

MANUAL FOR THE PREPARATION OF A BUDGET FOR A COOPERATIVE

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1. Introduction

The smooth functioning of a cooperative depends to a large extent on various factors. The

budget of a cooperative is one of the important components essential for its functioning, and for its existence. A cooperative budget is at the same time similar to any other organization budget, but it has its own specialties and particularities.

Managers of cooperatives do not sufficiently appreciate these particularities. In the following chapters I will try to introduce some concrete examples, as well as appropriate explanations.

2. The budget of the cooperative.

The cooperative is created by its members. The cooperative belongs to them. The cooperative is managed by its members, and they all have the right to participate in the decision making process of the cooperative. Members establish their cooperative because they are seeking to obtain a service or employment which will generate income for them. Members, when creating the cooperative, seek to acquire the best possible results from their enterprise. Cooperatives, which supply services to their members, do so for the lowest possible price. Cooperatives, where members are looking for employment, render to their members the highest possible remuneration. The members of the cooperative are the only ones responsible for finance needed for the budget of their cooperative. The manifestation of this responsibility will be explained later on.

The budget of the cooperative enables members to establish and to operate their cooperative. The budget of a cooperative is different from that of another organization.

The first distinction is that the cooperative is seeking to maximize the remuneration of each unit of participation in the cooperative by its members. Any other economic enterprise is seeking to maximize the remuneration of each unit of investment of capital in it.

The second distinction, as important as the first, is that the budget of the cooperative is divided into two parts. The first part, completely separated from the second part, is the budget for the establishment of the cooperative. It contains all the fixed assets of the cooperative. Raising the amount which is needed for this is the complete responsibility of the members, and each pays equally. The member is responsible for this finance, either by cash payments or by credit obtained through the cooperative. The equal participation of members gives them the right to have one share capital. The value of this share always reflects the real value of the fixed assets of the cooperative. The second part of the budget is that which finances all the operations of the cooperative. Once again, the members are financing this budget completely, unevenly, but according to their participation in the functioning of the cooperative.

2.1 The share capital

The notion of share capital is the same in all cooperatives. We shall present the way to calculate the value of the share capital in any cooperative, and it is always done the same way. It is important to note that calculating the operating expenses is done in a different way, appropriate to the relevant type of cooperative. The components of the budget necessary for the establishment of a cooperative are the same in all types of cooperative.

What are the fixed assets of a cooperative? These are all the fixed assets necessary for the establishment of the cooperative. These assets are: land, building where necessary, equipment, and when necessary, means of transport. These assets are generally needed for the establishment of the cooperative, before it starts its operations. When a cooperative decides not to purchase these assets but rather to hire them, their price will be part of the operational costs of the cooperative, and will not figure in the calculation of the share capital. In this case the value of the share may be zero, and will be expressed by a symbolic value only.

Who will finance the fixed asset? How is the value of the share capital determined? The cooperative is established by its members. It belongs to them. These are the members who finance these investments. Since its foundation, and during its existence, the members are equal. So they have to finance, equally, the necessary amounts needed. The formula to be utilized is very simple. The share capital is the amount that each member has to inject into the cooperative. Its value is equal to the total amount necessary to finance the fixed assets of the cooperative, divided by the number of members in the cooperative.

This formula is applied in all cooperatives. Every member in the cooperative should pay his share capital. He can do it either through cash payments, or thanks to credit obtained by the cooperative for this purpose. The value of each share capital is equal for all members, and every member should pay for one share only. The value of the fixed assets of the cooperative may differ over time, and this is also the case with members' shares. The value of a share capital may vary with time, and can be higher or lower than its initial value. The value of share capital in any cooperative may vary from that cooperative to another one. The value of the share capital cannot be fixed in advance, but should be calculated each time.

2.2 How to determine the value of a share capital

We shall use an example to clarify our explanations. Our example is a consumer cooperative. In our cooperative there are 100 members. The cooperative, during its inaugural general meeting, nominated a special committee, composed of members and specialists, to prepare a list of the value of the fixed assets the cooperative will need for its establishment. The committee has decided that the fixed assets will be bought and not hired.

The list is as follows:

Land	10000 MU
Building	20000 MU
Equipment	5000 MU
Office Equipment	5000 MU
Total	40000 MU

The share capital of each member = the total value of fixed assets DIVIDED by the number of members in the cooperative.

In our case: $\frac{40000 \text{ MU}}{100 \text{ members}} = 400 \text{ MU}$

Each member of the cooperative has to pay the cooperative the amount of 400 MU. He can pay in cash or have his part in credit obtained by the cooperative for that purpose. When paying his share capital, he becomes a member with full rights, as well as the owner of his part in the cooperative.

3. Budget for operational costs

Cooperatives differ one from the other in the way their operational expenses budget is calculated. This chapter will show how the operational expenses budget is calculated in different cooperatives.

3.1 The consumer cooperative

The general formula to determine the operational expenses () is:

Purchasing price of all merchandise to be resold to members + direct operational expenses + a margin of security (surplus) = selling price to members.

P.P. + D.C. + M.S. = S.P.

A. First consideration

The first consideration to be taken, when calculating our budget is that our cooperative has been created to render the best possible service to its members. The cooperative will try to sell to its members at the lowest possible price, and always below current market prices.

B. First step

Our first step in the preparation of our budget is to calculate the first element of the formula which is the purchasing price of all merchandise or services which the cooperative will sell to its members. We need to remember that members are not financing these expenses equally but according to their degree of participation in their purchases at the cooperative. So, we cannot include this amount of money in the calculation of the share capital of members.

So, the first step is to calculate the price of the initial stock we need to start our activities. The stock should be as small as possible in order to save unnecessary storage expenses. The stock will be calculated when considering available storage facilities, the price of the credit the cooperative should pay to hold the stock, and flexibility of suppliers credit to the cooperative.

The initial stock will be considered in the light of the number of members in the cooperative, how big their families are, and the result of a study made among members regarding their consumption habits.

Our example will be (): a cooperative with one hundred members. The results of our study show us that members are consuming the following products during any one month: sugar, oil, flour, sardines. We have succeeded in locating suppliers who sell us these items at competitive prices well below market prices.

PRODUCTS	QUANTITY	UNIT PRICE	TOTAL
Sugar	3.000 kg	10 MU	30.000
Oil	1.500 liter	5 MU	7.500 MU
Flour	6.000 kg	2 MU	12.000 MU
Sardines	15.000 cans	1 MU	15.000 MU

Total 64.500 MU
 This is the value of the merchandise. Now, what will be its selling price to the members? Our basic idea is that we are not trying to realize any profit or surplus in our cooperative, but we have to be able to cover all our expenses with our income. Now, we are trying to calculate our operating expenses.

C. Operating expenses

Which are the operational expenses?

	Per month
Salary for manager	1000 MU
Bookkeeper	1000 MU
Transport of merchandise (4 times a month)	2000 MU
Electricity, water	300 MU
Local authority taxes	200 MU
Damages	500 MU
Total:	5000 MU

We are not paying any rental costs since we have bought all the fixed assets of the cooperative using share capital of the members.

We have obtained a credit of 65000 MU from the members for the finance of the purchase of the first stock. This credit will be reimbursed to the members by monthly payments, throughout one year, at an interest rate of 18% per year. We recall here that the rate we pay to members will be competitive with that available in the banks. In our imaginary country, the banks pay their clients a rate of 8% per year on their fixed deposit accounts . They charge for commercial credit at an annual rate of 24%. The cooperative offers its members a rate of interest 10% higher than the bank rate, and at the same time pays 6% less interest than on loan to the banks. The reimbursement of debts to members will be:

	Per month
Principal =	$65000 : 12 = 5416$ MU
Interest (18%)	529 MU
Total	5945 MU

C.1 How to calculate the interest

In order to calculate simple interest, we utilize the following formula:

Interest to be paid = the initial amount + the amount of the last installment DIVIDED by 2 and MULTIPLYING by the rate of interest.

$65000 + 5416$ Divided by 2 and MULTIPLY by 18% = 6339 MU per year and 529 MU per month.

This calculation is very simple, and it is completely accurate. The reason is that we pay the members each month the amount of 5416 MU, and consequently the principal is diminishing each month by this amount. The amount which we are paying as interest payments each month is supposed to be 975 MU for the first month down to 81 MU for the last month. In order not to complicate our explanation, we shall indicate the average monthly payment of interest, which is 529 MU.

D. Calculating the selling price

The selling price to the members is:

Purchasing price	64500 MU
Operational costs	
- Operational costs	5000 MU
- Reimbursement of credit for OP.EX. 5416 MU+529 MU	10945 MU
Margin of security (10% of op. Ex.)	500 MU
Total	75945 MU

We observe that we sell to members at a price which is higher by about 18% than the purchasing price. In practice, we know now that we sell to members each article at a price higher by 18% than the purchasing price. The final verification should be done now, by comparing our prices to existing market prices of same articles, to see if we are still below market prices.

E. Remarks

In our exercise, we are proposing to seek initial credit needed for the functioning of the cooperative from the members. It is quite often that members do not have the necessary amount, and consequently, we need to seek this credit elsewhere, and generally its price is the commercial rate of interest. In some cases, when the director of the cooperative, is doing his job correctly,

he acquires suppliers' credit, which is generally much less expensive. This suppliers' credit has no fixed terms, which can be different from one country to another. In many cases, suppliers' credit is reimbursed only at the end of the current month. A clever cooperative director will seek suppliers who will enable him to make purchases for the cooperative by credit, at least up to the end of the month, and to sell to members for cash. This policy will reduce the financial costs for the cooperative, and will enable the director to reduce sale prices to members. The management committee in such a case is supposed to be astute enough to compensate such a manager by offering him incentive payments.

F. The cash-flow

The cash-flow calculation for the cooperative is very important. The cash flow table shows us if our cooperative is correctly and efficiently managed and functioning, and is not losing money. This cashflow gives us the ability to realize if we are going to need any credit during our activities, when, and how much, and when we shall be able to reimburse it, and how much this credit is going to cost us.

The cash flow table is, generally, based on 14 rubric. The first one on the left indicates the different items. Afterwards come 12 others for the twelve months of the year. The last one is for the total calculations. The first rubric has the following items: Income; Expenses; the balance between them; and the last one is cumulative.

Model of a cash-flow table:

month	1	2	3	4	5	6	7	8	9	10	11	12	total
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inc om e	-	-	3	5	5	6	4	5	6	5	3	4	46
exp ens es	3	5	4	3	2	2	2	5	3	2	2	3	36
BA LA NC E	-3	-5	-1	2	3	4	2	0	3	3	1	1	10
AC CU MU LA TI ON	-3	-8	-9	-7	-4	0	2	2	5	8	9	10	10

3.2 The savings and credit cooperative

A. The share capital

We always start the budget with the acquisition of the fixed assets of the cooperative. We prepare a list of the necessary assets for our cooperative: land + office + furniture + safe + office equipment = the total value of the fixed assets.

This amount will be divided by the number of members in the cooperative. The result of this calculation gives us the value of the share capital for each member of the cooperative.

B. The operational budget

The formula which we use here is the following:

The interest paid to members for their fixed deposits + operational expenses + margin of security (surplus) = the interest paid by members for credit.

I.D. + O.E. + M.S. (S) = I.C.

We start our calculation with the easiest part of the calculation, which is the operational expenses:

Salary of manager	40000 MU
Electricity	4000 MU
Water	2000 MU
Insurance	5000 MU
Transport	2000 MU
Etc.	1000 MU
Total	54000 MU

54000 MU X 12 month = 648000 MU per year.

C. The surplus

We are discussing a cooperative which has just been founded, so we shall include a margin of security in our calculation. So, the eventual surplus will be 10% of the total of the operational costs. The amount will then be 64800 MU. The operational costs and the surplus will together be the amount of 712800 MU.

D. Calculation of the rate of interest - first consideration

We have now two unknown components out of the initial four. We do not know yet what will be the rate of interest paid to members for their deposits, nor the interest charged on members' credit.

In order to respond to these questions we need to find out two things:

a. What is the rate of interest used in the banking sector in the country? We find that: The banks pay on clients fixed deposits an annual rate of interest of 8%; on credit the banks charge a rate of 18% on an annual basis.

b. What is the rate of annual inflation in the country? Knowing the rate of inflation has a great value for the cooperative manager who is willing to best serve the members of his cooperative. In many countries it is very difficult to know what the real level of inflation is, since these figures are either not available or they have nothing to do with reality, except serving the political interest of those who are in power. Members of the cooperative should

know how to calculate the rate of inflation, even on an approximately basis, because the policy of a good cooperative is to best serve its members, and this can be done only if the cooperative will pay them, on their fixed deposits, a real rate of interest, which means, above the rate of inflation.

How can we calculate the rate of interest? We can do it on an approximate basis, knowing that the result will not be as accurate as those of a good statistician. We are guided in our endeavor by the commercial rate of interest levied by banks on credit. In most countries the banks charge credit at a rate of interest reflecting the rate of inflation plus some supplementary percentage for their expenses and for their net income.

We remember that in our example we indicated that the commercial rate of interest for credit is 18% per year. We may estimate without being too far from reality that the rate of inflation in the country is 12% per year.

E. Rate of interest in our cooperative

Our starting point of in the discussion is that the objective of our cooperative is to serve its members in best possible fashion. This is to say that our cooperative will pay its members a rate of interest on their fixed savings deposits higher than 8% per year, because the cooperative is seeking to motivate members to choose the cooperative as a better alternative to that of the bank. This is not enough however, because the cooperative wants also to safeguard the real value of its members money, so it will reward the members fixed saving deposits a rate of at least the annual rate of the inflation, i.e. an annual rate of interest of 12% per year.

The second point to consider is: which rate of interest will the cooperative charge its members for the allocation of credit? The cooperative wants to serve its members in the best way, so it will charge them a rate lower than the 18% charged by the bank. The cooperative will charge its members at the rate of 17% per year.

F. Budget of the savings and credit cooperative

In our cooperative we apply the following rates:

Fixed deposits: 12%
 Credit to members; 17%
 Operational costs including
 The margin of security (surplus) 5%
 5% = 712800 MU

Our task now is to find the value of one percent, to enable us to calculate the value of 12% and 17%.

1% = 712800 MU : 5 = 142560 MU
 17% = 142560 MU X 17 = 2423520 MU
 12% = 142560 MU X 12 = 1710720 MU
 2423520 MU - 1710720 MU = 712800 MU

H. Summary

In order to be able to realize this budget, the members should deposit in the cooperative the amount of 14256000 MU. This amount should be given entirely as credit to members. As credit it will bear the cooperative the amount of 2423520 MU as annual income of the cooperative from 17% interest payments. This income will enable the cooperative to pay 648000 MU as operational costs, and 64800 MU as a margin of security. The amount left, 1710720 MU is for the payment of 12% interest paid to members savings deposits accounts.

3.3 Marketing cooperative

A. Share capital

The first step, as explained earlier, is the calculation of the value of the share capital of each member in the cooperative. The calculation of share capital is exactly the same as previously explained in previous chapters.

B. Formula to utilize

The marketing cooperative has its own particularity. This cooperative collects produce from its members, and sells it. The cooperative attempts to realize a situation in which all members getting for their produce the highest possible return. It then distributes to its members total receipts less total operational expenses.

The formula to be used to calculate how much each member will receive for his produce is:

Market price for cooperative produce - (minus) operational expenses of the cooperative - (minus) margin of security = the price the cooperative will pay the members for their produce.

M.P. - O.E. - M.S. = P

C. Marketing price

We calculate initially how much the cooperative will receive for its produce. In our cooperative there are 10 members. They are all craftsmen, and they all produce ladies' handbags, prepared from cattle skin. Each of the members produces 5 to 10 bags per day.

The finished produce is collected by the cooperative placed in the cooperative warehouse, then sent each week to the market to be sold.

Members	Weekly production
member no. 1	60 bags
member no. 2	30 bags
member no. 3	30 bags
member no. 4	60 bags
member no. 5	60 bags
member no. 6	50 bags
member no. 7	40 bags
member no. 8	30 bags
member no. 9	40 bags
member no.10	50 bags
total:	450 bags

So, we have a weekly production of 450 bags to be sold. This quantity can vary from week to week, according to members' production, and the cooperative has to be prepared for that, through its bookkeeping department, as well as in its ability to handle it.

In the week in our example, the marketing manager of the cooperative has succeeded in obtaining a price of 100 MU for each bag. We need to remember, that there are cases where bags do not have the same quality, and prices can therefore be different, so the members' remuneration will be too, according to the quality of their produce. Total income in that week is 45000 MU. The question is how much each member will receive for his work.

D. Operational expenses

Our calculation has to take into consideration the different operational expenses. In this cooperative costs are as follows:

Items:	Per month
Salary:	
- Manager	1000 MU
- Marketing manager:	500 MU
Commission per sold unit (1 MU)	
450 bags X 1MU X 4 weeks	1800 MU
	2300 MU
Transport (4 X 500 MU)	2000 MU
Bookkeeper	1000 MU
Electricity, water	200 MU
Insurance	500 MU
Etc.	300 MU
Total:	7300 MU

E. Margin of security

We establish this margin, by temporarily retaining part of the income of the cooperative. We render this amount back to the members when our accountant informs us that the calculation of the operational expenses has been accurate. The amount retained should be the smallest amount possible, and will be determined according to past experience of the cooperative. We have to remember that this money is the members' money, which we retain temporarily. This money belongs to the members, and it will be returned to them as fast as possible, as soon as we are sure that every thing is going well. In our marketing cooperative, we shall retain 10% of the operational costs, as margin of security. The amount would be of 700 MU.

F. The final calculation

Our formula is:

$$M.P. - O.E. - M.S. = P$$

Our calculation for one week would therefore be:

$$45000 \text{ MU} - (7300:4=1825) \text{ MU} - (700:4=175) \text{ MU} = 43000 \text{ MU}$$

The amount of 43000 MU is divided among 450 bags, and so we have the result that each bag sold earns the amount of about 9.5 MU.

Members who produced 30 bags per week each will receive the amount of 285 MU each. Members who produced 40 bags per week each will receive the amount of 380 MU each. Members who produced 50 bags per week will receive the amount of 475 MU each. Members who produced 60 bags per week will receive the amount of 570 MU each.

This way of presenting the budget of the marketing cooperative is very simple and very accurate. It shows clearly the following points: the members are remunerated according to their participation and their production, and the managers are remunerated according to their efficiency.

3.4 Production and service cooperative

These cooperatives have the following characteristics:

The members are employed in the cooperative. They are not the users of the services of the cooperative, but rather the vendors of products or services made through the cooperative. The members' income comes from remuneration rendered to them by the cooperative according to their participation - their work in the cooperative.

The number of members in this cooperative is limited and is determined by the number of jobs existing in it. The value of the share capital is rather high. It is important to note that the calculation of the value of the share capital in this cooperative will be the same as previously explained.

A. Calculation of operational expenses

The formula to be used for our budget is different from the previous ones in the sense that we are adding a new variable, the remuneration of members for their work in the cooperative. Our formula will be then:

The purchasing price of raw materials + operational expenses + remuneration of members for their work + margin of security (the surplus) = the selling price in market of products or services.

$$P.P. + O.E. + R.M. + M.S. = S.P.$$

B. Purchasing price

The first thing to do when preparing our budget is to estimate how many raw materials we need to purchase, to enable our cooperative to function. In our cooperative there are 12 members. Our cooperative is producing clothes. We calculate initially how many clothes the members can produce during a specific period of time. In light of these figures we can then calculate how many raw materials we need. According to our study, we know that our cooperative is producing the following clothes: 6 dresses, 8 shirts and 10 pairs of trousers per working day.

6 dresses need 12 m of textile fabrics.

8 shirts need 16 m of textile fabrics.

10 pairs of trousers need 30 m of textile fabrics.

(To simplify our explanations, we assume that all clothes are made out of the same fabric.)

We shall need 68 m of fabrics for daily production. The cooperative operates 25 days a month, so it will need 1450 m of fabric every month. The fabric costs 5 MU per meter.

We shall need other inputs such as threads, buttons, zip fastenings and other accessories including packaging materials.

The calculation of the purchasing budget is:

Fabric:	1450 m X 5 MU =	7250 MU.
Threads: 10 bobbin per day X 25 days X 2 MU =		500 MU
Buttons: 200 shirts X 6 buttons X 0.1 MU =		120 MU
Zip Fastening: 16 zip fastenings X 25 days X 2 MU =		400 MU
Accessories: 12 acc. X 25 days X 2 MU =		600 MU
Total budget necessary:		9140 MU

The cooperative buys the raw materials every week, in order to save money. The cooperative is benefiting of suppliers' credit, which enable it to pay its bills at the end of the month. More than that, the manager of the cooperative has succeeded to sign a marketing contract enabling to sell the finished produce each week, and cooperative is paid in cash.

C. Operating expenses

The operating expenses of the cooperative during any one month are as follows:

Salary of manager:	1000 MU
Commission for manager: sale of 600 clothes per month X 2 MU	1200 MU
Electricity, water:	300 MU
Insurance:	200 MU
Total:	2700 MU

D. Margin of security

We retain the amount of 300 MU, which represents a little more than 10% of the operating expenses, as the margin of security.

E. Sale price

We calculating now the sale price, as only afterwards shall we be able to work out what the members' remuneration from the cooperative will be for their employment.

We know that the cooperative produces during any one month the following produce to the value of:

Dresses:	
6 X 25 days X 50 MU per dress =	8250 MU
Shirts:	
8 X 25 days X 40 MU per shirt =	8000 MU
Trousers:	
10 X 25 days X 50 MU per pair =	12500 MU
Total:	28750 MU

F. Remuneration of members

Our formula is:

$$P.P. + O.E. + R.M. + M.S. = S.P.$$

We know already the following elements:

$$9140 \text{ MU} + 2700 \text{ MU} + R.M. + 300 \text{ MU} = 28750 \text{ MU}.$$

We are hoping to find the value of the variable left, the R.M. In our formula. Our calculations show us what is going to be left over to pay the members is 16610 MU.

$28750 \text{ MU} - 9140 \text{ MU} - 2700 \text{ MU} - 300 \text{ MU} = 16610 \text{ MU}$, i.e. the R.M., and this amount is then divided by 12 members which shows us that each member in the cooperative is going to earn that month 1385 MU. We suppose, in order to make our example easier, that all the members worked the same number of hours. However, it is obvious that we need to calculate in any cooperative how many hours each member works, to be able to know how much to pay him for his participation.

4. The multi-purpose cooperative

The budget of the multi-purpose cooperative, even it resembles other cooperative budgets, as we have been considering above, is different.

The multi-purpose cooperative is a cooperative which renders services to its members for various functions. As an example, we can take an agricultural cooperative in a certain village. This kind of cooperative has, usually, the functions of production, the supply of credit to members at the cheapest possible price, while at the same time enabling members to save their extra funds at the highest possible rate of interest, the supply of inputs to members at the cheapest possible price, and the marketing of members' produce at the highest possible price.

4.1 The share capital

The share capital in this cooperative is calculated in the same fashion as in all other cooperatives, as has been explained earlier. The share capital is always calculated on the basis of our formula: the real value of all fixed assets of our cooperative divided by the number of members in the cooperative. The share has different components, that together making its value, and they are apportioned to the different functions, or rather departments of the cooperative. In our example, we have the following departments-functions: the department of production, which also includes an irrigation service and a service concerning mechanized cultivation; the credit department; the supply of inputs departments including the distribution of inputs necessary for field crops and that distributing fodder for farm animals; the marketing

department which includes the warehouse and the element of necessary transportation. We need to remember that besides the fixed assets of the cooperative, each member may have different fixed assets according to his needs and decisions in order to facilitate his production plans. We shall not discuss here these fixed assets, but we shall consider only cooperative fixed assets, in which all members participate equally.

The fixed assets of the cooperative are:

	Amount
Production department:	
- reservoir for water	200000 MU
- network of pipelines for irrigation	300000 MU
- centre for mechanized cultivation including 2 tractors and different agric. Implements	400000 MU
Credit department:	
- office	2000 MU
- furniture	5000 MU
- safe	3000 MU
Inputs department:	
- center for inputs for agriculture	80000 MU
- center for inputs for animal husbandry	100000 MU
Marketing department:	
- central warehouse	22000 MU
- Truck - lorry	70000 MU
Total:	1200000 MU

In our cooperative there are 100 members. The value of the share capital of each member will be of 12000 MU. All members have paid as down payment the amount of 1000 MU in cash, and they have to reimburse the rest by a long term credit of 11000 MU each, for ten years, without interest, which the cooperative succeeded to acquire from the central authority for rural development, in our imaginary country.

4.2 Budget for operational expenses

The principle which guides us in our calculations of the operating expenses is completely different here. The members will finance the fixed assets on an equal basis, but they will finance the operating expenses on an unequal basis, according to their relative participation in the operations of each department of the cooperative.

The calculation of operating costs is divided into three parts: The budget of the activities of each member relating to his production, the budget necessary for the functioning of the different departments of the cooperative, and the budget necessary for the general expenses necessary for the management of the cooperative.

A. The members

The calculation of the budget necessary for production by each member is divided into two parts:

The first part concerns the budget for production by each member. Our manual is not concerned with this specific calculation, because it relates to another separate study. It is however useful to remember that the principles which guide this calculation are:

- Each member should calculate his own budget separately, since he can choose his own production plan, hoping that this plan will render him the highest possible annual income.

- In each of these calculations, factors of production, such as the farmer himself and the number of persons in his family, the number of available working days of the family, the size of the land he works, how much irrigation water he has, which crops he is going to cultivate, or which type of animal husbandry he is going to undertake should be taken into consideration, when taking into account the maximum amount of farmer income per working day, and per cultivated land unit.

The second part, which is the one presented here in this manual, concerns the total annual production value of all the members of the cooperative. This will enable us in turn to calculate the operating costs of the different departments of the cooperative.

We have 100 members in our cooperative. Our study shows us the following given information:

The members produce maize, tomatoes and broilers. (We limit the number of products in our example in order to simplify it.)

- 60 members are producing maize. Each member cultivates 3 hectares of maize, and produces 5 tons of maize per hectare. He is cultivating two crops of maize each year, so his annual production is 30 tons of maize each year. The total annual production of maize in the cooperative is 1800 tons. The maize is sold per crop, twice a year, in October and May.

- 30 members cultivating tomatoes. Each member cultivates 0.5 hectare of tomatoes, so the cultivated land for tomatoes is 15 hectares. Each hectare of tomatoes yields 30 tons and total tomatoes production of the cooperative is therefore 450 tons. The season for tomatoes starts in May and finishes in September, i.e. 5 months, at a rate of 50 tons per month.

- 10 members growing broilers. Each of these members has a poultry house where he can raise 1000 broilers at any one time. The members sell their broilers at the age of 12 weeks. They can utilize the poultry house three times a year, since they have to respect rest periods to facilitate disinfecting of the poultry house. The average weight of one sold broiler is 1.5 kg. Each farmer produces 4.5 tons of broilers per year. The total annual production of these 10 members is therefore 45 tons of broilers. The broilers are sold in December, April and August, and each time 15 tons are sold.

Summing up the annual production plan of our cooperative:

Maize	1800 tons
Tomatoes	450 tons
Broilers	45 tons

The maize is sold at a price of 10000 MU per ton.

The tomatoes are sold at 5000 MU per ton.

The broilers are sold at 15000 MU per ton.

Total annual income of the cooperative is therefore:

Maize: 1800 tons X 10000 MU = 18000000 MU. This amount will be distributed among 60 members after deducting the total operating expenses.

Tomatoes: 450 tons X 5000 MU = 2250000 MU. This amount will be divided among 30 members after deduction of the total operating expenses.

Broilers: 45 tons X 15000 MU = 675000 MU. This amount will be divided among 10 members after deducting the total operating expenses.
 At this stage in our calculations, we shall leave aside the members for the time being and start to calculate the budgets of the departments.

B. The departments

We have the following departments in our cooperative: production, credit, supply of inputs and marketing. Our assignment now, is to prepare the operational budget of each department. In so doing, we shall have the possibility to find out what the expenses are for the process of production, and then discover what the annual income of each member is.

I. Production department

We now have two calculations to perform. The first one concerns the price of water supplied by the water supply department. The second one is the calculation of the price of operation of the department of agricultural implements. We calculate this according to our formula which will guide us in all circumstances. Our formula is:

$$P.P. + O.E. + M.S. = S.P$$

Purchasing price of water: 1 MU for each cubic meter. The cooperative needs the following quantities of water per year:

60 members cultivate 180 hectares of maize each cycle i.e. 360 hectares per year. We shall required, at a ratio of 100 cubic meters per hectare, the quantity of 36000 cubic meters per year, which costs the cooperative 36000 MU per year.

30 members cultivate 15 hectares of tomatoes. Each hectare of tomatoes requires 500 cubic meters per season. The cooperative will therefore require the quantity of 7500 cubic meters, which will cost 7500 MU.

10 members breed broilers. They each breed 3000 broilers per year, so the cooperative produces 30000 broilers each year. Each broiler drinks 10 liters of water during its life time, such that the total water consumption is 300000 liters of water, or 300 cubic meters, which costs 300 MU.

The total cost of water consumption in the cooperative is:

$$36000 \text{ MU} + 7500 \text{ MU} + 300 \text{ MU} = 43800 \text{ MU}.$$

The operating expenses of this department include:

Management of the department:	100 MU per month
Electricity	500 MU per month
Insurance	100 MU per month
Network maintenance	200 MU per month
Total:	900 MU per month and 10800 MU per year.
Margins of security (10%) :	1000 per year.

$43800 \text{ MU} + 10800 \text{ MU} + 1000 \text{ MU} = 55600 \text{ MU}$. This amount will be divided by 36000 cubic meters, and so the price for each cubic meter is 1.27 MU for the time being. This price is of a temporary nature because the final price will be determined at the end of the year, when the calculation of the General Expenses of the cooperative will be finalized.

Our second calculation concerns the department for agricultural implements, and this is done utilizing our formula.

We seek first the purchasing price. The area to be cultivated in the cooperative consists of 180 hectares for maize, for cultivation twice a year, so we shall cultivate here 360 hectares a year. The area for cultivation of tomatoes is 15 hectares. The cooperative should cultivate 375 hectares annually. Tractors work for 3 hours per hectare, and the cost of operating the tractor is 100 MU per hour.

The cost of cultivation of the land will therefore be:

375 hectares X 300 MU = 112500 MU.

The operating expenses are:

2 tractor drivers:	200 MU per month
Insurance	500 MU per month
Fuel and maintenance	1000 MU per month
Total:	1700 MU per month or 20400 MU per year.

Margin of security:

This will be about 10% of the operating expenses, with the total being 2000 MU per year.

The total of cultivation costs will therefore be:

112500 MU + 20400 MU + 2000 MU = 134900 MU. The price of cultivation for each hectare will be 360 MU temporarily.

II. Department of supply of inputs

The department of supply of inputs comprises two sections. One is for inputs for field crops. The second is for inputs for the poultry branch.

The budget of the section for field crops inputs will be calculated according to our formula:

$$P.P + O.E. + M.S. = S.P.$$

- The purchasing price:

Inputs for field crops:

These inputs include: fertilizers, seeds, herbicides, insecticides, packing materials for maize, crates for tomatoes. 180 hectares of maize require 500 kg of composite fertilizers per hectare. We have 360 hectares, so we shall require 180 tons of fertilizer per year. Each ton costs 1000 MU. The total price of fertilizers is therefore 180000 MU.

15 hectares of tomatoes require 500 kg of composite fertilizers per hectare. The amount will therefore be 7.5 tons, which costs 1000 MU per ton. The total costs of fertilizers here will be 7500 MU.

Total costs of the annual amount of fertilizers will therefore be 187500 MU.

The seeds for the maize cost is: One hectare of maize requires 100 kg of seeds. 360 hectares of maize require 36 tons of seeds which cost 10000 MU per ton. The total price of maize seeds will be 360000 MU per year, which will be paid in two installments during the year.

The cost of tomatoes seeds is calculated at the ratio of 10 kg per hectare. We require 150 kg seeds. The tomatoes' seeds price is 1000 MU per kg. The total price will be then 150000 MU.

Total cost of seeds per year is:
 $360000 \text{ MU} + 150000 \text{ MU} = 510000 \text{ MU}$.

The herbicides and the insecticides cost the cooperative 70000 MU per year. The package materials cost an annual amount of 30000 MU.

Inputs for poultry:

We refer here to the feeding stuff (provender) and the veterinary medicines. The cooperative produces 45 tons of broilers each time. The broilers consume of provender at the ratio of 3 tons of provender for each ton of broilers. The cooperative requires: 45 tons of broilers X 3 tons of provender X 3 flocks a year = 405 tons of provender per year. The price of one ton is 100 MU and the annual amount the cooperative will pay is therefore 40500 MU.

The veterinary products will cost the cooperative 45000 MU per year.

The total purchasing price of inputs will be:
 $187500 \text{ MU} + 510000 \text{ MU} + 30000 \text{ MU} + 40500 \text{ MU} + 45000 \text{ MU} = 813000 \text{ MU}$.

- The operating expenses

This department is managed by one person only.

	Per month	Per year
Salary of manager	100 MU	1200 MU
Electricity	200 MU	2400 MU
Insurance	200 MU	2400 MU

Transport

The cooperative will need to transport each year:

187.5 tons of fertilizers

450 tons of provender

637.5 tons X 100 MU =

63750 MU

Total:

69750 MU

- Margin of security

We shall charge members' accounts at a margin of security of 10%, (temporarily) until we arrive at the final confirmation of final confirmation by our accounts department. This amount will therefore be 7000 MU.

- The sale price to members

$813000 \text{ MU} + 69750 \text{ MU} + 7000 \text{ MU} = 889750 \text{ MU}$.

The manager of this department realizes that he has to charge members for their inputs at a mark-up of 8.2 % over the purchasing price. (69750 MU + 7000 MU represents 8.2 % of 889750 MU).

III. Marketing department

This department sells all the produce of the cooperative, maize, tomatoes and broilers. We recall that the cooperative's annual production is:

1800 tons of maize, which is sold for 18000000 MU.

450 tons of tomatoes, which are sold for 2250000 MU.

45 tons of broilers, which are sold for 675000 MU.

The formula which we use to prepare the budget is:

$M.P. - M.S. - O.E. = P.$

(Market Price - Margin of Security - Operational Expenses = Price paid to members.)

We calculate each element of the formula, taking into consideration each product separately.

Maize:

We already know the sale price, and the total income which is 18000000 MU.

The operating expenses are:

The transport of 1800 tons of maize costs 100 MU per ton, so the total is therefore 180000 MU.

Sacks and other packaging materials:

One sack contains 100 kg of maize. We therefore require 18000 sacks. 10 sacks cost 1 MU. The total will therefore be 1800 MU.

Hired labour costs for loading the shipment:

1 worker can load up 1 ton per working day. We acquire 1800 working days for loading, which cost 1 MU per day, and the total is therefore 1800 MU for all the shipment.

The manager of the marketing department earns 100 MU per month and 1200 MU per year for marketing the maize.

Total operating expenses for marketing of the maize is:

$180000 \text{ MU} + 1800 \text{ MU} + 1800 \text{ MU} + 1200 \text{ MU} = 184200 \text{ MU}.$

The margin of security will be 10 % of the operating expenses:

18000 MU

The 60 members who produce the maize will gain:

$18000000 \text{ MU} - 184200 \text{ MU} - 18000 \text{ MU} = 17797800 \text{ MU}.$

We need to remember that this amount is not net income for the member of the cooperative, because we need to deduct from this amount, the production costs of the maize, as well as the costs of the necessary inputs, which we have already considered previously, and general expenses, which will be calculated in the next chapter.

Tomatoes

We know the selling price of tomatoes which is 2250000 MU.

The operational expenses for tomatoes are:

The transport price of 450 tons of tomatoes costs 100 MU per ton, and the total is therefore 45000 MU.

Plastic boxes for the tomatoes which the cooperative leases. Each box contains 20 kg of tomatoes. We require 50 boxes per ton, i.e. 22500 boxes in all. The cost of leasing is 100 boxes per 1 MU. The total cost of leasing boxes to the cooperative is therefore 225 MU.

Loading for transportation, 450 tons of tomatoes, the cooperative will pay hired workers 450 MU.

The manager of the marketing department earns for his work marketing tomatoes 400 MU per year.

The total of operational expenses for tomatoes is:

$45000 \text{ MU} + 225 \text{ MU} + 450 \text{ MU} + 400 \text{ MU} = 46075 \text{ MU}$.

The margin of security is 10% of the operational expenses: 4600 MU.

So, the 30 members who produce tomatoes will receive the following income:

$2250000 \text{ MU} - 46075 \text{ MU} - 4600 \text{ MU} = 1199425 \text{ MU}$. This amount will be distributed after deduction of production expenses, inputs costs and general expenses.

Broilers:

We know the sale price of broilers which is 675000 MU.

The operational expenses are:

The cost of transportation of 45 tons of broilers costs 100 MU per ton, i.e. a total of 4500 MU.

Leasing of cages for poultry transportation. Each cage contains 20 broilers which weigh 30 kg each. So in order to transport 1 ton of broilers, we need 34 cages. The price for leasing of cages is 1 MU per 10 cage

s. To transport 45 tons of broilers we need 1500 cages, and their price will therefore be 150 MU.

The cost of hired labour to load up the broilers is calculated at the price of 2 MU per ton, and at the total cost of 90 MU.

The manager of the marketing department earns for his work in marketing the broilers 100 MU per year.

The total of operational expenses for broilers is therefore:

$4500 \text{ MU} + 150 \text{ MU} + 90 \text{ MU} + 100 \text{ MU} = 4840 \text{ MU}$.

The margin of security of 10% of operating expenses is 480 MU.

The 10 members who breed broilers receive the following income:

$675000 \text{ MU} - 4840 \text{ MU} - 480 \text{ MU} = 669680 \text{ MU}$.

This amount will then be distributed to members only after deduction of production costs, inputs, and the general expenses.

The total of all our calculation is therefore:

Total income of the cooperative:

$18000000 \text{ MU} + 2250000 \text{ MU} + 675000 \text{ MU} = 20925000 \text{ MU}$.

The total of all operational expenses is:

$184200 \text{ MU} + 46075 \text{ MU} + 4840 \text{ MU} = 235115 \text{ MU}$

The total margin of security is:

$$18000 \text{ MU} + 4600 \text{ MU} + 480 \text{ MU} = 23080$$

The amount which members receive, only after the subtraction of production costs, inputs, and general expenses, is:

$$20925000 \text{ MU} - 235115 \text{ MU} - 4840 \text{ MU} = 20685045 \text{ MU}.$$

IV. Credit department

Credit department is also the treasury department of the cooperative. This department managed by the treasurer of the cooperative. The treasurer of the cooperative has some tasks to fulfill such as the collection of money which is owed to the cooperative,

the fastest possible, and payment of cooperative debts, as late as possible, but his most important task is the permanent control of the financial state of the cooperative. He is doing it with the help of the cash-flow table. This table is prepared at the beginning of each financial year, and based on it, the production planning of the cooperative can be done. This table gives the treasurer the possibility to know every moment the financial situation of the cooperative. The table gives him as well the possibility to know if during the year he will need credit to finance the activities of the cooperative, in which time during the year he may need it, how much and how long.

Lets see the main components of this table. It is composed of three major components: the Income of the cooperative, the Expenses of the cooperative, the Balance and the Accumulation. The table itself has 14 columns, if it is done on annual basis. The first column gives the different items described above. The other 12 columns are for the 12 months of the year. The last one is for the total.

The Income part includes all the production branches of the cooperative in details, and it shows each month what is branch monthly income. The Total part shows us the total of all branches income on annual basis.

The row Expenses shows separately the different expenses made during the year for each of the departments of the cooperative. The Total is for the annual total expenses per branch and for the cooperative.

The row Balance summing up the difference between Income and Expenses for each month of activity. The Balance may has positive or negative value, according to the financial results of each month.

The row Accumulation is practically the most important tool of the treasurer of the cooperative. The Accumulation is summing up every month the balance of the cooperative. When we have negative value in the Accumulation, the treasurer needs to obtain credit in the amount mentioned, in order to be able to finance the activities of the cooperative. This credit will be necessary every month in different values, according to the Accumulation indications, until the Accumulation will turn to have positive values.

Cash-flow of credit department
Cash- flow department credit:

credit department Cash flow :

Items	January	February	March	April	May	June
RECETTES						
Maize	-	-	-	-	9000000	-
Tomatoes	-	-	-	-	450000	450000
Broilers	-	-	-	225000	-	-
TOTAL	-	-	-	225000	9450000	450000
EXPENSES						
Purchasing	5710	5710	5710	5710	-	5710
water						
maize						
P.W.	-	-	1584	1584	1584	1584
tomatoes						
P.W.	-	52	52	52	-	52
Broilers						
cultivation	64800	-	-	-	-	64800
maize						
cultivation	-	5300	-	-	-	-
tomatoes						
Inputs	-	98861	98861	98861	98861	98861
Marketing						
Maize	-	-	-	-	92700	-
Tomatoes	-	-	-	-	10135	10135
Broilers	-	-	-	1790	-	-
TOTAL	70510	109923	106207	107997	203280	181141
EXPENSES						
BALANCE	-70510	-109923	-106207	117003	9246720	268859
CUMULATI	-70510	-180433	-286640	-169637	9077083	9345942

ON

	July	August	September	October	November	December	T
-	-	-	9000000	-	-	18000000	
450000	450000	450000	-	-	-	2250000	
-	225000	-	-	-	225000	675000	
450000	675000	450000	9000000	-	225000	20925000	
5709	5709	5709	-	-	-	45676	
1585	1585	-	-	-	-	9506	
53	52	-	52	52	53	418	
-	-	-	-	-	-	129600	
-	-	-	-	-	-	5300	
98861	98861	98861	98861	-	-	889750	
-	-	-	92700	-	-	185400	
10135	10135	10135	-	-	-	50675	
-	1790	-	-	-	1790	5370	
116343	118132	114705	191613	52	1843	1321695	
333657	556868	335295	8808387	-52	223157	19603305	
9679599	10236467	10571762	19380149	19380097	19603305		

This cash-flow table shows that the cooperative has succeeded to have an annual income of 20925000 MU. The expenses are of the amount of 1321695 MU. So, the members will receive the amount of 19603305 MU, only after deduction of the cost of necessary credit to finance operations and the general expenses of the cooperative.

The treasurer of the cooperative knows that his financial program should forecast that he is going to need credit from external sources of finance during 4 months of the year:

January: 70510 MU
 February: 180433 MU
 March: 286640 MU

April: 169637 MU

The annual rate of interest to be paid is 18%, and the monthly rate is 1.5%.

So, the financial expenses which the cooperative should take into consideration is:

January: $70510 \times 1.5\% = 1058$ MU

February: $180433 \times 1.5\% = 2706$ MU

March: $286640 \times 1.5\% = 4300$ MU

April: $169637 \times 1.5\% = 2545$ MU

Total of interest to be paid is 10609 MU. This amount will be added to the operational expenses of credit department.

The budget of this department will be calculated in the following way, by utilizing our formula:

$P.C. + O.E. + M.S. = P.C.M.$

P.C. = Price of credit obtained by the cooperative from different sources, Internal - from members or external to the cooperative, for the finance of the production.

O.E. = Operational expenses.

M.S. = Margin of security.

P.C.M. = Price of credit to members.

The operational expenses of this cooperative include:

The salary of the treasurer for the work he done in this department. He gets 100 MU per month and 1200 MU per year.

Electricity and water per year: 800 MU

the total operational expenses of the cooperative is:

$1200 \text{ MU} + 800 \text{ MU} = 2000 \text{ MU}.$

The margin of security is 10% of operational expenses is: 200 MU.

In figures we receive these results:

$10609 \text{ MU} + 2000 \text{ MU} + 200 \text{ MU} = 12809 \text{ MU}.$

P.C.M. = 12809 MU. This amount will be charged to the members who will need credit to finance their production. The cash-

flow table shows us what finance needs we have for each production during the year. A very important source of finance is members themselves. The cooperative will offer them a rate of interest which is higher than that offered by banks on fixed saving deposits.

C. General expenses ()

The general expenses are the price the cooperative pays for its management and administrative functioning. These are the expenses the cooperative pays during one year. The general expenses are the third element in the budget of the multi-purpose cooperative.

The cooperative in our example is managed by a manager. There is also an accountant and treasurer. The manager receives a salary of 500 MU per month or 6000 MU per year. The question we have is from where comes the money to pay his salary. Dividing this charge among all members is unjust. In our view, this method is unjust because there are members who participate in the business of the cooperative more than others, so we can estimate that they have utilized, more than others, the services of the manager of the cooperative, and consequently, they should pay more than others.

The same logic applies to the accountant and the treasurer jobs. The accountant is doing the book-keeping of all departments of the cooperative, which have different business size each. He does the book-keeping of all members. Their accounts have not the

same turnover and activities. It is unjust to distribute the cost of the work of the accountant equally. The treasurer is also working for the cooperative as a whole, for the departments, and for the members. We can't divide the cost of their employment to the cooperative among members equally.

Our solution for this question is of how distributing the general expenses of our cooperative, is that they should be distributed according to participation of members.

Let see what are our general expenses:

$$C.S. + O.E. + M.S. = G.E$$

C.S. = The cost of the salaries of all those who work for the general management of the cooperative.

O.E. = The total of operational expenses of the management of the cooperative.

M.S. = The margin of security.

G.E. = The general expenses.

The cost of salaries.

The manager earns per year a salary of 6000 MU.

The treasurer earns per year a salary of 5000 MU. We should remember that 1200 MU of it will be paid by the credit department.

The accountant earns per year a salary of 4000 MU.

The total will be:

$$6000 \text{ MU} + 3800 \text{ MU} + 4000 \text{ MU} = 13800 \text{ MU}.$$

The operational expenses:

The secretariat services cost to the cooperative 100 MU per month, and 1200 MU per year.

The assistant to the accountant earns 200 MU per month, and 2400 MU per year.

Electricity and offices maintenance cost 1000 MU.

Special transport costs for manager are 2000 MU per year.

The total of operational expenses are:

$$1200 \text{ MU} + 2400 \text{ MU} + 1000 \text{ MU} + 2000 \text{ MU} = 6600 \text{ MU}.$$

The margin of security:

The margin of security is calculated as 10% of operational costs, and is: 660 MU.

The general expenses of the cooperative are:

$$13800 \text{ MU} + 6600 \text{ MU} + 660 \text{ MU} = 21060 \text{ MU}.$$

Invoicing:

Our problem now is to know how to divide the amount of 21060 MU among the members and the different departments of the cooperative. Our first guideline is the fact that the manager of the cooperative devote his time to manage for the different departments of the co

operative, but he devotes his time as well to members individually, in order to solve many of their problems. This statement is valid as well to the work of the treasurer ad that of the accountant. Our conclusion is this amount should be divided between members on one hand and department on the other hand. For our exercise, we have

decided that 40% of the general expenses will be charged on members, and 60% on the departments. In reality, this is the role of the accountancy department to prepare this calculation. In any case, we are always following our golden rule in our cooperative: according to participation.

The members:

The members should be charged the amount of 8424 MU, which represents 40% of 21060 MU - the general expenses. The members will finance this amount according to their participation in the business of the cooperative, and a member who participated more will pay more. The exact amount for each member will be calculated by the accountancy department.

The departments:

The departments will pay the amount of 12636 MU per year, which represents 60% of the general expenses. This amount will be divided among the different departments, according to their participation in the business of the cooperative. Which amount each department will pay. The annual turnover of all departments (see cash-flow table) is 1321695 MU. This amount is divided as follows:

Production department:

$45676 \text{ MU} + 9506 \text{ MU} + 418 \text{ MU} + 129600 \text{ MU} + 5300 \text{ MU} = 190500 \text{ MU}$, or 14.4%.

Supply of inputs department: 889750 MU, or 67.3%.

Marketing department:

$185400 \text{ MU} + 50675 \text{ MU} + 5370 \text{ MU} = 241445 \text{ MU}$, or 18.3%.

The amount of 12636 MU of the general expenses will be divided in the following way:

Production department: 1820 MU.

Supply of inputs departments: 8504 MU.

Marketing department: 2312 MU.

This complete our budget calculation for the general expenses, as well as the preparation of the budget to our multi-purpose cooperative.

5. Summing up

This manual tries to show, in the simplest way, how to prepare the budget of a cooperative. The technique of calculation is less important. The importance of this manual is that it presents an approach realistic and just to what cooperative is, and to the way its budget should be prepared.

The central approach is that the cooperative belongs to its members

. These are the members who finance completely its budget, according to the criteria of a true cooperative. Managers of cooperatives who will master the ideas expressed in this manual, will be able, with the help of professional such as economists and accountants, to prepare the budget of their cooperatives, as well as will be able to follow its application.