THE REAL COSTS OF TRACEABLE, DEFORESTATION-FREE COCOA

An analysis of producers from the Ecuadorian Amazon

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On behalf of
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Background

1. Background

WWF-Ecuador is implementing the project **"Amazonian indigenous chakras, leading the way for a sustainable supply chain of cocoa"** The main objective of this project is to implement a pilot project aimed at establishing a sustainable and traceable supply chain for cocoa and/or chocolate between the producing country Ecuador and a company from the consumer country Germany or the European Union; depending on the interest of the company, it will be decided whether the cocoa beans or the chocolate will be marketed.

Certifications and technologies are not yet being factored into the production costs. However, they're essential for client negotiations and preparing associations for future requirements.

The project is based on WWF's experience working with small farmers and indigenous communities in Ecuador since 2009 to promote sustainable cocoa cultivation; and that in the place of implementation (Tena Canton) production is carried out according to ecological standards in a dynamic agroforestry system (chakra).

In the implementation of this chain, associations are key to guaranteeing the quality of the product and maintaining the consistency demanded by the market, therefore, it is necessary for associations to reflect on the costs involved in putting a differentiated product on the market. Currently, sales prices have been calculated based on trends (special market) and direct expenses, however, certain contributions or donations are not being quantified, so there is no precision in the cost of production and sale, which in turn prevents the actual calculation of the (net) price.

In short, 'additional' items such as certifications (organic, Fairtrade, Chakra seal, deforestation-free, among others) or certain technologies (traceability systems, monitoring, among others) are not being considered, making it necessary to have this information for negotiations with clients and to prepare associations when they have to adopt certain improvements or mandatory regulations.

With this background, the need to hire a consulting company to determine the costs of dry cocoa and cocoa paste has been established, the information of which will allow decisions to be made that will contribute to the economic stability of the associations and therefore the sustainability of a traceable and deforestation-free supply chain.

2

Objectives

2. Objectives

To determine the costs of cocoa production for the producer associations that are members of the project “Amazonian indigenous chakras, leading the way for a sustainable supply chain of cocoa” based on the context of the association in order to identify the actual cost and from there incorporate additional items that are incurred to obtain a traceable and deforestation-free supply chain of cocoa, according to the level of industrialisation of each organisation (cocoa beans or paste) and the actions implemented within the framework of the project, which will allow strengthening the finances of the associations and the economic stability of the value chain of cocoa.

3

Methodology

3. Methodology

The proposed methodology uses data from operational staff, accounting records, and 2022 financial statements to determine production costs for dry cocoa and cocoa paste.

An adequate cost system is one that appropriately reflects the value of the resources consumed in the different activities of the production process, for which reason, the methodological proposal, in general, considers the articulation of the operational scope of the organisation with the financial accounting scope of the same.

Figure 1 on the following page reflects the proposed methodology to establish the costs of cocoa production, according to the state that is considered as a finished product for its commercialisation (dry and cocoa paste), in the process of determining costs, milestones will be achieved that correspond to the products required in the terms of reference.

In terms of content, the information needed to determine production costs comes mainly from two primary sources:

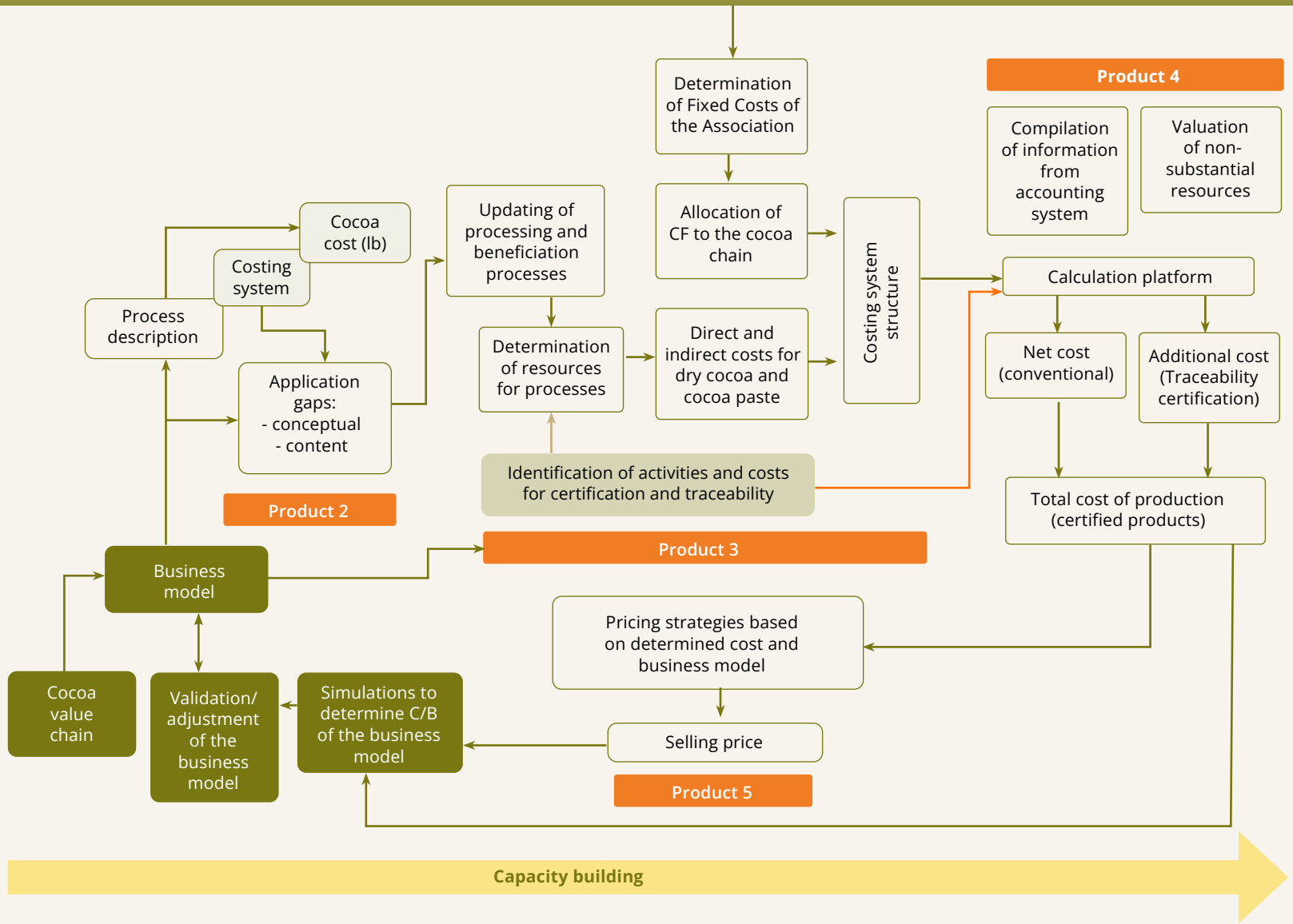
- The people involved in the operational processes and accounting records.
- The financial statement that accumulates the costs and expenses incurred during the year 2022 regarding the production of dry cocoa or cocoa paste

During the development of the consultancy, the process and result of each product has been reported in detail; therefore, in this document they are consolidated as a final report[1].

CHARACTERISTICS OF THE ASSOCIATION

ECONOMIC STRUCTURE OF THE ASSOCIATION

Figure 1.
Diagram of the process for the costing of dry cocoa and derivatives in the organisations of the Tena canton.



4

Contextualisation

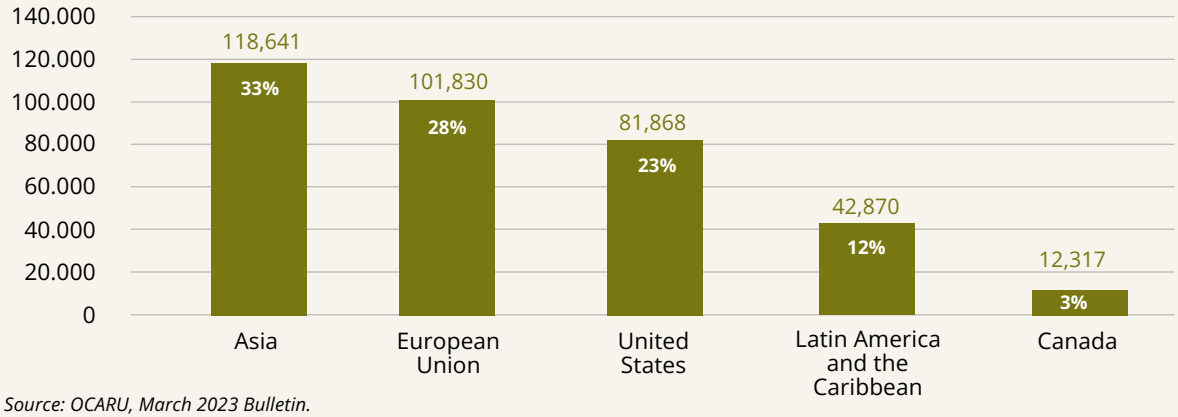
4. Contextualisation

Ecuador is a major player in the global market for fine aroma cocoa, leading the market with a 63 % share.

Historically, Ecuadorian cocoa has been linked to the international market; in which Ecuador participates with two types of cocoa: the so-called fine aroma cocoa, of which it is the main producer-exporter with a market share of 63%, the other variety is the so-called CCN-51; the proportion of cocoa exported is 28% fine aroma cocoa and 72% CCN-51 which makes the country the fourth exporter worldwide (ANECACAO)[2].

The Rural Change Observatory (OCARU), based on figures from the Central Bank, refers to cocoa within the group of products that are most exported, ranking sixth in exports to the European Union.[3]

Figure 2. Ecuadorian cocoa exports in 2021.



Source: OCARU, March 2023 Bulletin.

According to this same source, Ecuadorian cocoa is concentrated in three main destinations as can be seen in the following table that uses the exports of 2021 as a reference.

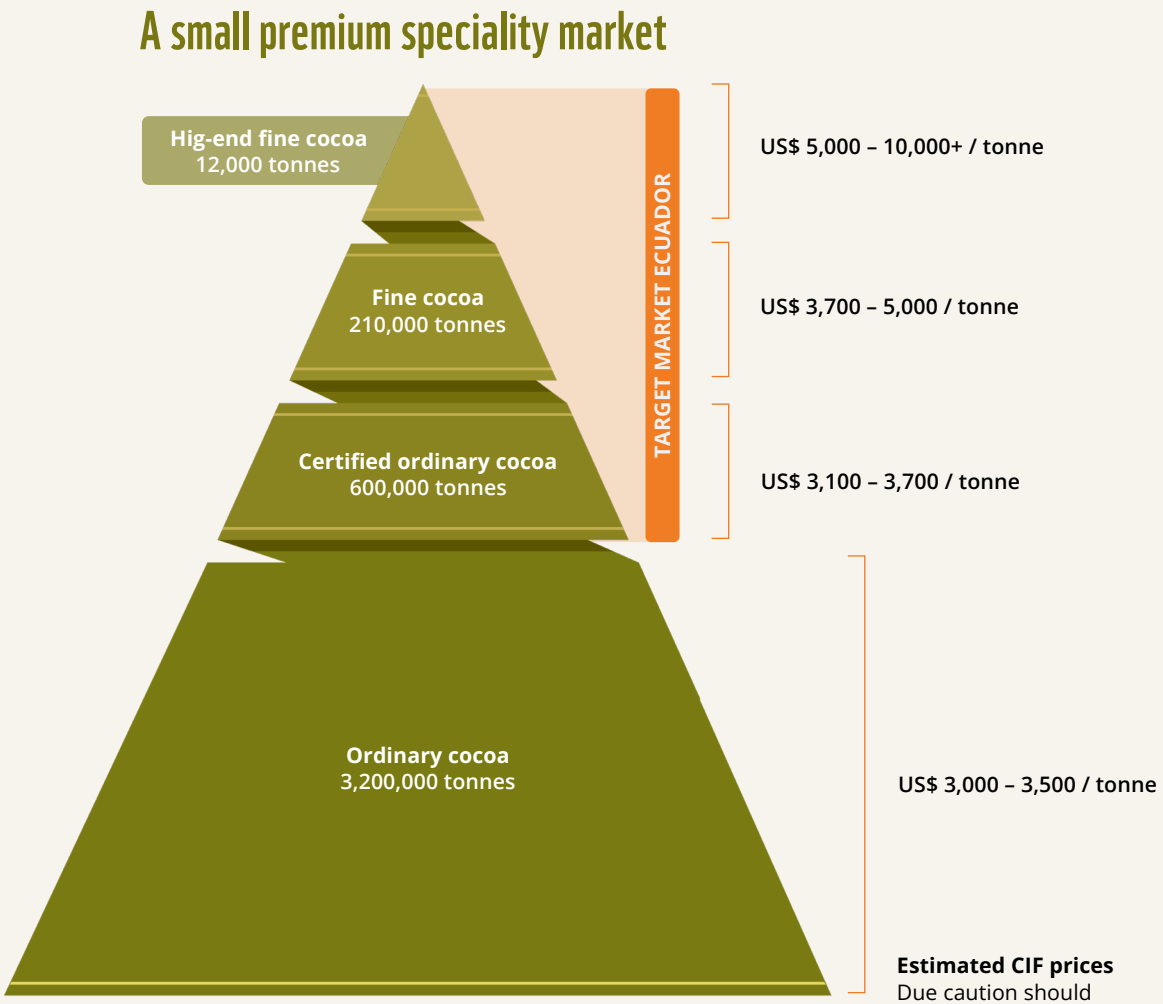
It is worth noting that the largest volume of cocoa exported (over 90%) is in beans and very little with added value, only 6% was cocoa paste.

At a socioeconomic level, it is estimated that cocoa involves around 120,000 families of producers who grow it on 700,000 hectares, 68% of producers own between 0-5 hectares; Los Ríos, Guayas, Manabí, Esmeraldas, Santo Domingo and Napo are the highest producing provinces.

The dynamics of national production are highly influenced by world market trends, the price of cocoa is based on the supply expectations of the main producing countries (Ivory Coast, Ghana, Indonesia and Brazil), which in turn depend on climatic conditions.

The market structure of cocoa, as it has developed, has become pyramidal, at the top of which are specialty cocoas differentiated by flavour, quality, sustainability and social management.

Figure 3.
Structure of the cocoa market according to differentiation factors.



Sources: ICCO estimates (interviews), Xoco
Fine flavor cocoa commands price premiums. Source: ICCO

In order to access markets closer to the top of the pyramid and offering better prices, producers must adopt environmental/ social standards whose compliance is verified through independent certifications and traceability mechanisms, which entail additional costs to primary (conventional) production that are not affordable for small producers, who are the majority in the production chain.

A recent requirement that cocoa producers must comply with is the European Union Regulation on **Deforestation-free production and legal production (EUDR)** to reduce the consumption of products that come from supply chains associated with deforestation or forest degradation.
This regulation, which came into force in June of this year (2023), sets out the following requirements for access to the European Union market[4]:

- Being free of deforestation, that is, not having been produced on land/lots that have not been subject to deforestation after 31 December 2020.
- Having been produced in compliance with the current laws of the country of origin (Ecuador).
- Being supported by a formal declaration of due diligence by the importer.

Compliance with this regulation, the scope of which will be explained in more detail in the relevant section of this study, in addition to additional costs to production, poses other challenges that go beyond the individual capacity of small producers[5].

Faced with this scenario of predominance of small production on the one hand and the demands of the market on the other, the association of the former has emerged as a means to reconcile the logic of subsistence production with the business demands imposed on the chain; at the same time, the association also allows the representation of small producers in a very complex and dynamic chain.

The association is embodied in economic organisations within the scope of the Popular and Solidarity Economy, which is an economic regime recognised in the constitution of the republic in force since 2008.

In order to achieve economic sustainability, producer organisations must comply with a basic business principle, which consists of the following: the products/services offered must have a value greater than the factors used to obtain them[6], in other words, their production cost, which must be valued and recorded according to generally accepted/recognised principles and techniques.

5

Analysis of the current costing system of the associations

5. Analysis of the current costing system of the associations

Analysis of the current costing system of the associations. Starting from the premise that an appropriate costing model is one that identifies and appropriately values all the resources used in the production of the good or service offered by a company, we approach the analysis from a double perspective:

- Operational, in order to know/verify the process that the organisation applies to bring the raw material (cocoa pulp) to the state of marketable product: dry cocoa or its derivatives.
- Financial, with the purpose of learning about the costing model of the resources used in the operational process.

For this purpose, work sessions were held with each of the organisations independently, which consisted of:

- A plenary workshop with the participation of the members involved in the operational processes of cocoa, as well as the financial-accounting area.
- An interview with each financial manager to discuss the costing model of cocoa.

Figure 4.
Participants from organisations in the diagnostic workshops.

The tool shown below has been used to describe the operational process and identify the resources involved, as it allows the collection of information necessary for the operational and financial area.

The tool also shows that: The technical assistance that is operationally/financially undertaken by the organisations should have a direct/positive effect on the producers, and especially increase the level of production, through which the organisations could introduce more product into their value chain leading to the optimisation of the cost of this item.

Once the described methodology has been applied, the results of the analysis are presented below, for which a general assessment is used as a frame of reference for addressing the specific situation of each association.

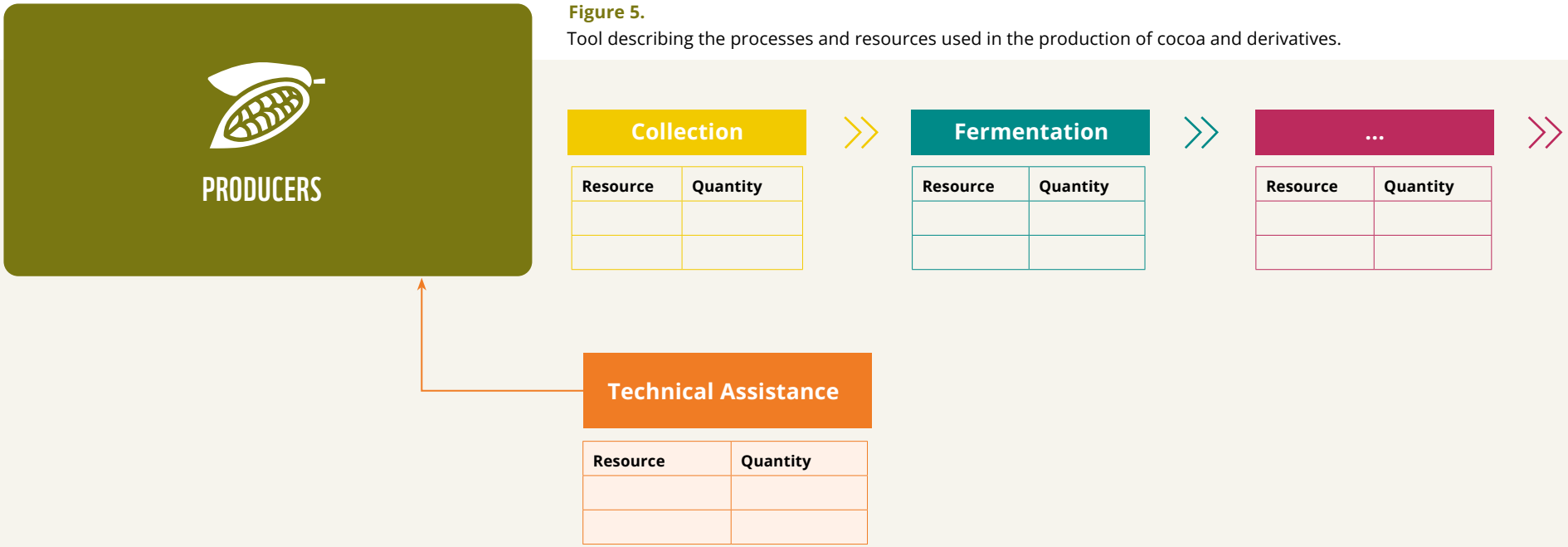


Figure 5.
Tool describing the processes and resources used in the production of cocoa and derivatives.

5.1 GENERAL OBSERVATIONS

This section provides some general observations on the analysis:

The value chain of the associations is **based on the national fine aroma cocoa** grown under the chakra system, which is specific to the Kichwa community. These two aspects (the type of cocoa and the cultivation method) make it attractive in the world market.

This attractiveness has increased since **organic and/ or Fairtrade certifications** have been added to the previous characteristics.

The three organisations have the chakra seal, which is a Participatory Local Guarantee system[7], aimed at promoting commercial relations between the organisations that hold this seal and local and international buyers. In the case of Association 3, which does not have organic or Fairtrade certification, this seal has been key to accessing the European market.

Productivity in the organisations **shows a very wide range** from 7-15[8] quintals of pulp, which could indicate differences, at the producer level, in the execution of practices that improve production (such as pruning) but may also reflect the effectiveness of the technical assistance of the associations.

The **conversion of cocoa** in pulp to dry cocoa in the three associations ranges from 3:1 to 2.6 to 1, with the first ratio being the predominant one.

Not all the cocoa produced by the association members is kept by them; the producers retain part of the production to dry it[9] and sell it on their own account in response to emerging needs since purchases by the associations generally occur every two weeks; on the other hand, the organisations are prevented from purchasing cocoa due to limitations in their processing infrastructure and also in their operating capital.

The operations necessary for the cocoa to reach marketable state (dry cocoa or paste) are **carried out by staff members** who, within each association, have accumulated experience; however, this is mainly tacit knowledge, i.e. there are no documented process guides that could be useful in situations of staff rotation.

Two organisations (Associations 1 and 2) have **permanent technical teams** that are linked to producers; the actions of these teams have different scopes: in both associations, the staff manages the Internal Control Systems of the certifications and, to a different extent (more so in Association 2), they provide technical assistance to producers. Association 3, for its part, has a **team that works intermittently**, focused on inspections to obtain the Good Agricultural Practices (GAP) certificate from AGROCALIDAD, and they are also registering farms for a possible organic certification.

It is worth mentioning that in the area there is an **institutional presence from both the local and central government**, as well as international cooperation and local NGOs, which offer technical training. In light of this, the organisations seek to influence the adjustment of the offer towards topics that each organisation considers interesting.

The operational processes have similarities between those that aim to produce dry cocoa, in terms of products with added value, Association 3 produces cocoa paste on its own, while Associations 1 and 2 produce chocolate bars by using the manufacturing service.

Table 1. Systematisation of the main characteristics of the operational process obtained in the diagnostic workshop.

	ASSOCIATION				
PROCESS	2	1	3	PRODUCT	OBSERVATIONS
PURCHASE OF DRAINED COCOA	X	X	X	DRIED COCOA	**Association 2** buys mainly drained cocoa, the cocoa in pulp is bought with a penalty for the price of 10 cents/Lb. **Association 1** buys cocoa in pulp and drained paying the same price. **Association 3** buys cocoa in pulp and assumes the draining as its first process.
PURCHASE OF COCOA IN PULP	X	X	X		
FERMENTED	X	X	X		**Association 2.** · Standard, 5 days of fermentation; however, this period varies according to the seasons of high or low cocoa input to the fermentation boxes. · The degree of fermentation ranges between 75 and 84% **Association 1.** · Average of 4 days, varying one day more or less according to the seasons of high or low cocoa input to the fermentation boxes. · Degree of fermentation in a range of 85% **Association 3.** · After the purchase, the cocoa is drained for one day and the fermentation lasts an average of 5 days.
DRIED	X	X	X		The three associations have sheltered areas for natural drying. **Association 2** also has a sheltered area that runs on photovoltaic energy, one that burns diesel and another that burns palm kernels. Drying times in the yards range from 8 to 17 days depending on the weather conditions and the type of drying
CLASSIFIED	X	X	X		
STORED	X	X	X		
HOMOGENEISED FOR MARKETING	X	X	These activities are not updated because their cocoa is for paste		
TRANSPORTATION TO A PROCESSING PLANT	X	X		PROCESSED COCOA	**Association 1 and 2** allocate part of the dry cocoa for the production of bars, for which they use the manufacturing service. **Association 3** processes the cocoa on its own account to obtain cocoa paste for the international and national market
PROCESSED (MANUFACTURED)	X	X			
PACKAGING OF COCOA BARS	X	X			
ROASTED			X		
COOLED			X		
HULLED			X		
GROUND			X		
REFINED			X		
TEMPERED			X		
COOLED			X		
PACKAGING AND SEALING OF COCOA PASTE			X		

Regarding the costing model, the following aspects are highlighted.

- The three associations, with their specificities, have adopted the costing model known as absorption, i.e. they try to ensure that the production cost absorbs as many production costs as the operating costs.

- However, this coverage is partial because not all costs are considered in the costing for two reasons:
  - Some costs are assumed by third parties and are paid directly by them, so the organisation cannot record them as its own cost.
  - Visually, it can be seen that there is significant investment in infrastructure and equipment that is related to production, but this does not appear in the asset accounts of the organisations because it has not been (yet) transferred; in other cases, they are undervalued.

5.2 ANALYSIS OF ASSOCIATION 1

Association 1 is a Kichwa organisation that was formed around 1998 within the framework of a productive project supported by an NGO to collectively market cocoa, which is a representative product of its agroforestry cultivation system called 'chakra'.

Association 1 obtained its legal status in 2010 and currently has 263 legal partners[10] 100% Amazonian Kichwa who come from 57 communities in the Archidona canton.

The cocoa they market is of the national fine aroma variety and comes only from legal partners who have an organic code.

5.2.1 Mapping of the operational process

According to the data collected in the diagnostic workshop, the association began in the year 2023 with a base of 263 partners with organic certification registration[11].

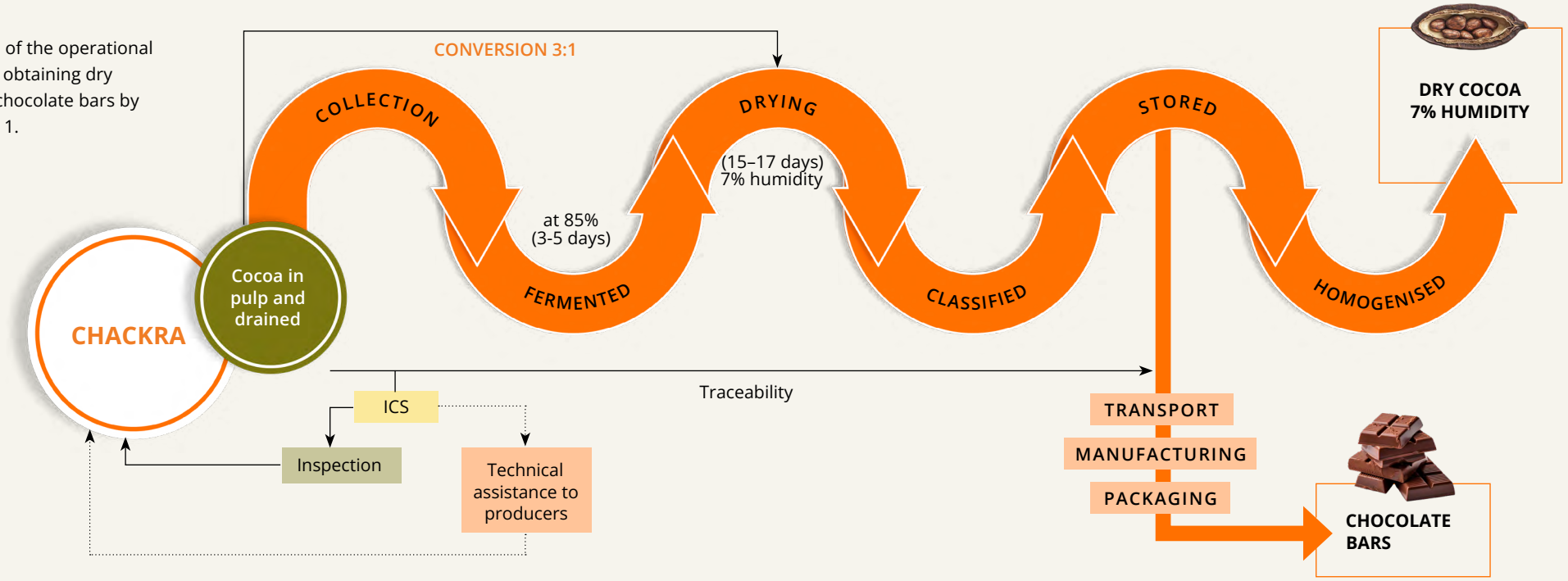
The productivity of the association's producers is between 7-9 quintals of cocoa, although there are (a few) producers with improved practices who can produce between 10-12 quintals.

The conversion of cocoa in pulp to dry cocoa in the association is 3:1, which means that, according to the productivity mentioned,from the 7-9 quintals purchased in pulp, the organisation obtains between 2.33 and 3 quintals of dry cocoa.

The following diagram shows the process followed by the association to obtain the dry cocoa that is sold as beans and/or derivative to produce chocolate bars, for which it hires the services of a manufacturing company.

In addition to this diagram, Annex 1a describes in detail the resources that are used in each of the phases.

Figure 6.
Description of the operational process for obtaining dry cocoa and chocolate bars by Association 1.



The following aspects can be highlighted from this description:

1

The association carries out the purchases with 3 field members from the Internal Control System (ICS) team

2

Producers can sell cocoa in pulp or drained, at the same price, 0.4 USD/pound, which means that producers who do not drain the cocoa are at an advantage due to the greater weight. The organisation has tried to implement the policy of buying drained cocoa, but has faced resistance from members.

3

The organisation does not capture all the available production, this is attributed to: processing capacity, limitations in operating capital and the producers' own strategies of keeping cocoa to dry it and selling it in response to emerging needs and/or when dry cocoa reaches a good price in the market.

4

Dry cocoa is obtained at 7% humidity, but there is an ongoing analysis of the request of a potential client who asks for 6.5% humidity, in this regard, the organisation should assess whether the price to be received compensates for the reduction in weight of this cocoa.

5

The Internal Control System (ICS) team is made up of 7 members. The emphasis of this team is on inspection and traceability actions. Although this team provides training to producers, this is not part of a structured Technical Assistance programme.

6

Technical Assistance to producers through a structured programme of the same and with clear goals in terms of partner productivity is an aspect to be strengthened, since the cost of the ICS/AT can be optimised if a greater volume of cocoa enters the association's value chain[15].

7

Part of the dry cocoa is used to produce chocolate bars through the manufacturing service.

Table 2. Structure of the cost of cocoa production at Association 1.

PROCESS	COST		
1. ORGANIC MONITORING AND INSPECTION		12,313.37	0.08
Technical Personnel	4,641.19		
Technical Transport	1,176.00		
Traceability record in the field	94.68		
External Audit	6,401.50		
2. COLLECTION		94,822.92	0.63
Collection materials	375.00		
Raw material	85,438.32		
Traceability record in the collection	369.60		
Transport Collection	8,640.00		
3. PROCESSING CLASSIFICATION AND PACKAGING		12,768.72	0.09
General costs	12,055.92		
Classification of cocoa	250.00		
Packaging	462.80		
4. MARKETING		4,445.66	0.03
Personnel	4,245.66		
Marketing expenses	200.00		
5. ADMINISTRATIVE EXPENSES			
General expenses	3,144.00	25,224.00	0.17
Administrative Personnel	22,080.00		
6. OPERATING EXPENSES		440.00	0.003
Occupational Health and Safety	320.00		
Maintenance	120.00		
TOTAL COST		**150,014.67**	**1.00**
KILOGRAMS PRODUCED		32,363.00	
COST X KG		4.64	

5.2.2 Costing method

The association uses the absorption method to determine the cost of cocoa production, i.e. the cost incorporates both the production and operating costs of the association.

By having a diversified portfolio of products, some costs that are common to all products are assigned to the cost of cocoa production at various levels of proportionality.
The projected cost of production for 2023 is structured by processes as shown in the following table.

With this structure, the unit production cost is 4.64/kilogram, higher than the average price of 3.96 USD, a loss of 0.67 would be projected even with a subsidy, since:

1

The salaries of 5 of the 7 members of the technical team are being covered with funds from projects that the association maintains with cooperation agencies.

2

The use of the infrastructure and machinery necessary for processing is not reflected in the cost through depreciation expenses, which in turn would be due to the fact that some fixed assets are not (yet) considered as the association's own.

Therefore, it remains to be seen to what extent this gap between price and cost can increase by incorporating/valuing resources that are not currently being considered.

5.3 ANALYSIS OF ASSOCIATION 2

Association 2 is a Kichwa organisation dedicated to the production and marketing of products of the chakra, mainly national cocoa. It has 850 members, most of whom belong to Kichwa communities in the Tena canton.

In the cocoa chain, both legal members of the association (332) and commercial partners (538) are involved, of which 574 have the Organic, Fairtrade or both seals, while 296 producers (commercial partners) sell only conventional cocoa without any certification.

The distribution of producers by membership status and certification is shown in the following table.

The association markets 5 types of cocoa, all of a national variety:

- Organic Fairtrade cocoa
- Conventional Fairtrade cocoa
- Organic cocoa
- Conventional cocoa
- Standard cocoa[12]

It is worth mentioning that the association had its organic certificate suspended in 2020, which has been attributed to the COVID 19 pandemic that made it impossible to carry out field work to resolve complaints, given that social isolation measures and mobility restrictions were in force that year.

The association recovered the certificate in May of this year, so, before this date, cocoa that was grown in an organic system was marketed as conventional or Fairtrade-conventional cocoa.

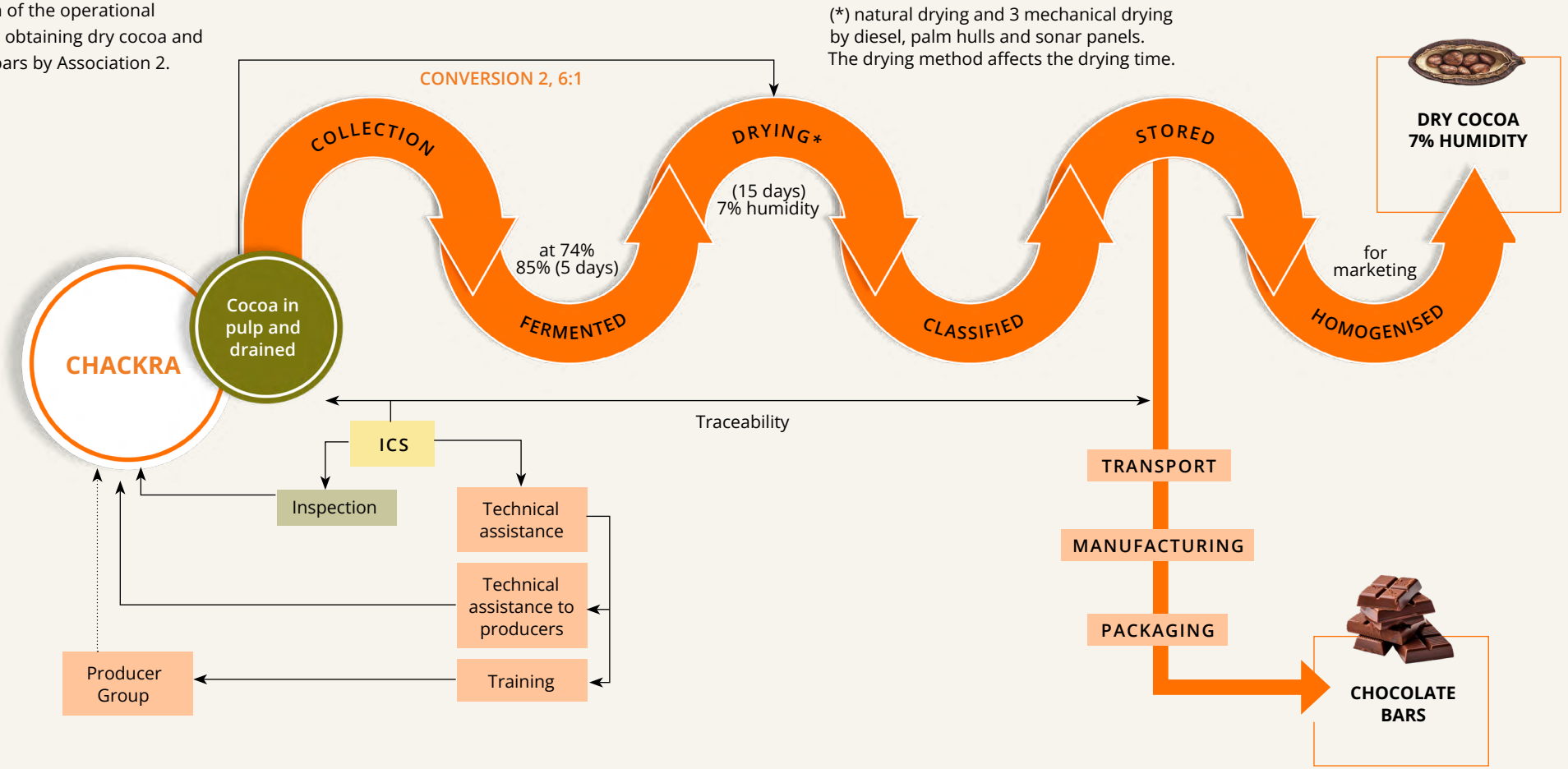
Table 3.
Structure of legal and commercial partners who sell cocoa to Association 2.

PARTNER QUALITY CERTIFICATION	LEGAL PARTNERS		BUSINESS PARTNERS	
	ORGANIC	CONVENTIONAL	ORGANIC	CONVENTIONAL
Fairtrade	247	85		
Fairtrade			242	296
TOTAL	332		538	

5.3.1 Mapping of the operational process

The operational process followed by Association 2 for the processing of cocoa is shown in the following diagram:

Figure 7.
Description of the operational process for obtaining dry cocoa and chocolate bars by Association 2.



Based on this outline, we shall proceed to describe the main characteristics of the process:

1	2	3	4	5
The association purchases cocoa with 4 people who work permanently in the collection centre, and, to a varying degree, other members of the organisation join during the high purchase season (January-June): the person in charge of marketing and 1-2 members of the Internal Control System team. During this season, 7 workers are also hired from outside the organisation and are paid on a daily basis.	During the peak purchase season, the association collects an average of 150 quintals for each purchase; while during the months of lowest purchase, namely October and November, an average of 8 quintals are purchased.	The members sign an annual agreement to sell their cocoa to the association.	This allows them to collect between 70% and 80% of the cocoa produced by each member, while the rest remains on the farm where it is dried by the producer to sell it in response to emerging needs.	It is estimated that the average production in chakra is 15 quintals in pulp with some producers being able to achieve up to 18 quintals. The association has managed to get its producers to drain the cocoa as a step prior to sale, the purchase of cocoa in pulp has a penalty of 0. 10 USD/pound.

6

On the farm, the association pays 50 USD/qq of organic cocoa and 40 USD/qq of conventional cocoa; in the collection centre, organic cocoa is purchased at 52 USD/qq and 42 USD/qq for conventional cocoa.

7

Purchases are made every 15 days, producers are informed about the purchase routes through whatsup[16] and through the zonal coordinator.

8

Once at the Collection Centre, the cocoa processing begins, under the charge of four permanent employees.

9

When it comes to the drying process, the association has sheltered areas that are used exclusively for drying conventional or organic cocoa.

10

For this same process, the association has sheltered areas that dry the cocoa in different ways: 4 sheltered areas for natural drying, 1 sheltered area powered by solar panels, 1 sheltered area with a mechanical dryer that works by burning palm kernels and a sheltered area with a mechanical dryer that is fueled with diesel.

11

The conversion of cocoa in pulp to dry cocoa is 2.6 to 1 and is obtained at a humidity level of 7%.

12

The association has a technical team to manage the Internal Control System (ICS) that is currently made up of 7 people: 2 in the office with a fixed salary and 5 in the field who are known as “freelancers” and are paid per worksheet.

13

The freelance modality may be inconvenient for some of the field technicians, especially if they aspire to have stable work and a higher income. This entails a risk of rotating these staff members and when this happens the association has to recruit new technicians and train them for an average of 3 months.

14

The Internal Control System team covers three areas of work:

- Traceability
- Inspection of certified partners for compliance with organic and conventional certification protocols,
- Technical Assistance

15

Within the Technical Assistance there is, in turn:

- Technical Assistance itself, which consists of individualised work with each producer on their farm to improve cultivation practices.
- Technical training, which, on the contrary, is group-based and deals with the operation of the ICS, scope of inspections, changes in regulations, etc[17].

16

For training, technicians are been assigned a zone: north or south, but when inspections are carried out, they change zones to avoid conflicts of interest.

17

Part of the dried cocoa is used to produce chocolate bars through the manufacturing service.

5.3.2 Costing method

The last calculation of the production cost of dry cocoa was carried out in the semester of January-June 2023, for which the association considers three cost elements:

1

The cost of the raw material, which is the total value of the purchases, which in the period amounted to 203,634.38 USD.

2

The labour, whose value is 23,884.78 USD, 60% of which corresponds to the plant personnel and the remaining proportion is the apportioned cost of: Technical assistance, negotiators, guard, direct cost accountant, which corresponds to the four permanent employees of the collection centre.

3

The indirect manufacturing costs amount to a total of 5,488.95 USD, which includes, among the capital, the following items: Transportation of purchased cocoa, fuel and services.

To assign these costs to the dry cocoa produced, the percentage of each type of dry cocoa obtained is first established:

Table 4.
Type of dry cocoa obtained in pounds and percentage Period: January–June 2023.

TYPE OF DRY COCOA	AMOUNT IN POUNDS	IN%
Export	142,990.00	91%
Bolón	10,687.00	7%
Pajarito	3,788.00	2%
Garbage (shredded, chopped)	0.00	0%
Total consolidated values(*)	**157,465.00**	**100%**

Based on the percentages in the table above, the values for Raw Material, Labour and Indirect Manufacturing Costs are distributed, as shown in the following table.

The cost of dry cocoa, according to these calculations, is 3.26.

A brief review of the cost structure reveals the following observations:

- There are subsidies for the Internal Control System staff: the ICS leader is 100% funded by funds external to the association; while the remuneration of the 5 field members for 2 months is covered by external funds.
- The depreciation of plant and equipment involved in the processing of cocoa is not considered as part of the production cost.

Therefore, the calculated cost of dry cocoa would be below its actual cost.

Table 5. Distribution of costs between the different types of dry cocoa obtained

TYPE OF DRY COCOA	AMOUNT IN POUNDS	IN%	RAW MATERIAL	LABOUR	INDIRECT MANUFACTURING COSTS	TOTAL COST	COST/ POUND	COST/ KG
Export	142,990.00	91%	184,915.25	21,689.17	4,984.38	211,588.80	1.48	3.26
Bolón	10,687.00	7%	13,820.47	1,621.04	372.53	15,814.04	1.48	3.26
Pajarito	3,788.00	2%	4,898.66	574.58	132.04	5,605.28	1.48	3.26
Total consolidated values(*)	**157,465.00**	**100%**	**203,634.38**	**23,884.78**	**5,488.95**	**233,008.11**	**1.48**	**3.26**

5.4 ANALYSIS OF ASSOCIATION 3

Association 3 is made up of Kichwa families and settlers from the Carlos Julio Arosemena Tola Canton who produce cocoa and other products under the chakra system. It has been registered as a legal organisation in the Superintendency of Popular and Solidarity Economy in 2013.

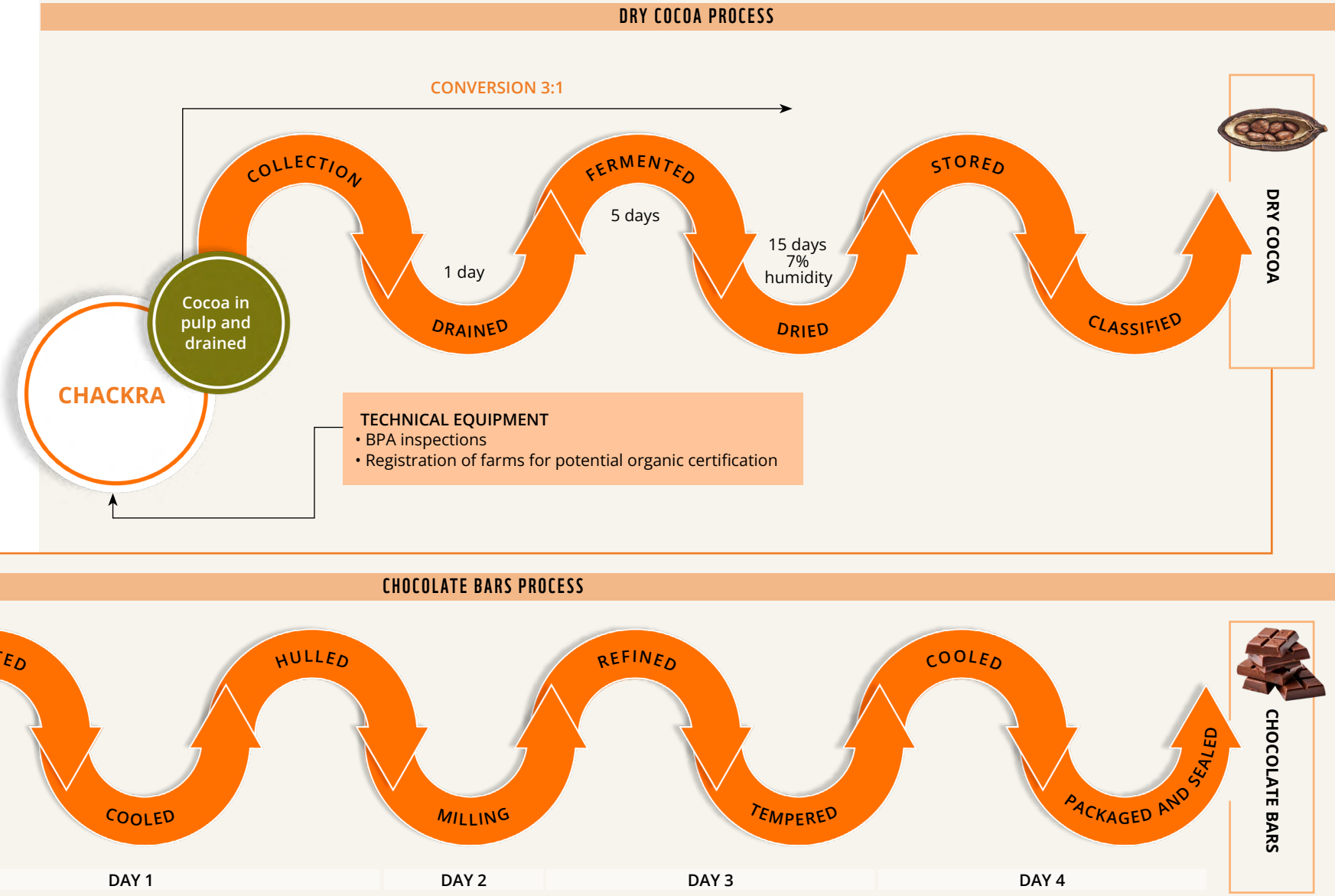
As of 2022, 51 active members and 129 commercial partners have participated in the productive activities of the association.

5.4.1 Mapping of the operational process

From an operational point of view, Association 3 develops two processes: one of primary processing until obtaining dry cocoa, which is the raw material for secondary processing resulting in cocoa paste, which is its main marketable product.

This process is shown in the following diagram and Annex 1c shows the resources consumed:

Figure 8. Description of the operational process for obtaining dry cocoa and chocolate bars by Association 3.



1	2	3	4	5
The association buys cocoa in pulp, it has established three types of prices per pound for it: 0.35 USD, 40 USD and 0.45 USD, i.e. they adjust the price according to the market behaviour, in 2022 it bought 33,781.59 pounds.	The cocoa purchases are made by the administrator and the person responsible for post-harvest, for which they are supported by the vehicle of a family member of the administrator at a cost of 20 USD/day, which basically covers the cost of fuel.	The level of productivity of the association members is undetermined, this aspect is expected to be clarified with the inspection process of the farms to obtain the BPA.	After the purchase, the cocoa in pulp is placed in the fermentation area where, after draining, it begins to ferment in 27 fermenting boxes for an average of 5 days. After this time, the cocoa is dried in 4 sheltered areas that are differentiated by the type of canopy: 2 are made of PVC, 1 of Polycarbonate and 1 of plastic.	In the aforementioned sheltered areas, the cocoa is dried for an average of 15 days to obtain dry cocoa with 7% humidity, which constitutes the raw material for the secondary process of cocoa paste production.

6	7	8	9	10
The association has estimated that the conversion of cocoa in pulp to dry cocoa is 3:1.	Sometimes, cocoa purchased dry is added to the cocoa dried on its own; in fact, in 2022, the association bought 109.24 quintals of dry cocoa, most of them (92 quintals) at 122.5 dollars per quintal.	The paste production process is carried out by another member and is carried out in a building equipped for this purpose.	The process of obtaining the paste is carried out through “stops” where 100 pounds of dry cocoa enter and at the end of the fourth day 59.5 pounds of cocoa paste are obtained.	According to the information collected, 13 stops can be made per month, which means that a process of a new stop is developed while a final process is developed in the previous stop.

Table 6.
Production costs of bulk cocoa paste (one month of production).

INGREDIENTS	QUANTITY	UNIT COST	TOTAL COST
Fine domestic cocoa with aroma (Lbs.)	100	$1.45	$145.00
Cardboard	3	$1.20	$3.60
Adhesive tape	1	$1.50	$1.50
Transparent plastic bags	3	$0.75	$2.25
TOTAL DIRECT COST			**$152.35**
Yield in portions	33		
A. UNIT COST OF DIRECT MATERIALS			**$4.62**
Monthly Fixed Costs			$ 4,037.92
% participation of the product in sales			30%
Monthly Fixed Cost applied to the product			$1,213.09
Units produced and sold in the month			520
B. FIXED COST PER UNIT			**$2.33**
UNIT COST OF THE PRODUCT (A+B)			**100%**

5.4.2 Costing method

As explained in the previous section, the association carries out two consecutive processes:
(i) drying the cocoa and
(ii) processing it to obtain cocoa paste;
therefore, there should be a costing system for both, since each one uses different resources.

According to the information collected, the association does not calculate the cost of drying cocoa on its own.

For the production of bulk cocoa paste, which is the product that is exported, the association adopts an absorption costing method that implies that the cost of the product reflects both the consumption of direct materials and the proportion of the operating cost of the association attributed to the product, the latter being the percentage of units sold of the product in relation to all (15) products that the association markets.

With the information provided, the following table reproduces the calculation of the production cost of bulk paste.

Table 7.
Monthly fixed costs of Association 3.

DESCRIPTION	VALUE
A. MONTHLY FIXED COSTS	
Electricity	$300,00
Water	$15,00
Gas	$20,00
Cleaning	$20,00
Marketing	$50,00
Internet	$25,00
Salaries (*)	$2.335,00
Social Security	$100,00
SUBTOTAL	$2.865,00
B. MONTHLY ANNUAL COSTS	
Maintenance	$41,67
Equipment depreciation	$400,00
Repairs	$83,33
Patents	$58,33
Firefighters	$5,00
Property tax	$1,25
Organic certification	$583,33
SUBTOTAL	$1.172,92
MONTHLY FIXED COST	**$4.037,92**

The details of the monthly fixed costs included in the cost calculation are shown in the following table.

Based on the above, the following comments can be made:

1

The market cost of this product is taken as the price of the raw material (dry cocoa) rather than the cost of producing it internally.

2

The depreciation of equipment is included in the cost structure, but the depreciation of the plant has not been considered.

3

Organic certification has been included as a cost element when the association does not have this certification. The explanation given is that it is an estimate of the work done by 3 technicians of the association in the registration of farms for this purpose. Based on the above, it remains to be determined whether the calculation of the actual cost of dry cocoa and the updating of production costs of the paste allow maintaining a profit margin that, with the sale price (9 USD[13]) and current costs, is 2.05 dollars per unit.

6

Proposal for a cost calculation system for cocoa and cocoa paste

6. Proposal for a cost calculation system for cocoa and cocoa paste

Some important conclusions emerge from the diagnostic phase that serve as a basis for the formulation of the costing system:

A) AT OPERATIONAL PROCESS LEVEL

- The activities to obtain dry cocoa in the 3 associations are similar, with some distinctions in a few aspects such as: the state of entry of the cocoa to the process, the use of drying methods, etc.
- There are no studies on the processing capacity of the infrastructure of each association, therefore, it is not possible to determine at what level of its capacity it is currently processing and the possibilities of growth.
- The above is related to the need to process a greater volume in order to optimise the cost of production in general; and specifically the technical assistance item that should be reflected in a greater quantity of cocoa from the chakras.

B) AT FINANCIAL-ACCOUNTING LEVEL

- Not all the resources identified in the production process are being valued to determine the cost of production; some of them have to do with current costs such as the payment of remuneration; and others refer to the replacement of infrastructure necessary to maintain long-term operations such as depreciation.
- In the case of infrastructure, most of it has been built by a national entity or cooperation agency, without having been transferred (in its entirety) to the associations. The non-transfer of these facilities to the associations, on the one hand, eliminates the need to record the depreciation of these assets, thereby avoiding an (indirect) production cost, but on the other hand, the non-transfer of this infrastructure does not allow the associations to increase their assets – which could serve as support for commercial or credit transactions.

As mentioned in the analysis section, all the associations have been determining the cost of production based on a system of accumulation of direct and indirect costs and expenses that, when divided by the production volume, generates a unit cost of production.

However, this practice does not provide the necessary information for making key decisions because it does not reflect the formation of the cost of production, so that interventions can be made aimed at optimising the use of resources in certain areas of the process.

For this reason, it has been considered feasible that, based on the accounting information processed by the financial departments, a costing mechanism can be structured. This allows not only calculating the cost of production in accordance with generally accepted costing standards, but also generating a key indicator for profit planning, such as the break-even point.

For this purpose, a brief conceptual framework was developed to support the proposed costing tool, which is presented below.

To determine the profitability of any business, we compare the income of the business with its costs and expenses

Regarding the income side, there are two key variables:

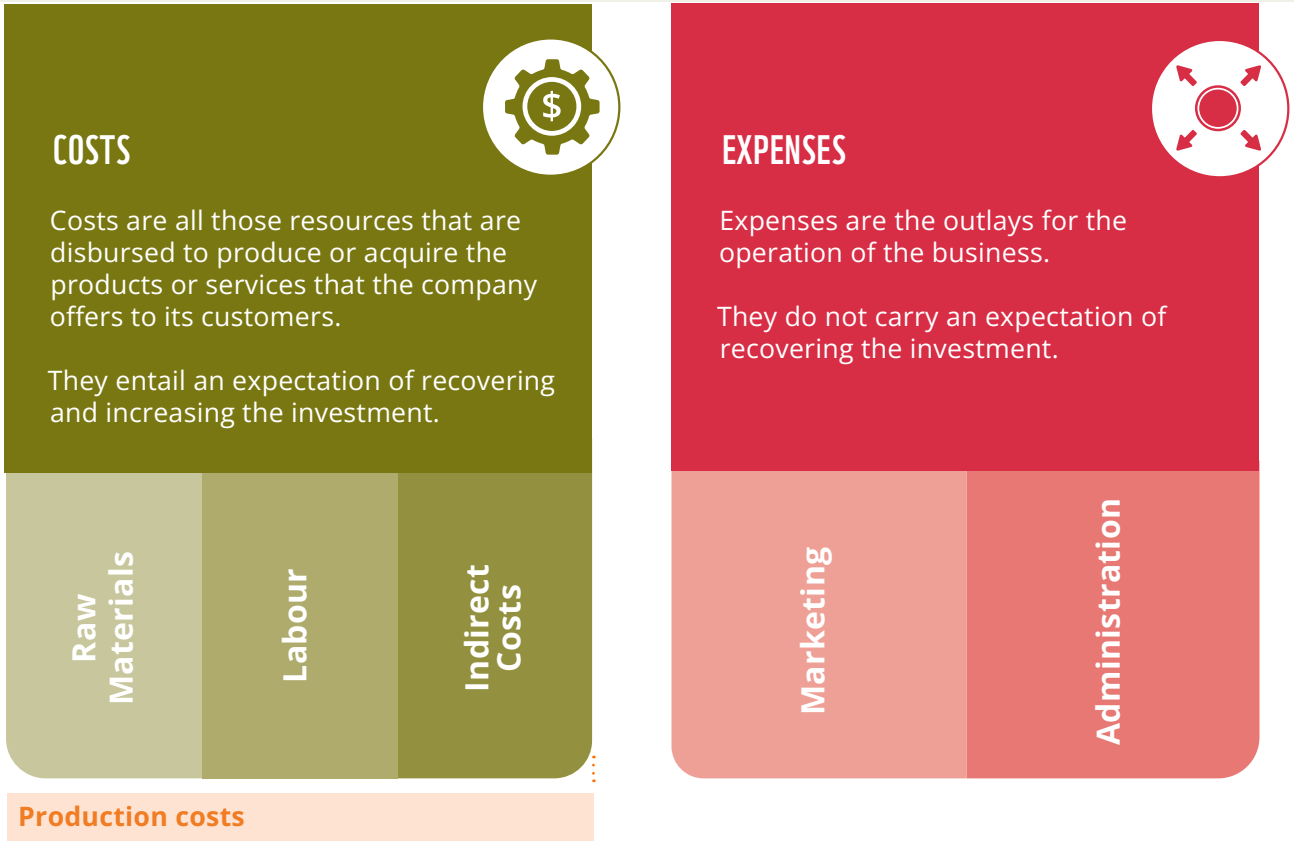
- The volume of sales, which should be maximised; and
- The price, which, while being acceptable to the customer, must be able to cover production costs and generate a margin that contributes to covering other expenses; and, in the end, leave a profit.

Figure 9.
Basic model to determine the losses and/or profits of a business.

On the expenditure side, we have the costs and expenses of the business, for which we begin by clarifying these two concepts that are sometimes used as synonyms:

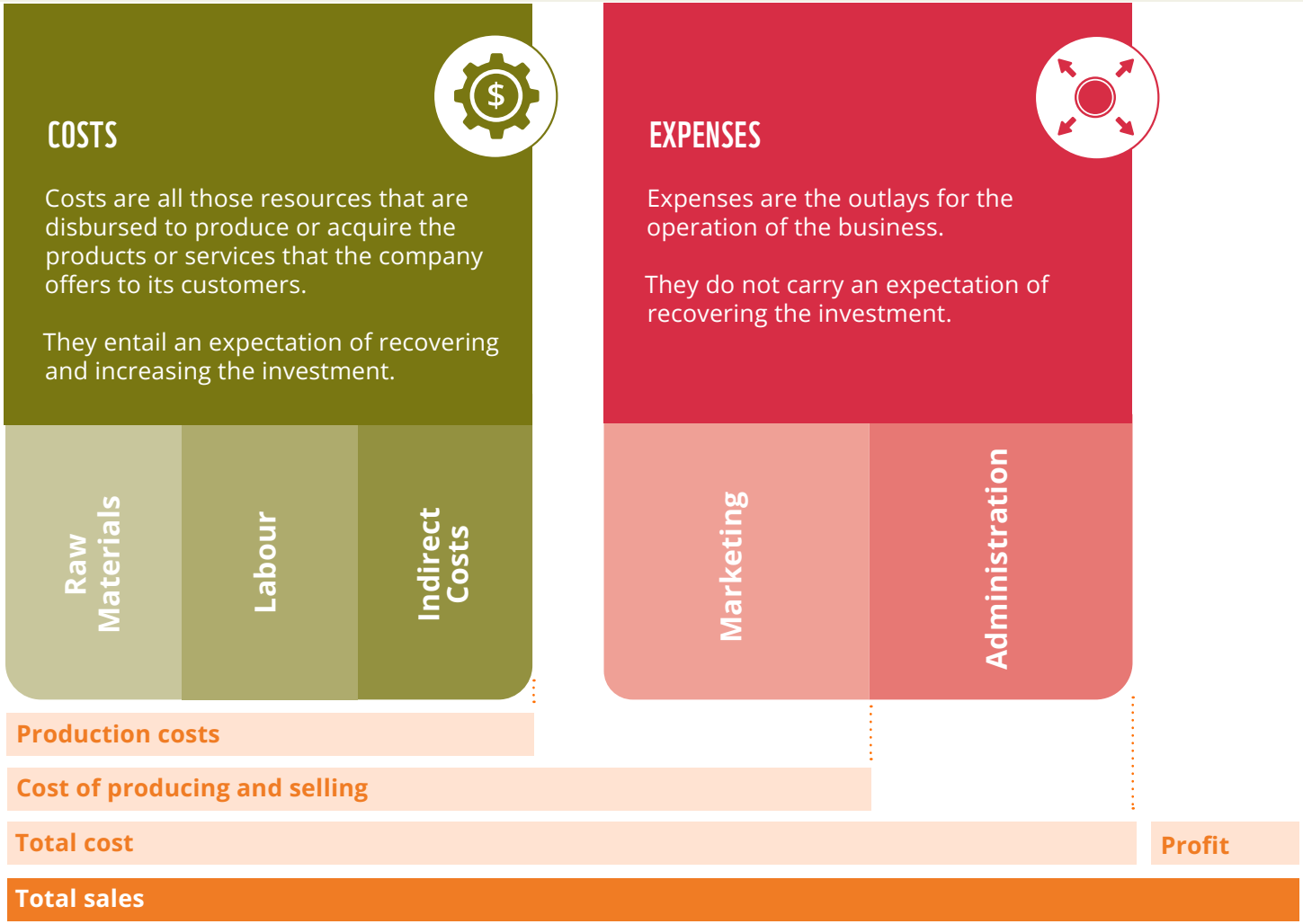
Thus, costs are related to the production of the good or service and expenses to the operation of the company.

Figure 10.
General structure of costs and expenses of a business.



The below diagram shows that determining the profit/loss of a business is a process of successively and orderly accumulating the costs and expenses of the business. Thus, disaggregated information can be available for decision making.

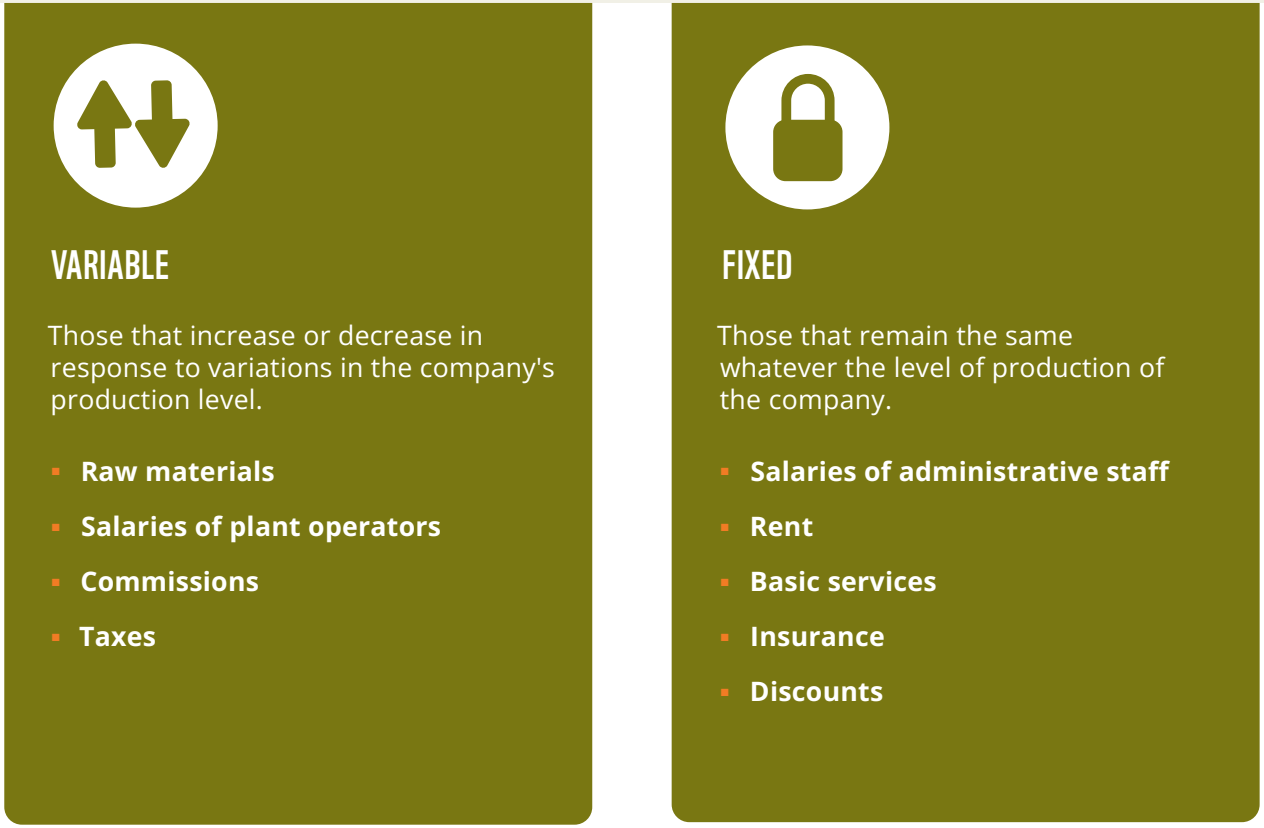
Figure 11.
Scheme for the formation of the total cost of a product.



On the other hand, costs and expenses, in turn, can be classified as variable and fixed.

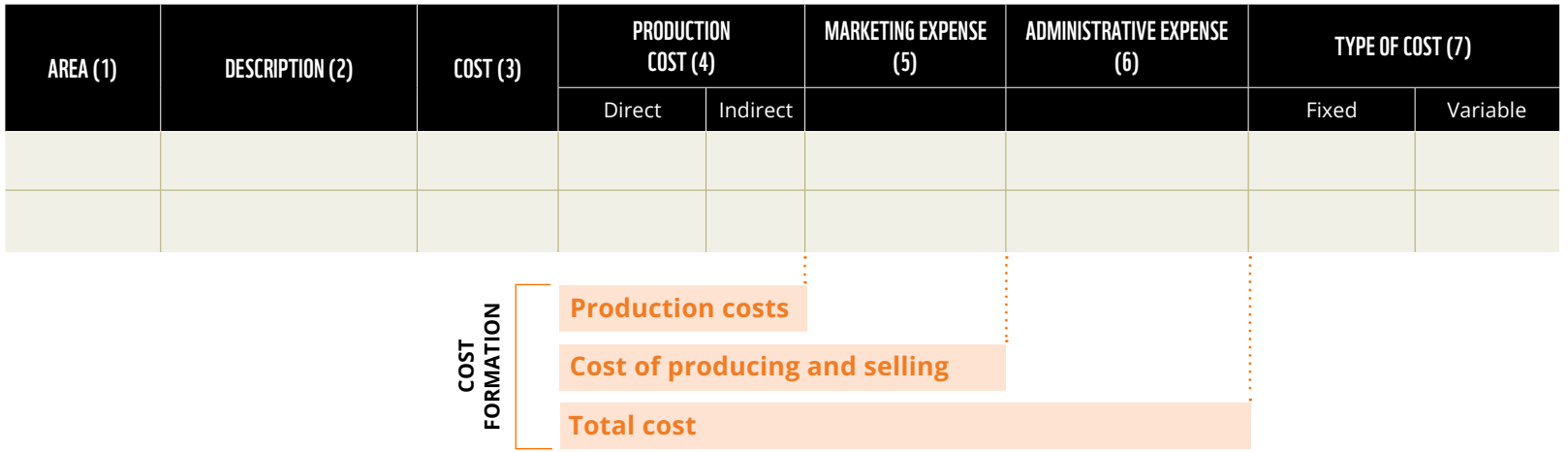
The concepts of variable and fixed costs are useful in determining the break-even point, which, as explained later, is the sales volume where the company neither wins nor loses but only recovers its costs.

Figure 12.
Classification of Costs and Expenses of a business.



Based on the above, a cost matrix has been designed that makes the aspects described in this section operational.

Figure 13.
Diagram of the matrix to determine the production costs of cocoa and cocoa paste.



The function of each section of the matrix is explained below

(1) In this column we determine the areas that will encompass common activities of the production process e.g. cocoa purchase, processing, certification, etc.

(2) In this column we determine the item(s) that correspond to the area to be costed.

(3) Here we record the value that this item has accumulated in the accounting department during the period.

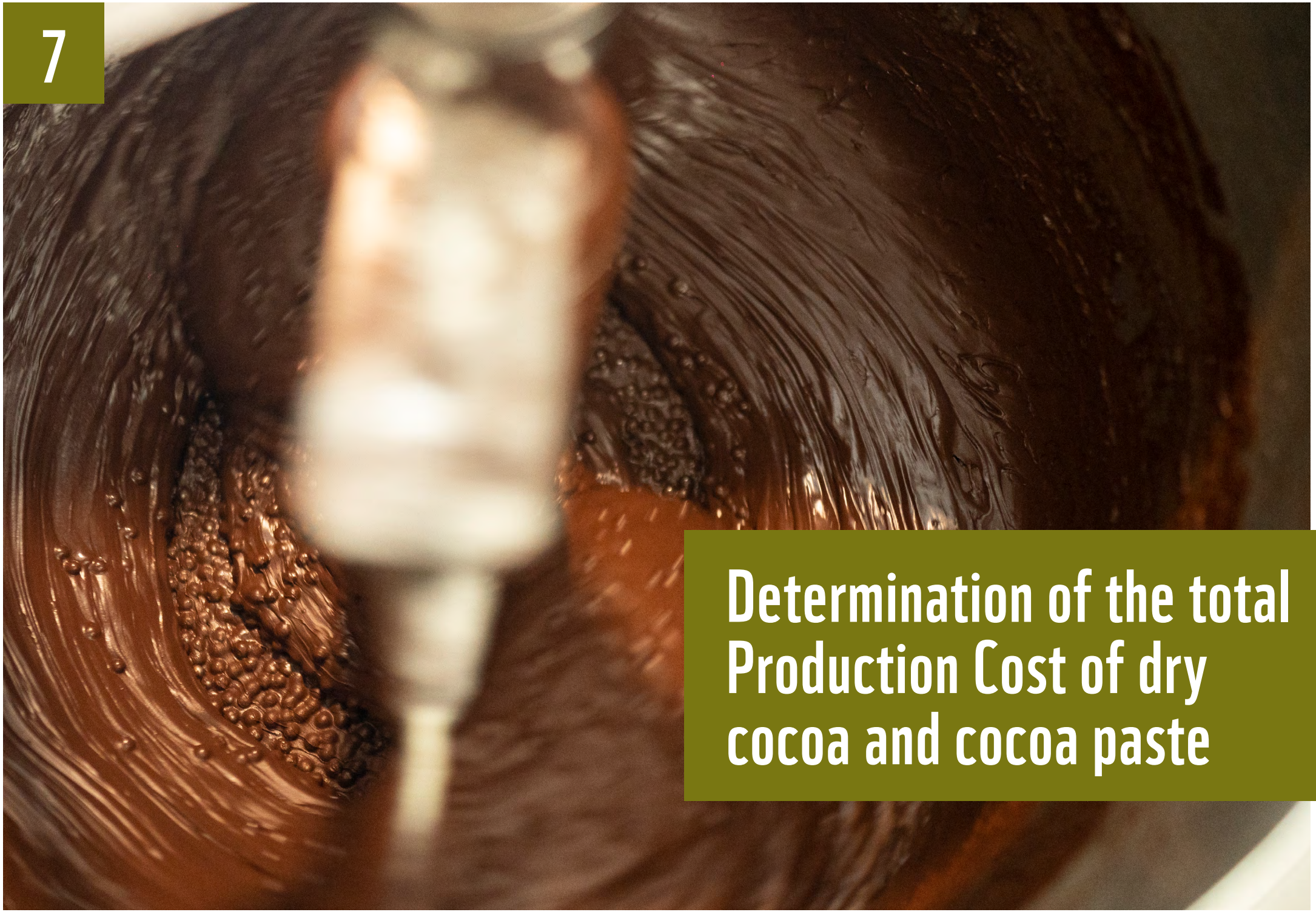
(4) This section is the one that allows the production cost to be calculated, for which each item (2) and its value (3) are located in the direct cost or indirect cost column.

(5) In this column we record the expenses attributable to the marketing of cocoa.

(6) In this column we record the administrative expenses attributable to the cocoa product; this value may be the result of a previous calculation where part of the total administrative expenses are assigned to cocoa according to a reasonable allocation criterion e.g. the% that represents cocoa sales with respect to total sales.

(7) This section is used to calculate the break-even point, for which each item (2) and its cost (3) must be classified as a fixed or variable cost. For control, the sum of the fixed and variable costs must be equal to the sum of the total cost (3)

7



Determination of the total Production Cost of dry cocoa and cocoa paste

7. Determination of the total Production Cost of dry cocoa and cocoa paste

Once the costing method, and the tool to do so, have been authenticated, the cost of production of dry cocoa and cocoa paste is established at two levels in the following sections: the net/actual cost and the cost with the inclusion of the activities necessary to comply with the deforestation-free and legal regulations

7.1 NET (ACTUAL) COST

For the purposes of this exercise, the cost of producing dry cocoa or cocoa paste is considered as the net or actual cost, including and valuing all the resources consumed in the production process regardless of whether it is being paid by the associations or not.

The items that the associations have not considered to establish the cost of production and that have been considered in this exercise are:

(1) The actual cost of technical personnel, since in the three organisations this item has different subsidy levels.

(2) The depreciation expense of the infrastructure and equipment that each organisation uses during the production process. For this purpose, an exercise was carried out in each association to estimate the value of the infrastructure and equipment.

(3) The inclusion of items that were identified during the mapping of activities but have not been considered as part of the cost. These have been grouped in the expendable material category.

7.1.1 Net cost in Association 1

As a first step in calculating the cost, the association's accounting information was classified in the matrix proposed for costing.

Costing areas were established, trying to follow the logic of cost formation from the purchase of cocoa in pulp, its processing and the support it receives from various areas.

The costs refer to the estimate of cocoa sales and costs for the year 2023 and are shown in the following table.

The average selling price of 4 dollars per kg is not sufficient to cover the actual production costs. In order to do so, the association must triple its current dry cocoa production.

Table 8. Cost and expense structure in Association 1

AREA	DESCRIPTION	TOTAL COST	PRODUCTION COST		EXPENSES		TYPE OF COST	
			Direct	Indirect	Marketing	Administrative	Fixed	Variable
Acquisition of Raw Material	Purchases of raw materials 213,595.8 lbs at 0.40/Lb.	85,438.32	85,438.32					85,438.32
	Labour for cocoa purchase	2,088.54	2,088.54					2,088.54
	Transportation	8,640.00	8,640.00					8,640.00
Processing	Labour	7,351.92	7,351.92					7,351.92
Internal quality control system	ICS Leader (*)	3,808.55		3,808.55			3,808.55	
	ICS Assistant (*)	2,320.60		2,320.60			2,320.60	
	Field technicians (*)	10,976.42		10,976.42			10,976.42	
	Transportation for monitoring and training	588.00		588.00			588.00	
	Transportation for inspection	588.00		588.00			588.00	
	Traceability Record	530.28		530.28			530.28	
Organic Certification	Organic Certification	6,401.50		6,401.50			6,401.50	
Management of the UPA Cacao	Responsible Remuneration UPA	13,800.00		13,800.00			13,800.00	
Indirect Production Costs	Consumable material	6,084.25		6,084.25			6,084.25	
	Disinfection and extermination	3,360.00		3,360.00			3,360.00	
	Maintenance of the post-harvest area	300.00		300.00			300.00	
	Depreciation	8,972.18		8,972.18			8,972.18	
Marketing Expenses	Commercialisation Responsibility Remuneration (*)	4,245.66			4,245.66		4,245.66	
	Commercialisation procedures	100.00			100.00			100.00
Administration Expenses	Commercialisation procedures Services	3,144.00				3,144.00	3,144.00	
	Administrative staff (**)	12,522.67				12,522.67	12,522.67	
	Occupational Health and Safety	1,552.00				1,552.00	1,552.00	
	Office maintenance	120.00				120.00	120.00	
	SUBTOTALS	**182,932.88**	**103,518.78**	**57,729.77**	**4,345.66**	**17,338.67**	**79,314.10**	**103,618.78**
	TOTALS		**161,248.55**				**182,932.88**	

(*)The costs of this staff are allocated 30% to the cocoa chain
(**)The costs of this staff are allocated in some cases 30% and in other cases 100%

To calculate the cost of production, the operating data for the current year are taken, which refer to the purchase of 213,595.8 pounds of cocoa in pulp at 0.40/Lb. The conversion of cocoa in pulp to dry in the association is 3:1, so 71,198.6 pounds were obtained, which is equivalent to 32,363 Kg, which is the cost unit. Table 9 shows the formation of the cost of production.

Table 9.
Formation of the cost of cocoa production in Association 1.

COST LEVELS	VALUE	DRY COCOA KG.	UNIT COST KG
Production Cost	161,248.55	32,363.00	4.98
Marketing Expenses	4,345.66		0.13
Administration Expenses	17,338.67		0.54
Total Unit Cost (kg)	**182,932.88**	**32,363.00**	**5.65**

Considering that an average selling price of 4 dollars per kilogram of dry cocoa has been established, it is clear that this is not sufficient to cover the actual cost.

Table 10.
Price/cost relationship in Association 1.

COST FORMATION	UNIT COST KG	SALES PRICE[18]	PRICE/COST IN%
Production Cost	4.98	4	80%
Production and Sales Cost	5.11		78%
Total Cost	**5.65**	**4**	**71%**

To determine the amount of cocoa that the association must dry and sell to reach the threshold of profitability, we shall proceed to calculate the break-even point.

Table 11.
Determination of the break-even point in Association 1.

VARIABLES FOR CALCULATION	VALUE
Average sales price	4.00
Less: Variable cost per unit	3.20
= Contribution margin (CM)	0.80
Break-even point = Fixed cost/CM	
Fixed cost	79,314.10
Contribution margin	0.80
Break-even point (kg)	**98,747**

The result of the calculation indicates that, to cover costs, the association must triple the current production volume of dry cocoa. This is a big challenge because, in order to do so, the nt members must be increased and/or the number of members or suppliers must be expanded.

This measure should be complemented with others such as:

- Optimising the use of resources, which implies an internal analysis of work organisation.
- Negotiating a better sales price by repositioning the value proposition of the cocoa business model.

7.1.2 Net Cost in Association 2

To cover its actual production and operating costs, the association must increase output by 4.27 times, along with optimizing costs and securing better prices.

Following the agreed format, the association's accounting data was organised into costing areas with the purpose of establishing the cost formation at different levels.

The production data corresponds to the current year (2023), in which the association has purchased 1,142,627 pounds of drained cocoa, paying 0.50 dollars for each pound. In association 2, the conversion of drained cocoa to dry cocoa is 2.6:1, therefore, the quantity of dry cocoa obtained was 439,472.08 pounds or 199,760.03 kilograms, which is the cost unit. The costs/expenses have been projected for the entire year.

The cost and expense structure of the association is shown in table 12.

Table 12. Cost and expense structure in Association 2.

AREA	DESCRIPTION	TOTAL COST	PRODUCTION COST		EXPENSES		TYPE OF COST	
			Direct	Indirect	Marketing	Administrative	Variable	Fixed
Acquisition of cocoa	Purchase of cocoa	220,939.00	220,939.00				220,939.00	
	Purchase of cocoa from suppliers (drained)	350,374.70	350,374.70				350,374.70	
	Staff involved in cocoa purchase							
	CA staff	2,867.12	2,867.12				2,867.12	
	Daily wages	2,867.12	2,867.12				2,867.12	
	Contracted transportation	4,832.62		4,832.62			4,832.62	
	fuel for own vehicle	2,265.29		2,265.29			2,265.29	
	bags	707.90		707.90			707.90	
Certification	Fairtrade Certificate	3,539.52		3,539.52				3,539.52
	Organic Certificate	14,158.08		14,158.08				14,158.08
	Organic Certification Audit	3,539.52		3,539.52				3,539.52
	Fairtrade Audit	1,179.84		1,179.84				1,179.84
Internal control system	ICS Team leader	24,068.73		24,068.73				24,068.73
	ICS Secretary	6,371.13		6,371.13				6,371.13
	Field team	38,609.78		38,609.78			38,609.78	
Technical Assistance	partner training	1,179.84		1,179.84				1,179.84

Table 12. Cost and expense structure in Association 2.

AREA	DESCRIPTION	TOTAL COST	PRODUCTION COST		EXPENSES		TYPE OF COST	
			Direct	Indirect	Marketing	Administrative	Variable	Fixed
Processing in the Collection Centre	**PERMANENT STAFF**							
	Six months with time dedicated to cocoa purchase	23,414.82	23,414.82					23,414.82
	Six months with total concentration on processing	26,281.94	26,281.94					26,281.94
	Daily wages	589.92	589.92				589.92	
Indirect Production Costs	Basic services: electricity	2,750.82		2,750.82			2,750.82	
	Labelled bags	10,986.80		10,986.80			10,986.80	
	Consumable material	753.50		753.50				753.50
	Depreciation of plant and equipment	38,548.52		38,548.52				38,548.52
Marketing	**MARKETING**							
	Coordinator's Salary	10,080.00			10,080.00			10,080.00
	Marketing Assistant	6,300.00			6,300.00			6,300.00
	OTHER MARKETING COSTS							
	Transportation 8 trips Guayaquil $8536 and 10 trips Quito-Salinas	10,264.93			10,264.93		10,264.93	
	QUALITY CERTIFICATIONS							
	Export procedures 2 procedures	3,925.11			3,925.11		3,925.11	
	Travel and mobilisation delivery of cocoa	6,120.40			6,120.40		6,120.40	
	Advertising promotion visitors clients	3,385.74			3,385.74			3,385.74
	Parcels or courier	295.65			295.65		295.65	
	Product analysis	250.00			250.00		250.00	
	Fumigation expenses	234.00			234.00			234.00
	Fairtrade	2,402.87			2,402.87			2,402.87
General Administration	Administrative expenses attributable to cocoa	155,996.96				155,996.96		155,996.96
	SUBTOTALS	**980,082.17**	**627,334.61**	**57,729.77**			**658,647.17**	**321,435.00**
	TOTALS		**161,248.55**		**43,258.70**		**980,082.17**	

Based on the data presented, the cost of production of 1 kilogram of dry cocoa is formed as follows.

Table 13.
Formation of the total cost of cocoa production in Association 2

COST LEVELS	VALUE	DRY COCOA KG.	UNIT COST KG
Production Cost	780,826.51	199,760.03	3.91
Marketing Expenses	43,258.70		0.22
Administration	155,996.96		0.78
Total Cost	**980,082.17**	**199,760.03**	**4.91**

The average sales price during the year is 3.67 per kilogram, which is below the cost, including the cost level where only the items involved in its processing are considered.

Table 14.
Price/cost ratio of dry cocoa in Association 2

COST FORMATION	UNIT COST KG	SALES PRICE[17]	PRICE/COST IN%
Production Cost	3.91	3.67	94%
Production and Sales Cost	4.13		89%
Total Cost	**4.91**	**3.67**	**75%**

To determine the sales volume with which the association would reach the break-even point, the following calculation is performed.

Table 15. Determination of the break-even point in Association 2

VARIABLES FOR CALCULATION	VALUE
Sales price	3.67
Less: Variable cost per unit	3.30
= Contribution margin (CM)	0.38
Break-even point = Fixed cost/CM	
Fixed cost	321,435.00
Contribution margin	0.38
Break-even point (kg)	**853,047**

The results obtained show that to achieve coverage of the actual costs of production and operation of the association, this must increase considerably (4.27 times) obviously since the processing of a larger volume could be combined with other measures such as cost optimisation and negotiation of a better price.

7.1.3 Net Cost in Association 3

Association 3 has cocoa paste as a marketable product.
For the production of said product, the association buys cocoa in pulp from its members, which is dried in the facilities of the association and also buys dry cocoa from local merchants.

The actual cost of the product is significantly higher than its selling price. To break even, the association would need to quadruple its current production.

Therefore, first we calculate the cost of drying one's own cocoa. For this purpose, the accounting information of the association was structured in the agreed cost matrix.

The calculation is based on cocoa purchases for the current year (2023) and expenses are projected for the entire year.

In the current period, the association has purchased 33,503.59 pounds from its members, which with a conversion of cocoa in pulp to dry of 3:1 resulted in: 11,167.86 pounds or 5,076.30 kilograms.

Since the organisation dries the cocoa for its own consumption, the only costs considered are those related to the resources consumed in processing, which is shown in the following table.

Table 16.
Cost and expense structure in Association 3: drying of cocoa.

AREA	DESCRIPTION	QUANTITY	UNIT COST	TOTAL COST	PRODUCTION COST	
					Direct	Indirect
Acquisition of Raw Material	Cocoa purchases	33,503.59	0.41	13,674.85	13,674.85	
	Labour					
	Administrator	48	22.4	1,075.20	1,075.20	
	Post-harvest	48	20	960.00	960.00	
	Fuel for transportation	48	20	960.00	960.00	
Processing	Labour	265	20	5,300.00	5,300.00	
Indirect Costs	Depreciation	1	12,534.90	12,534.90		12,534.90
	Consumable material	1	458.50	458.50		458.50
	TOTALS			**34,963.45**	**21,970.05**	**12,993.40**
					34,963.45	
	PRODUCTION COST (USD)	**34,963.45**				
	PRODUCTION OF DRY COCOA (KG)	**5,076.30**				
	UNIT COST OF DRY COCOA (USD)	**6.89**				

It can be noted that the cost of drying cocoa for personal use is significantly higher than the cost of drying for organisations that carry out this process in order to sell dried cocoa. Two closely related factors contribute to this situation: the small volume processed and the weight of the potential expense for depreciation of the processing infrastructure. In fact, while in the other associations the depreciation item does not exceed 6% of the production cost, in Association 3 this item represents 36%[14] and the only way to optimize it is by processing a larger volume.

The second process consists of the production of cocoa paste, for which the association has used 90% of the cocoa dried in its facilities (10,051 lbs) and 10,925 pounds purchased from merchants at an average price of 1.24 USD/pound.

The costs and expenses related to the production of paste are shown in the following table.

Table 17.
Cost and expense structure in Association 3: cocoa paste

AREA	DESCRIPTION	TOTAL COST	PRODUCTION COST		EXPENSES		TYPE OF COST	
			Direct	Indirect	Marketing	Administrative	Fixed	Variable
Raw Material	Own dry cocoa (Lb)	31,467.11	31,467.11				31,467.11	
	Purchased dry cocoa (Lb)	13,539.80	13,539.80				13,539.80	
Labour	Plant Personnel	5,280.00	5,280.00					5,280.00
Indirect Costs	Depreciation	22,507.80		22,507.80				22,507.80
	Consumables	3,695.78		3,695.78				3,695.78
Marketing	Market dispatch	640.00			640.00		640.00	
	Web page	150.00			150.00			150.00
Administrative	Administrator Salary	4,838.40				4,838.40		4,838.40
	Accounting Assistant Salary	5,400.00				5,400.00		5,400.00
	Accountant Salary	5,400.00				5,400.00		5,400.00
	Basic Services	0				0		0
	Electricity	0				0		0
	Water	240				240		240
	Internet	300				300		300
	Patents	900				900		900
	Property tax	75				75		75
	SUBTOTALS		**50,286.91**	**26,203.58**			**45,646.91**	**48,786.98**
	TOTALS	**94,433.89**	**76,490.49**		**790.00**	**17,153.40**	**94,433.89**	

The production obtained was 5,244 kilograms of exportable bulk paste and the formation of the total unit cost is shown in table 18.

Table 18.
Formation of the cost of cocoa paste in Association 3.

COST LEVELS	VALUE	DRY COCOA KG.	UNIT COST KG
Production Cost	76,490.49		14.59
Marketing Expenses	790.00	5,244.02	0.15
Administrative Expense	17,153.40		3.27
Total Costs and Expenses	**94,433.89**	**5,244.02**	**18.01**

The actual cost is significantly higher than the product's selling price, set at 11 dollars, where the explanation for this difference is the same as in the case of dry cocoa: the low volume processed and the weight of depreciation[19], in fact, without these items the production cost would be 11.56 USD/kg, which is much closer to the selling price.

With the calculated values, a significant gap is established between the production cost and the selling price, since this would allow partial coverage of costs, as can be seen in the table 19.

Table 19.
Price/cost ratio of cocoa paste in Association 3.

COST FORMATION	UNIT COST KG	SALES PRICE[17]	PRICE/COST IN%
Production Cost	14.59		75%
Marketing expenses	14.74	11	75%
Administrative expenses	18.01		61%

With this structure, to reach the break-even point, it would have to produce 4 times more than it currently produces, as shown in table 20.

Table 20.
Determining the break-even point in Association 3.

VARIABLES FOR CALCULATION	VALUE
Sales price	11
Less: Variable cost per unit	8.70
= Contribution margin (CM)	2.30
PE= Fixed cost/CM	21,253.92
Fixed cost	48,786.98
Contribution margin	2.30
Break-even point (kg)	**21,253.92**

7.2 COST WITH ACTIVITIES RELATED TO THE DEFORESTATION-FREE AND LEGALITY REGULATION

The new Regulation on Deforestation-Free Imports (EUDR) has been postponed by the European Union and will enter into force on December 30 2025 to address deforestation and forest degradation in non-European Union countries. This regulation is based on existing international agreements (Paris Agreement on climate and others) and promotes collaboration with producing countries to promote sustainable practices.

The EUDR applies to key raw materials like cocoa, coffee and soybeans and requires importers to prove products are deforestation-free and legally produced.

The main objective of the EUDR is to avoid the import of products related to deforestation. This regulation will apply to six raw materials: cattle, cocoa, coffee, rubber, palm oil, soybeans and wood and also includes a set of derived products, including beef, leather, printed paper, palm oil, soybean meal, chocolate, furniture, tyres and vulcanised rubber clothing.

This regulation requires importers to submit a due diligence declaration (a type of affidavit) certifying that these products are deforestation-free and have been produced in accordance with the legislation of the country of origin before introducing them into the European Union.

Importers are required to carry out risk assessments, implement mitigation measures and trace the supply chain to ensure forest sustainability.

Penalties for non-compliance with the regulation may include fines and trade restrictions (rejected entry of containers into European ports) which requires joint work/commitment between importers and producers. In the case of the latter, whether individual or associated, they must demonstrate that their cocoa beans are lawful and deforestation-free.

This assessment will be carried out upon entry of containers into European ports. Out of every 100 containers entering from a country, due diligence will be requested for 3 of them.
The due diligence document must contain at least the following information:

A	B	C
Information on the producers and their product, for each container.	Proof that the cocoa beans do not come from cocoa plots established in forests cleared as of 1 January 2021 (georeferencing of plots).	In the legality part, the associations must show that their hired personnel comply with the current legal contracting regulations of the country of production.

To comply with the EUDR, cocoa must be produced in line with local laws and sourced from farms that have not deforested land after December 31, 2020.

In the context of the European Union Regulation, on Legal and Deforestation-Free Production in relation to cocoa, this refers to the fact that the cocoa is produced in accordance with the relevant legislation of the country of production, and that the batch or batches of cocoa come from farms that were not planted on deforested land after 31 December 2020.

The application of the regulation has been planned in the following terms:

- End of 2025. End of the transition phase for large importing companies[20].
- Mid-2026. End of the transition phase for importing SMEs.

In view of these deadlines, it is very important that associations know which category their clients are in and when they must begin to comply with the regulation so that they can establish the actions that each party must develop to comply with the regulations.

Although the scope of this regulation exceeds the objective of this study, in the conversations on this subject with the associations, some points of attention (or tension) have been raised for compliance with the regulations in the context of the Amazon, among them:

Deforestation is present at the level of Kichwa communities. Traditionally, parents give mountains to their children who emancipate themselves, who cut down part of it to establish their chakras or monoculture crops.

Boys and girls under 15 years of age who do not study, remain in the chakras supporting their parents, in the case of girls, they get engaged at a very early age.

A large part of the population, especially members of the Kichwa community, are beneficiaries of government bonds. In many cases, the income from these bonds exceeds that obtained from agricultural activity. For this reason, one can expect resistance from partners to obtain the Single Taxpayer Registry for electronic invoicing, since this registry can be considered by the national body that regulates these transfers as a sign that the partner has a formal economic activity and therefore can be eliminated from the registry of beneficiaries.

International cooperation agencies with local Foundations/NGOs are conducting training for organised producers on the EUDR and carrying out pilot projects regarding the evaluation and mitigation of risks within the framework of Due Diligence. This information is undoubtedly important in its results to adjust and replicate with organised producers in the country. However, to deal with the concerns noted, the involvement of entities related to issues such as the MIES (bonds), SRI (invoicing) and MINEDUC (child labour) would be pertinent.

Specifically, the application of this regulation by the associations implies developing activities in the following areas.

Table 21.
Requirements to comply with the regulations on Deforestation-Free and Legal Production.

SCOPE	REQUIREMENT
Deforestation-free	
At partner level	Producer registry
	Georeferencing of the farm (polygon)
At association level	Purchase form
Legality	
At partner level (producer)	Billing
	Free of child labour
At association level	Formalisation of economic activity (RUC)
	Working conditions framed within the law of the country

To meet these requirements, it is necessary to implement activities that require additional resources. To this end, mapping was carried out in each organisation on the extent to which these requirements are currently covered, the degree of difficulty in closing the gaps and the activities/resources necessary to fully comply with the regulations.

For this purpose, the following matrix was used.

Table 22.
Matrix to determine the resources needed to comply with the regulations on Deforestation-Free and Legal Production (EUDR).

SCOPE	REQUIREMENT	TO WHAT EXTENT IS IT FULFILLED (1-10)	LEVEL OF DIFFICULTY IN CLOSING THE GAP	ACTIVITIES RESOURCES	COST (ESTIMATED)
Deforestation-free					
Legality					

The results obtained for each association are developed below.

7.2.1 Association 1

The costs of implementing measures to comply with the Deforestation-Free and Legality regulations in Association 1 are presented in table 23.

Table 23.
Costs to meet the requirements of the regulations on Deforestation-Free and Legal Production in Association 1.

SCOPE	REQUIREMENT	TO WHAT EXTENT IS IT FULFILLED (1-10)	LEVEL OF DIFFICULTY IN CLOSINGTHE GAP	ACTIVITIES RESOURCES	COST (ESTIMATED)
Deforestation-free					
Producer	Provide information about the producer	9	Medium	Training for producers in LD&L	2,910
				Technical logistics	3,800
	Create polygons for each chakra	7	Medium	Logistics for surveying polygons	4,734
				Computer and printer	1,500
				Data analysis specialist	7,857
Association	Purchase form	8	Low	Training for the person in charge	600
				Annual renewal of traceability license	840
Legality					
Producer	Billing	0	High	Billing training	2,910
				1 person to bill for producers	5,400
				1 PC + printer	1,000
	Prevention of child labour	10		Obtaining evidence that the child population of the association is studying	2,910
Association	Formalisation of economic activity (RUC)	10	Low		
				license	
	Working conditions framed within the country's law	10	Low		
				TOTAL	**44,646**

In terms of process, the most difficult requirement to meet refers to the producers' acceptance of the invoice, mainly those who receive the human development bonus, since the invoice is an indication that they have a formal economic activity and therefore run the risk of losing the bonus.

In economic terms, the application of this measure implies an additional cost of 1.38 per kilogram of dry cocoa. This cost would be part of the indirect cost so there would be a new cost structure, as shown in the following table:

Table 24.
Comparison between costs with and without PLD&L in Association 1.

COST LEVELS	VALUE	DRY COCOA KG.	UNIT COST WITH PLD&L	COST WITHOUT PLD &L
Production Cost	205,894.55	32,363.00	6.36	4.98
Marketing Expenses	4,345.66	32,363.00	0.13	0.13
Administrative Expense	17,338.67	32,363.00	0.54	0.54
Total Costs and Expenses	**227,578.88**	**32,363.00**	**7.03**	**5.65**

Obviously, the new cost increases the effort to achieve the break-even point, but it also opens a window of opportunity to renegotiate a new price that contributes to closing the gap between sales price and production cost.

7.2.2 Association 2

For Association 2, the activities and costs expected to comply with the regulations on Deforestation-Free and Legal Production are shown in table 25.

Table 25.
Costs to comply with the requirements of the regulations on Deforestation-Free and Legal Production in Association 2.

SCOPE	REQUIREMENT	TO WHAT EXTENT IS IT FULFILLED (1-10)	LEVEL OF DIFFICULTY IN CLOSING THE GAP	ACTIVITIES RESOURCES	COST (ESTIMATED)
Deforestation-free					
Producer	Producer registration	10	Medium	Training	7,060
				Logistics to collect new information (includes polygon)	12,708
	Georeferencing of the farm (polygon)	6	Medium	Geographical specialist	18,356
Association	Purchase form (Collection registry)	10	Low	Training for collection personnel	500
Legality					
Producer	Billing	2	High	Training and Information (workshops)	7,060
				Electronic signature	24,710
				Person to invoice for the Producer	7,344
				Equipment: PC + printer	1,000
	Free of child labour	9	Medium	Training for producers (in the same workshop on billing)	
				Procedures in MINEDUC for Certification	7,060
				Personnel for procedures	
				Resources for incentives	2,500
Association	Formalisation of economic activity (RUC)	10	Low	No additional resources are foreseen	
	Working conditions framed in the country's law	10	Low		
				TOTAL	**88,298**

The application of measures to comply with the regulations implies an additional cost of 0.44 dollars per kilogram of dry cocoa. The volume processed by the association, although not optimal, helps to ensure that the increase in cost is not significant.

For this association, the biggest obstacle is the resistance that members might present to the invoice, due to the risk of losing the human development bonus.

The incremental cost of implementing activities to comply with the regulations is presented in table 26.

Table 26.
Comparison between costs with and without LD&L in Association 2.

COST LEVELS	COSTS WITH PLD&L			COST WITHOUT PLD &L
	VALUE	DRY COCOA KG.	UNIT COST	
Production Cost	869,124.51	199,760.03	4.35	3.91
Marketing Expenses	43,258.70		0.22	0.22
Administrative Expense	155,996.96		0.78	0.78
Total Costs and Expenses	**1,068,380.17**	**199,760.03**	**5.35**	**4.91**

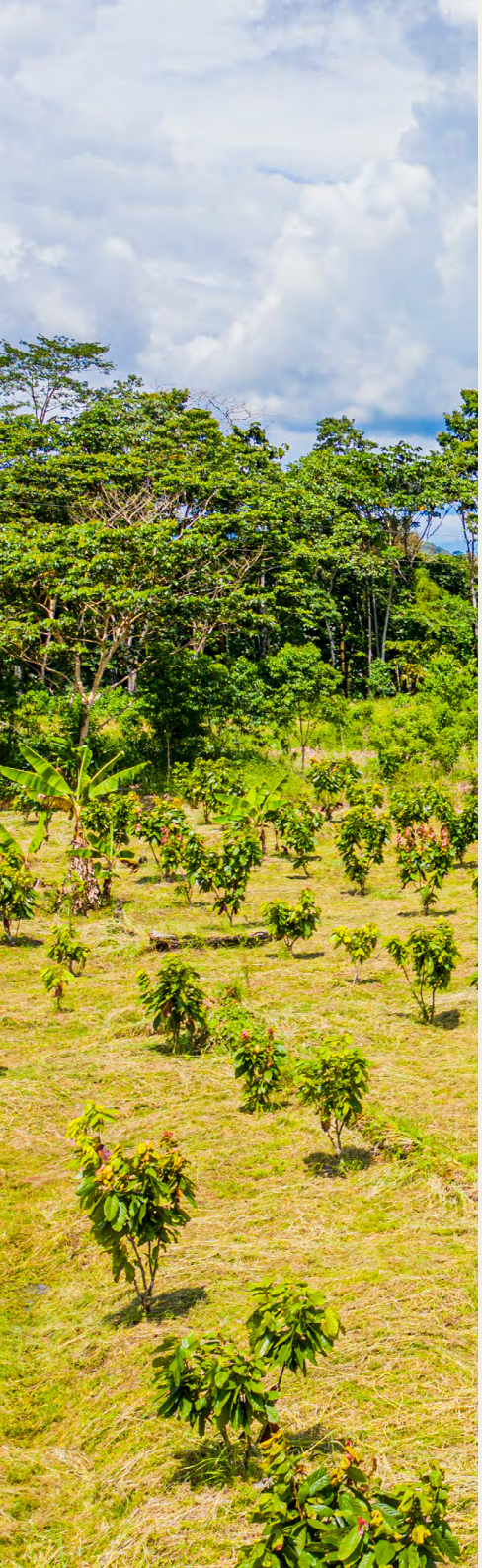
7.2.3 Association 3

Association 3 currently does not have any international certification, so the implementation of measures to comply with the Deforestation-Free regulation would be the first for which it would have to incur an additional cost to production.

The costs related to the implementation of measures to comply with this regulation are shown in the following table.

Table 27.
Costs to comply with the requirements of the Regulation on Deforestation-Free Production and Legality in Association 3.

SCOPE	REQUIREMENT	TO WHAT EXTENT IS IT FULFILLED (1-10)	LEVEL OF DIFFICULTY IN CLOSING THE GAP	ACTIVITIES RESOURCES	COST (ESTIMATED)
Deforestation-free					
				Training in LD&L regulations	1,800.00
Producer	Producer registration	5	Medium	Field technicians	7,200.00
	Georeferencing of the farm (polygon)	0	High	Field technicians	
				GIS specialist	4,860.00
Association	Purchase form (Collection registry)	8	Medium	1 extra person in high season	1,760.00
				traceability software license	860.00
Legality					
Producer	Billing	0	High	Training for producers	1,800.00
				Electronic signature of producers	3,600.00
				Technician for billing	7,344.00
				Computer and printer	1,000.00
	Free of child labour	0	Medium	1 person to obtain verification means	1,800.00
Association	Formalisation of economic activity (RUC)	10	High	No resources needed	
	Working conditions framed in the country's law.	3,5	High	Extra resources to cover social benefits	9,760.20
				TOTAL	**41,784.20**



This cost would have to be charged to the paste production process, which implies a significant increase of 7.97 dollars per unit produced. This is due to the low processing volume.

The production cost resulting from implementing actions to comply with the regulations is shown in table 28.

Table 28.
Comparison of costs with and without PLD&L in Association 3.

FORMATION OF PRODUCTION COSTS	COSTS WITH PLD&L IMPLEMENTATION			COST WITHOUT PLD &L
	VALUE IN USD	PRODUCTION	UNIT COST	
Production Cost	118,274.69	5,244.02	22.55	14.59
Marketing Expenses	790.00		0.15	0.15
Administrative Expense	17,153.40		3.27	3.27
Total Costs and Expenses	**136,218.09**	**5,244.02**	**25.98**	**18.01**

In this association, the following aspects are seen as the greatest difficulties in meeting these requirements:

- The reluctance of the partners to invoice due to the risk of losing the human development bonus.
- The adjustment of the working conditions of the staff depends on the assembly of the association, which could deny this adjustment because the limited volume of production and sales does not generate sufficient resources for such an adjustment.

8

Discussion of results: Actual Cost vs. Price

8. Discussion of results: Actual Cost vs. Price

Once the actual cost of dry cocoa and cocoa paste was obtained, it was compared with the sales price established by the associations and the results were analysed.

It is worth mentioning that, with reference to the price, there is a double perspective that must be complemented/reinforced:

1

From the financial perspective, first, the price must allow covering the production costs; and leave a margin for the absorption of other operating expenses of the business.

2

From the perspective of another business function, such as marketing, the price reflects the acceptance of customers to the value proposition made by the company, which refers to the distinctive nature of the product and other attributes. In the case of associations, these refer to the variety of cocoa (fine and aromatic), organic production in the chakra system, traceability, social promotion of producers, etc.

As occurs with most commodities, the price of cocoa is very changeable in the international market in response to variables that determine its supply, such as the climate in producing countries. In fact, this year the price for Ecuadorian cocoa has shown an upward trend, reaching a range of 150-180 dollars per quintal[21], which, according to the Ecomex 360 portal, responds to the climatic problems that occur in Africa and that will limit cocoa production in the Ivory Coast and Ghana.

Having made these considerations, we shall now proceed to describe the reflections that arose in the meetings with each association.

8.1 ASSOCIATION 1

The average sales price for Association 1 is 4 USD per kilogram, which is equivalent to 181 USD per quintal; which is within the range of international prices that apply in the current situation. However, the production costs, both net and those that incorporate resources for PLD&L at its different levels, exceed this price, as shown in the following table

Table 29.
Price/cost relationship in Association 1.

COST FORMATION (PER KILOGRAM)	NET COST		NET COST WITH PLD&L	
	COST	PRICE/COST	COST	PRICE/ COST
Production Cost	4.98	80%	6.36	63%
Marketing Expenses	5.12	78%	6.49	62%
Administrative Expense	5.65	71%	7.03	57%
Price/Kg	**4**			

In view of the future, the foreseeable adjustment in price would be to compensate for the implementation of activities to comply with the Deforestation-Free and Legality regulations, and if possible, take advantage of the situation to reinforce some value proposition that results in an additional improvement.

However, since the price of cocoa is very variable over time, if the cost structure is maintained, a drop in price could aggravate the negative gap between these two variables, putting economic sustainability at risk.

Therefore, maintaining a cost structure within controllable ranges is an appropriate strategy in organisations exposed to external shocks.

In view of the above, in the discussion with the association's team, the following are noted as **critical issues**:

- Increasing the processing volume in order to reduce the unit cost of processing, for which:
  - The association is adapting a new collection and drying centre with the support of WWF which would allow the acquisition of larger volumes without generating bottlenecks in processing.
  - It is necessary to have operating capital to increase purchases from members, since they require cash payment.
  - Building loyalty among members to increase the volume sold through the association, avoiding the diversion of certified cocoa to local merchants.

- The organisation must analyse areas where it can optimise resources, adapting the structure/composition of these to coverage standards and productivity results.

- Finally, the association should analyse the possibility of expanding the participation of chocolate bars in the product portfolio, since they generate a higher contribution margin per unit, which could contribute to the profitability of the chain[22]. It is also an option for cocoa from farms that had been implemented as of 2021 and that, due to the effects of the LD&L regulations, could not be exported.

8.2 ASSOCIATION 2

In association 2, the established sale price per kilogram is 3.67 dollars, which is equivalent to 166 dollars per quintal, which is within the international price range of the current season.

With this price, the gap with respect to the cost of production is minimal, as can be seen in the following table.

Table 30.
Price/cost ratio in Association 2.

COST FORMATION (PER KILOGRAM)	NET COST		NET COST WITH PLD&L	
	COST	PRICE/ COST	COST	PRICE/ COST
Production Cost	3.91	94%	4.35	84%
Marketing Expenses	4.13	89%	4.57	80%
Administrative Expense	4.91	75%	5.35	69%
Price/Kg	**3.67**			

The gap between price and net unit production cost (3.91) is small and widens from there, because 90% of the total administrative cost of the association is attributed to cocoa, i.e. the productive diversification of the association, made up of other business units such as guayusa, vanilla and tourism, is not reflected in the financial aspect. When the costs of PLD&L are incorporated, the gap between price and cost widens significantly.

Based on the above, the following alternatives are proposed:

1. The implementation of activities to comply with the Deforestation-Free and legality regulations involve an increase of 0.44 dollars. When negotiating compensation, the association can improve the sale price by repositioning other elements of the value proposition.

2. Reviewing the allocation of administrative expenses so that a larger part of them can be absorbed by other business units, which implies strengthening the other value chains within the association.

3. Optimising some processes that could mean cost-reduction, such as the purchase of cocoa on the farm, since it involves logistics and personnel costs that are sometimes not justified by the volume purchased. In addition, purchasing on the farm involves economic and personal risks since people move with cash. Based on the mapping of processes and resources carried out in this study, a policy for purchasing cocoa at the collection centre could be determined, strengthening the zonal structures for primary collection of cocoa.

4. The expansion of the chocolate bar line should also be considered. Currently, these are sold in the association and at fairs, but recipes could be formulated for the national consumer and introduced to the local market. This is an option for cocoa producers who, having started crops after 2021, cannot enter the cocoa chain for export.

8.3 ASSOCIATION 3

Association 3, whose marketable product is cocoa paste, presents the largest percentage gap between the cost of production and the sales price[23], as can be seen in table 31.

Table 31.
Price/cost relationship in Association 3.

COST FORMATION (PER KILOGRAM)	NET COST		NET COST WITH PLD&L	
	COST	PRICE/COST	COST	PRICE/ COST
Production Cost	14.59	75%	22.55	49%
Marketing Expenses	14.74	75%	22.70	48%
Administrative Expense	18.01	61%	25.98	42%
Price/Kg	**11**			

The reason for this significant gap lies mainly in the low volume processed by the association, which is not sufficient to absorb costs that have been introduced for the calculation of the actual cost, both of dry cocoa and of cocoa paste.

In fact, in the cost of production of dry cocoa, the expense for depreciation of the infrastructure related to this process represents 36% of the cost, while in the process of making cocoa paste, this item represents 24%; another item that increases due to the limited volume is the administrative expense that refers to the basic salaries of the administrator, administrative assistant and accountant.

Ignoring the depreciation expenses from the calculation, the cost of production of the paste is 11.56, giving a gap of 0.56 dollars, which, to close it, would require processing 18% more pounds of cocoa purchased from suppliers (due to its lower cost). This highlights the importance of volume production for the economic viability of the business.

Based on the above, the following were identified as key points for the association:

1. Increasing the processing volume, which requires strengthening partner commitment (loyalty) and increasing operating capital.

2. In the process of updating the price for reasons of complying with the requirements of Deforestation-Free and Legality, the association could negotiate the possibility of requesting advances for the purchase of raw materials.

3. Updating the business model to include other business units related to the cocoa value chain and other products from the farm.

9

Conclusions and recommendations

9. Conclusions and recommendations

9.1 CONCLUSIONS

1

It must be noted that in the Amazon there is a tendency to continue producing the national variety of cocoa, while in the rest of the country the CCN51 variety has been adopted.

2

The level of productivity per hectare shows a very wide range. This can be attributed to different levels of application of good cultivation practices, but it also implies deficiencies in the management of information on this aspect.

3

The technical teams that operate permanently in the associations are an important resource to improve productivity at the farm level, which would optimise the cost that each association assumes for this item.

4

The operational process to obtain dry cocoa is quite similar at the level of the three associations. The yield that each one obtains, however, would be given by factors such as: the volume of cocoa that it manages to capture from its partners and the optimal use of the existing capacity.

5

The current costing method for cocoa and cocoa paste does not incorporate, for its valuation, all the elements identified in the operating process. In some cases because their application to the process is financed by external players, in other cases, such as depreciation, because the fixed assets that generate them have not been transferred to the associations.

6

Due to the above, the cost of production of dry cocoa and derivatives is far from its actual cost. In fact, by incorporating items into the cost structure that are currently subsidised (salaries) or not considered (depreciation) the production costs increase, generating significant gaps with respect to the sale price that the associations have set. This means that the price does not cover 100% of the production costs and this coverage decreases as the other expense categories are added, as can be seen in table 32 that presents the net cost of each association versus the sale price.

7

Depending on the volume produced by the associations, these gaps can be minimal or significant, so the main challenge to reach a financial equilibrium point is to increase the volume of processing and sales; and along with this, cost optimisation and price renegotiation with clients.

8

Regarding the implementation of measures to comply with the Deforestation-Free and Legal Production regulations, the associations have been implementing activities (due to other requirements) that could be adjusted to comply with the regulations.

Table 32.
Net cost versus sale price

ASSOCIATION	SELLING PRICE	PRODUCTION COST		COST OF PRODUCTIONS AND SALE		TOTAL COST	
		VALUE	P/C IN%	VALUE	P/C IN%	VALUE	P/C IN%
Association 1	4	4.98	80%	5.11	78%	5.65	71%
Association 2	3.67	3.91	94%	4.13	89%	4.91	75%
Association 3	11	14.59	75%	14.74	75%	18.01	61%

9

The implementation of measures to comply with the regulations involves extra costs, which entail significant or minimal percentage increases in the cost of production depending on the production volume, as can be seen in table 33.

10

The most complex aspect of implementing measures to comply with the regulation of free deforestation and legality is found in the issues that arise from the socioeconomic conditions of the producers.

11

Cocoa, like all commodities, operates in very dynamic markets with changing prices, which is why associations must start from a manageable cost structure to face external shocks derived from price reductions in the market.

12

One of the key aspects for this purpose is the management of volumes that optimise the available infrastructure. For this reason, a base of committed/loyal members and operating capital is required.

13

The productive diversification of the associations from the financial point of view is necessary to distribute the administrative costs in several business units. Competitive unit costs will be achieved with this measure.

Table 33.
% of increase in production cost

ASSOCIATION	COST FOR LD&L	KG DRY	ADDITIONAL COST PER KG	% INCREMENT IN PRODUCTION COST
Association 1	44,646.00	32,363.00	1.38	28%
Association 2	88,298.00	199,760.03	0.44	11%
Association 3	41,784.20	5,244.02	7.97	55%

9.2 RECOMMENDATIONS

1

Although bearing the total costs is not a situation that can occur in the short term for associations, the exercise serves to raise awareness about the volume of operations necessary to achieve the complete sustainability of the associations.

2

It is suggested to continuously apply the established system to calculate costs since this, on the one hand, allows one to reflect on the actual cost of production and, on the other hand, makes it possible to generate a key indicator such as the break-even point, through which organisations can know if, with their level of production, they are generating losses or profits for the organisation.

3

From the financial point of view, it is recommended to fine-tune the cost and expense budgets so that they are aligned with the business line.

4

It has become evident how crucial it is to process and market a greater volume of cocoa and/or cocoa paste to reduce production costs.

5

Along with increasing the volume of operations necessary to cover costs as a first goal, the relevance of optimising associated costs such as certification and technical assistance should also be analysed.

6

Direct cost optimisation points should be analysed in critical areas such as the acquisition of raw materials, which also entails the reduction of economic and personal risks, since the staff carries significant amounts of cash for purchases on the farm.

7

To ensure greater contribution from producer partners to the volume of the associations, loyalty plans should be formulated with tangible and intangible elements that satisfy the interests of the partners.

8

Productivity gaps at community level could be improved by taking advantage of the technical assistance provided by the technical teams of associations, which would require some adjustments in their daily work with the communities, such as:

- having simple, structured technical-productive training and education programmes for the Kichwa communities.
- adapting and developing educational activities aimed at acquiring skills and changing the attitude of producing families regarding technical-productive practices. An adequate use of rural extension methodologies, especially of a group and individual nature under the approaches of Field Schools, will contribute significantly to improving productivity levels.

9

Associations, having producers with crops under the chakra system as a social basis, could develop/ strengthen other value chains, with which the fixed operating costs could be distributed across several areas.

10

It would be advisable to update the business models around the cocoa value chain, in order to evaluate other options such as a greater emphasis on value-added production.

11

The entry into force of the regulations on Deforestation-Free and Legality is irreversible and imminent, therefore, organisations must be supported to close the knowledge gaps on this subject and involve public entities in the clarification/ solution of critical aspects such as billing.

12

This implies analysing the effective way in which producers can comply with the regulations issued by the EU and the certification of sustainable and deforestation-free production generated by the MAG and MAATE with the support of the PROAMAZONIA programme.

13

It is important that associations know from when their clients (importers) must begin to comply with these regulations and prepare a negotiation plan to establish the joint responsibility of each one in the compliance of the same.

14

The joint treatment with the clients on the compliance of this regulation constitutes an opportunity to update the sale price. In this process, value proposals could be repositioned with a view to achieving price increases beyond the sole compensation for resources invested to comply with the regulations.

15

If associations continue to receive subsidies, these resources should be allocated to aspects that guarantee long-term impact, such as: product innovations, generating/strengthening long-term business relationships, and developing business capabilities.

16

The management model of associations should be strengthened so that they properly reconcile the business approach which is necessary to ensure the sustainability of the business, with the social perspective that, in turn, seeks the best standard of living for members.

17

The above is even more relevant in view of the changes in the Law on Popular and Solidarity Economy, which provides that, at some point, associations must transform into cooperatives, which requires greater business and socio-organisational management skills.

Endnotes and Bibliography

Endnotes

1 The final versions of the intermediate products are incorporated as an annex
to this document.

2 https://anecacao.com/cacao-en-el-ecuador/tipos-de-cacao

3 Observatory of Rural Change (2023). Cocoa: a mirage of primarisation in Ecuador.

4 https://theconversation.com/el-nuevo-reglamento-de-la-ue-para-impedir-el-comercio-de-productos- provenientes-de-la-deforestacion-208237

5 It must be mentioned that, at national level, the MAG and the MAATE have promoted the certification of "sustainable and deforestation-free production" with the support of the PROAmazonia programme; therefore, it would be necessary to analyse an effective way for producers to comply with both standards.

6 IICA s/f: Agribusiness Management in Rural Associative Enterprises

7 https://www.corporacionchakra.org/que-es-el-sello-chakra/

8 Even outside this range, some producers with improved practices can reach a productivity level of up to 18 quintals of cocoa in the pulp.

9 In the area, there are no traders who buy cocoa in the pulp.

10 The status of legal partner is highlighted because the association has a significant number of independent producers who are suppliers for the different business units of the Association and are commonly called commercial partners.

11 During this same year there was a plan to increase the certified producers to 291, but for the purposes of calculations and projections we will work with the current base.

12 Obviously this must go hand-in-hand with the solution of the other aspects indicated that restrict a larger acquisition

13 This cocoa is purchased in a dry state from several suppliers who are not subject to traceability.

14 It is estimated that 70% of the members obtain information through this means, either using their own phone or that of their children.

15 For this training, 4 zones have been established and these, in turn, have been further subdivided into 9 sectors. Between 20 and 80 members can attend a training session per sector, depending on the size of the sector

16 In the initial information, there are several versions of the sale price: 9, 9.50, 10.50 USD/kg of paste.

17 The intermediate price is considered between that calculated under the weighted price system (3.96) and the arithmetic average (4.05)

18 If one had to remove this item, the cost of drying dry cocoa would be 4.42 USD/kg, which is still higher than the other associations because this cost does not include marketing and administration costs that are charged to the paste.

19 Without these items the production cost would be 11.56 USD/unit which is much closer to the sales price

20 > 250 employees, > EUR 50 million turnover, EUR 43 million balance sheet

21 These prices refer to basic cocoa, fine and aromatic cocoa is quoted between 7%

22 In a quick exercise it was determined that the production of a 70 gram bar costs 1.69 USD and its sale price is 2.75 USD, leaving a margin of 1.06 USD.

23 For the year there is no reference price for this product in the market.

Bibliography

- **BERNARD, J. HARGADON, 1985.** Contabilidad de Costos (Cost Accounting)
- **GIZ (2023)**. Guía metodológica de capacitación para productores sobre el nuevo Reglamento de la Unión Europea sobre comercialización legal y libre de deforestación (EUDR) (Methodological training guide for producers on the new European Union Regulation on legal and deforestation-free marketing (EUDR))
- **IICA s/f:** Gestión de Agronegocios en Empresas Asociativas Rurales (Agribusiness Management in Rural Associative Enterprises)
- Observatorio del Cambio Rural (OCARU) 2023. El cacao: espejismo de la primarización en el Ecuador (Observatory of Rural Change (OCARU) 2023. Cocoa: the illusion of primarisation in Ecuador)

Website references:

- https://ceap.espol.edu.ec/es/content/exportaciones-de-cacao-crecen-45-por-alza-en-precio-internacional-que-se-dispar%C3%B3-de-2500
- https://www.e-comex.com/precios-del-cacao-han-aumentado-pero-los-problemas-para-el-sector-tambien/
- https://anecacao.com/cacao-en-el-ecuador/tipos-de-cacao
- https://theconversation.com/el-nuevo-reglamento-de-la-ue-para-impedir-el-comercio- de-productos-provenientes-de-la-deforestacion-208237
- https://www.proamazonia.org/ppr/ecuador-pionero-de-una-produccion-sostenible-y-libre-de-deforestacion/

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