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THE ROLE OF RESOURCE CONSUMPTION ACCOUNTING IN COST MANAGEMENT AN APPLIED STUDY IN AL-NARGIS PIPE MANUFACTURING COMPANY

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Abstract
As a result of the rapid development in the modern manufacturing environment, economic units face several challenges, including resource scarcity and intense competition. These challenges make it difficult for traditional cost systems to accurately reflect the impact of resource usage and hinder management's ability to access precise information needed for sound decision-making. This necessitates the adoption of new techniques and tools in cost accounting that support cost management through efficient resource utilization and improved operational performance. One such technique is Resource Consumption Accounting (RCA). Numerous studies have shown that RCA is a modern tool derived from the development of Activity-Based Costing (ABC) and the German cost accounting system (GPK). It provides accurate information on how resources are used and the costs of activities, thereby assisting management in optimizing the use of available resources, reducing waste, supporting pricing strategies, and enhancing competitiveness—which ultimately contributes to effective cost management.
This research aims to clarify the role of Resource Consumption Accounting in cost management by applying it at Al-Nargis Pipe Manufacturing Plant and highlighting its contribution to resource management, optimal resource utilization, and supporting competitive advantage.

Keywords: Resource Consumption Accounting, Cost Management.

Introduction

The tasks of improving students' knowledge of preserving national musical heritage, in-Cost management has become a strategic necessity in the ever-changing business environment and growing challenges, rather than merely a competitive objective imposed by resource scarcity. Economic units are now facing a volatile business climate, intense competition, limited resources, and rising production costs. Therefore, it has become essential for these units to adopt modern and more accurate and efficient managerial tools and techniques that enable them to make sound decisions and ensure their sustainability in the marketplace. Accordingly, this study aims to highlight the role of one of the cost management techniques—Resource Consumption Accounting (RCA)—and its application in Al-Nargis Pipe Manufacturing Company, with the objective of demonstrating its role in resource analysis, identifying areas of waste, and improving performance efficiency, thereby contributing to effective cost management.

Chapter One: Study Methodology

1: The Research Problem

The modern manufacturing environment, intensified global competition, and the use of advanced production technologies have pushed Iraqi economic units to pursue the adoption of modern production systems. These systems require cost accounting methods to evolve in line with production developments.

Based on field visits to Al-Nargis Company (Pipe Factory), it was found that the company uses traditional accounting systems and is unfamiliar with modern costing systems that could provide more accurate and useful data for effective cost management. Therefore, this research proposes the use of Resource Consumption Accounting (RCA) as a technique to provide management with information that contributes to managing its costs more efficiently.

Accordingly, the research problem can be stated as follows:

How does the RCA approach impact cost management, achieve optimal resource utilization, and provide effective cost information to support management in cost control, reduction, and strategic decision-making

2: Importance of the Study

The importance of this research stems from the need to bridge the gap between the scientific development in production systems and cost accounting systems, which must align with actual applications.

The study highlights the importance of RCA as a framework for managing the capacities of economic units and providing accurate and useful cost information to improve and sustain cost management. It also emphasizes the role of Throughput Accounting (TA) in reducing material costs by improving flow and reducing all types of inventory, which in turn enhances capacity utilization and sustainability of cost management.

The study is further distinguished by its adoption of two integrated techniques (RCA and TA) that contribute to sustaining cost management.

3: Objectives of the Study

This study aims to:

1. Understand the concept of Resource Consumption Accounting (RCA).
2. Highlight the role of RCA in cost management.
3. Discuss the practical applications in the case study company and the challenges related to implementation.

4: Research Hypotheses

In light of the research problem, its importance, and objectives, the study hypotheses can be formulated as follows:

1. The application of Resource Consumption Accounting (RCA), as a modern approach to cost management, contributes to achieving greater accuracy in product cost measurement.
2. Adopting RCA leads to a more economical flow of indirect industrial costs, thereby providing clear indicators regarding the efficiency of operational processes and the level of resource utilization.
3. Applying the RCA approach helps provide accurate cost information, which supports management in cost control, cost reduction, and informed decision-making.

5: Study Limits: The study limits were as follows:

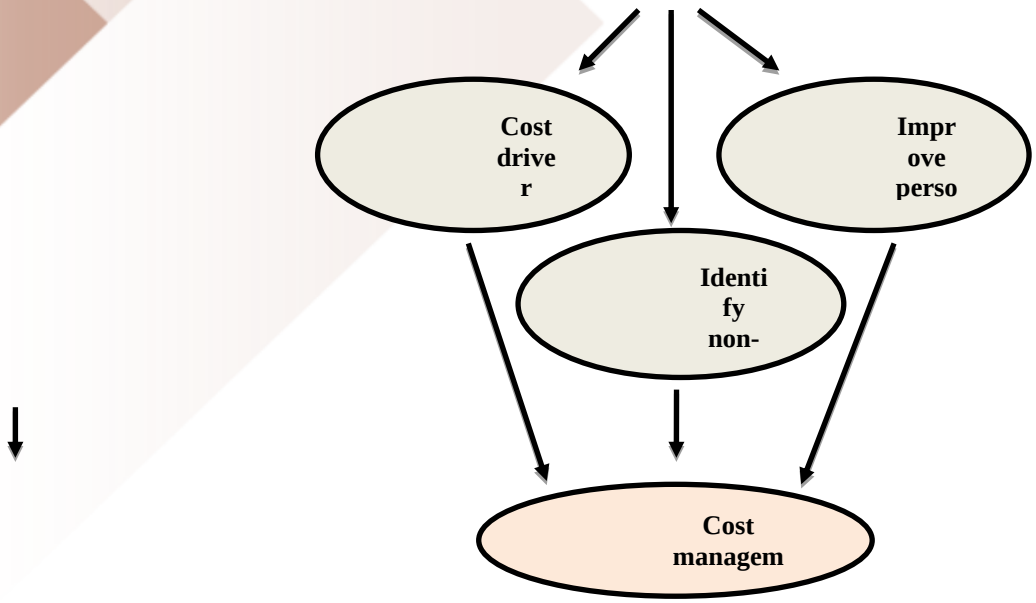
- Spatial Limits: The study's spatial limits were located within the Al-Nargis Pipes Company in Basra.
- Temporal Limits: The time period the researcher relied on to apply resource consumption accounting to the company's data for the year 2023.6: Data Sources

6: To collect the necessary data for this study, the researcher relied on:

1. Theoretical sources, such as books, academic research, and journals available in libraries and online databases.
2. Accounting records and company reports from the case study firm.
3. Field study, through personal interviews with employees and department heads in the company.

Research Plan

The Role of Resource Consumption Accounting in Cost Management



Source: Prepared by the

Chapter Two: Theoretical Framework

Section One: Resource Consumption Accounting (RCA)

1. The Concept of Resource Consumption Accounting (RCA)

Resource Consumption Accounting (RCA) is a modern accounting system that aims to improve the accuracy of cost allocation by measuring the physical flows of resources based on quantities and activity requirements. The system focuses on resource planning, managing unused capacity, and providing precise information to support managerial decision-making related to resource optimization and unnecessary cost reduction. This contributes to increased revenues, improved profitability, and strengthened competitive position of the organization (Al-Danaf, 2021).

According to Kumar & Dey (2014), RCA is a comprehensive cost management approach that classifies resources into productive, non-productive, and idle categories, relying on three key principles: causality, responsiveness, and work, to enable accurate cost allocation and better decision-making.

Thomson & Gurowka (2005) consider RCA a fusion of the German GPK system, which focuses on marginal costs, and the ABC system, within a performance management framework, supporting integration with Enterprise Resource Planning (ERP) systems.

Wang & Liu (2017) explain that RCA uses resources as a key element to measure unused capacity, thereby improving cost allocation accuracy, offering managerial performance evaluation data, and enhancing competitive advantage.

From the above, RCA can be seen as a modern tool that focuses on resources to improve the accuracy of cost allocation by linking it to actual resource consumption. It manages resources by classifying them into value-adding, non-value-adding, and idle activities. Moreover, it integrates GPK and ABC systems and complements systems like ERP to provide accurate data that supports precise decision-making.

2. Objectives of Resource Consumption Accounting (RCA): (Kinda et al., 2021)

Certainly! Here's the English translation of your points:

1. Providing management with accurate and comprehensive information about the economic unit's resources, including identifying available resources, the relationships among them, and their connection to activities and costs. This helps management gain a better understanding of the nature of costs.
2. Supporting the economic unit's competitive advantage by enabling the identification and development of areas of excellence and efficiency, as well as reducing waste and costs, which enhances its position in the market.
3. Improving product quality by determining the true cost of the product based on actual resource consumption and identifying areas that require improvement through effective analysis.
4. Optimizing and efficiently utilizing resources in relation to the level of production, as it improves the efficiency of resource usage and distinguishes between consumed resources and unused capacity, thereby contributing to waste reduction and increased operational efficiency.

3. Characteristics of Resource Consumption Accounting (RCA)

(Al-Naemi & Thanoon, 2021: 47)

1. Managing unused resources: Resource Consumption Accounting contributes to providing a comprehensive view for accurately identifying the costs of unutilized resources, rather than relying on estimates, due to its ability to precisely analyze resources.
2. Customer-focused: RCA supports the direction of resources toward customer-value activities while minimizing unnecessary activities and eliminating waste.
3. Integrating financial and non-financial data: It uses both types of data to predict needs and accurately measure costs.
4. Comprehensive information: RCA supports ERP systems and provides high-quality integrated data with other managerial accounting systems.
5. Use of replacement cost: Depreciation is calculated based on replacement cost rather than historical cost to improve long-term decision accuracy.
6. Waste reduction: RCA addresses distortions in fixed costs and clarifies the relationship between resources and production volume to enhance understanding.

4. Principles of Resource Consumption Accounting (RCA)

1. Causality Principle:

Focuses on linking resources and costs through a clear cause-and-effect relationship, avoiding arbitrary cost allocations. This supports objective and logical cost modeling (Ahmed & Moosa, 2011).

2. Responsiveness Principle:

Emphasizes the alignment between inputs and outputs, managing relationships among fixed and proportional costs. This enhances cost accuracy in complex production environments (Kose & Adgeniz, 2015).

3. Work Principle:

This principle is important and necessary but not as comprehensive as the others (causality and responsiveness), as it is applied in a more limited scope in RCA compared to ABC. The application of this model begins with understanding the organization's strategy, competitive position, and resource flows through activities to achieve the final cost objective. Only quantitatively significant activities that add continuous value for managers are included, along with identifying the input resources each activity requires. This helps management determine resource usage rates and unused capacity, supporting cost management decisions (Kurtlu, 2016).

Thus, RCA is characterized by its comprehensive perspective in managing and accurately allocating resources, focusing on cost accuracy and process efficiency. It relies on causality and responsiveness principles to provide reliable data supporting managerial decisions and reducing resource waste.

5. Steps for Implementing Resource Consumption Accounting (RCA) (Obeid, 2021)

Steps for Implementing Resource Consumption Accounting (RCA): (Obeid, 2021)

1. Identifying Resource Pools: Due to the large number of resources in economic units, resource pools are needed to reduce complexity. These pools must be homogeneous.
2. Allocating Direct Costs to Products: Direct costs are assigned to products due to ease of tracking.
3. Separating Fixed and Proportional Costs in Resource Pools: Costs within resource pools are classified as fixed or proportional. Proportional consumption occurs when input quantities vary with production levels, while fixed consumption does not.
4. Identifying Resource Drivers for Each Pool: Each resource pool has a cost driver using a quantitative measure, such as labor hours or headcount, in line with the causality principle.
5. Determining Theoretical and Practical Capacities and Pool Rates: Proportional and fixed cost rates are derived based on theoretical and practical capacities to accurately identify unused capacity.

6. Allocating Resource Costs to Activities: Resource drivers are used to allocate costs from pools to activities, and operating costs are defined to compare excess or idle capacity across pools.

7. Allocating Activity Costs to Products: Activity costs are assigned to products based on their activity consumption using appropriate cost drivers, ensuring accurate cost allocation rates.

Section Two: Cost Management

Society is undergoing continuous transformation, creating new social and economic paradigms. To maintain their market positions, institutions must develop effective methods to manage their operations amidst growing global competitiveness. Therefore, management must focus on efficient cost management, which plays a crucial role in achieving competitive advantage by reducing costs and enabling lower prices—thus improving competitiveness, increasing production, and generating more revenue and profit, which is the main goal of economic units.

1. Concept of Cost Management

Cost management refers to the managerial efforts in both the short and long term aimed at reducing costs and increasing revenues using data from the accounting system. However, the system and its data alone do not constitute cost management. The quality of this data depends on the costing model used. Traditional cost methods allocate indirect costs based on volume, leading to misleading and inaccurate cost information and incorrect managerial decisions. Modern cost management approaches seek to improve the allocation of such costs by addressing the deficiencies of traditional methods—particularly regarding unused capacity, which falsely inflates unit costs (Ibrahim, 2019).

Horngren defines cost management as methods and activities used by managers to allocate resources to maximize customer value and achieve organizational goals (Horngren et al., 2021:988). Cost management data supports strategy execution and includes non-financial information (customer retention, productivity, quality) and financial information (revenues, costs) (Blocher et al., 2010).

2. Cost management seeks to achieve several objectives, including: (Al-Mufriji, 2018)

1. Accurate cost measurement: To ensure fair product pricing and achieve profitability.

2. Improving efficiency: This is accomplished by monitoring performance, identifying deviations from planned activities, and analyzing the causes of these deviations.

3. Eliminating non-value-added activities: In order to reduce waste and improve overall efficiency.

4. Achieving competitive advantage: By focusing on customers and their needs to ensure their satisfaction.

2. Stages of Cost Management Development (Shaheen, 2017)

Cost management has evolved through four main stages:

1. Stage One: Traditional cost management methods are used to identify activity costs and generate internal reports.
2. Stage Two: Due to technological advancements and rapid business changes, the importance of indirect costs increases, prompting the need for modern cost and management accounting techniques to provide more useful data for financial reporting.
3. Stage Three: Transition from traditional to modern cost management by focusing on producing what can be marketed instead of marketing what is produced, emphasizing cost rationalization and external reporting.
4. Stage Four: Strategic cost management aligns with innovation, product diversity, and customer satisfaction, ensuring financial and competitive stability.

3. Importance of Cost Management

Cost management is a cornerstone for enhancing competitive advantage. It contributes to profitability, cash flow control, and provides accurate information to support strategic decisions and new investments. According to Lutkevich (2023), effective cost management supports comprehensive financial planning and sustainable competitive advantage.

4. The Role of Resource Consumption Accounting (RCA) in Cost Management

The Resource Consumption Accounting (RCA) technique is one of the modern accounting tools that plays a significant role in improving cost management by providing detailed and accurate information related to the precise allocation of actual costs associated with activities. In doing so, it supports management in making product pricing decisions. Through activity analysis, RCA helps identify waste or non-value-adding processes. By improving these processes, overall costs can be reduced, and operational efficiency increased.

Because RCA presents cost information in a more refined manner, it enhances strategic decision-making and enables the company to compete successfully in the market, thereby contributing to more effective cost management.

A notable perspective was presented by Langfield-Smith et al. (2009), who argued that activity must be managed in order to manage cost, through detailed analysis of cost-causing activities. According to this premise, various performance measures can be used to assess an organization’s ability to control costs or manage other aspects of customer value. Management can control costs by obtaining information on supplier costs, for example. This enables management to identify the most cost-effective supplier to deal with. Moreover, the organization can evaluate its performance in terms of suppliers by assessing factors such as adherence to contracted pricing, delivery reliability, material quality, and more (Langfield-Smith et al., 2009).

Based on the above, it can be concluded that Resource Consumption Accounting has an active role in cost management and also in creating customer value, as it provides the

management with useful information about organizational performance and supports the production of high-quality products delivered on time. This allows management not only to control and manage costs but also to influence the factors that enhance customer value.

Chapter Three: Case Study

The Resource Consumption Accounting (RCA) technique was applied in this study to the products of Al-Nargis Pipe Manufacturing Company in Basra. The company specializes in producing three types of pipes: HDPE, UPVC, and PPR, in various diameters. One specific diameter was selected for each product type in order to calculate the cost accurately by scientifically allocating resources to the products. Actual data from the year 2023 was used, as shown in the table below.

Table (1) Costs paid during the year 2023 on products

Costs	Amounts in Iraqi dinars	
Direct Materials	1,068,285,231	
Direct Wages	126,000,000	
Total direct costs		**1,194,285,231**
Indirect Wages	735,600,000	
General and Administrative Expenses	532,156,500	
Sales and Marketing Expenses	123,220,500	
Packaging Materials	39,600,000	
Maintenance and repair of machines and equipment	160,177,500	
Oils and Lubricants	5,808,000	
Energy Expenses	917,715,000	
Spare Parts, Tools, and Equipment	153,321,000	
Service Expenses	34,249,500	
Depreciation	407,874,000	
Total indirect costs		**3,109,722,000**
Total costs		**4,304,007,231**

Source: Prepared by the researcher based on company records.

The company's costs are then divided into direct and indirect. The table below shows direct costs by production stage, which were redistributed by the researcher based on company records in accordance with the requirements of resource consumption accounting technology. This helped accurately isolate the cost of each stage.

Table (2) Direct costs according to production stages

Cost Type	Products	Amount (dinars)			
		Stage 1	**Stage 2**	**Stage 3**	**Stage 4**
Wages	**UPVC**	18,000,000	-	18,000,000	18,000,000
	PPR	18,000,000	-	18,000,000	-
	HDPE	18,000,000	-	18,000,000	-
Materials	**UPVC**	275,725,968	-	-	-
	PPR	107,316,358	-	-	-
	HDPE	685,242,905	-	-	-
Total		1,122,285,231	-	54,000,000	18,000,000

Source: Prepared by the researcher.

Steps to implement the RCA technique

1. Identify resource pools: Resources were divided into three main pools:

- Direct and indirect materials.
- Direct and indirect labor wages.
- Machinery pool.

Table (3) Resource cost pools (amounts in dinars) for the year 2023

Resource Pools	Resources	Cost
Direct Materials Pool	Raw materials	1,068,285,231
Indirect Materials Pool	Packaging materials	39,600,000
Total		**1,107,885,231**
Direct Wages Pool	Production workers' wages	126,000,000
Indirect Wages Pool	Indirect labor wages	735,600,000
	General and administrative expenses	532,156,500
	Service expenses	34,249,500
	Sales and marketing expenses	123,220,500
Total		**1,551,226,500**
Machinery and Equipment Complex	Machinery and equipment maintenance and repair	160,177,500
	Depreciation	407,874,000
	Oils and greases	5,808,000
	Spare parts, tools, and equipment	153,321,000
	Energy costs	917,715,000
Total		**1,644,895,500**

2. Calculating revenue ratios: The contribution ratios of each product to the company's total revenues were used as a basis for allocating indirect resources.

Table (4) Product sales revenue

Products	UPVC	HDPE	PPR
Sales Revenue	559,710,000	1,317,877,905	126,488,565
Total Sales Revenue for All Countries	**37,424,845,500**		
Quantity of Packaging Materials (Meters)	390,303		373,014
Total Quantity of Packaging Materials (Meters) for All Countries	**2,764,406**		

3. Allocating resources to products: The following allocation equation was applied:

Product share = (Product revenue ÷ Total revenue) × Total indirect expenses

Table (5) Distribution of indirect costs to products according to resource pools

Resource Pools	products	Resources	Cost in dinars
Indirect Materials Pool	**UPVC**	Packaging Materials	5,581,333
	HDPE	Packaging Materials	0
	PPR	Packaging Materials	5,334,100
Total			**10,915,433**

Indirect Wages Pool	**UPVC**	Indirect Labor Wages	11,001,319
		General and Administrative Expenses	7,958,705
		Service Expenses	512,221
		Sales and Marketing Expenses	1,842,833
	HDPE	Indirect Labor Wages	25,903,407
		General and Administrative Expenses	18,739,350
		Service Expenses	1,206,061
		Sales and Marketing Expenses	4,339,085
	PPR	Indirect Labor Wages	2,486,182
		General and Administrative Expenses	1,798,584
		Service Expenses	115,757
		Sales and Marketing Expenses	416,461
Total			**76,319,965**
Machinery and Equipment Complex	**UPVC**	Machine and machinery maintenance and repair	2,395,546
		Depreciation	6,099,989
		Oils and greases	86,862
		Spare parts, tools, and equipment	2,293,003
		Energy expenses	13,724,953
	HDPE	Machinery and machinery maintenance and repair	5,640,488
		Depreciation	14,362,868
		Oils and greases	204,523
		Spare parts, tools, and equipment	5,399,043
		Energy expenses	32,316,401
	PPR	Machinery and machinery maintenance and repair	541,368
		Depreciation	1,378,533
		Oils and greases	19,630
		Spare parts, tools, and equipment	518,195
		Energy expenses	3,101,695
Total			**88,083,099**

Source: Prepared by the researcher.

4. Dividing resource pools into fixed and variable costs. All indirect materials are considered variable because they change according to changes in production volume. Indirect wages are both variable and fixed. Machines and equipment have fixed depreciation, while other expenses are variable.

Table (6) Fixed and variable costs according to resource pools and their directors

Product	Resource Pool	Total cost	fixed cost	Variable cost	Resource Load Unit
UPVC	Indirect Materials	5,581,333	0	5,581,333	Quantity of Materials (m)
	Indirect Wages	21,315,079	17,578,870	3,736,208	Labor Hours
	Machinery and Equipment	24,600,354	6,099,989	18,500,365	Machine Hours
HDPE	Indirect Materials	0	0	0	Quantity of Materials (m)
	Indirect Wages	50,187,903	41,390,728	8,797,175	Labor Hours
	Machinery and Equipment	57,923,324	14,362,868	43,560,455	Machine Hours
PPR	Indirect Material	5,334,100	0	5,334,100	Quantity of Materials (m)
	Indirect Wages	4,816,983	3,972,639	844,344	Labor Hours
	Machinery and Equipment	5,559,421	1,378,533	4,180,888	Machine Hours

Source: Prepared by the researcher.

5. Extract theoretical and practical energy based on company data for each resource pool. The ratios are extracted according to the following equations:

Variable cost ratio = Variable costs / Practical energy

Fixed cost ratio = Fixed costs / Theoretical energy

Table (7) Theoretical and practical energy and ratios for resource pools

	Resource Pool	theoretical energy	practical energy	Fixed cost ratio	Variable cost ratio
UPVC	Indirect Materials	0	390,303	0	14.3
	Indirect Wages	2,112	1,984	8,323	1,883
	Machinery and Equipment	1,584	1,464	3,851	12,637.8
HDPE	Indirect Materials	0	0	0	0
	Indirect Wages	1,920	1,792	21,557	4,909
	Machinery and Equipment	1,440	1,307	9,974	33,328.5
PPR	Indirect Materials	0	373,014	0	14.3
	Indirect Wages	840	792	4,729	1,066
	Machinery and Equipment	840	581	1,641	7,196

Source: Prepared by the researcher.

6. Calculating the resources consumed by the activities from the pools based on the practical energy. In this step, the resources consumed by the activities from the resource pools, i.e., the practical energy, are detailed, as shown below.

Table (8) Resource consumption by activities

Products	Resource Complex	mixing stage	crusher stage	Stage (heating, kneading, mold and printing)	Cutting stage	Examination stage	Packaging and storage stage	Total
UPVC	Indirect Materials (meter)	0	0	0	0	0	390,303	390,303
	Indirect Wages (hour)	297.6	198.4	198.4	198.4	595	496.2	1,984
	Machinery and Equipment (hour)	0	439	732	293	0	0	1,464
Products	Resource Complex	crusher stage		Stage (heating, kneading, mold and printing)	Cutting stage	Examination stage	Packaging and storage stage	Total
HDPE	Indirect Materials (kg)	0		0	0	0	0	0
	Indirect Wages (hour)	269		268.8	179.2	806.4	268.6	1,792
	Machinery (hour)	261		719	327	0	0	1,307
PPR	Indirect Materials (kg)	0		0	0	0	373,014	373,014
	Indirect Wages (hour)	118.8		118.8	79.2	277.2	198	792
	Machinery (hour)	116		349	116	0	0	581

Prepared by the researcher based on the practical energy in Table No. (7).

7. Allocating resource pool costs across stages.

In this step, the costs of resource pools are distributed across the stages based on the amount of resources consumed by the stages. The stage's share of resources is determined according to the following equation:

(stage's share of resources x fixed cost ratio) + (stage's share of resources x variable cost ratio)

Table (9) Distribution of resource pool costs over the stages for the UPVC product

UPVC	**Resource pools**			
Stages	**indirect materials**	**indirect wages**	**Machines and equipment**	**Total**
Mixing stage	0	3,037,306	0	3,037,306
Crushing stage	0	2,024,870	7,238,671	9,263,541
Heating stage	0	2,024,870	12,069,948	14,094,818
Cutting stage	0	2,024,870	4,831,277	6,856,147
Inspection stage	0	6,072,570	0	6,072,570
Packaging and storage stage	5,581,333	5,064,217	0	10,645,550
Total (dinars)	**5,581,333**	**20,248,703**	**24,139,896**	**49,969,932**

Source: Prepared by the researcher

Table (10) Distribution of resource pool costs over the stages for the HDPE product

HDPE	Resource pools			
Stages	**indirect materials**	**indirect wages**	**Machines and equipment**	**Total**
Drying stage	0	7,119,354	11,301,953	18,421,307
Heating stage	0	7,119,354	31,134,498	38,253,852
Cutting stage	0	4,742,707	14,159,918	18,902,625
Inspection stage	0	21,342,182	0	21,342,182
Packaging and storage stage	0	7,108,768	0	7,108,768
Total (dinars)	**0**	**47,432,365**	**56,596,369**	**104,028,734**

Source: Prepared by the researcher.

Table (11) Distribution of resource pool costs over the stages of the PPR product

PPR	Resource pools			
Stages	**indirect materials**	**indirect wages**	**Machines and equipment**	**Total**
Drying Stage	0	688,446	1,025,092	1,713,538
Heating Stage	0	688,446	3,084,113	3,772,559
Cutting Stage	0	458,964	1,025,092	1,484,056
Inspection Stage	0	1,606,374	0	1,606,374
Packaging and Storage Stage	5,334,100	1,147,410	0	6,481,510
Total (Dinar)	**5,334,100**	**4,589,640**	**5,134,297**	**15,058,037**

Source: Prepared by the researcher.

8. Distribution of stage costs to products.

Table (12) Distribution of stage costs to products

Products / **Stages**	**UPVC**	**HDPE**	**PPR**	**Total**
Mixing	3,037,306			3,037,306
Crushing and drying	9,263,541	18,421,307	1,713,538	29,398,386
Heating	14,094,818	38,253,852	3,772,559	56,121,229
Cutting	6,856,147	18,902,625	1,484,056	27,242,828
Inspection	6,072,570	21,342,182	1,606,374	29,021,126
Packaging and Storage	10,645,550	7,108,768	6,481,510	24,235,828
Total	**49,969,932**	**104,028,734**	**15,058,037**	169,056,703

Source: Prepared by the researcher based on the previous tables.

9. Determining idle energy.

Table (13) Idle energy for each product

	Resource Pool	**distributed costs**	**Resource costs**	**idle energy**
UPVC	Indirect Materials	5,581,333	5,581,333	0
	Indirect Wages	20,248,703	21,315,079	1,066,376
	Machinery and Equipment	24,139,896	24,600,354	460,458
	Total	**49,969,932**	**51,496,766**	**1,526,834**

	Resource Pool	distributed costs	Resource costs	idle energy
HDPE	Indirect Materials	0	0	0
	Indirect Wages	47,432,365	50,187,903	2,755,538
	Machinery and Equipment	56,596,369	57,923,324	1,326,955
	Total	**104,028,734**	**108,111,227**	**4,082,493**

	Resource Pool	distributed costs	Resource costs	idle energy
PPR	Indirect Materials	5,334,100	5,334,100	0
	Indirect Wages	4,589,640	4,816,983	227,343
	Machinery and Equipment	5,134,297	5,559,421	425,124
	Total	**15,058,037**	**15,710,504**	**652,467**

10. Cosmetic Products.

Table (14) Aesthetics of Agricultural Products

Resource Pool	distributed costs	Costs and resources	idle energy	idle energy ratio
Indirect Materials	10,915,433	10,915,433	0	0
Indirect Wages	72,270,708	76,319,965	4,049,257	%5
Machinery and Equipment	85,870,562	88,083,099	2,212,537	%3
Total	**169,056,703**	**175,318,497**	**6,261,794**	**%4**

The table above shows the idle energy costs according to the RCA technique, which represents the difference between resource costs and allocated costs. The total idle energy amounted to 6,261,794. The idle energy percentage for the indirect materials pool was 0%, the indirect wages pool was 5%, and the machinery and equipment pool were 3%. This is a result of the separation between fixed and proportional costs in the resource pools. These costs should not be charged to products because they are the costs of idle resources not used in production. Therefore, they are shown in the income statement as losses. Disclosure of these costs helps management make numerous decisions, including those related to product pricing and the addition of a new production line in light of this idle energy, because the economic unit will bear these costs whether it produces or not.

Conclusions

Theoretical and practical aspects reveal the following:

1. The effectiveness of resource consumption accounting in accurately allocating costs: The application results showed that RCA provides a more accurate and transparent system for allocating direct and indirect costs by relying on actual resource flows rather than

traditional allocation bases. This helps determine product costs in a more fair and objective manner.

2. Achieving optimal resource utilization and reducing waste: The application of RCA technology contributed to identifying idle capacity within resource pools. The total costs resulting from unused capacity amounted to approximately 6,261,794 Iraqi dinars, representing 4% of the total resources. This provided management with a tool to identify and optimally allocate wasted resources.

3. Improving managerial decision-making: Through the accurate information provided by the RCA system on resource consumption, management was able to analyze the cost of each product and production stage and determine the efficiency of operations, providing a solid basis for making strategic decisions regarding pricing, production, and expansion.

4. Disclosure of the cost of idle capacity and its impact on profits: The analysis revealed that idle capacity is a wasted cost that should not be charged to final products but should be disclosed in the income statement as an operating loss. This supports transparency and prevents misinformation.

5. Achieving fairness in allocating costs between different products: The use of performance indicators such as labor hours, machine operating hours, and the amount of materials used resulted in the allocation of costs based on the actual consumption of each product, eliminating overlaps and unfairness in charging some products unjustified costs.

6. The possibility of utilizing idle capacity for production expansion: The results revealed that there is unused capacity that can be used in the future to add new production lines or increase production without the need for new investments in resources, enhancing the efficiency of utilizing existing resources.

7. Integration between RCA and the Accounting Information Systems Environment: The study demonstrated that RCA can be integrated with Enterprise Resource Planning (ERP) systems, which contributes to improving the accuracy of costs and performance reports, and supports a comprehensive view of cost management within the economic unit.

8. The Impact of RCA on Improving the Company's Competitive Position: By reducing unnecessary costs and increasing operational efficiency, the implementation of RCA technology positively reflects on strengthening the company's competitive position in the market by offering products with more accurate prices and higher quality, while maintaining a good profit margin.

9. The Possibility of Generalizing the Study Results to Other Industrial Companies: The study demonstrated that the application of resource consumption accounting is appropriate in industrial environments characterized by multiple products and diverse production processes, making the research findings applicable to similar economic units to improve the efficiency of their cost management.

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