VALUE CHAIN ANALYZE OF DAIRY PRODUCTS IN IRAQ CASE STUDY: ABU GHRAIB DAIRY (FACTORIES)

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ABSTRACT

The research aims to analyze the value chain of dairy products in Iraq (Abu Ghraib/Study Case) factories for the year 2022, where value chain rings are identified to discuss and track the most important determinants and problems in the value chain rings of dairy products and their basic and secondary activities, as well as calculate the value added of the products by subtracting the total revenues of products from their variable costs. Research data were collected for the period 2022. Preliminary information and data from its field sources and personal interviews were collected through a questionnaire prepared for this purpose for each level of chain loop from suppliers, producers, marketers and consumers. Data was collected on production, costs, profits and revenues. The estimated results indicated that variable costs accounted for the largest share of total dairy costs in the research sample at 83.8% of total costs due to the cost of butter and free fat (9358) thousand dinars, ranked first among variable cost paragraphs 36.1% of total variable costs, while fixed costs accounted for 16.2% of total costs. Research results also found that the total value added of production in Abu Ghraib factories was (4687230.46) Dinars. The most important conclusion is that the analysis of the value chain of Pan Abu Ghraib dairy products is the high variable costs resulting in higher total costs of dairy production. This is negatively reflected in the market produced quantities. The most important recommendations of the research were to reduce the variable costs of all the value chain as well as to reduce the import of dairy products from abroad to support the local product and increase market share.

Keywords: value added, market share, competitive advantage.

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INTRODUCTION

Dairy and its products are important food for human beings, often from livestock milk. (cows, sheep or other mammals), one of their most important products is (cheese, yogurt, butter and cream). These products are of great importance in food consumption. They are a good source of protein. They also increase the demand for dairy products in Iraq, the possibility of producing them locally, identifying problems that hinder the industry, developing them and promoting the added value of dairy production and increasing its production. This works to achieve many gains, including raising the level of income for dairy producers as well as providing many jobs and stimulating investment in cow breeding projects, buffalo and other animals' exports ", on the one hand, and on the other hand, providing domestic production for consumption. Competition between existing laboratories may create quality development and increased production quantities that may evolve in the future with rational policies that can reduce imports and provide opportunities for exporting surplus exports. And Relying on sources and (3, 5, 16).

MATERIALS AND METHODS

To achieve the goal of research, the General Company for Food Products has been selected Al Ban Abu Graib Ghraib factories for the year 2022 (Study case), the dairy industry is an essential food industry in a country consumed by a large segment of society, The method of analysis was based on descriptive and quantitative analysis through the use of mathematical formats for the most important economic standards and mathematical instruments and the most important value-added standards generated for each episode along the value chain from the production cycle to the end consumer. Value Added = Value of Production - Value of Production Supplies.

THE REALITY OF THE VALUE CHAIN CONCEPT : The value chain was circulated by Porter, as a way to describe and analyze the sequence of activities that bring a service product from its initial stage of production, to the final stage of delivery to the client (27). The value chain divides the Foundation's activities into Value Activities, which are those activities that are visible and have the distinctive features that should be performed to carry out the work in the first place (29). The value chain is a link between activities that are valuable, from the primary sources of raw materials to the end use of the product or service provided to the customer, The value chain concept is based on two main axes (9)

A - Identifying activities that add value: those that consumers are convinced add benefit or value to the product and economic units use this concept to separate activities that add value and activities that do not add value.

B - Identifying the cost that adds value: the cost that consumers are convinced that spending will add value to the product. Economic units use this concept to separate the cost that adds value and the cost that does not add value.

CONCEPT OF VALUE ADDED

The concept of value added is of great importance in value chain analysis, This is one of the most important criteria used in project evaluation value added ", which represents the increase in national income generated by enterprises from productive activity As the value added of the project has increased, the project's contribution to creating and increasing national income has increased, The value added criterion is based on the equation of the difference between the value of production and the value of the requirements of such production. Accordingly, the value added formula is as follows (7)

Value Added = Value of Production - Value of Production Supplies

It highlights the importance of the value added criterion as follows (23):

1- The value-added standard helps to demonstrate value-added information, from users of financial lists to measuring and evaluating organizations' performance, in a different way from relying on traditional financial lists.
2- The value added criterion is important in achieving the process of linking the incentive plan with their productivity, so that they earn paid efficiency or share in the enterprise's shares, according to a certain rule based on improvement in the ratio of wages to value added .
3- Value added is the most important criterion to be taken when measuring and evaluating organizations' performance in different activities and types.
4- It also highlights the importance of the value-added criterion in using value-added information in evaluating an enterprise's social performance as well as predicting performance efficiency.
On this basis, it can be argued that when an enterprise considers its value chain, then it requires identifying the most important distinctions from its competitors and working to reflect on its proposed value. So value chain analysis is originally designed to improve profits, by providing the product or service, which is so high quality that customers are willing to pay more than its production cost. To improve the value chain is not the ultimate objective of the enterprise is to improve, the enterprise should decide why it wants to improve the value chain in the context of its competitive advantage in order to distinguish its peers. There are two general strategies for competitive advantages that involve a low cost, allocation/differentiation of product or service: (http://alsenaee.com/2018/03/31)
The value chain analysis focuses on costs and how the company can reduce these costs.
Value chain analysis also focuses on activities that create a unique product or service differentiation.
Encompassing Study And Work Of Value Chains
The scope of the study and work of value chains includes a number of items addressed in the value chain study containing a number of criteria, tools and sources of information, which are used in the study and diagnosis of their results and which can be shown in the following table: -
(Daniel Rounder, 2007, p: 8).

Table 1. Some important items that are studied when dealing with value chains.

The most important main criteria that can be applied	Top studies in VC analysis study
1. Growth potential/any market potential. 2. The size of the secondary sector. 3. The possibility of generating rural income. 4. What is the possibility of return on investment. 5. To what extent can poverty be reduced. 6. The possibility of improvement and expansion of the plant.	1. Study economic costs along the chain. 2. Where most of the added value of the chain can fall. 3. Who are the most important actors in the value chain. 4. The importance of studying the institutional framework of the value chain. 5.The importance of studying the political framework.

	6.The importance of identifying and analysing challenges and constraints. 7. Control structure and orientation to value chain. 8. The importance of studying the possibilities of improving the value chain. 9. Study existing cooperation possibilities in the value chain. 10. The size of the sector considered in the value chain. Tools available for value chain analysisInformation sources important for VC analysis
Tools available for value chain analysis	Information sources important for VC analysis
1.Maps: economic maps, maps and jobs for value chain workers, performance maps and value added for each stage of the series. 2. Competitive analysis of the chain. 3. Rapid market valuations. 4. Analysis of the overall direction of the chain.	1.Interviews with the chain's main representatives. 2.Reference review and previous studies. 3. Statistical data and tables. 4. Data of government departments and ministries. International sources of market information. Civil associations and organizations.

II: Concept of value added:

The concept of value added is of great importance in value chain analysis, This is one of the most important criteria used in project evaluation value added ", which represents the increase in national income generated by enterprises from productive activity and the greater the value added of the project, the greater the project's contribution to creating and increasing national income, The value added criterion is based on the equation of the difference between the value of production and the value of the requirements of such production. and accordingly the value added formula is as follows (Amara, 2018, 316):

Value Added = Value of Production - Value of Production Supplies

It highlights the importance of the value added criterion as follows (Al Meyawi, 2006, 376): -

1-The value-added standard helps to demonstrate value-added information, from users of financial lists to measuring and evaluating organizations' performance, in a different way from relying on traditional financial lists.

2-The value added criterion is important in achieving the process of linking the incentive plan with their productivity, so that they earn paid efficiency or share in the enterprise's shares, according to a certain rule based on improvement in the ratio of wages to value added.

3-Value added is the most important criterion to be taken when measuring and evaluating organizations' performance in different activities and types.

4-It also highlights the importance of the value-added criterion in using value-added information in evaluating an enterprise's social performance as well as predicting performance efficiency.

Market characteristics, capabilities and technical capabilities of value chain workers as well as market information on product and processing and transformation requirements are the key to

producing real value in markets and obtaining value added can be divided into five main areas (Kaplinsky, 2000):

1-Trade rents from production capacity or trade policies.

2-technical rents associated with technical asymmetric orders.

3-organizational rents associated with managerial and organizational skills.

4-Relationship rents associated with the nature of the exchange between productive institutions.

5-Brand rents are brand rents.

PRODUCTION OF MILK AND DAIRY PRODUCTS IN IRAQ FOR THE PERIOD 1990-2021: The production of milk and milk products is carried out through milk producers raising milk-producing animals in their various breeds and providing the necessary production supplies and services to enter the production process and obtain milk. Table 2 shows the quantities of milk and milk derivatives produced in Iraq for the period of time. (1990-2021), where milk production began to decline from 100,403 tons in 1990 to 79,422 tons in 1991, following which the economic blockade imposed on Iraq continued to decline steadily until 1997, but began to grow after the oil-for-food agreement after 1996 to continue to rise until 2003, with production beginning to fall to the lowest in 2014 owing to the conditions of policy and military operations in milk production areas and weak policies in support of milk production. As shown in table (4). But after supporting the import of highly productive milk cows, the establishment of cow breeding plants through the Cooperative Agricultural Bank and the Agricultural Initiative, production began in 2015 By 2018, the highest milk production had reached 185,684 tons, and then dropped to 154 tons in 2020 (economic and logistical implications needed Corna).

Table 1. Quantities of dairy produced (tons/year) in Iraq for the period (2021-1990).

Years	Milk	Cheese	Butter	Total dairy production
1990	100403	31077	7958	139438
1991	79422	24948	6368	110738
1992	49762	13698	3657	67117
1993	55978	15386	4225	75589
1994	71064	19788	5444	96296
1995	66724	18150	5076	89850
1996	94796	27604	7219	12909
1997	101520	29648	7892	139060
1998	106596	30253	8599	145448
1999	113364	27889	8699	149952
2000	118440	31715	10277	160432
2001	148896	31410	11130	191436
2002	148896	25469	10519	184884
2003	42608	15659	6191	64458
2004	65897	14192	6591	86680
2005	65781	13273	5644	84698
2006	66665	13211	4956	84832
2007	57893	12298	4004	74195
2008	59166	12432	4084	75682
2009	74448	14165	4769	93382
2010	76648	14283	4862	95793
2011	78847	14210	4986	98043
2012	79490	14816	5121	99427
2013	37561	216	126	37903
2014	32392	290	78	32760
2015	154000	1500	304	155804
2016	139050	11265	630	150945
2017	112000	17400	3324	132724
2018	185684	44820	6425	236932
2019	0	0	0	0
2020	154	1650	83	1887
2021	0	347322	0	34722
Average	78307	26971	4825	97091
The lowest value	32392	216	78	1887

Highest Value	185684	347322	11130	236932
Annual growth rate (%)	-3.8%	-4.5%	-9.5%	-2.5%

Source: Ministry of Planning data/Average, low and high value and annual growth rate of SPSS calculated Ver25

We also note that the production of milk derivatives, including cheese and butter, is affected by the production of milk even though powder milk was used (Powder) Imported dryer for the school year (2021), but we also find the volatility of the production of cheese and butter, and it has reached the highest production of cheese (217.347322) tons in 2021 and the lowest production in 2013 was 216 tons, affected by milk production, which declined in 2013 and 2014. The highest milk production was 11,130 in 2001, and although milk production grew positively during the course of the study, milk production was insufficient to produce cheese and butter, achieving a negative growth rate for each. As shown in table (1). From the table above, we note that milk production has been recorded during the period (1990_ 2021) Average capacity (78,307) tons and growth rate over the same period (3.8% -) negative change, cheese production recorded during the period (1990-2021) average of 26,971 tons, with a growth rate over the same period (4.5%), as well as butter production recorded during the period (1990-2021) average of (4825) tons with a growth rate (% 9.5-) and total dairy production during the period (1990-2021) average of (97091) tons with a growth rate(% 2.5-). The calculation of growth rates for dairy products is shown in table 2. Fourth: Measuring growth ratesofdairyproductsforIraqfortheperiod1990-2021:The annual growth rate of dairy product time series data for the period 1990-2021 was calculated based on Table 1 data, and based on the following formula in calculating the annual growth rate:

$Y=e^{(b0+b1t)}$
And by taking the logarithm to Y we get
$LnY = b0 + b1T$
Where:
Y: Represents production
Bi: Annual growth rate.
T: Time

Table 2. Groth rates of milk, Cheese and Butter in Iraq for period 1990-2021

Variables	Milk Production%	Cheese Production%	Butter Production%	Total Dairy Production%
for 1990-2021	-3.8	-4.5	-9.5	-2.5
for the period1990-2003	3.2	1.6	4.9	3.6
For 2004-2021	3.6	-14.3	22.6	1.8

Source: Calculated based on table data (4) and using SPSS ver25

We note from the above table that the growth rates of milk, cheese, butter and dairy during the period (1990-2021) were all negative. Growth rates for the period (1990-2003) were all positive and at good growth rates, with milk growth rates (3.2%), cheese growth rates (1.6%), butter growth rates (4.9%) and dairy growth rates (3.6%). For the period 2004-2021, growth rates were positive except for cheese production, which had a negative growth rate as shown in the table above.

ANALYSIS OF THE VALUE CHAIN OF PAN ABU GHRAIB FACTORIES FOR THE YEAR 2022: This research revolves around the value chain of dairy products in Iraq/Alban Abu Ghraib factories as a case of study for the year 2022 The formation of the value chain starts from value creation activities that start from the processing of raw materials for the manufacture of dairy. It is the loop of processors who process raw milk to the pan Abu Ghraib factories through the production ring that takes place in the pan Abu Ghraib factories and ends with the loop of retailers who sell dairy products to consumers.

PROCESSORS LOOP**:** Alban Abu Ghraib milk factory is equipped by assembly in more than one way:
1-The milk collection and cooling center spread in most regions of Iraq under the State Company for Food Products/ Alban Abu Ghraib Factory, which receives milk from farmers and animal breeders (particularly cows) and collects it and then conducts preliminary checks on it by means of specialized disguises to transport milk to Alban Abu Ghraib factories to be received in custom tanks.
2- Receiving from community stations and centers that collect milk from animal breeders and transport it by disguising milk that is either affiliated with or belonging to the company.
3- Through people who know the name of milk collectors and who in turn collect milk from breeders and transfer it in disguise to their father's exotic factory.

That is, the company does not receive milk directly from farmers' producers (suppliers) but through two rough milk complexes, and the company relies on the factory processing of the milk complex (Redouaniyah) - milk complex (Haidari).The amount of milk processed (supplier) for 2018 In tons (5323) tons, the company was providing services to farms or milk processors (suppliers) in the 1990s in the previous century and prior to 1996, specifically, there was support for peasants by equipping them with feed and veterinary medicines for animal treatment for the purpose of increasing livestock development, but at present there are no such services for the provision of fortified feeds, veterinary services, training courses for farm owners and loans. (Rafidain Factory/Planning Department). The company works to compensate the quantities of raw milk equipped for the plant's small quantity by equipping the plant with recombined milk (whole-fat milk dried and sorted). Dried milk is used either as an alternative in case of unavailability or lack of raw milk processed or used/to strengthen a section of products to increase solids, and is purchased from local markets from wholesale markets, the amount of dried milk for 2018 reached (183) tons. Milk dried is included in most products in order to modify the standard solids of these products because the raw milk received contains the added water. Therefore, the required specifications cannot be reached if used without a reinforcement of milk dried. The company was equipped with dried milk for 2022 from local markets and is not imported directly by the company. The quantity of dried milk used in production for the same year was 92 tons.There is no contract between the company and the suppliers of milk (processed), but it is processed according to the company's need for milk and the quantity of production required, i.e. coordination between the company concerned and the suppliers.In 2022, the State returned the Alban Abu Ghraib /State Owen Company for Dairy Products to work, following the termination of the contract with the Turkish company The investor was relying on milk dried for the production of dairy products due to the high costs that the company will incur for the transport of milk. The maintenance and the need to collect milk from suppliers was high, in addition to raw milk and the period of drought mentioned above, as well as dependence on milk dried.The company has several stores to store dried milk, essential raw materials, packaging materials, chemicals, food additives involved in the production process and fully manufactured products, and in each of the company's laboratories, as well as small stores for the same purpose, including the strategy and types of stores and materials to be stored in:

1- Frozen stores at a temperature of -18 m to store raw butter and margarines.
2- Refrigerated warehouses (2-6) m to store the following raw materials:
a- Raw cheese.
b- Milk dried of all kinds/in a cooled and dry atmosphere:
* Animal fat.
* Restaurants and stabilizers.
c- Chemicals such as alcohol, ether, etc.
d- Cheetah's own food circles.
3- Refrigerated stores at a temperature of (2-6) m to store fully manufactured products prepared for marketing:
a- Milk of all kinds.
b- Cauldron.
c- Cheese of all kinds.
4- Half-cooled warehouses with temperature (15) m to store packaging materials, polystyrene, aluminum foil, cans for cimer, cooked cheese, etc.
5- Regular stores to store all other substances that are not affected by temperatures.
6- Special stores to store chemicals such as nitric acid, sulfuric etc.
The instructions of the processor regarding the storage of materials shall be taken into account.
PRODUCTION LOOP**:** The plant receives raw milk in large special tanks in the raw milk division after inspection and ensures the safety of milk according to standard chemical and electro biological controls and specifications from suppliers. The first stage is to heat the milk and then to turn the milk sorted into butter. The substance is greasy in a 35%
proportion. Each 1000tons of milk produces 350kelwa butter and cream heats milk to 55m. To cool at room temperature and then ready to market and produce free fat rough milk is also converted into soft cheese after passing through stages of high temperature of 90 ° C and adding the exhausted cheese to cheese and until it becomes soft cheese and coated in different sizes and different types of cans, Milk is dried from local markets and receives milk only after inspection and is valid for the production and transformation of milk into finished products of dairy products and the production of milk of different types and sizes from 400g to 4000g and 950g, 100g, 2000g, Shanina 950 g, cooked cheese and cheeses treated with high heat Longer storage period, sterile milk and restaurant with plastic packaging and raw milk is received from three sources according to the company's need and in addition to dried milk, Manufacturing is based on non-sophisticated technological methods despite the introduction of modern devices, but needs sophisticated and modern devices that raise the quantities of production. Technical workers can develop all existing production lines, restart idle production lines and increase production in quantity and quality. Alban Products Factory Abu Ghraib Taste and High Quality Free of Preservatives for Being Pasteurized, Mad and Products on ISO (according to the personal interview of the quality department of the General Company of Dairy Products and website). In addition to checking and ensuring the safety of the product before it is marketed and in addition to the production of dairy uninvited from cheeses and dairy, this means rising productive capacities and upgrading quality. This factory markets its products through private agencies distributed: Al-Ba 'ah and Al-Rasheed/ Hasheen Street, and distributes its products to all regions of Baghdad through special refrigerated vehicles to market the products. The company was previously providing services to farmers' suppliers but at present does not provide such services and loans that are contracted as milk is supplied with refrigerated cars. The dairy production process through milk producers raising milk animals in their various breeds and providing the necessary production supplies and services in the production process and obtaining dairy products from the production process. The most important elements and productive requirements are both milk, feed

and labor producing animals, as well as government production services that support the productive process of veterinary services, livestock insurance service, credit and finance services and licensing services for the establishment or expansion of private livestock farms, i.e. the product depends on the source of milk production.

Table 3. Shows sales quantities of alban abu graib exotic factories for 2022

Product Name	Sales achieved	Realized Sales /Actual Prices	Verification Ratio Production Plan
Cream	80.163	208135	%25
Butter and free fat	32.41	364770	%37
Cooked cheese of all kinds	92.118	352421	%13
Mozzarella cheese and tender	3.377	14451	%3
Yoghurt	580.8	663021	%25
Sterile milk and restaurant with plastic packaging	4.950	5916	%2
Cooked cheese with plastic packaging	109.546	401511	%27
Cooked cheese with glass packaging	116.257	420351	%4
Total Quantity	905.125	1642839.351	

Source: Alban Abu Ghraib Laboratory/Planning Department.

RETAILERS LOOP

The above table shows the marketing and variable costs and the marketing costs of butter and free fat (191) thousand dinars and the lowest marketing costs of yogurt (21) thousand dinars and the variable and marketing costs of cheese cooked with glass cans (7436) thousand dinars, and the lowest and variable marketing costs of yogurt (1001) thousand dinars on fixed costs of cooked cheese.

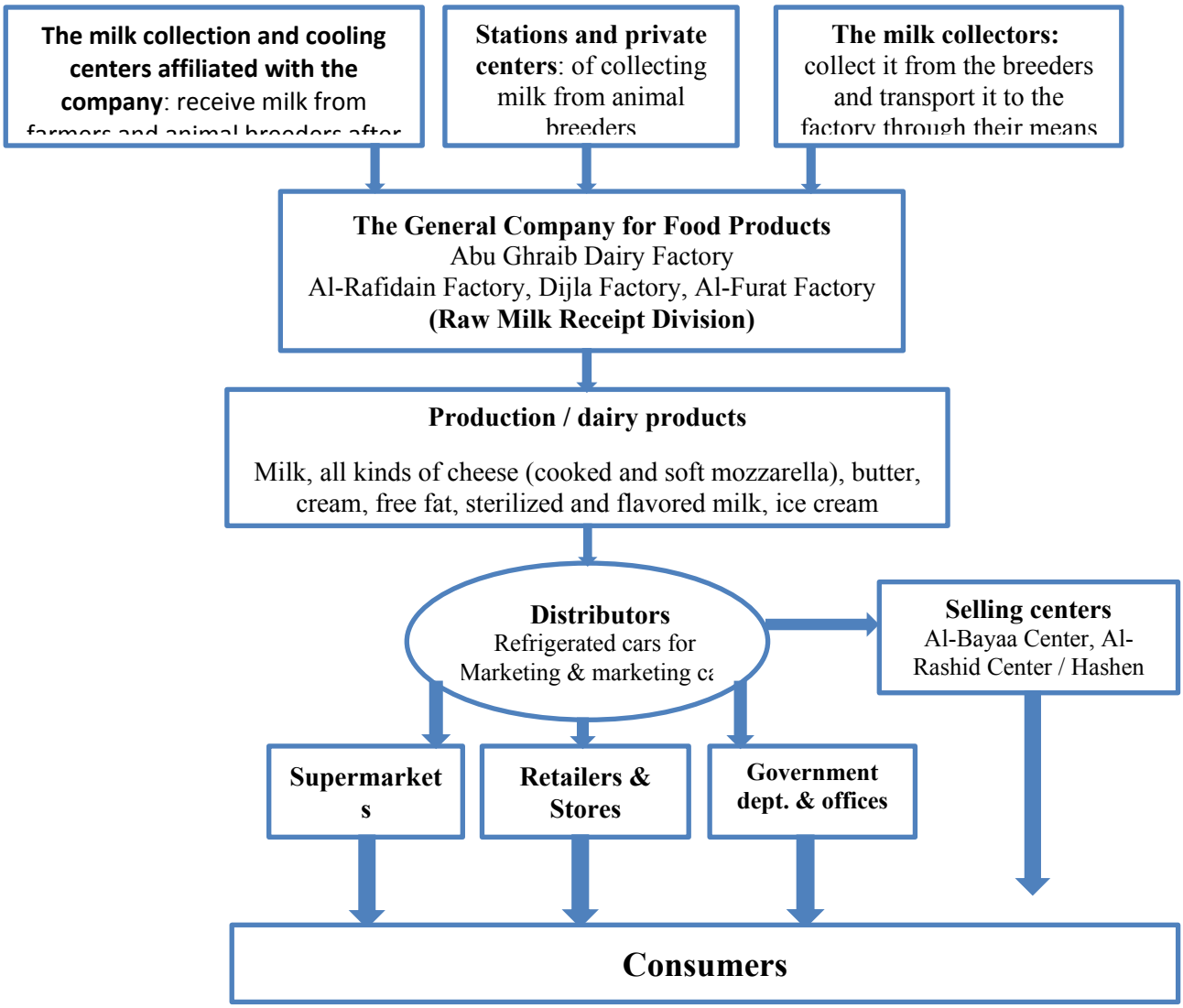
Table .4 Shows actual Production ,Planned output and available working Capacity of ABu GhraibFactories for 2022

Product	Measurement Unit	Actual Production	Planned Production	Available Working Power	Actual/planned verification ratio	Utilization/ energy ratio available
Yoghurt	Tons	1008.673	4000	5295	%25	%19
Cream	Tons	153.887	625	3110	%25	%5
Butter and free fat	Tons	42.672	100	263	%43	%16
Cooked cheese of all kinds	Tons	184.534	990	1140	%19	%16
Cheese cooked with plastic cans	Tons	130.097	450	810	%29	%16
Ice Cream	Tons	0	15	288	%0	%0
Cheese cooked with glass cans	Tons	5.124	50	90	%10	%6

Source: State Company for Food Products/Factories Management - Finance Department.

The table above shows the highest actual yogurt production (1008.673) tons and the energy available to the yogurt product at an actual verification rate to a 25% scheme, and the exploitation rate of 19%. The lowest actual output (5.124 tons) is glass-cooked cheese with working capacity (90), actual verification to a scheme of 10%, and utilization to energy ratio of 6%. The highest actual verification ratio is the product of butter and free fat (43%) and the highest utilization ratio to available energy (19%).

FIGURE 1: DAIRY VALUE CHAIN SCHEME IN IRAQ PAN ABUGHRAB FACTORIES



Source : : Alban Abu Ghraib Laboratory/Planning Department

Structure of Production Ring Costs for Alpan Products in Pan Abu Ghraib Factories Study Area for 2022:

Fixed and variable costs and total costs of dairy products (milk, cream, butter, heat fat and cooked cheese) include:

Fixed costs: costs that do not change regardless of the number of goods sold or manufactured, are not affected by production or sales and must be paid regardless of the enterprise's financial performance and include the cost of work and breakdowns .

Table No. 5 shows fixed cost elements and total fixed total cost elements for the year (2022)

Product	Fixed costs of production and service centre		Total fixed costs
Utilization/energy ratio available	Utilization/energy ratio available	Utilization/energy ratio available	Utilization/energy ratio available
Milk	18	46	64
Cream	31	45	76
Butter and free fat	103	68	171
Cheese cooked with plastic cans	15	107	112

Cooked cheese of all kinds	567	107	674
Cheese cooked with glass cans	42	95	137
Total	776	468	1244

Source: Pan Abu Ghraib factory records for 2022.

From the fixed costs table, the total fixed costs of dairy products are Abby Exotic factories for 2022. (1244) thousand dinars, and that cooked cheese of its kinds is the highest cost (674) thousand dinars, and the cost of work (567) 1,000 dinars, sparks (107) 1,000 dinars and the lowest cost of the yogurt product (64) thousand dinars the cost of work (18) thousand dinars, sparks (46) thousand dinars and the total cost of work for dairy products (776) thousand dinars, and a total of 468 dinars Variable costs: expenditure that changes proportionately to the size of economic activity and is part of total costs and directly related to production. It includes primary materials, packaging, spare tools, fuel, oils and other costs.

Table 6 shows variable cost elements and total variable cost elements for 2022.

Product	Variable costs of production centre and production services				Total variable costs of production centre and production services
	Raw materials	packaging and packaging	Spare tools Fuel and oil	Others	
Milk	778	56	43	103	980
Cream	823	420	195	503	1941
Butter and free fat	7590	487	536	745	9358
Cheese cooked with plastic cans	2568	204	246	390	3408
Cooked cheese of all kinds	1765	335	410	435	2945
Cheese cooked with glass cans	6079	475	339	395	7288
Total	19603	1977	1769	2571	25920

Source: General Company for Food Products/Factories Management - Finance Department, and the total work of the researcher.

The variable cost table shows that the total variable costs of dairy products (25,920) KD and the highest variable cost of butter product and free fat (9,358) KD raw materials, packaging and packaging (7,590) KD and spare tools (487) KD, fuel and oils (536) KD and other cost (745) KD. The cost of the yoghurt product (980) is a thousand dinars, raw materials, packaging (778) thousand dinars and spare tools (56) thousand dinars, fuel and oils (43) thousand dinars and another cost (103) thousand dinars.

Table (7) Variable, fixed and total costs of the production ring of the unit of measurement per ton for the year 2022 (amount in thousands of dinars).

Costtype	Variable costs of the Centre Production & Production Services	milk	Cream	ButterFree Fat	Cooked cheese Plastic cans	Cooked cheese of all kinds	Cheese cooked with glass cans	Total
Costs Variable Marketing	1.Primary, Packaging & Packaging		823	759	2568	1765	6079	12772
	2. Spare tools		420	487	204	335	475	1977
	3. Fuel and oil		195	536	246	410	339	1769
			503	745	390	435	395	2571

	4. Other cost 5. Marketing costs		40	191	71	72	148	543
Total Costs Variable Marketing		1001	1981	2718	3479	3017	7436	19632
Fixed costs	1. Cost of work 2 Breakdowns.	18 46	31 45	103 68	15 107	567 107	42 95	776 468
Total Fixed costs		64	76	171	122	674	137	1244
Total total costs	1. Fixed costs 2.Variable Marketing cost	1001 64	1981 76	2718 171	3479 122	3017 674	7436 137	19632 1244
Total total costs		1065	2057	2889	3601	3691	7573	20876

Source: General Company for Food Products/Al Ban Abu Ghraib Factory _ Finance Department, and the total work of the researcher.

The above table shows the marketing and variable costs and the marketing costs of butter and free fat (191) thousand dinars and the lowest marketing costs of yogurt (21) thousand dinars and the variable and marketing costs of cheese cooked with glass cans (7436) thousand dinars, and the lowest and variable marketing costs of yogurt (1001) thousand dinars on fixed costs of cooked cheese.

Table (8): shows actual production, planned output and available working capacity of Abi Ghraib factories for 2022 .

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Source: State Company for Food Products/Factories Management - Finance Department.

The table above shows the highest actual yogurt production (1008.673) tonnes and the energy available to the yogurt product at an actual verification rate to a 25% scheme, and the exploitation rate of 19%. The lowest actual output (5.124 tons) is glass-cooked cheese with working capacity (90), actual verification to a scheme of 10%, and utilization to energy ratio of 6%. The highest actual verification ratio is the product of butter and free fat (43%) and the highest utilization ratio to available energy (19%).

ECONOMIC STANDARDS AND STSTISTICAL METHODS USED IN DATA ANALYSIS

FIRST:VALUE ADDED STANDARD: Value added is a measure of an enterprise's gross return by exploiting its productive capacity, namely employment and capital in the broad classical sense. The concept of value added is of great importance in value chain analysis and an important criterion in project evaluation.

Value added = Total revenue - total variable costs

AV = TR – T VC

31394861. 5 – 2670763.04= (4687230.46).

AV = Total value added for production in Abu Ghraib factories.

TR = Total revenue
TVC = total variable costs

SECOND: FIXED, VARIABLE AND COLLEGE COST STANDARD: This criterion includes several different cost measures that can be divided into fixed costs that are unchanged by the quantity of outputs produced. Variable costs are the costs that change by the quantity of outputs produced. Total fixed and variable costs are equal to total costs. In order to choose the optimal quantity of production, the product must know the cost of the model unit of production and the cost of producing one additional statistical unit for the total value divided by the quantity of outputs. Average fixed cost (fixed cost divided by output quantity) and medium variable cost (variable cost divided by output quantity). The symbols (22) : -
Quantity = Q = (1030.387) tons. Production quantities of Abu Ghraib factories
Total costs = TC = (29387667.63) thousand dinars. Total costs of dairy products Alban Abu Ghraib factories.
Average total cost ATC = 1030.387/29387667.63 28521 dinars
Total fixed costs TFC = 1281801.42 thousand dinars.
Average fixed costs = AFC = Q/FC = 1030.387/1281801.42 = 1244 thousand dinars
Variable costs = TVC = 26707631.04 thousand dinars.
Average variable costs = AVC = Q/VC = 1030.387/26707631.04 = 25920.

Table 9. Varible,Fixed and Total Cost 1000Dinars

Details Cost	Cost
TVC	26707631.04
TFC	1281801.42
TC	29387667.63

Source: Based on previous equations

Average total cost = ATC = 28521
Average fixed cost = AFC = 1, 20
Average variable cost = AVC = 25,15
The average total cost of ATC is the total average variable cost, AVC and average fixed cost AFC as shown in the following formula :
ATC = AVC + AFC = 28521

THIRD: GROSS AND AVERGE REVENUE STANDARD
Total revenues (TR) Total Revenue: is the amount received by the seller for a commodity or service. Total revenue is simply the price of the commodity (P) multiplied by the amount of the commodity sold (Q), and as shown in the following formula (Sexton, 2016. 163): 1,000 dinars
TR = P * Q
TR= 30460*1030,387
TR = 31394861,5
Average revenue (AR) Average Revenue: returns per unit of output. It is obtained by split (TR) on the quantity sold (Q), and as shown in the following formula (10)
AR = TR / Q.
AR = 31394861,5 / 1030,387.
AR = 304

FORTH: PROFIT-TO- VALUE RATIO CRITERION: This criterion refers to the importance of profits as an element of value added from the total value added achieved by the economic unit, as explained in the following formula (19):

Profit to Value Added Ratio = Value Added/Profits
Profit to value added ratio = 4687230,46/2007193,87 = 0.42

FIFTH:VALUE-ADDED PRODUCTION RATIO CRITERION: This criterion shows the importance of value added from the value of production, as the higher the ratio, indicates a good level of productivity in the unit's activity, as indicated in the following formula (19):
Value Added Ratio to Value of Production = Value of Production/ Value Added
Value added ratio to production value = 2319367/4687230,46 = 2.02

SIXTH: PRODUCTION UNIT VALUE-ADDED SHARE CRITITERION: This criterion gives the rate of value added per unit of production, as explained in the following formula (19)
Production unit's share of value added = quantity of production/value added
= 1030.387/ 4687230,46 = 4549

SEVENTH: MARKETING SYSTEM EFFICIENECY : Marketing efficiency is a real indicator of the performance of marketing services. Some studies attempt to measure the efficiency of some agricultural products' marketing system through comparisons that reflect the ratio between the total marketing costs and the total costs (productivity and marketing) of the marketed crop using the following scale (17):

RECOMMENDATION
Marketing efficiency = 100 -} Total costs (marketing and productivity) of the marketing commodity/total marketing costs {*100 = 100} 28521/ 543 {*100 = 99%

Conclusion and recommendation

I: Conclusions

1.A seamless analysis of Pan Abu Ghraib factories noted that dairy products have high variable costs, resulting in higher total costs of dairy production, which negatively reflects the quantities produced therein.
2. Reduced productive capacity for technical reasons.
3. High prices of primary supplies (raw milk, packaging materials, cheese materials, exhausted materials) that are included in the production due to imports of raw materials from abroad and this works on the high variable costs.
4. The company recognizes the importance of strategic trends through product development, as well as the choice of the company's brand "Alpan Abu Ghraib", which suggests in the consumer mind that the company's products are fresh, free of preservatives, as opposed to imported products containing preservatives for their longer stay in the market.
5. The company is interested in joint planning by linking the value chain to the activity that takes into account the continuity of the flow of products by increasing its market share, as demonstrated by the marketing efficiency index in the research.

Second: Recommendations

1-Reducing costs for each value chain episode through reduced expenditure and efficient use of productive resources.
2-Work to reduce imports of dairy products from abroad to support the domestic product and increase market share.
3-Work to increase productive capacities through the use of modern technologies in the dairy industry.

4-Continue to respond rapidly to consumer demands, periodically evaluate inventory and focus on the absence of excess inventory.
5-Work to provide pioneering products that guarantee characteristics that utperform competitors.
6-Encourage research and studies of the value chain every five years and work compared to previous and current series.

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