

# From Import Dependency to Domestic Production: A Special Purpose Vehicle Model for Transforming Malawi's Salt Mining Sector

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## Abstract

Malawi's economic stability is perennially threatened by acute foreign exchange (forex) shortages, which constrain the importation of essential goods and undermine macroeconomic stability. This article investigates a critical, yet overlooked, contributor to this challenge: the nation's growing dependency on imported salt. Paradoxically, despite possessing significant commercial salt deposits in Nchalo, Chikwawa District, Malawi imports over 60,000 metric tons of salt annually, representing a substantial drain on its limited forex reserves. This paper presents findings from a mixed-methods study involving 43 respondents, including artisanal miners, government officials, and industrial food processors. The research quantifies the widening gap between domestic supply and demand, identifies key barriers hindering the local salt industry—such as prohibitive compliance costs with iodization regulations, lack of technology, and market exclusion—and analyses the macroeconomic implications of this import dependency. To address this, the article proposes a transformative framework centered on the establishment of a Public-Private Partnership to create a Salt Special Purpose Vehicle (SPV). This strategic intervention aims to scale up production, integrate artisanal miners into the formal value chain, achieve significant import substitution, conserve millions in foreign exchange, and catalyse inclusive economic growth.

**Keywords:** Import Substitution, Foreign Exchange, Salt Mining, Artisanal Mining, Public-Private Partnership, Value Chain Development.

## 1. Introduction

### 1.1. Background and Context

Malawi, a landlocked nation in southeastern Africa with a population exceeding 20 million, continues to confront a persistent and deepening foreign exchange crisis that ranks among the most consequential macroeconomic challenges facing the country [1]. The chronic scarcity of foreign currency has severely constrained the nation's capacity to import essential goods, service external debts, and maintain the macroeconomic stability necessary for sustained economic growth and poverty reduction. The effects of forex shortages permeate every stratum of the economy, from multinational corporations struggling to repatriate profits and procure imported inputs, to smallholder farmers unable to access affordable fertilizer, to ordinary consumers confronting escalating prices for basic necessities [2].

The structural roots of Malawi's forex predicament are well documented in the development economics literature. The country's export base remains narrow and heavily concentrated in

agricultural commodities, principally tobacco, tea, and sugar, that are subject to volatile global prices and shifting demand patterns [3]. Simultaneously, the import bill continues to expand, driven by demand for fuel, pharmaceuticals, machinery, processed foods, and a wide array of consumer goods that the domestic economy does not produce in sufficient quantities. This structural trade deficit generates relentless downward pressure on the Malawian kwacha, fuels inflation, and creates a vicious cycle in which currency depreciation further inflates the cost of imports, thereby deepening the very forex shortage it reflects [4].

Addressing this challenge demands a multifaceted strategic response. While efforts to diversify exports, attract foreign direct investment, and expand remittance inflows are essential components of any comprehensive solution, an equally critical yet frequently underemphasized pillar of economic strategy is import substitution [5]. Import substitution, when pursued judiciously and targeted at sectors where genuine domestic comparative advantage exists, can simultaneously reduce the import bill, conserve foreign

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exchange, create employment, generate tax revenue, and stimulate backward and forward linkages throughout the domestic economy [6].

Among the most compelling yet persistently overlooked candidates for import substitution in Malawi is salt. Salt is a commodity of fundamental importance to human nutrition, food preservation, food processing, livestock management, and various industrial applications. It is, by any measure, an essential good—one for which demand is both universal and inelastic. Malawi's annual salt consumption is substantial, exceeding 62,000 metric tons in 2020, and the trajectory of demand has been consistently upward, driven by population growth, urbanization, and the expansion of the food processing industry [7].

What renders Malawi's situation paradoxical—and the present inquiry urgent—is that the country possesses significant, commercially viable salt deposits in Nchalo, located in the low-lying areas of Chikwawa District in the Lower Shire Valley. Despite the documented existence of these deposits, the country continues to import virtually all of its salt requirements from Botswana, India, Mozambique, Tanzania, South Africa, and other countries. The foreign exchange expended on these imports represents a direct and recurring drain on the nation's scarce reserves—a drain that could, with appropriate policy intervention and investment, be substantially curtailed through the development of domestic production capacity.

### 1.2. Statement of the Problem

The central problem addressed in this article is the disconnect between Malawi's documented domestic salt resources and its near-total dependence on imported salt to meet national demand. This disconnect is not merely an academic curiosity; it has tangible and quantifiable economic consequences. Each metric ton of salt imported represents foreign exchange that leaves the country, tax revenue that accrues to foreign producers and intermediaries rather than to the Malawian treasury, and employment opportunities that are created in exporting nations rather than in Malawian communities where poverty rates remain among the highest in the world [8].

Despite the intuitive logic of developing domestic salt production—and despite periodic expressions of governmental interest in mineral sector development—the salt subsector has received negligible policy attention, investment, or institutional support. Artisanal and small-scale miners at Nchalo operate with rudimentary technology, lack access to iodization equipment, are unable to obtain the regulatory certifications necessary to access formal markets, and face competition from well-established and efficiently organized import supply chains. The result is a domestic salt industry that operates at a fraction of its potential, serving informal and highly localized markets while the formal market remains the almost exclusive domain of imported products.

### 1.3. Research Objectives

This article aims to achieve three interconnected objectives:

- To present and analyze empirical evidence on the current state of salt imports into Malawi and their implications for the country's foreign exchange position and broader economic development trajectory.
- To assess the domestic salt production potential at Nchalo, Chikwawa District, identifying both the resource endowment and the constraints that have prevented its commercial exploitation at scale.
- To propose evidence-based, actionable policy recommendations for developing the domestic salt industry as a strategic component of Malawi's import substitution and economic diversification agenda.

### 1.4. Significance of the Study

This study is significant for Malawi's economic policy, mineral sector development, and macroeconomic stability. It provides empirical evidence that heavy salt importation contributes to persistent foreign exchange shortages and demonstrates how targeted import substitution can ease pressure on national reserves. The findings offer practical guidance to institutions such as the Reserve Bank of Malawi and the Ministry of Energy and Mining in designing strategies that promote domestic production.

The proposed Public-Private Partnership and Special Purpose Vehicle framework presents an inclusive model that integrates artisanal miners into formal value chains while ensuring regulatory compliance under the Iodization of Salt Act. By highlighting employment creation, value addition, and potential forex savings, the study repositions salt mining as a strategic contributor to Malawi's industrialization, economic diversification, and long-term self-reliance.

## 2. Literature Review

### 2.1. Import Substitution as a Development Strategy

Import substitution industrialization (ISI) emerged as a dominant development paradigm in the mid-twentieth century, particularly in Latin America and parts of Asia, as newly independent nations sought to reduce their dependence on imported manufactured goods and build domestic industrial capacity [9]. The theoretical rationale for ISI rested on the Prebisch thesis, which argued that the terms of trade for primary commodity exporters tended to deteriorate over time relative to manufacturers, creating a structural impediment to development that could only be overcome through deliberate industrialization behind protective barriers [10].

While the historical record of ISI is mixed—with notable successes in countries such as South Korea, Brazil, and Turkey, but also well-documented failures attributable to rent-seeking, inefficiency, and fiscal strain—the fundamental logic of replacing imported goods with domestically produced alternatives where feasible remains compelling, particularly for countries facing acute foreign exchange constraints [11]. Contemporary scholarship has moved beyond the binary debate between ISI and export-oriented

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industrialization, recognizing that the two approaches are not mutually exclusive and that selective import substitution in sectors where domestic comparative advantage exists can complement rather than contradict export promotion strategies [6].

For Malawi, the case for targeted import substitution is strengthened by the severity and persistence of the country's forex shortage, the narrowness of its export base, and the existence of natural resources—including salt—that are currently underexploited. The critical distinction, as the literature makes clear, is between indiscriminate import substitution (which tends to produce inefficiency and fiscal burden) and strategic import substitution (which targets sectors where genuine resource endowments, demand conditions, and value chain opportunities align to create prospects for competitive domestic production) [12].

## 2.2. The Global and Regional Salt Industry

Salt (sodium chloride, NaCl) is one of the most abundant and widely distributed mineral commodities on Earth, yet its economic significance is frequently underestimated. Global salt production exceeds 300 million metric tons annually, with major producers including China, the United States, India, Germany, and Australia [13]. Salt is produced through three principal methods: underground mining of rock salt deposits (halite), solar evaporation of seawater or brine, and solution mining in which water is injected into underground deposits and the resulting brine is pumped to the surface and evaporated.

In sub-Saharan Africa, salt production is dominated by a relatively small number of countries with established commercial operations.

Botswana, through its Botswana Ash (Botash) operation at Sua Pan in the Makgadikgadi Pans, is one of the region's largest producers and a major supplier to the Southern African Development Community (SADC) market. Mozambique, Tanzania, and South Africa also produce significant quantities. India, though geographically distant, has emerged as a major supplier to the African market, leveraging its massive production capacity and competitive pricing. Within this regional context, Malawi occupies the position of a net importer—a position that is neither geologically inevitable nor economically optimal. The country's salt deposits, while perhaps not of the scale found in Botswana's Sua Pan, are nonetheless commercially significant and have been utilized for artisanal production for generations. The challenge, as this article demonstrates, is not the absence of the resource but the absence of the institutional, technological, and financial infrastructure necessary to exploit it at commercial scale.

## 2.3. Salt Production in Malawi: Historical and Contemporary Perspectives

Salt production in the Lower Shire Valley of Malawi has a long history, predating colonial administration. Indigenous communities in the Chikwawa and Nsanje districts have traditionally extracted salt from saline soils and natural brine sources using rudimentary solar evaporation techniques [14]. This traditional production

served local consumption needs and supported regional trade networks. During the colonial period and in the decades following independence in 1964, salt production at Nchalo and other locations in the Lower Shire Valley continued on a small scale, primarily through artisanal methods. However, the industry never received the kind of sustained governmental attention, infrastructure investment, or technological upgrading that would have been necessary to transition from artisanal to commercial-scale production. Instead, as Malawi's economy became increasingly integrated into regional and global trade networks, imported salt—benefiting from economies of scale, mechanized production, and established distribution channels—progressively displaced domestic production from formal markets.

The enactment of the Iodization of Salt Act (Chapter 52:02) represented a critical juncture for the domestic salt industry. While the legislation was motivated by the legitimate and important public health objective of preventing iodine deficiency disorders, its implementation created significant compliance burdens for small-scale domestic producers who lacked the equipment, technical knowledge, and financial resources to iodize their product to the required standard. The practical effect of the legislation, however unintended, was to further entrench the dominance of imported salt in formal markets while marginalizing domestic producers to informal channels [15].

## 2.4. Public-Private Partnerships in Mineral Sector Development

The development economics literature increasingly recognizes public-private partnerships (PPPs) as a viable mechanism for mobilizing the capital, technology, and managerial expertise necessary to develop natural resource sectors in low-income countries [16]. PPPs can take various forms, from joint ventures and concession agreements to special purpose vehicles (SPVs) established for specific developmental objectives.

In the mineral sector specifically, PPPs have been employed in various African countries to bridge the gap between artisanal and small-scale mining (ASM) operations and commercial-scale production. The challenge, as noted by Hilson (2016), is to design partnership structures that deliver the efficiency and scale of commercial operations while ensuring that host communities—often those with the longest historical connection to the resource—retain meaningful ownership, decision-making authority, and benefit-sharing rights. The SPV model proposed in this article draws on these principles, seeking to combine government strategic oversight, private sector investment and technical capacity, and community participation through the Nchalo Salt Miners Cooperative.

## 3. Research Methodology

### 3.1. Research Design

This study employed a mixed-methods research design, integrating qualitative and quantitative data collection and analysis techniques. The mixed-methods approach was selected for its capacity to

capture both the statistical dimensions of salt import trends and production capacity (quantitative) and the lived experiences, perceptions, and institutional perspectives of stakeholders across the salt value chain (qualitative). This methodological triangulation enhances the validity and depth of the findings [17].

### 3.2. Study Sites

Data collection was conducted across three primary research sites, selected purposively based on their relevance to the salt value chain in Malawi:

**a. Nchalo, Chikwawa District:** The principal site of domestic salt extraction and the location of the Nchalo Salt Miners Cooperative, which represents the most organized domestic salt production operation in the country.

**b. Monkey Bay, Mangochi:** A fishing hub on the shores of Lake Malawi, where fresh fish sellers represent a significant segment of salt demand, particularly for fish preservation & processing.

**c. Lilongwe and Blantyre:** The locations of government ministries, regulatory agencies, and major food processing companies that constitute key stakeholders in the salt sector.

### 3.3. Sampling and Participants

A total of 43 respondents participated in the study, drawn from four distinct stakeholder categories through purposive and convenience sampling techniques. The sampling strategy was designed to capture perspectives from across the salt value chain—from production through regulation to end-use—and to ensure representation of both formal and informal market participants. The selection of salt miners and fish sellers through cooperative structures facilitated access to organized groups with direct experience in salt production and utilization, respectively. Government officials were selected based on their institutional mandates related to industrial policy, trade facilitation, and standards regulation. Food processing company representatives were chosen from firms known to be significant industrial consumers of salt.

### 3.4. Data Collection Methods

Three primary data collection methods were employed:

**(i) Focus Group Discussions (FGDs):** Two focus group discussions were conducted—one with the 10 members of the Nchalo Salt Miners Cooperative and one with 23 fresh fish sellers

from fishing cooperatives in Monkey Bay. FGDs were selected for their capacity to generate rich, interactive data on shared experiences, collective challenges, and group-level perceptions (Krueger & Casey, 2015). Each FGD was conducted using a semi-structured discussion guide organized around themes including production methods, market access, regulatory challenges, pricing dynamics, and perceptions of imported versus domestically produced salt.

**(ii) Key Informant Interviews (KIIs):** Six key informant interviews were conducted with government officials and food processing company representatives. The semi-structured interview format allowed for in-depth exploration of policy perspectives, regulatory frameworks, industrial demand patterns, quality requirements, and perceptions of the feasibility of domestic salt production at commercial scale.

**(iii) Secondary Data Review:** Import statistics and trade data were obtained from the Malawi Investment and Trade Centre (MITC), covering the period 2016–2020. This secondary data provided the quantitative foundation for the analysis of import trends, source country composition, and the magnitude of Malawi’s salt import bill.

### 3.5. Data Analysis

Qualitative data from FGDs and KIIs were analyzed using thematic analysis, following the six-phase framework articulated by Braun and Clarke (2006). Audio recordings and field notes were transcribed, coded, and organized into themes that emerged both deductively (guided by the research objectives) and inductively (arising from the data itself). Quantitative import data were analyzed using descriptive statistics, including trend analysis and proportional composition by source country.

## 4. Findings

### 4.1. Trends in Salt Imports: Scale, Composition, and Growth

Analysis of MITC trade data reveals that Malawi’s salt imports have grown substantially and consistently over the five-year period examined. Total imports increased from 44,943 metric tons in 2016 to 62,612 metric tons in 2020, representing a cumulative increase of 39.3% and a compound annual growth rate (CAGR) of approximately 8.6% (see Table 1).

Exporters	2016	2017	2018	2019	2020
	Imported quantity, Tons	Imported quantity, Tons	Imported quantity, Tons	Imported quantity, Tons	Imported quantity, Tons
World	44943	52178	57862	61824	62612
Botswana	26157	28686	30967	28262	27360
India	7139	13220	22171	28508	27306
Mozambique	2524	6940	1979	2655	5915
Tanzania, United Republic of	1560	1356	1446	814	1303

South Africa	557	369	252	300	224
Pakistan	27	2	4	52	148
Zimbabwe	2913	570	510	900	61
Canada	8				3
United States of America	1		0		1
Kenya	2389	352	28	25	
Mauritius	1410				
Poland	21	11			
Romania				0	
United Arab Emirates	27	449	28	308	
Egypt	51				
United Kingdom	55	221	110		

Several notable patterns emerge from the data:

**Table 1: Trends in Salt Imports**

- **Dominance of Botswana and India:** Throughout the period, Botswana and India collectively accounted for the vast majority of Malawi’s salt imports. In 2020, these two countries supplied 54,666 metric tons out of a total of 62,612 metric tons—equivalent to 87.3% of all imports. Botswana’s dominance is attributable to its geographic proximity within the SADC region and the large-scale commercial operations at Sua Pan. India’s rapidly growing market share—from 15.9% in 2016 to 43.6% in 2020—reflects the competitiveness of Indian salt on international markets, driven by massive production volumes, low labor costs, and efficient logistics.
- **Decline of Other Regional Suppliers:** Zimbabwe, Kenya, and Mauritius, which collectively supplied 6,712 metric tons in 2016, had largely exited the Malawian market by 2020, with Zimbabwe’s exports falling to just 61 metric tons and Kenya and Mauritius recording zero exports. This consolidation toward fewer source countries increases Malawi’s supply concentration risk.
- **Emergence of Non-Traditional Suppliers:** The intermittent appearance of suppliers such as Pakistan, the United Arab Emirates, Egypt, and the United Kingdom—while quantitatively minor—suggests that Malawian importers actively seek alternative sources, possibly in response to price differentials, supply disruptions, or currency access constraints.
- **Persistent Growth Trajectory:** The consistent year-on-year increase in total imports, from 44,943 metric tons in 2016 to 62,612 metric tons in 2020, indicates that salt demand in Malawi is robust and growing. Extrapolating this trend, annual imports could approach or exceed 80,000 metric tons within the next five years, further intensifying the associated forex drain.

#### 4.2. Domestic Salt Production Capacity at Nchalo

The study’s field investigation at Nchalo, Chikwawa District, confirmed the existence of significant salt production potential.

The Nchalo Salt Miners Cooperative, established in 2020, represents the most organized domestic salt production entity in the country. Through focus group discussions with cooperative members, the following findings emerged regarding the resource base and production characteristics:

- **Resource Endowment:** The Nchalo area is characterized by several natural attributes conducive to salt production. These include saline soils with elevated sodium chloride concentrations, underground brine deposits accessible at relatively shallow depths, proximity to the Shire River providing water resources necessary for brine processing, favorable topographic conditions with flat terrain facilitating the construction of evaporation pans, and a hot, semi-arid climate with high evaporation rates and relatively low rainfall, particularly during the dry season (May–October), which is ideal for solar evaporation-based salt production.
- **Current Production Levels:** The cooperative reported producing approximately 1,000 kilograms (one metric ton) of salt per month, equivalent to approximately 12 metric tons per year. All production is conducted using traditional, labor-intensive methods involving manual excavation of saline soils, dissolution in water to create brine solutions, solar evaporation in shallow, unlined pans, and manual harvesting, drying, and rudimentary packaging.
- **Product Type:** The salt produced at Nchalo is classified as rock salt—a coarser, mineral-rich product. Notably, focus group participants and key informants from the food processing sector indicated that rock salt is the type most preferred by food processing companies due to its mineral profile, flavor characteristics, and suitability for certain industrial applications.
- **Organizational Capacity:** The cooperative structure provides a foundation for collective action, resource pooling, and market engagement. However, participants noted that the cooperative remains in its early stages of organizational development, with limited managerial capacity, no formal business plan, and no

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established relationships with formal market buyers.

### 4.3. The Supply-Demand Gap

Juxtaposing domestic production data with import statistics reveals a supply-demand gap of staggering proportions:

- **Current domestic production (Nchalo Cooperative):** approximately 12 metric tons per year
- **Total annual imports (2020):** 62,612 metric tons
- **Domestic production as a percentage of total supply:** less than 0.02%

Effectively, the entire formal market for salt in Malawi is served by imports. Domestic production, while valued by local consumers in the informal market, is quantitatively negligible relative to national demand. This gap is not a reflection of inadequate natural resource endowment but rather of the cumulative effect of decades of policy neglect, regulatory barriers, technological stagnation, and the absence of targeted investment in the salt subsector.

### 4.4. Challenges Confronting Artisanal and Small-Scale Salt Producers

The study identified a constellation of interrelated challenges that collectively constrain the growth and formalization of domestic salt production. These challenges, which emerged consistently across data sources and stakeholder categories, are discussed below.

#### 4.4.1. Regulatory and Compliance Barriers

The Iodization of Salt Act (Chapter 52:02) requires that all salt sold for human consumption in Malawi be fortified with iodine to prevent iodine deficiency disorders. While this regulation serves a vital public health objective, its implementation imposes significant compliance costs on small-scale producers who lack the technical knowledge, specialized equipment, and financial resources to iodize their product to the mandated standard. The cost of acquiring and operating spray-mix iodization equipment, conducting quality testing, and maintaining the documentation required for regulatory compliance is beyond the reach of individual artisanal miners and even of cooperatives operating at the current production scale.

#### 4.4.2. Absence of Certification and Market Access

Closely related to the iodization challenge is the inability of domestic producers to obtain certification from the Malawi Bureau of Standards (MBS). Without MBS certification, domestically produced salt cannot legally be sold in formal retail markets, supplied to food processing companies, or used in institutional food preparation. Focus group participants reported instances of confiscation of their salt products by regulatory authorities when the salt was found on formal markets, resulting in financial losses and discouraging market development efforts.

This regulatory environment creates a paradoxical situation in which domestic producers are effectively excluded from the formal market by the very standards intended to ensure product quality—standards that they cannot meet without the investment in technology and infrastructure that market access would help

finance. The result is a self-reinforcing cycle of informality, low production volumes, and marginalization.

#### 4.4.3. Technological Constraints

Salt production at Nchalo relies entirely on traditional, labor-intensive methods that have remained essentially unchanged for generations. The absence of mechanized extraction equipment, engineered evaporation systems, brine pumping infrastructure, and modern processing and packaging technology severely limits both the quantity and consistency of output. Participants in the salt miners' FGD emphasized that their production methods are slow, physically demanding, and vulnerable to weather disruptions, particularly during the rainy season when flooding can destroy evaporation pans and contaminate partially processed salt.

#### 4.4.4. Infrastructure and Storage Deficiencies

Inadequate storage facilities emerged as a significant concern. Salt is hygroscopic—it readily absorbs moisture from the atmosphere—and without proper storage, harvested salt degrades rapidly, losing both quality and market value. The cooperative reported using makeshift storage structures that offer inadequate protection from moisture, pests, and contamination, leading to substantial post-harvest losses.

#### 4.4.5. Market Information Asymmetries

Domestic producers operate with extremely limited market intelligence. They lack reliable information on formal market prices, buyer requirements, quality specifications, and potential demand from food processing companies and other industrial users. This information deficit prevents them from strategically positioning their product, negotiating favorable terms, or identifying and pursuing market opportunities.

#### 4.4.6. Competition from Imported Salt

Imported salt benefits from significant competitive advantages rooted in economies of scale, mechanized production, efficient logistics networks, established buyer relationships, and—in some cases—preferential trade arrangements. The unit cost of imported salt, delivered to Malawian markets, is often lower than the production cost of domestically produced salt at current artisanal scale. This price differential, compounded by the quality consistency and reliable supply that characterize imported salt, makes it exceedingly difficult for domestic producers to compete in the formal market even where regulatory barriers are overcome.

### 4.5. Demand-Side Perspectives: Food Processing Industry

Key informant interviews with representatives of three major food processing companies—Rab Processors, Nali Limited, and Beef Company Limited—provided valuable demand-side insights. All three respondents confirmed that salt is a critical input in their production processes and that they currently source their entire salt requirement through imports, primarily from Botswana and India. When asked about their willingness to source salt domestically, respondents expressed conditional interest, contingent on the

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following requirements being met: consistent supply in sufficient quantities to meet production schedules, compliance with MBS quality and iodization standards, competitive pricing at or near import parity, appropriate packaging and product specifications, and reliability of delivery. Respondents from all three companies indicated a preference for rock salt for specific applications, noting its desirable mineral profile and flavor characteristics—a finding that aligns well with the type of salt naturally produced at Nchalo.

#### 4.6. Demand-Side Perspectives: Fish Processing Sector

The focus group discussion with 23 fresh fish sellers from fishing cooperatives in Monkey Bay revealed an additional, substantial demand segment for salt in Malawi's economy. Fish preservation through salting (salt-curing) remains a widely practiced method in Malawi, particularly for fish destined for markets distant from the lakeshore where cold chain infrastructure is unavailable. Participants reported purchasing imported salt for this purpose and noted that both the price and availability of imported salt fluctuate, creating uncertainty in their operations. Several participants expressed willingness to purchase domestically produced salt if it were available at competitive prices and in sufficient quantities, citing the potential benefits of shorter supply chains and reduced dependency on imported inputs.

### 5. Discussion of Findings

#### 5.1 The Economic Cost of Salt Import Dependency

The findings presented in Section 4 paint a clear picture of an economy that is spending substantial foreign exchange on a commodity it has the natural resource base to produce domestically. While precise figures for the total forex expenditure on salt imports were not available within the scope of this study, indicative calculations based on average import prices and volumes suggest that Malawi spends tens of millions of U.S. dollars annually on salt imports. This represents a significant and recurring drain on the country's already strained foreign exchange reserves.

The economic cost, however, extends well beyond the direct forex expenditure. There are substantial opportunity costs associated with the failure to develop the domestic salt industry, which can be categorized across several dimensions.

- **Foregone Employment:** A functioning domestic salt industry, operating at even a fraction of the scale of current imports, would create direct employment in extraction, processing, packaging, and distribution, as well as indirect and induced employment throughout the supply chain. The employment multiplier effects are particularly significant in rural areas such as Chikwawa, where formal employment opportunities are scarce and poverty rates are among the highest in the country.

- **Lost Tax Revenue:** Domestic salt production, if formalized and operated at commercial scale, would generate tax revenues through corporate income tax, value-added tax, personal income tax on employee wages, and various local and municipal levies. These revenues currently accrue, in whole or in part, to the treasuries of exporting countries.

- **Underdeveloped Value Chains:** The absence of a domestic salt industry means that the entire value chain—from processing and packaging to branding and distribution—exists abroad. Developing these value chain segments domestically would create opportunities for entrepreneurship, skills development, and technological learning.

- **Supply Chain Vulnerability:** Dependence on imported salt exposes Malawi to supply chain disruptions arising from logistics bottlenecks, export restrictions by source countries, global commodity price spikes, and—as vividly demonstrated by the COVID-19 pandemic—unforeseen disruptions to international trade. A diversified supply base that includes robust domestic production provides an essential buffer against such shocks.

#### 5.2. The Paradox of Regulatory Exclusion

One of the most striking findings of this study is the role of the regulatory framework—specifically the Iodization of Salt Act and MBS certification requirements—in simultaneously safeguarding public health and excluding domestic producers from formal markets. This is not to suggest that iodization or quality standards should be relaxed; iodine deficiency disorders remain a serious public health concern in Malawi and the fortification of salt is a proven and cost-effective intervention [17]. Rather, the finding highlights the need for complementary policy measures that enable domestic producers to comply with regulatory requirements rather than simply imposing those requirements without regard to the capacity of producers to meet them.

In essence, the current regulatory framework was designed for an import-dominated market in which compliance is achieved by large-scale foreign producers with established quality management systems. It was not designed to support or incentivize the development of domestic production capacity. A more developmental regulatory approach would pair quality and safety standards with targeted support programs—including technology transfer, equipment provision, training, and transitional compliance arrangements—that create a pathway for domestic producers to achieve and maintain regulatory compliance.

#### 5.3. Comparative Advantage and Strategic Potential

The evidence from this study suggests that Malawi possesses genuine comparative advantage in salt production, grounded in the country's natural resource endowment at Nchalo and other potential sites in the Lower Shire Valley. The key elements of this comparative advantage include the quality and accessibility of brine deposits, the suitability of climatic and topographic conditions for solar evaporation, the availability of labor in a region with limited alternative employment, and the proximity to domestic demand.

What Malawi currently lacks are the complementary assets necessary to convert this latent comparative advantage into competitive advantage: mechanized production technology, processing and iodization infrastructure, quality management systems, market intelligence, distribution networks, and brand recognition. These are precisely the types of assets that targeted

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policy intervention and strategic investment can provide. The central argument of this article is that such intervention is not only economically justified but strategically urgent, given the trajectory of import volumes, the severity of the forex crisis, and the availability of a viable institutional vehicle—the proposed Special Purpose Vehicle—for organizing and channeling investment.

## 6. Key Recommendations

In light of the findings in the previous sections, the study made the following recommendations;

### 6.1. Establishment of a Rock Salt Special Purpose Vehicle

The principal recommendation of this study is the immediate establishment of a Rock Salt Special Purpose Vehicle (SPV) under a structured Public–Private Partnership (PPP) framework. The SPV should be spearheaded by the Ministry of Energy and Mining in partnership with the Malawi Mining Investment Company (MAMICO), which will act as Government’s lead investor and strategic anchor. The SPV must be embedded within a national import substitution strategy jointly coordinated by the Ministry, MAMICO, and the Reserve Bank of Malawi (RBM).

This tripartite arrangement ensures that salt production is positioned not merely as a mining activity, but as a macroeconomic stabilization instrument aimed at foreign exchange conservation, industrial deepening, and domestic value addition. The SPV provides a ring-fenced commercial structure capable of mobilizing capital, managing assets efficiently, coordinating stakeholders, and attracting both domestic and international investors under transparent governance standards.

#### 6.1.1. Ownership and Governance Structure

This study recommends that MAMICO hold the largest equity stake in the SPV to ensure strong government oversight, strategic alignment with national development objectives, and confidence for prospective investors. MAMICO’s majority position, proposed at 51%, reflects the government’s commitment to the sector’s transformation and its role in de-risking the venture during the critical establishment phase.

The Nchalo Salt Miners Cooperative would hold a significant minority stake of 24%, ensuring meaningful community participation, benefit-sharing, and alignment with the interests of the primary resource-holding community while acknowledging the cooperative’s current stage of organizational development. Private strategic investors—potentially including existing food processing companies such as Rab Processors—would hold the remaining 25% equity, contributing operational expertise, market access, technology transfer, and additional capital. This equity structure recognises MAMICO’s lead role in providing patient capital and strategic direction while ensuring that all key stakeholders have meaningful participation in the venture’s success.

The governance structure would include a Board of Directors with representation from all equity holders proportionate to their shareholding, an independent management team with relevant technical and commercial expertise, and advisory input from the

Malawi Bureau of Standards on quality and compliance matters. The Reserve Bank of Malawi would be invited to participate as an ex-officio observer on the Board, given its critical interest in the foreign exchange conservation outcomes of the SPV’s operations.

#### 6.1.2. Core Mandate and Functions

The SPV would be responsible for the following core functions:

- **Asset Ownership and Management:** The SPV will own and manage all salt processing and value addition assets, including mechanized extraction equipment, engineered evaporation systems, brine pumping infrastructure, processing facilities, iodization equipment, and packaging lines.
- **Production Scaling:** The SPV will implement a phased production ramp-up plan, transitioning from current artisanal production levels to commercial-scale output through the introduction of mechanized processing systems and optimized production workflows.
- **Iodization Compliance:** The SPV will install and operate spray-mix iodization technology, ensuring that all salt products meet the requirements of the Iodization of Salt Act and applicable MBS standards.
- **Quality Assurance and Certification:** The SPV will establish a quality management system, conduct regular product testing, and obtain and maintain MBS certification for all products.
- **Packaging, Branding, and Market Development:** The SPV will develop branded salt products for retail, food service, and industrial markets, supported by professional packaging, marketing, and distribution strategies.

#### 6.1.3. Role of the Nchalo Salt Miners Cooperative

Within the SPV framework, the Nchalo Salt Miners Cooperative would play a central and multifaceted role:

- **Anchor Raw Salt Supplier:** The cooperative will serve as the primary supplier of raw (unprocessed) salt to the SPV through a long-term supply agreement that provides price certainty, volume commitments, and fair compensation for the cooperative’s output.
- **Skilled Labor Provider:** Cooperative members will provide skilled labor for extraction and primary processing activities, leveraging their deep knowledge of local geological conditions, production techniques, and seasonal dynamics.
- **Equity Holder:** With 24% equity participation, the cooperative and its members will share in the profits generated by the SPV, reinforcing inclusive development.

#### 6.1.4. Role of Mamico

MAMICO would serve as the government’s strategic investment arm, with the following roles:

- **Equity Participation:** MAMICO will subscribe to a significant equity stake in the SPV, demonstrating government commitment to the venture and providing patient capital for long-term development.
- **Technical Oversight:** MAMICO will provide technical guidance on mining operations, mineral processing, and compliance with the Mines and Minerals Act, ensuring that extraction activities

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adhere to international best practices and environmental standards.

- **Facilitation of Regulatory Approvals:** Leveraging its mandate and relationships with relevant government agencies, MAMICO will assist the SPV in navigating regulatory requirements, obtaining necessary licenses, and resolving any policy bottlenecks that may arise.

- **Linkage to Broader Mineral Development Strategy:** MAMICO will ensure that the salt SPV is integrated into the government's broader strategy for mineral sector development, facilitating knowledge transfer, skills development, and potential replication of the SPV model for other mineral resources.

- **Catalytic Investment:** MAMICO will deploy initial catalytic capital to de-risk the venture and attract additional private investment, utilizing its balance sheet and access to development finance institutions to structure appropriate financing packages.

### 6.1.5. Role of the Reserve Bank of Malawi

Given that the primary justification for domestic salt production is foreign exchange conservation, the RBM must play a central enabling role:

- **Forex Prioritization for Capital Equipment:** RBM should classify salt processing, iodization, and packaging equipment as priority forex allocations. Limited initial forex access for capital imports will yield long-term forex savings through import substitution.

- **Concessional Financing Window:** RBM, in collaboration with commercial banks, should create a targeted refinancing window for strategic import substitution industries, including salt. Preferential interest rates would reduce capital barriers to scaling production.

- **Import Substitution Incentive Framework:** RBM may consider differentiated forex access rules that gradually reduce foreign currency allocation for salt imports as domestic capacity increases—creating market space for locally produced salt.

- **Export Retention Incentives (Long-Term Phase):** If surplus production emerges, RBM should permit favorable export retention schemes to incentivize regional market expansion within SADC.

### 6.1.6. Anchor Off-Take Agreements with Industrial Buyers

Within nine months of establishment, the SPV will negotiate and execute legally binding off-take agreements with major industrial buyers, including Rab Processors, Nali Limited, Beef Company Limited, and other food processing companies identified as significant salt consumers. These agreements would guarantee a minimum aggregate off-take of 8,000 metric tons per year—equivalent to approximately 13% of current annual imports—at import-parity pricing. The selection of an 8,000 metric ton baseline is strategically calibrated: it represents a commercially significant volume that justifies capital investment while remaining well within the production capacity that can be realistically achieved during the SPV's initial operational phase.

The off-take agreements would include the following key provisions:

- **Volume Commitments:** volume commitments would be structured as “take-or-pay” arrangements where feasible, meaning

buyers pay for contracted volumes regardless of delivery, sharing demand risk with the SPV.

- **Quality Specifications:** Agreements would incorporate quality specifications aligned with MBS requirements, including iodization levels, particle size distribution, moisture content, and permissible impurities.

- **Pricing Mechanism:** The import-parity pricing formula would be clearly defined, typically calculated as the landed cost of imported salt (including freight, insurance, duties, and handling) prevailing in the Malawian market. This mechanism ensures that buyers face no price penalty for sourcing domestically while providing the SPV with a transparent and defensible pricing basis.

- **Duration and Renewal:** Initial agreements would have a minimum duration of three to five years, providing the multi-year revenue visibility necessary for investment recovery and financing arrangements. Renewal provisions would include performance review mechanisms and options for volume expansion.

- **Dispute Resolution:** Agreements would include efficient dispute resolution mechanisms, recognizing that sustained buyer-supplier relationships are essential for market stability.

## 6.2. Vertical Integration Strategies

Beyond the immediate objective of import substitution, the development of Malawi's salt industry presents significant opportunities for vertical integration that would maximize value retention within the domestic economy, create additional employment, and generate further foreign exchange savings or earnings. The study recommends the following vertical integration pathways:

### 6.2.1. Forward Integration into Food Processing

The SPV should actively pursue opportunities for forward integration into salt-using industries, particularly food processing. This could take several forms:

- (i) **Joint Ventures with Food Processors:** The SPV could establish joint ventures with existing food processing companies—some of whom may already be equity holders in the SPV—to develop new products that utilize domestically produced salt as a key input. This would create assured demand for SPV output while deepening the value addition occurring within Malawi.

- (ii) **Backward Integration by Food Processors:** Conversely, food processing companies could be encouraged to integrate backward into salt production through equity participation in the SPV, as contemplated in the ownership structure described above. Rab Processors and other major salt users should be actively recruited as strategic investors, aligning their interests with the success of domestic production.

- (iii) **Development of New Salt-Based Product Lines:** The SPV should explore opportunities to develop and market value-added salt-based products for both domestic and regional markets. These could include flavoured salts, specialty culinary salts, pharmaceutical-grade salt, and salt-based preservatives for the food processing industry.

### 6.2.2. Integration with the Fisheries Value Chain

The findings from Monkey Bay reveal a substantial demand segment in the fisheries sector. The SPV should develop targeted products and distribution channels for this market:

**(i) Fish Curing Salt Products:** Develop and market salt specifically formulated for fish preservation, potentially in partnership with fisheries cooperatives and the Department of Fisheries.

**(ii) Distribution Partnerships:** Establish distribution arrangements with fish landing sites, fishing cooperatives, and fish processors, ensuring that domestically produced salt is readily available to this critical user segment.

**(iii) Integrated Preservation and Processing Facilities:** Explore the feasibility of establishing integrated fish processing facilities that combine salting, drying, and packaging operations, creating additional value addition and employment while utilizing SPV salt as a key input.

### 6.2.3. Integration with Livestock and Tanning Industries

Salt is an essential input for livestock nutrition and for the tanning of hides and skins—industries with significant potential in Malawi:

**(i) Livestock Salt Licks:** Develop and market salt licks and mineral blocks for the livestock sector, potentially in partnership with the Department of Animal Health and Livestock Development and livestock farmers' associations.

**(ii) Tannery-Grade Salt:** Explore the production of salt specifically formulated for hide and skin preservation and tanning, working with the Malawi Leather and Leather Products Institute and existing tanneries to develop appropriate specifications and products.

### 6.2.4. Backward Integration into Input Supply

As the industry matures, opportunities for backward integration into the supply of inputs used in salt production should be explored:

**(i) Packaging Materials:** Develop local capacity for the production of salt packaging materials, including plastic bags, sacks, and labels, reducing dependence on imported packaging and creating additional local employment.

**(ii) Equipment Maintenance and Fabrication:** Build local capacity for the maintenance, repair, and eventual fabrication of salt processing equipment, reducing dependence on imported spare parts and specialized technical services.

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