

Design of a Management Information System of the Fisheries Sector Based on the Throughput Accounting

Alfredo Gámez Gámez^{1*}, Ender Bueno Mejía² and Iris Jiménez-Pitre³

¹Grupo de investigación Gepingat, Universidad de la Guajira, La Guajira, Colombia; agamez@uniguajira.edu.co

²Grupo de investigación Efipra, Universidad de la Guajira, La Guajira, Colombia; iajimenez@uniguajira.edu.co

³Research Group Biemarc, Universidad de la Guajira, La Guajira, Colombia; enderbueno@uniguajira.edu.co

Abstract

Objective: To inquire exhaustively the research on the organizational characteristics and with it the implementation of managerial tools, which help the development of micro-enterprises? **Materials and Methods:** In this sense it develop schemas in the fishing productive units in the city of Riohacha and sets analysis of the traditional system of cost with an instrument of organizational management called "Throughput Accounting", creating new paradigms applied to micro-enterprises in the fisheries sector. An analysis was applied to the traditional system and methods of business management based on the Throughput Accounting, on fishing productive units. **Finding:** the results allow us to observe significant changes in decision-making, mainly by the analysis of existing restrictions in the organization, the growth of the performance and the aggregate values are set to the products. **Application:** the organizations belonging to the fisheries sector with the new organizational scheme proposed and the launch of the management system based on the Throughput accounting, are entered in the new technological paradigms, as well as the market takes a course, from the point of view of supply and demand, because organizations will not produce based on an analysis of unit costs under the traditional system, but rather based on performance to establish the actions to be taken according to the decisions of the performance: Throughput = Price – Variable Costs. On the other hand, from the point of view of the market, it is not to offer what apparently more is sold, but also generate performance as well as the proportions of the amount sold is less than in volumes.

Keywords: Accounting Costs, Bottle-neck, Restrictions, Throughput Accounting, Yields

1. Introduction

The present study was based on the problem facing the fishing industry, from the point of view of little added value and the poor industrial exploitation of the products offered on the market, such as the *shrimp (caridea)* and *fish*, in these last include the *Scomberomorus Sierra*, *Pagrus pagrus*, *Lutjanus sp*, *Diplodus vulgaris*, *Carangoides ruber* and *Trachurus murphyi*. The existing fishing marketing units in the city of Riohacha, do not have historical information from the market, which forced him to carry out a preliminary study on the supply, demand, price, distribution channels, per capita consumption and sea species that are consumed.

The fisheries sector is defined as “the set of natural or legal persons dedicated to fishing and aquaculture as a sustainable development activity, economic and productive”¹. In the department of La Guajira this sector develops in a traditional way, from there that one of the tasks with greater urgency within the fisheries sector is to promote partnerships and organizational strengthening of unions or groups of fishermen in the coastal zone, this as a means to generate economies of scale, increase productivity, contribute to greater availability of marine resources and encourage a more competitive functioning of the sector, to ensure a fair income and contribute to economic and social development of fishing communities of the department. In the particular

*Author for correspondence

case of the city of Riohacha, this sector account from the years 90 with five (5) product marketing productive units of the sea; who's tender is focused on domestic consumption, because they do not have licenses for the export of products. The fishing tradition in the Special District of Riohacha, Cultural Tourism has been in a 100% handmade, understood as a secondary activity devoid of planning². The total fisheries production in the country has had average values of 160,000 tonnes per year over the past 20 years³.

The Caribbean contributed 8,545 tons in the year 2009, representing 18.89% of the total national fisheries; in the department of la Guajira. The only municipalities that reported landing of artisanal fisheries are Riohacha (367.7 tons), Manaure (362.6 tons) and to a lesser extent, uribia (6.3 ton). Small-scale fisheries accounted for 25% of total annual production, while the industrial fisheries accounted for 55%, the latter is not applicable to the Department of La Guajira, and aquaculture accounted for 20% of the total fishery production; Recently the artisanal production represents a 20%, a 29% industrial fishing and aquaculture a 51%⁴. In this sense, the La Guajira Department provides a contribution to the gross domestic product of 2,320,247 in millions of pesos, of which the fisheries sector contributed 440 million pesos, equivalent to 0.17% of GDP of La Guajira Department in 2012. At the national level, the fisheries sector reflects a negligible index; it is expected to improve the production for the productive conditions grow significantly⁵.

Thus at the national level and in the particular case of Riohacha, the fisheries sector has not been sufficiently valued and exploited properly; this situation has not allowed the normal development of the companies of this sector. Specifically in Riohacha, has not had the expected growth, because few formalized companies who exercise this activity; it is estimated that micro-enterprises in the fisheries sector are in a 48% sole proprietorships, establishments based on tradition, with high rate of informality or "entrepreneurs by necessity", that is, people who are forced to generate their own risk a business for survival in the face of the lack of employment or due to the impossibility of accessing the labour market⁶.

Like-wise, the advantages of a business in order to succeed in the market, even though they are of a different kind, are determined by the scale of production, and in the case of the fishing village, the small size of their business influences the ability of these to be financed in optimal conditions, to innovate and compete; in this sense, the jobs are generated by its own account, the greatest difficulty is found in the overcoming of credit constraints that will allow them to fully develop entrepreneurship. In this sense

it is difficult for employers or companies of sea products in the city of Riohacha, have the opportunity to design tools that will allow them to be financially reliable, as well as to develop economically profitable activities and highly sustainable, what is possible only in part with the will of researchers and regional educational institutions, which join forces to provide meaningful support to the micro entrepreneur in this matter. The Theory of Constraints, created by the physicist Eliyahu Goldratt, critically reviews these impoverished models of management and presents with the logic of common sense, a model that rescues the essence of the business function⁷. That is to say that, for the Theory of Constraints, a business is a system of relations between resources with the permanent goal of generating value; the restrictions of time (up to a maximum of three conditions) cause the system to generate limited gains. Which are the factors that impede the pursuit of profit, by which all management must focus on them⁸.

In relation to the management information systems at local, national and international levels, present difficulties because that through time come showing the practical scheme of cost accounting traditionally used and the ABC costing management system⁹. Management should make an optimal resource allocation on the basis of the management information system of cost accounting. This cost-accounting system is attributed to the uses and customs of ancient civilizations and later of the manufacturers Florentines in the 12th century. At this time it required little information, since processes and transactions were simple. It is from the industrial revolution when significant changes in production processes. This leads to the need for better management information related to the accumulation of costs, to make decisions and be able to manage properly. In the 1990s 80 there is a breakthrough related to the organization, increasing the delegation of responsibilities. There is a need to improve control of enterprises and that the accounting information systems will be more open, which shows that traditional accounting of costs is insufficient¹⁰.

Therefore, the trading units of the fisheries sector in the city of Riohacha, La Guajira, have maintained over time the analysis and decision making based on the tools of traditional costing system, which is not consulted to make decisions. The system of traditional cost, as well as the managerial ABC costing system, have been suffering some criticisms at the global level, primarily from the perspective of Goldratt⁷. Marketing units of the fisheries sector in the city of Riohacha are entities that establish a dynamic of production through the exchange or purchase and sale of products, which are not, presented

circumstantially processes or transformation of raw materials. They express the fact that fish production presents difficulties for growth, it is advisable to establish strategic mechanisms of development, due to the fact that the traditional management information system proposed in which plays a crucial role in cost accounting, is founded by units and not by the set of actions that reference an entire productive system in each of these, the production is based on the efficiency, in which there is a comprehensive analysis related to the company's performance, which being highly efficient generates inventory and with them the increase in operational costs⁴.

On the other hand, the units engaged in the marketing of sea products existing in the city of Riohacha, are FISHMONGER dagoberto Guerrero (DAGOMAR), and FISHMONGER Martinez family (FAMARO Group); those who are characterized by being consolidated and formalised, as well as are the fishmonger Guajira Colombia, FISHMONGER "El Pulpo" (Octopus), and riches of the Sea Fisheries, which are too small organizations; in all production units are marketed products of the sea such as: *Shrimp(caridea)*, *Pagrus pagrus*, *Scomberomorus sierra*, *Octopoda*, *Trachurus murphyi*, *lutjanus*, *Diplodus vulgaris*, *Carangoides ruber*, *Centropomus undecimalis*, among others, with a productive system and traditional accounting. In them is reflected the absence of advisors for the production, while the accounting process is assisted by external accountants who perform accounting and financial analysis to the same, more to comply with some legal commitments to bring an order that guarantees them a decision-making at the time.

The production process must be oriented to the wide existing demand, however, there are no studies for the analysis of the capacity of the plant, or market research to determine the unmet demand and to ensure the development of marine resources and increased production, so you must redesign the existing productive units using a model that ensures maximum production and the generation of greater income, with a management information system to strengthen decision-making in the fishing companies in the city of Riohacha. Therefore, the objective of this study was to design a management information system, based on the Throughput accounting marketing units of the fisheries sector of the special district of Riohacha, cultural tourism that contributes to the business decision making.

2. Materials and Methods

A descriptive research was conducted with a non-experimental and quantitative, through surveys and interviews, as well as by direct observation. These will allow the collection of data taken from the sample for the study, specifically for managers, owners of the productive units to study, fishermen and private investors; there was also a revision of bibliographical sources on fish production by means of specialists of this sector in particular. The accounting information collected and modelled after the Throughput accounting, was obtained from two (2) of the five (5) productive units in the city of Riohacha, specifically FISHMONGER dagoberto Guerrero (DAGOMAR LTDA.) and fishmonger's Family Group Martinez (FAMARO LTDA.). Once you have obtained the description of the market of the fisheries sector is limited to the city of Riohacha will proceed to make an organizational reengineering and implementation of the system of management based on the Throughput accounting in the fishing productive units, whose details will be presented in the Results section and analysis, in view of the fact that they are a direct result of market conditions, resource, the capabilities of plant, among other factors.

3. Results and Discussion

Taking into account the existing deficiencies in the fisheries sector in relation to organizational studies that show from a scientific point of view, the reality of the market, it was necessary to carry out an intervention in order to achieve to know which is the behaviour of the same. The range of products and services focuses on the sale of *Scomberomorus sierra*, *Pagrus pagrus* and *lutjanus sp*; while as alternative products is the *Diplodus vulgaris*, *Trachurus murphyi* and the *Carangoides ruber*. Each product presents months of greater demand, where products such as *shrimp* and *S. sierra*, which are only defendants for six months during the year, while others, such as the *Pagrus pagrus* presented a demand continues throughout the year. In addition, the market demand in weight (Kg) product, is far superior to the offer, so that there is an unsatisfied demand (DI = demand – supply) that represents high percentages, all above the 80% (Table 1). The ability of the production unit studied according to the distribution of equipment in the plant, processes, human capital available and the economic capacity of the units, was found for 384 Kg/day for *shrimp (caridea)*, 369 Kg/day *Pagrus pagrus*, 480 Kg/day *S. Sierra*, 369 Kg/day for *Pagrus pagrus* and *Diplodus vulgaris*, and 400 Kg/day for *Trachurus murphyi* and *Carangoides ruber*.

Table 1. Characteristics of the market by the companies studied

Product	Demand (Kg)	Offer (Kg)	Unmet demand (Kg)	Portion of the unmet demand for (%)	Unmet demand to cover (%)	Months of supply
<i>Shrimp (caridea)</i>	4,800,000	552,960	4,247,040	88	0.58	Mar–May; Sep–Nov
<i>Pagrus pagrus</i>	5,081,739	531,692	4,550,047	90	0.52	Jan–Dec
<i>Scomberomorus sierra</i>	4,006,957	691,200	3,315,757	83	0.86	Feb–Mar; May–Jun; Aug–Sep
<i>Lutjanus sp.</i>	4,466,087	531,692	3,934,395	88	0.60	Jan–Dec
<i>Diplodus vulgaris</i>	4,747,826	576,000	4,171,826	88	0.61	Jan–Dec
<i>Trachurus murphyi</i>	3,453,913	531,692	2,922,221	85	0.77	Feb–Mar; May–Jun; Aug–Sep
<i>Carangoides ruber</i>	3,986,086	576,000	3,410,086	86	0.72	Feb–Mar; May–Jun; Aug–Sep

The capacity of the plant (offer) was estimated by multiplying Kg/day of product * 5 * lines 24 days per month * 12 months of the year (On the basis of the reengineering adjusted)

Table 2. The process times by task and by product weight

Product	Production time		Production processes			
	Min/ Kg	Sec/ Kg	Received (sec)	Cleaning washing (sec)	Weighing (sec)	Packaging (sec)
<i>Shrimp (caridea)</i>	1.25	75	10	40	15	10
<i>Scomberomorus sierra</i>	1	60	15	20	10	15
<i>Pagrus pagrus</i>	1.3	78	15	40	10	13
<i>Lutjanus</i>	1.3	78	15	40	10	13
<i>Diplodus vulgaris</i>	1.3	78	15	40	10	13
<i>Trachurus murphyi</i>	1.2	72	15	34	10	13
<i>Carangoides ruber</i>	1.2	72	15	34	10	13

The analysis for each of the production processes by species(product), was determined by the time required for the production of 1 kg in minutes, that can be projected to other time units, as well as determined the time spent by each task, such as washing, weighing, among others; stresses that the process times per kilogram of product are between 1 and 1.3 seconds (Table 2), so it is clear that the current capacity of the organization cannot cover the unmet demand; this creates the need to make decisions around the mixture to use.

The range of products and services focuses on cover a percentage of the unmet demand for *shrimp (caridea)*, *Scomberomorus Sierra*, *Pagrus pagrus*, The *Diplodus vulgaris* and the *Carangoides ruber*. In this sense it is necessary to determine the mixture to perform to present to market the products for which the company has sufficient capacity. According to studies on the market, the families of Riohacha have the ability to pay for each of the products (unit price), introducing costs between

\$18,800 (Colombian pesos) for *shrimp (caridea)*, \$15,000, \$14,500 of the *Pagrus pagrus*, the *Scomberomorus Sierra*, \$10,600. The *Diplodus vulgaris*, *Trachurus murphyi*, \$9,200,\$9,700 and \$6,300 *Carangoides ruber* and the \$. In order to establish the requirements related to machinery and equipment for the productive unit, a technical analysis is performed based on production that generates the percentage of the unmet demand to cover (Table 3), and that must be adjusted to the scheme proposed for the productive process (Figure 1).

Table 3. Machinery and equipment necessary to meet the demand

Quantity	Machinery or Equipment	Cost \$ (PCOL)
3	Freezer	7,800,000
1	Weight Scale	450,000
1	Electronic Scale	120,000
1	Cold Room	20,000,000
1	Knife Set	180,000

Quantity	Machinery or Equipment	Cost \$ (PCOL)
1	Set of Files	120,000
10	Pewter Trays	510,000
10	Buckets	50,000.00
1	Computer	2,000,000
100	Baskets	3,000,000
1	Printer	1,000,000
3	Telephones	1,500,000
4	Display cabinets	5,640,000
2	Stainless Steel Tables	1,400,000
1	Sierra Auger 3/8"	1,800,000
10	Aluminum platters	100,000
5	Paper Trays	350,000
1	Stabilizer Linkage	360,000

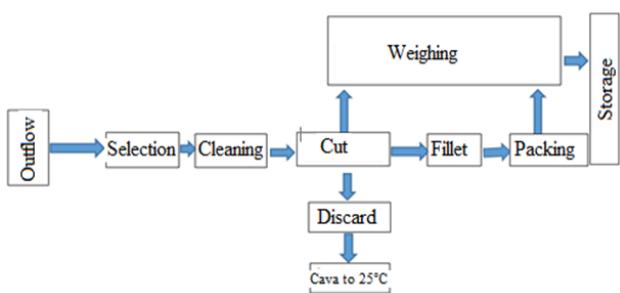


Figure 1. Diagram of the productive process proposed.

Adjusts the capacity of the plant to five (5) production lines (previously numbered only one); while another aspect to analyze, product of the restriction of demand, it is if you do not have the necessary raw material per product. When there are restrictions on the demand for raw material, there arises the need for supply in mixtures of products, so initially finds the weakest link in the chain of maximum production, that allows to increase system performance; between the restrictions of the productive units identified the difference in the times of the productive processes, limitations in the supply of raw material, economic illiquidity for the purchase of products, legal aspect for exports, the plant's capacity, and on the supply generated by border area. In this order of ideas, the restrictions are managed in order to achieve the so-called "Resources with Capacity Restriction (RRC)".

There are various production processes, in which there are different possibilities to these restrictive, is what we call RRC, because they limit the ability of the plant. In the case of the times, the process that generates further delays in production, to which we can assign as RRC in the plant. According to the times of production that are listed in Table 2, we can clearly see the RRC that provides the process of washing and cleaning, in which are products with a higher time (40 seconds and 34 seconds), with respect to the *Scomberomorus Sierra* that is washed and cleaned in less time, however, is the part of the process that restricts the production in that particular product.

There are resources restrictive in different scenarios, one of these may be taking into account each of the times the plant has available, in this case, it would be producing according to the provision of time, in some cases is able to produce all, because there is demand in the market, but in other cases there is capacity limitation in that you can't produce everything the market wants, this forces to produce less of what was requested by which should take decision in relation to the goods or the mixture to perform, in this case the RRC is on the ground, for example, in this case cannot sell the product of higher performance (Jack Mackerel, see below), because the market is showing signs in which requests the product of lower yield (The *Scomberomorus Sierra*, see below). A second scenario is the case when you have availability in the total productive capacity according to market demand, however, the market does not purchase what is produced by the company. Because there is a RRC idle, which means not buying everything that the unit can produce, for example, the market does not buy what the unit is able to produce, is a state of leisure, so you must produce mixtures according to the requests for the same.

There are various accounts that must be used in the Throughput accounting, as the cost of raw materials (variable costs), which basically includes the costs of fishery products and packaging costs. For the calculations of throughput per product, it establishes the difference between the selling price (PV) and the Costs Totally Variable (CTV) Throughput = PV - CTV, in order to establish the performance of each fishery products offered (Table 4).

Table 4. Yield determination by means of the throughput of the products fishing vessel casualties

Quantity Kg	Product	Unit price \$	Costs variables \$	Throughput \$
1	<i>Trachurus murphyi</i>	9,700.0	6,000.0	3700
1	<i>Lutjanus</i>	6,300.0	2,600.0	3700
1	<i>Shrimp (caridea)</i>	18,800.0	15,500.0	3300
1	<i>Carangoides ruber</i>	9,200.0	6,000.0	3200
1	<i>Diplodus vulgaris</i>	10,600.0	7,500.0	3100
1	<i>Pagrus pagrus</i>	15,000.0	12,200.0	2800
1	<i>Scomberomorus sierra</i>	14,500.0	12,200.0	2300

The productive capacity of the organization maintains the following order, to the extent offered a single product, with 5 lines of production: 1) *Trachurus murphyi*, 2) *Lutjanus sp*, 3) *Shrimp*, 4) *Carangoides ruber*, 5) *Diplodus vulgaris*, 6) *Pagrus pagrus*, and 7) *S. Sierra*. The productive unit would begin with the priority of the productive *Trachurus murphyi*, as a second option the *lutjanus* and so on, is the order that generates higher performance when using the capacity of the plant producing a single product, in such a way that, if there is restriction in supply of raw material, for example, in mackerel and *lutjanus* - the option to prioritize would be the production of *shrimp (caridea)*. In the same way sets demand conditions that make products are scarce at certain times, in these cases, they should look for alternatives that allow for displaying higher revenues in the face of the restrictions that generates the market. It is intended to then perform calculations using mixture of products (Table 5-6).

Table 5. Throughput performance by mixtures of products

Mixture of products	Unit price \$	Costs variables \$	Throughput \$
<i>Shrimp -S. sierra</i>	33,300.0	34,300.0	1,000
<i>Shrimp -S. sierra-Pagrus pagrus</i>	48,300.0	46,500.0	1,800

Mixture of products	Unit price \$	Costs variables \$	Throughput \$
<i>Shrimp -Lutjanus sp</i>	25,100.0	18,100.0	7,000

Table 6. Operating expenses for the processing plants of the fisheries sector in the city of Riohacha

Item	Value \$
Salaries of direct and indirect labour	41,198,777.0
Depreciation (Includes locally or replaced by lease)	18,000,000.0
Public services	20,400,000.0
Transport	24,000,000.0
Maintenance	6,000,000.0
Advertising promotion	6,000,000.0
Financial costs	80,000,000.0

The operational costs in the Throughput accounting play an important role for the achievement of the objectives and financial growth of the productive unit, in this sense are related operational expenses and establish the annual values that have been estimated for the production unit of the fisheries sector. The information obtained from each of the metrics used, sets the calculation of profits by applying the accounting Throughput (Table 7) reflects the calculation according to the following characteristics: One (1) production line, which generates a time available for 480 min/day, taking into account the capacity of the plant, there is a total time in the five (5) lines of production of 2,400 min/day, which constitutes the capacity RRC in the productive unit. If we establish three (3) scenarios for the production, the first scenario is when you can produce all the proceeds of higher performance in this case simply preference is given to the product in accordance with the prioritization that generates the highest throughput. In response to the market requirement, in the specific example, the market is not asking for *Trachurus murphyi*, *Lutjanus*, or *Carangoides ruber*, which proceeds to comply with the request of the market producing the entire capacity in *shrimp (caridea)*. If this scenario will generate a request for purchase of *Trachurus murphyi*, there would be no doubt having to have all the capacity of the plant for this production, because it is the product of higher performance according to the prioritization calculated.

Table 7. Simulation of the throughput and ROI calculation by day, month, and year

Product	Product Time	Variable cost (\$)	Sale price (\$)	Through-put	Cap. Operator	Perfor-mance	Market demand (Kg/ day)	Total Time (Hr)	Maximum Through-put Mix-ture
<i>Trachurus murphyi</i>	0.02	6,000	9700	3,700.0	400	185,000.0	150	3	555,000.0
<i>Lutjanus sp</i>	0.021	2,600	6300	3,700.0	369	170,769.2	120	2.6	444,000.0
<i>Carangoides ruber</i>	0.02	6,000	9200	3,200.0	400	160,000.0	80	1.6	256,000.0
<i>Shrimp (caridea)</i>	0.02	15,500	18800	3,300.0	384	158,400.0	38	0.79	125,400.0
<i>Diplodus vulgaris</i>	0.021	7,500	10600	3,100.0	369	143,076.9			
<i>S. sierra</i>	0.016	12,200	14500	2,300.0	480	138,000.0			
<i>Pagrus pagrus</i>	0.021	12,200	15000	2,800.0	369	129,230.8			
							Total	7.99	1,380,400.0
Operating expenses (day)	401,384.64	979,015.36 Net			46,380,000.00 investment				
ROI (day) 0.0211		ROI (month) 0.5066			ROI (year) 6.079				

Operational costs indicated per day

The second scenario the restriction is to be found in the plant, which is the RRC, since it is not possible to produce what the market requests, in the particular case of the productive unit Pesquera, in this context, the market has requested: 250 Kg *Shrimp (caridea)*, 39 Kg *Carangoides ruber*, 850 Kg *Trachurus murphyi*, 88 Kg *Diplodus vulgaris*, 520 Kg *Lutjanus sp*, 300 Kg 100 Kg *Pagrus pagrus* and *Scomberomorus Sierra*. Carried out the calculations and according to the prioritization of products is accomplished to observe that the entire production can be fulfilled with the exception of the *Pagrus pagrus* that in spite of the market requests more than 300 Kg/day, the plant is limited to a production of 100 Kg.

The third scenario, the RRC is idle because the market does not buy what the company produces. In this sense, the market has requested a large number of product does not 3 according to the priorities (*Carangoides ruber*) and has moved in its application to products not 1 and not 2 (mackerel and the *lutjanus*), in a context without RRC in leisure, it would have been better to the production of the product is not 1 and not 2, however, the market does not buy the products that the unit has planned to sell according to their performance and should be adapted to produce the product does not 3 above the product does not 1 and not 2. Table 8 shows the simulation of scenarios 2 and

3 above, in a day of production in the unit. By comparing the stage 2 with the scenario 3, there is a return on investment (ROI) of 14% and 13%, respectively. However, it should be noted that each scenario corresponds to a particular situation. The message that provides us with the exercise is the fact always maintains a production in the plant and generates yields, as well below the projected.

When there is a restriction, the product of plant capacity or market, it is necessary to take into account the meter of throughput per unit of time established in the processes, due to the fact that the offer in this case depends on the circumstances that arise in the market. In the specific case of the productive unit fishery tradition in abundance or scarcity of each species, determines which can be the restrictive element of the unit.

According to the diagrams for the performance based on the parameters provided by the accounts throughput, it is necessary to analyze the contribution of this by day, month, and year. This analysis is shown in Table 9, from which it can be inferred, that the product that generates no restriction is the *Trachurus murphyi*, therefore, in this product the RRC is equal to zero (0), in other words, you do not have time restrictive, the other products within the prioritization are located in the step 2 onwards have RRC. Which means that the product of better performance with RRC is the *Lutjanus*? Being of the *Pagrus pagrus* the product of lesser performance with RRC.

Table 8. Analysis of mixture of Throughput without RRC and Analysis of mixture from the Throughput with RRC

	H/day	Production line	RRC	Min/ hour	Time by filled in min		Time/ day	
	8	1	0	60	480		2400	
RRC Capacity	2400	2399,7	2400	0.3	2399,2		0	
Product	Request (Projection)	Mixture of Maximum Throughput		Sales Mix	Use of the RRC	Cumulative %	Total throughput by product	
					B	C	B	C
<i>Shrimp (caridea)</i>	1,920	1920		250	150	0.13	0.1	825,000
Sierra	2,400	0		100	100	0.04	0	230,000
<i>Red Pagrus pagrus</i>	1,846	0		100	85	0.05	0	280,000
<i>lutjanus</i>	1,846	0		520	120	0.28	0.1	1,924,000
<i>Diplodus vulgaris</i>	1,846	0		88	80	0.05	0	272,800
<i>Trachurus murphyi</i>	2,000	0		850	500	0.425	0.3	3,145,000
<i>Carangoides ruber</i>	2,000	0		39	951	0.0195	0.5	124,800
				Total	1.0			
							B	C
					Total through-put		6,801,600	6,548,200
					Operational Expenditures (day)		401,384.64	401,384.64
					Net Profit		6,400,215.36	6,146,815.36
					Difference		253400	
					Investment		46380000	46380000
					ROI (Annual)		0.14	0.13

B: Scenario 2: Scenario 3/C

Table 9. Analysis of the Throughput by day, month, and year in RRC

Product	Through-put of the product (\$)	Total time the process (Min)	Throughput in RRC	Throughput/day in RRC	Throughput/month in RRC	Throughput/year in RRC
<i>Shrimp (caridea)</i>	3,300.00	1.23	2,683.0	6,439,024.4	154536585,4	1854439024,3
<i>S. sierra</i>	2,300.00	1.00	2,300.0	5,520,000.0	132480000,0	1589760000,0
<i>Pagrus pagrus</i>	2,800.00	1.30	2,154.0	5,169,230.7	124061536,8	1488738441,6
<i>Lutjanus sp</i>	3,700.00	1.30	2,846.0	6,830,769.2	163938461,5	1967261538,2
<i>Diplodus vulgaris</i>	3,100.00	1.30	2,385.0	5,723,076.9	137353846,1	1648246153,0
<i>Trachurus murphyi</i>	3,700.00	0.00	-	-	-	-
<i>Carangoides ruber</i>	3,200.00	1.20	2,667.0	6,400,000.0	153600000,0	1843200000,0

RRC/day based on 2400 min/day; days/month based on 24 days; months/year based on 12

It is important to mention, as expressed¹¹. In her investigative work on the use of statistics and accounting throughput, in Colombia, the companies that carry the Throughput accounting must be "double counting" due to the fact that the DIAN, the Ministry of Hacienda, the institutes for granting loans as banks require that financial information submitted on the basis of a state of results prepared in accordance with the accounting standards according to local regulatory decree that the accounting practice in Colombia, and that the information in the accounting of the Throughput cannot be taken for these purposes, since it is only used as a tool for decision-making¹².

4. Conclusions

Fishing productive units in the city of Riohacha, use a management information system based on the traditional cost accounting which is not effective for decision-making, resulting in losses, illiquidity and low profitability, making them slow in its organizational growth, hence the need to implement a management information system based on the Throughput accounting. Although, accounting to the throughput is not a costing system, if they include processes to make more profitable decisions of pricing sales and marketing. In addition, it is considered as a fundamental change that moves away from the focus on the costs and their assignment to the products. The companies have felt the need of a system more responsive and holistic approach, the Throughput accounting gives an answer to the needs of the company as a whole.

Likewise, the throughput accounting in contrast to the traditional cost accounting is a tool that acts as an information system that guides and motivates management to make sound decisions for the company. They say that to manage day-to-day decisions it is necessary to make a bridge between their decisions, actions, and the company's profits. The management accounting must perform this bridge, so that managers can know the direction to take. When measured properly the impact of local decisions on the overall performance, the managerial accounting also serves as a motivating factor, because it rewards those who contribute positively to the company's goal. The goal at the end of the managerial accounting is to provide managers with the information they need to make decisions in relation to the company's goal.

The market of the fisheries sector, it presents various restrictions, among which is the unmet demand, because it is above the current offer of products. Other restrictions is manifested in the state of the market, which is reflected when the company has the capacity to produce, however, the market does not acquire products offered, even taking the need for them. Consequently, the production of the productive units is restricted by the supply of raw material, an aspect that forces the decision-making process in relation to the development of products with Restriction of Resources of Capacity (RRC). Situation in the case of the city of Riohacha is frequent, due to periods of scarcity and abundance during the year.

Through the analysis of the behaviours and uses of the tools of cost accounting and accounting of the throughput, it can be inferred that the latter is a tool that is flexible, direct and effective way to help the management of productive units to timely decisions in times indicated and with the scope that you want to, as this tool allows you to view the company as a system, but she also works by reason and by common sense. It is transcendental and relevant human capital of productive units, to appropriate and be empowered for training for the good use of the accounts of the throughput, using skills that enable them to project itself to an increasingly globalized world. Also, it is desirable that the productive units of the fisheries sector in the city of Riohacha, implemented in your plant appropriate technological infrastructures, in line with the needs and the speed required to be in real time connected with the competitive world.

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