. According to The Business and Financial Times (2025), the hibiscus market was valued at approximately $113.2 million in 2021, with projections suggesting a Compound Annual Growth Rate (CAGR) of 7.2% from 2021 to 2028. Key markets include Germany, the USA, and Mexico, where hibiscus is primarily used for making teas and syrups. As a result, the demand for hibiscus continues to rise, offering lucrative export opportunities for countries that cultivate it.

Concept of Economic Impact

The economic impact of hibiscus flower exports extends beyond the immediate financial returns to farmers and exporters. One of the most significant contributions is in generating export revenue. In 2017, Nigeria exported approximately 1,983 containers of hibiscus to Mexico, generating $35 million in revenue (Business Day, 2023). Such export earnings are essential for national economies, particularly in countries with large agricultural sectors. Foreign exchange earnings from hibiscus exports also play a vital role in strengthening national economies. In Nigeria, the increasing prices of hibiscus have resulted in projections of around N48 billion in earnings in 2023, contributing to the stabilization of the country's foreign exchange reserves (FloralDaily, 2023). These foreign exchange earnings help balance trade deficits and provide resources for other sectors of the economy.

Furthermore, hibiscus farming creates numerous job opportunities in agriculture, particularly in rural areas. In Nigeria, over 200,000 farmers are involved in hibiscus cultivation, and this sector continues to offer economic stability for rural communities (FloralDaily, 2023). In Ghana, cultivating hibiscus on 10 hectares can create 20–30 jobs, covering tasks from planting and harvesting to processing and packaging (ModernGhana, 2023). This labor-intensive sector helps reduce poverty and fosters socio-economic development in rural areas.

Measures of Economic Impact

Economic Impact can be understood through three essential measures: export revenue, foreign exchange earnings, job creation in agriculture.

Export Revenue - Hibiscus exports contribute significantly to national economies. For example, in 2017, Nigeria exported 1,983 containers of hibiscus to Mexico, generating $35 million in revenue over nine months (BusinessDay, 2023). This substantial income underscores the economic potential of hibiscus cultivation and trade, which can have far-reaching effects on national income and industry growth.

Foreign Exchange Earnings - Exporting hibiscus also plays a pivotal role in bolstering foreign exchange earnings, which enhances economic stability. As noted by Floral Daily (2023), the surge in hibiscus prices has led Nigerian farmers to anticipate earnings of approximately N48 billion in 2023, further solidifying hibiscus's role in strengthening foreign currency reserves and supporting economic development.

Job Creation in Agriculture - The hibiscus sector is labor-intensive, offering employment across its value chain. In Nigeria, hibiscus production employs over 200,000 farmers, significantly contributing to rural development and poverty alleviation (FloralDaily, 2023). Similarly, in Ghana, cultivating 10 hectares of hibiscus can create 20–30 jobs, encompassing planting, harvesting, drying, and processing activities (ModernGhana, 2023). These employment opportunities are crucial for sustainable rural economies and provide a means of income for countless individuals involved in hibiscus farming.

V. EMPIRICAL REVIEW

Efosa et al., (2023) explored the potential of Hibiscus sabdariffa as an entrepreneurial resource in the southern part of Nigeria, with a focus on its planting and processing. They noted that the hibiscus flower held significant promise in the export market, especially for an economy like Nigeria's, which is aiming to diversify away from its dependence on oil. In their analysis, the researchers pointed out that the northern region of

International Journal of Advances in Engineering and Management (IJAEM)
Volume 7, Issue 04 April 2025, pp: 580-594 www.ijaem.net ISSN: 2395-5252

Nigeria had already been benefiting from the growing hibiscus market, where the price for one ton of the flower ranged between N1.3 million and N1.7 million.

The primary objective of their study was to examine the feasibility of cultivating and processing hibiscus in the southern region of Nigeria, specifically using Auchi Polytechnic as a pilot field for experimentation. The results of the study indicated that hibiscus grew well in this region, and the yield from the plants was substantial. The calyces of the hibiscus were harvested, dried at 30°C, and then formulated into tea. This tea was subsequently analyzed for its phytochemical composition. The study also assessed the antihypertensive, antioxidant, nephroprotective, and neuroprotective properties of the tea, which revealed promising health benefits. The authors concluded that the cultivation and processing of hibiscus in southern Nigeria not only holds economic potential but also presents an opportunity for both local and international business ventures. This study highlights the economic advantages of hibiscus as a crop and positions it as a valuable component in Nigeria's agricultural diversification efforts.

Girma et al., (2015) conducted a study to investigate into the profitability of Hibiscus sabdariffa production in the Wendo Genet District of Ethiopia. The authors aimed to evaluate the financial feasibility of cultivating hibiscus, specifically the two varieties of the plant: WG-Hibiscus-Jamaican and WG-Hibiscus-Sudan. To do so, they planted both varieties in experimental fields, utilizing two distinct planting methods: direct sowing in the field and seedling preparation in a nursery. The spacing between plants and rows was standardized at 60 cm.

The researchers applied a simple cost accounting method to assess the cost-benefit analysis of hibiscus production. They examined the costs involved in planting, harvesting, and post-harvest management, as well as the returns generated from the sale of the crop. Their findings revealed that while the production costs for both varieties were similar, the Sudan variety proved to be more profitable due to a higher yield, which offset additional harvesting and post-harvest management costs. Additionally, the study found that direct sowing of hibiscus was more profitable than using seedlings prepared in a nursery. The authors concluded that hibiscus cultivation in Wendo Genet was a profitable venture, offering good returns for local farmers. This study highlights the economic viability of hibiscus production and provides valuable insights into the most cost-effective cultivation methods for maximizing profits.

Osei-Kwarteng et al., (2021) carried out a study to provide a comprehensive review of the various post-harvest processes involved in the handling and marketing of Hibiscus sabdariffa. Their work focused on the different parts of the plant that are utilized for a variety of products, including beverages, medicinal items, and food products such as sauces, vegetable oils, and marmalade. They noted that the plant's calyces, leaves, tender shoots, stems, and seeds are rich in anthocyanins, flavonoids, polyphenols, organic acids, and fiber, making them valuable for both nutritional and medicinal uses.

The authors stressed the importance of proper harvesting and post-harvest management practices, which they identified as crucial factors influencing the quality and marketability of hibiscus products. They pointed out that the timing of the harvest and the methods used for storage and processing had a significant impact on the final product's quality, storage lifespan, and commercial success. Despite the acknowledged importance of these practices, the review highlighted that there remain significant knowledge gaps regarding the best techniques for harvesting, processing, and storing hibiscus produce. The authors emphasized the need for more research and development to fill these gaps and improve the efficiency of postharvest handling.

Drawing from a wide range of literature from various countries involved in hibiscus cultivation, the review provided valuable information for farmers, processors, and marketers on how to enhance the quality of hibiscus products and expand their marketability. This work contributes to a better understanding of the plant's postharvest handling and offers practical recommendations to improve both the economic returns and the quality of hibiscus-based products.

Gap in Literature

While there is extensive research on the broader economic impacts of agricultural exports, there is a significant gap in understanding the specific effects of hibiscus flower exports on the economy of Bayelsa State. Most studies focus on national-level data and general agricultural export trends, with little attention given to how hibiscus exports directly influence local economic indicators such as export volume, revenue generation, and foreign exchange earnings in Bayelsa.

International Journal of Advances in Engineering and Management (IJAEM)
Volume 7, Issue 04 April 2025, pp: 580-594 www.ijaem.net ISSN: 2395-5252

Additionally, the role of export regulations and policies in shaping Bayelsa's hibiscus export sector remains under-explored. While international standards for product quality and certification are well-documented, there is limited research on how these regulations affect the ability of Bayelsa farmers to access global markets and generate foreign exchange. The impact of these policies on the competitiveness of the state's hibiscus exports remains unclear. The literature also lacks detailed insights into how hibiscus exports contribute to job creation in Bayelsa's agricultural sector. Although agricultural exports generally provide employment opportunities, specific studies on the labor impacts of hibiscus farming, processing, and export in Bayelsa are scarce. A better understanding of this relationship would highlight how hibiscus export can contribute to poverty alleviation and rural development.

Lastly, while hibiscus presents a potential means of diversifying Bayelsa's economy away from oil dependence, there is limited research on how this agricultural export can drive economic diversification and growth in the region.

VI. RESEARCH METHODOLOGY

The study on the export of hibiscus flowers and its impact on Bayelsa State's economy employed a quantitative approach to examine the relationship between hibiscus export and the state's economic performance. A correlational research design was used to explore the relationships between key variables such as export volume, revenue, foreign exchange earnings, job creation, and market demand. The target population consisted of hibiscus farmers, local traders, exporters, and government officials involved in the hibiscus export sector. A stratified random sampling technique was used with a sample size of 230 respondents. Data was collected through structured surveys that gathered quantitative data on export volume, revenue, job creation, and the perceived impacts of export regulations. Secondary data was sourced from government reports, including those from the Nigerian Export Promotion Council (NEPC) and the Central Bank of Nigeria. Out of 230 questionnaires distributed, 200 were returned, representing an 87% response rate. The collected data was analyzed using Spearman's Rank Order Correlation Coefficient with SPSS 22.0.

VII. DATA ANALYSIS AND RESULT

$H0_1$: There is no significant relationship between export volume and export revenue to Bayelsa State economy.

Correlations

			Export Volume	Export Revenue
Spearman's rho	Export Volume	Correlation Coefficient	1.000	.615**
		Sig. (2-tailed)	.	.000
		N	200	200
	Export Revenue	Correlation Coefficient	.615**	1.000
		Sig. (2-tailed)	.000	.
		N	200	200

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS Output from Field Data (2025)

$H0_1$: There is no significant relationship between export volume and export revenue to Bayelsa State economy. The result reveals a significant relationship between export volume and export revenue (rho = .615, p = 0.000). Based on the decision rule of $p < 0.05$ for null rejection, we reject the null hypothesis and accept the alternative hypothesis: that there is a significant relationship between export volume and export revenue to Bayelsa State economy.

$H0_2$: There is no significant relationship between export regulations policies and foreign exchange earnings to Bayelsa State economy.

International Journal of Advances in Engineering and Management (IJAEM)
Volume 7, Issue 04 April 2025, pp: 580-594 www.ijaem.net ISSN: 2395-5252

Correlations

				Export Regulations Policies	Foreign Exchange Earnings
Spearman's rho	Export Policies	Regulations	Correlation Coefficient	1.000	.621**
			Sig. (2-tailed)	.	.000
			N	200	200
	Foreign Earnings	Exchange	Correlation Coefficient	.621**	1.000
			Sig. (2-tailed)	.000	.
			N	200	200

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS Output from Field Data (2025)

$H0_2$: There is no significant relationship between export regulations policies and foreign exchange earnings to Bayelsa State economy. The result reveals a significant relationship (rho = .621, p = 0.000). We reject the null hypothesis and accept the alternative hypothesis: there is a significant relationship between export regulations policies and foreign exchange earnings.

$H0_3$: There is no significant relationship between market demand and job creation in agriculture to Bayelsa State economy.

Correlations

			Market Demand	Job Creation in Agriculture
Spearman's rho	Market Demand	Correlation Coefficient	1.000	.573**
		Sig. (2-tailed)	.	.000
		N	200	200
	Job Creation	Correlation Coefficient	.573**	1.000
		Sig. (2-tailed)	.000	.
		N	200	200

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS Output from Field Data (2025)

$H0_3$: There is no significant relationship between market demand and job creation in agriculture to Bayelsa State economy. The result shows a significant relationship (rho = .573, p = 0.000). We reject the null hypothesis and accept the alternative hypothesis: there is a significant relationship between market demand and job creation in agriculture.

VIII. DISCUSSION OF FINDINGS

The findings of this study reveal significant relationships between key economic factors influencing Bayelsa State's economy. These findings align with existing literature on agricultural and export market trends, particularly those focusing on the economic viability of agricultural products like Hibiscus sabdariffa.

Export Volume and Export Revenue

The study establishes a significant positive relationship between export volume and export revenue (rho = 0.615, p = 0.000). This suggests that increasing the volume of exports positively influences revenue generation, a crucial factor for economic growth in Bayelsa State. These findings support the argument by Efosa et al. (2023), who highlighted the importance of export-oriented agricultural commodities, such as Hibiscus sabdariffa, in diversifying Nigeria's economy beyond oil dependency. Their study demonstrated that hibiscus, particularly in northern Nigeria, has a lucrative export market, contributing significantly to regional income. If similar agricultural products are cultivated and exported from Bayelsa State, there is potential for increased revenue, as observed in other parts of Nigeria.

Furthermore, Girma et al. (2015) reinforced this point by demonstrating that hibiscus cultivation can be financially viable when strategic methods are used. Their cost-benefit analysis indicated that higher yields and efficient cultivation practices enhanced revenue, a principle that can be applied to Bayelsa State's agricultural sector. These insights suggest that policymakers should encourage export diversification and support infrastructure for agricultural exports.

International Journal of Advances in Engineering and Management (IJAEM)
Volume 7, Issue 04 April 2025, pp: 580-594 www.ijaem.net ISSN: 2395-5252

Export Regulations Policies and Foreign Exchange Earnings

The study also identifies a significant relationship between export regulation policies and foreign exchange earnings (rho = 0.621, p = 0.000). This implies that effective regulatory policies can improve foreign exchange earnings by creating an enabling environment for exports. This aligns with the findings of Osei-Kwarteng et al. (2021), who emphasized the importance of proper post-harvest management and regulatory frameworks in enhancing the marketability of agricultural exports like Hibiscus sabdariffa. Their study underscored that without appropriate policies on harvesting, processing, and storage, agricultural products may fail to meet international quality standards, limiting their market potential.

Given Bayelsa State's reliance on export-driven revenue, policymakers should implement clear and consistent export regulations that facilitate ease of trade, improve product quality, and encourage foreign exchange inflows. By learning from the hibiscus industry, which has benefited from structured market regulations in other regions, Bayelsa State could adopt similar measures to improve its agricultural export performance.

Market Demand and Job Creation in Agriculture

The study also finds a significant relationship between market demand and job creation in agriculture (rho = 0.573, p = 0.000). This indicates that as demand for agricultural products increases, more employment opportunities emerge in farming, processing, and distribution. Efosa et al. (2023) highlighted this effect in their study on Hibiscus sabdariffa, where they demonstrated that expanding hibiscus cultivation and processing in southern Nigeria could create jobs and economic opportunities, particularly for small-scale farmers and entrepreneurs.

Similarly, Girma et al. (2015) provided evidence that profitable hibiscus farming in Ethiopia led to increased employment opportunities due to labor-intensive harvesting and post-harvest processing. These findings emphasize that if Bayelsa State promotes agricultural markets effectively, it can drive job creation and improve livelihoods, particularly in rural communities.

IX. CONCLUSION

This study highlights the significant economic potential of hibiscus flower exports for Bayelsa State. The findings confirm that there is a positive and significant relationship between export volume and export revenue, export regulations and foreign exchange earnings, and market demand and job creation in the agricultural sector. As the hibiscus industry continues to grow globally, Bayelsa State, with its favorable climate and fertile land, has the opportunity to diversify its economy away from oil dependence by tapping into this lucrative agricultural export market.

The results suggest that increasing hibiscus exports can substantially contribute to economic growth, job creation, and foreign exchange earnings. Furthermore, implementing effective export policies and infrastructure development can facilitate this growth, helping to position Bayelsa as a key player in the global hibiscus market. The positive correlation between market demand and job creation also points to the broader socio-economic benefits, particularly for rural communities, where employment opportunities in hibiscus farming and processing can significantly reduce poverty and enhance livelihoods.

X. RECOMMENDATIONS

Based on the findings of this study, the following recommendations are made to optimize the economic benefits of hibiscus flower exports in Bayelsa State:

- Bayelsa State government should focus on expanding hibiscus cultivation and improving export processes. Support for farmers through training, resources, and market access will help increase export volumes.
- Bayelsa hibiscus flower farmers should collaborate with the government to improve export regulations, ensuring compliance with international standards to enhance product quality and increase foreign exchange earnings.
- Bayelsa state government should tap into the growing global demand of hibiscus flower by expanding processing capacity and creating job opportunities in farming, processing, and packaging, especially for rural communities.

REFERENCES

[1]. Alimi, S. O., Akinmoladun, O. R., &Durojaiye, E. A. (2019). Economic potentials of hibiscus cultivation for rural development in Nigeria. Agricultural Economics and Rural Development, 15(2), 124-132.

[2]. BusinessDay. (2023). Hibiscus Export Opens Opportunity for Farmers, Traders. Retrieved from https://businessday.ng
[3]. Efosa, J., Able, O., &Shaibu, N. (2023). Planting and processing of hibiscus sabdariffa: A source of entrepreneurship for both local and international business in the southern part of Nigeria using Auchi Poly as a pilot field. International Journal of Innovation in Science & Technology, 1(1), 34-53.
[4]. FAO. (2019). Agricultural exports and their economic impact. Food and Agriculture Organization of the United Nations.
[5]. FAO. (2020). Nigeria: Hibiscus production and export report. Food and Agriculture Organization of the United Nations. https://www.fao.org/nigeria/hibiscus-report
[6]. FAO. (2021). Hibiscus flower quality control: Challenges and opportunities. Food and Agriculture Organization of the United Nations. https://www.fao.org/quality-control
[7]. FloralDaily. (2023). Nigeria Growers Eye Hibiscus Farming as Profitable Venture. Retrieved from https://floraldaily.com
[8]. Girma, T., Philiphos, M., &Abera, S. (2015). Profitability study of Hibiscus sabdariffa L. production around Wendo Genet District, Ethiopia. Science, Technology and Arts Research Journal, 3(4), 214-218.
[9]. Grand View Research. (2021). Hibiscus flower market analysis report. https://www.grandviewresearch.com/industry-analysis/hibiscus-flower-market
[10]. ITC. (2018). Access to international markets: The case of Nigeria's hibiscus flower export industry. International Trade Centre. https://www.intracen.org/nigeria-exports
[11]. Jones, G. R. (2013). Organizational theory, design, and change: The case of the agile organization. Pearson Education.
[12]. Krugman, P. (1994). Competitiveness: A dangerous obsession. Foreign Affairs, 73(2), 28-44.
[13]. Krugman, P., &Obstfeld, M. (2009). International economics: Theory and policy (8th ed.). Pearson Education.
[14]. Mintzberg, H. (1983). Structure in fives: Designing effective organizations. Prentice-Hall.
[15]. ModernGhana. (2023). Sobolo Can Generate Enough Revenue for Ghana. Retrieved from https://modernghana.com
[16]. Ogundipe, O. O., &Siyanbola, W. (2019). Nigerian government support for agricultural export diversification: The case of hibiscus flower. Development Policy Review, 37(6), 729-745.
[17]. Ogunniyi, A., Ayoola, G., &Akinmoladun, A. (2020). The role of agricultural exports in economic development: A case study of hibiscus flower exports from Nigeria. International Journal of Agricultural Economics, 16(1), 23-45.
[18]. Oloruntoba, S., &Siyanbola, W. (2018). Infrastructure development for agricultural export promotion: A case of hibiscus flowers in Bayelsa State, Nigeria. Journal of Rural Development, 37(4), 56-72.
[19]. Ravindran, P. N., Babu, K. N., &Sridharan, K. (2015). Hibiscus as a health-promoting flower. Journal of Medicinal Plants Research, 9(25), 711-717.
[20]. Singh, P., Kaur, R., & Gill, R. (2017). Medicinal and cosmetic uses of hibiscus: A review. Journal of Herbs, Spices & Medicinal Plants, 23(2), 99-109.
[21]. Tadesse, G., Dejene, M., &Awol, S. (2014). Agricultural exports and their impact on economic diversification in sub-Saharan Africa. Agricultural Economics, 40(3), 243-260.
[22]. The Business and Financial Times. (2025). Sobolo Hibiscus: Our Next Cocoa Revolution. Retrieved from https://thebftonline.com
[23]. Tisdell, C. A. (1996). The economics of agricultural trade and the global market for flowers. Australian Journal of Agricultural Economics, 40(1), 15-30.
[24]. Ukwu, B., Ojeifo, E., &Eze, U. (2020). The contribution of Bayelsa State to Nigeria's hibiscus flower export industry. African Journal of Agricultural Economics, 28(1), 35-48.
[25]. UNCTAD. (2020). Global demand for hibiscus flowers and the economic potential of the trade. United Nations Conference on Trade and Development.

International Journal of Advances in Engineering and Management (IJAEM)
Volume 7, Issue 04 April 2025, pp: 580-594 www.ijaem.net ISSN: 2395-5252

[26]. Volza. (2023). Hibiscus Flower Export. Retrieved from https://volza.com
[27]. World Bank. (2020). Nigeria's agricultural sector: Constraints and opportunities for growth. https://www.worldbank.org/nigeria/agriculture
[28]. World Bank. (2021). Employment growth and poverty reduction through agriculture. World Bank Group.

Appendices

Questionnaire: The Economic Impact of Hibiscus Flower Exports on Bayelsa State's Economy

Section A: Demographic Information Please fill in the following details:

1. **Gender**:
   - ☐ Male
   - ☐ Female
   - ☐ Other (Please specify): _____
2. **Age Group**:
   - ☐ 18-25
   - ☐ 26-35
   - ☐ 36-45
   - ☐ 46-55
   - ☐ 56 and above
3. **Level of Education**:
   - ☐ No formal education
   - ☐ Primary school
   - ☐ Secondary school
   - ☐ Tertiary education
   - ☐ Post-graduate education
4. **Occupation**:
   - ☐ Hibiscus farmer
   - ☐ Local trader
   - ☐ Exporter
   - ☐ Government official
   - ☐ Other (Please specify): _____

Section B: Export Volume and Export Revenue Please respond to the following questions regarding hibiscus flower export volume and revenue generation:

5. **How many years have you been involved in hibiscus flower production or export?**
   - ☐ Less than 1 year
   - ☐ 1-5 years
   - ☐ 6-10 years
   - ☐ More than 10 years
6. **On average, what is the annual export volume of hibiscus flowers from Bayelsa State?**
   - ☐ Less than 50 tons
   - ☐ 51-100 tons
   - ☐ 101-150 tons
   - ☐ More than 150 tons
7. **What is the average revenue generated from hibiscus flower exports annually?**
   - ☐ Less than ₦1,000,000
   - ☐ ₦1,000,000 - ₦5,000,000
   - ☐ ₦5,000,001 - ₦10,000,000
   - ☐ More than ₦10,000,000
8. **How has the export volume of hibiscus flowers changed over the past 5 years?**
   - ☐ Significantly increased
   - ☐ Increased moderately
   - ☐ Stayed the same
   - ☐ Decreased

Section C: Export Regulations and Foreign Exchange Earnings Please answer the following questions regarding export regulations and their impact on foreign exchange earnings:

9. **How would you rate the effectiveness of current export regulations for hibiscus flowers from Bayelsa State?**
   - ☐ Very effective
   - ☐ Effective
   - ☐ Neutral
   - ☐ Ineffective

International Journal of Advances in Engineering and Management (IJAEM)
Volume 7, Issue 04 April 2025, pp: 580-594 www.ijaem.net ISSN: 2395-5252

- ☐ Very ineffective

10. **What challenges do you face in complying with export regulations?** (Select all that apply)
- ☐ Complex documentation requirements
- ☐ High compliance costs
- ☐ Inconsistent enforcement of regulations
- ☐ Lack of government support or guidance
- ☐ Other (Please specify): _____

11. **How much revenue does hibiscus flower export contribute to Bayelsa State's foreign exchange earnings annually?**
- ☐ Less than ₦10 million
- ☐ ₦10 million - ₦50 million
- ☐ ₦51 million - ₦100 million
- ☐ More than ₦100 million

12. **Do you believe that improved export regulations could increase foreign exchange earnings for Bayelsa State?**
- ☐ Yes
- ☐ No
- ☐ Not sure

Section D: Market Demand and Job Creation in Agriculture Please answer the following questions about market demand and its role in job creation:

13. **Which countries or regions are the main markets for hibiscus flowers exported from Bayelsa?** (Select all that apply)
- ☐ United States
- ☐ European Union
- ☐ Asia (e.g., Japan, China)
- ☐ Other African countries
- ☐ Other (Please specify): _____

14. **Has the demand for hibiscus flowers in international markets increased over the past few years?**
- ☐ Significantly increased
- ☐ Increased moderately
- ☐ Stayed the same
- ☐ Decreased

15. **What is the impact of increased hibiscus flower export demand on local employment?** (Select all that apply)
- ☐ Creation of new jobs in farming
- ☐ Creation of jobs in processing and packaging
- ☐ Creation of jobs in transportation and logistics
- ☐ Creation of jobs in marketing and sales
- ☐ No significant impact on employment

16. **How many new jobs have been created in the hibiscus export sector due to increased market demand?**
- ☐ Less than 50 jobs
- ☐ 51-100 jobs
- ☐ 101-200 jobs
- ☐ More than 200 jobs

17. **Do you believe that hibiscus flower exports can reduce poverty in Bayelsa's rural communities?**
- ☐ Yes
- ☐ No
- ☐ Not sure

Section E: General Assessment and Recommendations Please provide your opinions on the following:

18. **In your opinion, how can Bayelsa State improve its hibiscus export industry to enhance economic growth?**
- ☐ Better infrastructure (e.g., roads, storage facilities)
- ☐ Government incentives or subsidies for farmers
- ☐ Increased export training and capacity building
- ☐ Improved marketing and access to international markets
- ☐ Other (Please specify): _____

International Journal of Advances in Engineering and Management (IJAEM)
Volume 7, Issue 04 April 2025, pp: 580-594 www.ijaem.net ISSN: 2395-5252

19. **What role do you think hibiscus flower exports can play in diversifying Bayelsa State's economy away from oil dependency?**
    - ☐ Significant role
    - ☐ Moderate role
    - ☐ Minimal role
    - ☐ No role
20. **What additional support or policies would you recommend to improve the hibiscus flower export sector in Bayelsa State?**