

DISTRIBUSI PESTISIDA DI RAWANDA AGROSERVICE CO. LTD. (SUDAN)

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Abstract

Sudan's agricultural sector plays a pivotal role in its economy, with approximately 56 million hectares of fertile land supporting diverse crop cultivation. The effective distribution of pesticides, essential for crop protection and productivity, encounters challenges stemming from heavy import reliance. This study delves into the pesticide distribution dynamics within Rawanda Agro, employing a supply chain integration framework.

Drawing on qualitative methods encompassing interviews, observations, and document analysis, the research sheds light on the high import dependency of Sudan's pesticide market. Major international players like Syngenta and Bayer dominate this landscape. To enhance distribution efficiency, ensure timely access to pesticides, and reduce import reliance, the study underscores the role of technology adoption, adept planning, and collaborative efforts among stakeholders.

The findings emphasize the need to nurture local agrochemical industries, urging government support and strategic interventions. By fostering domestic production and mitigating import challenges, Sudan can bolster its agricultural sustainability and economic growth. This study contributes to the discourse on pesticide distribution management in Sudan, presenting insights and recommendations that can pave the way for a resilient agricultural sector and a thriving economy.

Keyword: Agriculture in Sudan, Import Agrochemicals

A. INTRODUCTION:

Sudan is in northeastern Africa, and has a highly diversified agricultural sector in its economy and supports livelihoods. Agriculture served as the main source of income for the

majority of the population and played an important role in internal security at home (CIA, n.d.). The arable land area is estimated at 56 million hectares, while the cultivated area is around 17 million hectares (30% of the arable land). The water area of the Sudanese Nile is 20.5 billion cubic meters, and the average rainfall is estimated at 400 cubic meters, while groundwater is estimated at 4 billion cubic meters. Local agriculture adds 35% of Sudan's gross product. More than 70% of the Sudanese population work directly in agriculture. The main crops are sorghum, sesame, peanuts, millet, wheat, cotton, gum arabic, sunflower and animal feed.

Pesticides play an important role in protecting crops and maximizing agricultural productivity by fighting pests, diseases and weeds that threaten agricultural output. In Sudan, where a wide variety of crops are cultivated, pesticides are widely used to protect crops such as sorghum, cotton, maize, wheat and vegetables from potential damage and loss (Osman & Eltayeb, 2018).

The pesticide supply chain in Sudan includes several interconnected stages, including production, import, distribution and retail. Various stakeholders are involved, including pesticide manufacturers, importers, distributors, wholesalers and retailers. These entities work together to ensure the availability and accessibility of pesticides to farmers across the country (FAO, 2017).

However, the management of the pesticide supply chain in Sudan faces various challenges. One of the main issues is the enforcement of regulations governing the use and distribution of pesticides. Although Sudan has established a regulatory framework to regulate the registration, import, distribution and use of pesticides, there are concerns regarding its implementation and enforcement (Sudan Pesticide Technical and Advisory Committee, 2013).

Insufficient enforcement of regulations creates risks such as the use of unauthorized or counterfeit pesticides, incorrect application methods and inadequate safety precautions. In addition, the lack of proper storage and handling facilities contributes to pesticide contamination and potential environmental and health risks (Bashir & Elsheikh, 2015; Bashir & Ibrahim, 2013).

Another challenge is the limited availability and accessibility of safe and effective pesticides. Farmers may face difficulties in accessing high-quality pesticides due to factors such as high cost, limited availability in rural areas, and lack of knowledge about suitable pesticide choices. This can hamper their ability to manage pests and diseases effectively, leading to reduced agricultural productivity (Bashir & Elsheikh, 2015).

International organizations such as the Food and Agriculture Organization (FAO) and the World Health Organization (WHO) have developed guidelines and best practices for pesticide supply chain management. These guidelines emphasize the importance of proper registration, quality control, safe handling, storage and disposal of pesticides. Evaluating the extent to which Sudan is in line with these international standards will be critical in identifying areas for

improvement (FAO, 2019).

Despite these challenges, Sudan has made efforts to address pesticide supply chain management. Government-led initiatives, collaborations with international organizations, and projects implemented by non-governmental organizations and research institutions aim to improve pesticide regulation, promote sustainable use practices, and increase farmer knowledge of and access to safe pesticides (Abdoulaye, Traore, & Uaiene, 2015).

To contribute to existing knowledge and address research gaps, this study aims to investigate the current status of pesticide supply chain management in Sudan. By analyzing the regulatory framework, examining the role of stakeholders, assessing challenges and exploring potential solutions, this study aims to provide valuable insights and recommendations for improving pesticide supply chain management in Sudan. The purpose of this research is as follows:

Analyzing the flow of pesticide distribution at Rawanda Agro.

B. RESEARCH METHOD:

This study uses a qualitative approach to gain a deep understanding of the phenomenon under study. The qualitative method focuses on collecting data that is descriptive and contextual in nature, and emphasizes interpretation and a deeper understanding of the information obtained.

In this study, researchers will use data collection techniques such as interviews, observation, and document analysis to obtain rich and in-depth data on the research topic. The data obtained will be analyzed descriptively or based on patterns that emerge from the data collected. This qualitative approach allows researchers to understand the social, cultural, and psychological context of the phenomena studied, as well as providing a rich understanding and nuance in describing and explaining research findings.

Data Collection Method: There are two data collection methods used in this study; Primary data obtained from interviews with consumers and employees, and observations obtained directly from the owner of the company. As well as secondary data obtained indirectly from reports of government agencies, international organizations, dissertations, and books, in addition to references of relevant research journals.

Data Analysis Method: Descriptive Analysis: This method is used to analyse data that has been collected from interviews and other sources on the management and flow of the pesticide distribution in “Rawanda Agro” The results of interviews and other data can be described in words, which will provide an in-depth understanding of the distribution model carried out by

Rawanda Agro. The use of this method will help identify the weaknesses, strengths and opportunities that exist in the pesticide distribution chain, as well as evaluate the efficiency and integration of the entire distribution chain flow.

C. RESULTS AND DISCUSSION:

Sudan exhibits a notable and burgeoning demand for pesticides within its agricultural landscape. With a substantial portion of its population directly engaged in farming and agriculture contributing significantly to the nation's economy, the need for effective pest management is paramount. The cultivation of a diverse array of crops, such as sorghum, cotton, maize, wheat, and vegetables, exposes the agricultural sector to a range of potential threats from pests, diseases, and weeds. To ensure optimal crop yields and safeguard against potential losses, pesticides play a pivotal role in countering these challenges. The high demand for pesticides in Sudan is a direct reflection of the imperative to enhance agricultural productivity and ensure food security. However, this heightened demand also underscores the necessity for a well-regulated and efficiently managed pesticide distribution chain to provide farmers with timely access to safe and effective pest management solutions, while simultaneously addressing the challenges and complexities inherent to pesticide usage and distribution.

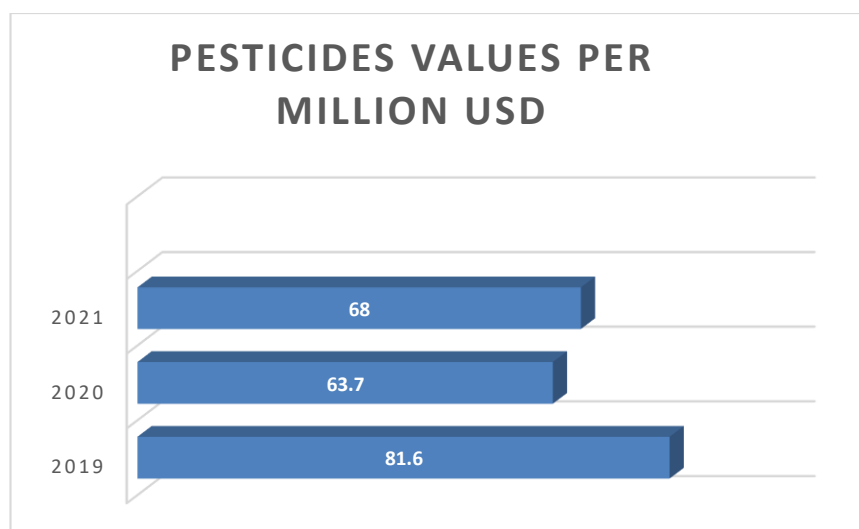


Figure 1. Sales Value of Pesticide per Million USD

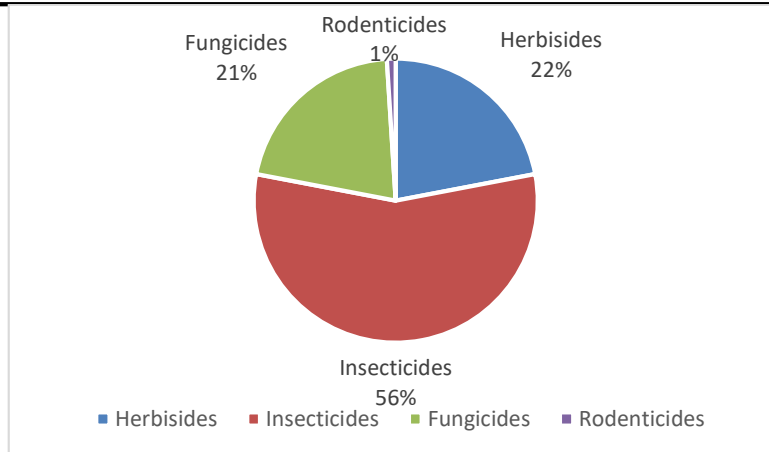


Figure 2. Types of Pesticides According to the type of Pest

Sudan imports large quantities of agricultural pesticides, and the largest share of these imports is for insecticides (almost half of imports), followed by herbicides and fungicides, and a small amount of rodenticides.

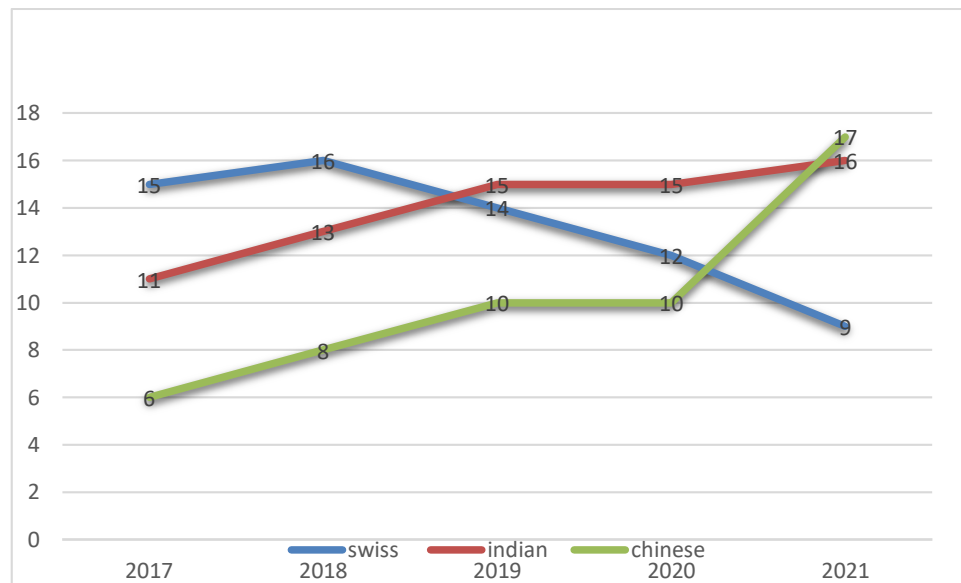


Figure 3. Comparison of sales of Swiss, Chinese, and Indian products per million USD

It is noted that European products usually account for the largest share of the pesticide market in Sudan, followed by Indian products with relatively reasonable quality, and finally Chinese products which are believed to be of low quality and low price too, but with the passage of time the share product dwindling European countries gradually favored Indian and Chinese products until they controlled most of the local market, due to many factors; Technical, political and economic too, because these Indian and Chinese products have lower prices than European products.



Figure 4. Percentage of Company Sales Through Various Channels

The largest percentage of sales achieved by sales representatives as shown in the above picture (50%), because they have the freedom to move to different regions and have relationships with different communities and institutions. The rest of the sales are done through secondary agents and direct sales from the headquarters of the various companies. Direct selling is the fastest of all the above because the customer comes to the company's headquarters and receives his purchases, and selling through sales representatives takes time because it requires going to the customer at his location, and secondary agents take longer in the sales process because it takes place through stages, unlike direct selling and selling from Through corporate sales representatives.



Figure 5. Pesticides Trading Process

The process of selling pesticides begins with registration, which is a complex process that

goes through several procedures in different institutions; Including the Ministry of Agriculture, the National Council for Pesticides, the Agricultural Research Authority, and the Sudanese Standards and Metrology Authority until the application for pesticide registration in Sudan is approved. After that, the process of importing the pesticide in commercial quantities by sea freight (containers) begins, and then clearing it after its arrival at the ports of Sudan through the official authorities and cooperation with the customs administration. After that, the products can be transferred to the company's different warehouses in preparation for their distribution through various means and channels.

Rwanda Agro relies on an extensive distributor base across Sudan, including wholesalers and retailers, as well as numerous authorized sales representatives, some of whom work for the company in an authorized capacity and others work independently for many business names. The company "Rwanda Agro" is also interested in large growers who buy the company's products in bulk and offer them special deals in terms of price and after-sales service as a kind of advertising and concern for valued customers. Companies are interested in agricultural areas known for certain types of agricultural products and regard them as their centers.

Products are shipped from abroad to Sudan by ship, then the goods are transported from the port to the company's warehouse by large commercial trucks. The company has many customers and distributors throughout Sudan, and delivers products to them using company trucks bearing the company logo. Sometimes there are small orders that don't require trucks, so delegates deliver orders by their cars, which has another benefit; Because the sales representative's job is not only to distribute products, but to create a good relationship with customers to provide suggestions and solve their problems to ensure their satisfaction, which makes them happy to continue their relationship with the company.

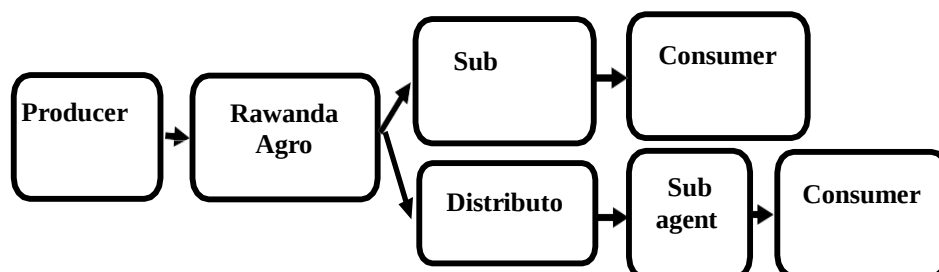


Figure 6. Pesticide Commodity Flow

The illustration shows the flow of pesticides from their main source, i.e., the producer, to their final destination (consumers or users). The role of the company (Rwanda Agro) stands out as the main party in this process, as the company markets and distributes pesticides to sales

representatives and secondary agents. The company ensures effective and timely availability of pesticides and their delivery to middlemen. Sales representatives and secondary agents distribute pesticides through multiple channels, facilitating the arrival of products to farmers and users. This scheme reflects the positive impact of cooperation between various agencies in facilitating the flow of pesticides from products to consumers in an effective and orderly manner, which contributes to achieving better pesticide distribution chain and achieving the company's goals.

D. CONCLUSION:

By researching the management process and distribution flow of pesticides in Sudan, it can be seen that the demand for agricultural pesticides in Sudan is very high, driven by the large area of arable land and the importance of agriculture as a major focus of the economic sector. Despite the high demand, the agrochemical industry in Sudan is still limited and has not been able to produce pesticides in sufficient quantities to meet the local demand. As a result, Sudan relies heavily on pesticide imports from international producers, such as European, Indian and Chinese companies. High competition in the agrochemical market has forced supplying companies to change their marketing strategies and offer competitive prices.

“Rwanda Agro” is one of the major players in pesticide distribution in Sudan with a wide distribution base across the country. The company's strategy of targeting large farmers and providing specialized services helps in retaining customers and building good relationships with them. The delivery strategy used from large commercial trucks ensures that pesticides reach customers on time. However, Sudan's pesticide distribution still faces challenges, such as dependence on imports and price competition from Asian producers. In the long term, efforts are needed to develop the local agrochemical industry, improve product quality, and ensure effective distribution to reduce dependence on imports and increase the sustainability of Sudan's agricultural sector. In addition, government support and strategies are necessary to drive the growth of the local agrochemical industry and overcome challenges in the pesticide distribution so that it can make a positive contribution to the agricultural and economic development of the country.

E. SUGGESTIONS:

A deeper study of the local agrochemical industry can be conducted, research is conducted for a deeper understanding of the state and potential of the agrochemical industry in Sudan and an analysis of the strengths, weaknesses, opportunities, and threats of the industry in producing pesticides locally. In addition, how the government can support and encourage the development of the local agrochemical industry through appropriate policies and incentives can be studied.

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