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The Use of Commodity Balances in Foreign Trade Planning

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Forword

This paper is the outcome of a Seminar discussions held by the International Economic Relations Center at the I.N.P., Cairo at which time Dr. Schulmeister from GDR was a visiting Expert at the Institute.

The introductory note and point 2.1 are written by Dr. Faika, points 2.2 and 2.3 by Dr. Schulmeister, while points 2.4 was written by Dr. Dohaia. Point 3.1 was written by Dr. Afr and point 3.2 by Dr. Schulmeister.

Dr. Faika was the responsible writer of writing Chapter II dealing with the use of commodity balances in foreign trade planning: Conclusions and Recommendations.

Dr. Schulmeister was the responsible writer of point 1 on Part II concerning the G.D.R. experience, while Dr. Faika was responsible for writing point 2 dealing with the A.R.E. experience.

The fruitful discussions among the group has greatly improved the contents of this paper. Directly or indirectly each of the writers has contributed to the outcome.

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We hope that our suggestions in the paper would lay the ground and be valuable to the improvement of techniques applied to the foreign trade planning in general and to the work of the foreign trade department in the ministry of planning in particular.

PART I

Commodity Balances and Their Use in Foreign Trade Planning

PART I

CHAPTER I

Nature of Commodity Balances and Its Use in Planning and Follow-Up

1. Introductory Note

Drawing up a national plan is a comprehensive and often a complicated task which needs a lot of work not only in fixing the main targets of the development process but also in determining proportionality between all branches and sectors of the economy. In order to ensure optimality of the national economic plan, it is necessary that proportionality and consistency between all parts and spheres of the economy be ensured according to the plan.

Thus an important task of planning consists of determining both the resources and the uses of different products and factors of production either on commodity or on group basis. Planning thus includes determining these questions in quantitative forms as possible so that inter-product and inter-branch relationships can be drawn.

The balancing method is an important auxiliary instrument for fulfilling these tasks. It permits the planning authorities and the state enterprises to investigate the requirements of proportionality and consistency and to carry all these through in practice. There are different balances, drawing up of which have proved to be effective, e.g. input-output-balances, commodity balances, national economic balances like the state budget, the foreign exchange budget, etc..

In the following we will explain the nature and the construction of commodity balances and the problems connected with them. This will be done especially from the viewpoint of:

(a) the use of commodity balances as a tool for planning.

(b) the use of commodity balances as a tool for follow-up.

We should mention from the outset that such a tool is more useful for annual than for long-term planning.

2. Commodity Balances: Its Nature and Construction:

2.1 The nature of commodity balances:

In principal, commodity balance is nothing but a statement comprising all sources of supply (whether they are domestic or foreign) of a certain commodity (or group of commodities) and different uses of such commodity (s), whether they are also domestic or foreign. On the supply side, we have domestic production and imports. In addition, stocks at different economic units the summation of which may represent a significant part of total supply available would also be included. On the other hand, we have on the uses side both domestic and foreign demand as well as possible additions to stocks. Domestic demand may either be for intermediate purposes or for final use. For the latter, we usually differentiate between demand by the private sector and the government demand. As an example, the following table represents the final scheme of a commodity balance.

Final Scheme of a Commodity Balance

Period:

Name of the Commodity:

Unit of Measurement:

Resources	Uses
* Commencing Stock (Stock at the beginning of the year). * Domestic Production * Imports * Other resources	* Intermediate consumption (uses in production). * Final Consumption a. Private (individual) b. Governmental * Investments a. Accumulation b. Reserves * Exports * Carry-overs (stocks at end of period).
Total Resources	Total Uses

However, before elaborating the final table of a commodity balance, it is necessary to draw up certain working sheets for detailed estimation (or calculations) of the various items comprising the resources and the uses of a commodity balance. Usually, one must have two basic working sheets. One for calculating the items on the resources side, and the other for the items on the uses side.

The construction of the working sheets reveals the necessary information needed for the building up of the final commodity balance. Their use is important not only to reflect the fixed plan target for different ministries and organs, but also to ensure the consistency of data and information provided. In addition, it will be a basic source for finding out where to change if inconsistency may appear during the stage of planning or of the follow-up. Hence, the balancing method can be linked closely with the implementation of the plan and the follow-up system.

Commodity balances cannot be considered as isolated balances but as more or less closely linked to each other. By comparing different commodity balances we can come to a close relation between commodity balances and input-output-balances.

In practice, there are different groups of commodity balances:

(1) the so-called "Material" balances which deal with balances for raw materials and intermediate goods, such as cotton, oil seeds, metals, chemicals, electric power.

(2) the "consumer" balances which are drawn for consumption goods, whether agricultural or industrial, for sugar, bicycles, radios etc.

(3) lastly, the "Equipment" balances which are drawn for capital goods, machinery, etc. and which are directly linked with investments in the period concerned.

As a rule, commodity balances are compiled according to a unified scheme, but there are some specifics in details and there will be some specific features in the estimation of the necessary data required for the working.

The period for which commodity balances are drawn may affect their construction. Long-term balances would be highly aggregated, while annual ones would be drawn in details. It should be mentioned that for perspective planning we should have balances for each year covering the plan period.

Building up commodity balances involves several distinct problems among which are the following main ones:

(1) the determination of the "nomenclature" (list) of the commodity balances.

(2) the choice of the unit of measurement (the valuation problem),

(3) the problem of collecting the necessary data and the question of timing of the flow of such data (the information and the timing problems).

2.2 The nomenclature of commodity balances

At the beginning of drawing up commodity balances usually we have to answer the following questions:

* For which products or groups of products is it necessary to construct commodity balances?
* How to group these balances?

The first question has to be answered by fixing a concrete nomenclature (or list) for drawing up commodity balances whereas the second question is included in laying down the classification. A certain nomenclature will be prepared before classifying all commodity balances. Both aspects, the nomenclature and the classification of commodity balances must be considered as part of the whole system of classifications and methodological regulations applied for national planning.

The nomenclature of commodity balances will be different from country to country and from time to time. It mainly depends upon the aim and the role of commodity balances for planning and follow-up, upon the stage of development and the technique of planning. Past experience must be taken into consideration as well as the future development. Generally speaking, we may say that as there are commodities of major significance for the national reproduction process, i.e. important goods for realizing the country's investment policy, ensuring the current production, fulfilling the needs of the population in consumption goods, and those which are important for the export and import policies, then individual commodity balances should be drawn for these goods.

On the other hand it is sufficient sometimes to balance an aggregated number of commodities within one balance. Thus it is possible, e.g. to build up one balance for grains or different balances for wheat, barley etc. However, it is difficult to build up one balance for electrical machines, as they comprehend different commodities with

different uses from the economic and the technological point of view (such as refrigerators, air-conditioners, electrical equiments for engineering etc.), and as we balance the total it does not ensure balancing each kind by itself. We should remark here that constructing such aggregated commodity balance on a central level necessitates a balance for each commodity included on decentralized level.

It is natural that in the course of economic and technological progress the role of some commodities becomes different. As industrialization progresses, new products must be added, while other products might be neglected. Therefore, the nomenclature of commodity balances should change to reflect these developments.*

Then on a certain stage of this development it may be preferable to build up a balancing Pyramid so that the central planning authority (Ministry of Planning) can concentrate its efforts on such commodities which are of major significance within the complex and comprehensive planning process, whereas other organizations and/or Ministries can elaborate commodity balances for less important goods.

Besides we will differentiate the nomenclature whether we are drawing up the annual plan or the perspective plan. The nomenclature of commodity balances is more detailed for annual planning than for perspective planning.

In correspondence with establishing the nomenclature usually we will group the commodities and fix a certain classification. There we follow classifications which are generally used in planning and follow-up and which should be consistent with national accounting.

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* For example, there are 10,000 balances in USSR, about 4,000 in the G.D.R. and 170 in A.R.E.

2.3 The valuation of the items included

The items included in commodity balances can be valuated on different bases the concrete one depends upon the aim of using this tool. A unified price or different prices might he used. Moreover, one can use physical units in constructing commodity balances for some products in the case of which the valuation problem will not arise. Each unit of measurement has its merits and demerits, and further explanations are necessary in order to give an idea, which one is the proper for which purpose.

As commodity balances aim in principle, at showing the consistency and equilibrium of total sources and uses for each commodity the use of physical units would be preferable.

But when doing so, one cannot compare different commodities such as textiles in meters and buses in units, or aggregate them up to get a balance at sectorial or national level. Also the same commodity cannot be followed-up over a longer period if quality improvements have been significant. At last, the consistency between the flow of the goods and the corresponding financial flows cannot be ensured. Therefore it is necessary to construct commodity balances on both physical as well as value bases.

In this regard, two questions should be clarified:

(1) Have we to use the prices of a basic year and/or current prices?

(2) Which prices should be taken as basis?

For drawing up plan-balances, both price bases should be used, the prices of a basic year in order to make obvious the quantitative changes, and current prices (planned prices for the coming period) for reflecting price changes. As long as we use both bases for planning it is preferable also to use both in follow-up.

With regard to the 2-nd question we bring the following example.

Commodity: Refrigerators
Unit of Measurement: 1.000 L.E.

Resources	On producer's price	On market price basis	Uses	on producer's price	on market price
1. Production	800	1.100	1. Intermediate consumption.	-	-
2. Import	100	150	2. Final consumption.	400	500
			3. Export	500	750
			4. Reserves	-	-
Total Resources	900	1.250	Total Uses	900	1.250

We can valuate the resources and the uses on both the producer's prices and the market prices and balance equation can be seen. The choice between these two basis depends upon the purpose and use of the commodity balance. Linking these items with the system of National Accounts and with other balances, too, such as the state budget, the foreign exchange budget etc would require using both bases.

2.4 The information and the timing problem

It can be seen from the concrete table and the working sheets which information are necessary. If there is a system of follow-up the commodity balances the problem of information is mainly concentrated on estimating necessary changes for the plan period on the basis of followed-up data. A remaining question would also be the proper timing of the flow of such information from their original sources to the body undertaking the planning process.

However in the lack of a concrete follow-up system, a big information problem will arise as we use commodity balances as a tool for planning. We should at least have a base year figures upon which our plan targets will be based. In what follows we will briefly explain sources of information of each of these items.

Domestic Production:

Planned total national production, or total production of main commodities are set by different departments at the ministry of planning. Base year production figures could be obtained from the statistical organizations and different ministries.

Imports:

Information about imports could be obtained from the ministry of economy and foreign trade and the foreign trade department at the ministry of planning.

Imports of intermediate goods and capital goods can be estimated according to the production targets of different commodities and technical coefficients showing the import contents of these commodities. Changes in techniques of production and domestic sources of supply especially of import substitutes should also be taken into consideration.

Commencing Stocks:

Information about stocks at the beginning of the period can be obtained from the central statistical organization.

The Uses Side

Consumption

From the ministry of supply and the department of consumption at the ministry of planning.

Total government consumption figures can be obtained from the national accounts department at the ministry of planning. On the other hand material composition of government consumption should be estimated by the C.B. department on the basis of information from past periods.

Intermediate Consumption

Intermediate consumption can be estimated by the sectorial departments at the ministry of planning (agr., industry, ... etc) on the basis of planned production. But it might be better estimated on the enterprise level and then be raised to the sectorial departments at the ministry of planning.

For estimating the intermediate consumption on the basis of fixed production targets, norms or coefficients are necessary, expressing the need of material per unit of production. Planned norms then should be fixed on the basis of followed-up data.

Exports:

Information about exports could be obtained from the ministry of economy and foreign trade and from the foreign trade department at the ministry of planning.

Stocks at the end of the period and reserves

Commodity reserves to meet unexpected circumstances are usually determined by government policies, and information about it might not be classified or specified by the plan.

On the other hand stocks for production or consumption purposes might be carried by suppliers, users or warehouses. The amount of stocks carried over usually depends on the level and regularity of consumption for a certain commodity, production conditions, time intervals between successive deliveries, and the nature of the commodities on hand.

The Timing Problem:

As to the timing problem of C.B. one can say that they should be drawn up as part of the whole process of planning and should be available before the final confirmation of the plan. There should be a fixed timetable for drawing up the commodity balances which is part of the timetable for drawing up the plan. In this regard it could be said that tentative commodity balances could be constructed - either for the whole nomenclature or only for some important commodities or groups-together with formulating the preliminary figures of the plan. 6 months before starting the plan period may be a suitable time for drawing up those balances.

Then detailed commodity balances for the full nomenclature will be drawn up , together with laying down the detailed plan targets. At last the balanced items should get their final approval when confirming all plan targets.

3.1 Commodity balances as a tool for planning

Planning aims at the most rational and effective utilization of the available resources whether be material, labour power, financial or natural at the least possible costs or sacrifices. Planning therefore entails surveying all available as well as potential resources, e.g., the commencing stock at the beginning of the period, the value of production of commodities and services, consumption of goods and services (individual as well as governmental), requirements for production, investment and external trade. As we have mentioned earlier, planning requests, in addition, the finding out of the interrelationships which exist among different branches and sectors of the national economy in order to ensure the appropriate proportionality and consistency in the development of the different branches so as to secure the solution of the economic and political problems involved and to realize a balanced growth.

Commodity balances are one part of the whole set of tools and techniques of planning, which we can use for the following tasks:

(a) For ensuring proportionality and consistency for future development.

Data needed for the construction of the plans are provided by the detailed information included in the documents or the working sheets of the commodity balances. Hence, the construction of these balances help in the elaboration of the economic & social plans.

Besides they help the planning authority to expose and utilize unkown reserves of goods available in the national economy.

(b) Commodity balances are not merely an accounting frame that satisfy certain accounting or balance equations. In using commodity balances as a tool for planning, each figure on both sides of the balance is either forecasted, planned, or estimated. In this sense the balance is planned and is not merely a historical or accounting matter. Hence, the balances are utilized in planning practice not only for the sake of concentrating

the efforts upon bottlenecks, but also in order to reveal and liquidate them.

Therefore we cannot consider commodity balances merely as a tool for collecting data but as a tool for checking the reality and consistency of these data, making the necessary changes and, at last, helping in the elaboration of the plan.

Planning of materials, consumption and investment can be easily seen by refering to the types of commodity balances discussed earlier:

As to the material balances they can be used in calculating coefficients of production at commodity or sectorial levels in comparison with related balances.

As to consumer balances, then follow up figures can be a source of information to be used in forecasting or estimating consumption of different types of commodities.

As to balances of investment goods they can be used to extend production capacity whether directly or indirectly. These balances represent what are needed for investment.

The method of commodity balances can be utilized at different stages of planning as well as for different periods. Commodity balances are used in formulating preliminary figures for the plan, i.e. at the very beginning of drawing up the plan. But they are also used in fixing detailed plan - targets and for elaborating the comprehensive plan.

When dealing with commodity balances as a tool for planning, we should not neglect some limitations in this regard. Although commodity balances are an important instrument for planning, there are some important questions which cannot be answered by using this instrument, such as the question of efficiency of using different resources and the reorganization of such use to be conform with the optimum principles which cannot respectively has not been done up till now by using commodity balances. Therefore we must use other instruments for planning, too.

3.2 Commodity balances and the follow-up of the plan

As planning is a unity of formulation, implementation and control of the plan, the use of commodity balances as an instrument for drawing up the plan logically makes it necessary to follow them up and to use commodity balances also for follow up.

What is the aim of follow-up commodity balances?

The basic aim of following-up commodity balances is to check, whether the planned proportions and consistency, i.e. the planned development of the resources and uses, have been realized or not. The economic reality is manifold so that some deviations may occur, some proportions may prove to be unrealistic under changing circumstances and conditions. Also if the planned proportions prove to be correct it is necessary to know this. Therefore, the follow-up of commodity balances is necessary in order to fulfil the following two tasks:

(1) To investigate the realization of the planned development of the resources and uses and-if necessary- to act as an instrument for preparing new decisions by the planning authorities.

(2) To analyse the development and by this to prepare commodity balances for the coming period.

Both tasks are closely interrelated. On the basis of follow-up reports of commodity balances one can calculate a set of coefficients which act as one basis for future plans, e.g. technical coefficients, import coefficients for different commodities, export coefficients etc.

Due to these tasks it will be necessary to follow up all items which have been planned in commodity balances and to use the same nomenclature for follow-up as for planning.

The follow-up of commodity balances should be continuously, annually and quarterly carried. It should be carried through as part of the whole system of follow-up the plan by both the statistical agency and the planning authorities and here, we can combine drawing up of commodity balances for the coming period with the follow-up of the balances of recent periods. By this one can directly compare planned targets with the past development commodity by commodity. For realizing such a system in practice, we suggest to refer to the G.D.R. experience in this field (see Part II, please). When following-up commodity balances one can say that their timing will be controlled by the availability of data. However, since the follow-up of commodity balances is rather important for future planning, it is necessary to make it as early as possible and to ensure a proper timing of the flow of data to the planning authorities.

CHAPTER II

The Use of Commodity Balances in Foreign Trade Planning: Conclusions and Recommendations

As we have mentioned earlier in this paper, planning has its own apparatus and tools. All constitute an integrated set of measures and techniques among which commodity balances are considered as important. However, experience in the A.R.E. has shown that commodity balances as a tool for planning the foreign trade sector was used to a very limited extent. There are general advantages in using commodity balances in planning the foreign trade sector as such which can be summarized in the following:

(1) It is a tool for coordination between different targets and a measure to maintain appropriate proportions between the foreign trade variables and other variables such as production, domestic consumption, ... etc. a matter which would greatly reduce the possibility of facing certain bottlenecks during the implementation phase,

(2) It is a tool for following-up of the plan targets a matter which would reduce the likelihood of surpassing or falling short of original targets.

In the following, we shall try to throw some lights on this subject while giving a few examples of how such a tool could be useful in drawing up a draft of the plan for the foreign trade sector.

However, before going into this subject, we have, first of all, to define what means planning of the foreign trade operations and what subjects it comprises then we shall go on to handle the question of how commodity balances can be used for this purpose.

Planning of the foreign trade sector means drawing up a target programme of all economic transactions undertaken between the citizens of our country and the rest of the world in quantitative and qualitative forms as well as their distribution geographically during a certain period of time span (the plan period) and deciding upon the necessary measures which are required in order to ensure the realization of such a programme and the achievement of its targets during the limited time span permitted. This means:

(1) Determining the national or the overall target of the foreign trade sector e.g. the size of the deficit or surplus in the balance of payments.

(2) Choosing the best set of the planned commodity structure of exports and of imports, a matter which is directly related to the question of resource allocation, and to the realization of the foreign trade targets.

(3) Choosing the best set of the planned geographical distributions so as to optimize the net foreign exchange receipts on the trade balance,

(4) Planning of invisibles on the current account.

(5) Planning the means of financing the deficit on the current account (including the necessary measures to influence such chosen means - such as the determination of the optimum rate of foreign exchange, the optimum tariff rates and other customs duties, and the best institutional framework within which foreign trade operations can be performed).

Clearly, it could be easily noticed that the use of commodity balances in planning the foreign trade sector comes directly to the 2-nd and 3-rd subjects that is, the planning of the commodity structure of exports and of imports and their geographical distribution. Discussing the former point raises two basic questions, namely:

(a) The nomenclature of the commodity balances which is necessary to be undertaken by the foreign trade department itself in the ministry of planning.

(b) The question of profitability of the foreign trade sector which is also related to the problem of valuation of the commodity balances to be undertaken by the foreign trade department in the ministry of planning.

(a) The Nomencluature:

It is well known that the composition of exports and of imports for any country is largely dependent upon its comparative advantage which changes over time as the country moves along the road of development. Explicitely speaking, this means that setting plan targets for the structure of commodity exports and imports is based mainly upon both historical development and future possibilities(1). It is therefore necessary to carefully study the nomenclature of commodity balances for the foreign trade sector from time to time in order to make the necessary changes which would explicitely rectify the structural disequilibrium which exists in most of the developing countries, especially during the early stages of economic development. As the country develops, the nomenclature might not need to change radically. The thing which changes the most is the qualitative forms of the products but not the products themselves.

Applying these concepts to the concrete situation in the A.R.E. economic system, one might suggest the nomenclature of commodity balances that must be undertaken in the foreign trade sector to include the following balances:

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(1) Production structure is one important element in determining the future possibilities of exports and imports.

A. Material balances:

For Exports	For Imports
1. Crude petroleum.	Animal Oils and Fats.
2. Phosphates & Manganize.	Metal ferrous ores & Scrap.
3. Cement.	Non-ferrous metals.
4. Kerosene & Mazout.	Aluminum waste & scrap.
5. Cotton, raw.	Non-organic Chemicals.
6. Products of cotton	Netrogenous fertilizers.
	Organic Chemicals.
	Medical & pharmaceutical.

B. Consumer balances:

1. Cotton fabries & fibres.	Cereals (wheat)'
2. Onions	Animal oils and fats.
3. Rice	Paper & paper products.
4. Vegetables	
5. Fruits	
6. Leather & products	
7. Furnitures.	
8. Carpets, mats and matting.	
9. Stones.	
10. Refrigerators.	

C. Equipment balances:

Electric Equipments

1. Boilers, machinery & Mechanical appliances
2. Electrical Machinery
3. Equipment & parts

Transportation Equipment

4. Railway, Tramway, Locomotives and traffic signaling equipment.
5. Vehicles.
6. Aircrafts & parts

This nomenclature corresponds to the classification followed in the general nomenclature drawn by the commodity balancing department. However, it may represent only part of the information which the foreign trade department should submit to the commodity balancing department. Other information provided by the foreign trade department might be planned through using some other tools.

This study suggests also that the foreign trade department in the ministry of planning would then construct some other commodity balances in an aggregated form which would be disaggregated by the ministry of economy and foreign trade. Detailed commodity balances for exportables and importables as well must be drawn by the latter taking into consideration the geographical distribution/which will be discussed later in this chapter.

(b) Profitability Calculations:

For calculating profitability in the foreign trade operations on commodity basis we compare the prices received on foreign markets for exportables (or paid for importables) with internal prices (producers prices).

These calculations help us to draw up a list of priorities for exports and for imports from the profitablity viewpoints-only one important aspect in planning the future development of commodity exports and imports.

In the following, we will introduce three profitability indexes. Table (1) is an example to show how commodity balances can be used in this respect.

Table (1)

Commodity: Refrigerator

Unit of Measurement: 1.000 pieces / Mio L.E.

Plan - Year : 1972/1973

Resources					Uses				
	Quantity	Valuation				Quantity	Valuation		
		at costs	at producers p.	at market price			at costs	at prod. p.	at market price
1. Commencing stock	250	0.25	0.28	0.33	1. Consumption, final				
					a- Private	1.00	1.0	1.20	1.33
					b- Governm	100	0.1	0.15	0.13
2. Total production	2.500	2.50	2.90	3.30	2. Intermed. Consumpt.				
3. Imports	-	—	—	—	3. Exports	1.500	1.5	1.75	1.6
					4. Stocks	100	0.1	0.12	0.13
					5. Reserves	50	0.05	0.06	0.06
Total	2.750	2.75	3.28		Total	2.750	2.75	3.28	

Commodity: Crude Petroleum

Unit of Measurement: Mio barrels / Mio L.E.

Plan - Year : 1972/1973

Resources					Uses				
	Quantity	Valuation				Quantity	Valuation		
		at costs	at prod. price	at market price			at costs	at prod. price	at market price
1. Stocks	0.5	0.6	0.75	0.80	1. Final Consumption				
2. Total (1) production	21	25.2	31.50	34.65	2. Intermed. Consumpt.	10	12	15	16.50
3. Imports					3. Exports	10	12	15	18
					4. Stocks	0.5	0.6	0.75	0.8
					5. Reserves	1	1.2	1.5	1.65
Total	21.5	25.8	32.25		Toral	21.5	25.8	32.25	

(1) Total production minus production shares to be exported through foreign companies.

From the above table, we can calculate the following indexes (1)

	For crude Petroleum	For Refrigerators
(1) Domestic market profitability:		
Production at market prices / Production at producers prices	1,10	1,14
(2) Export Profitability:		
Exports at foreign market prices / Exports at producers prices	1,20	0,90
(3) Export profitability on costs basis		
Exports at foreign market prices / Exports at costs of production	1,50	1,07

On the basis of the calculation of index no. 1, it is clear that there is no significant difference between the two products, namely crude petroleum and refrigerators. However, index no. 2 shows that crude petroleum is more profitable to export (a hint which may be useful to indicate the possibility of following an expansion policy in crude petroleum production and exports). The Index (0,90) for refrigerators means that we are loosing on the export market. However, the index alone fails to give us an answer as to the question on whether or not we should continue exporting. Other information are needed to take action in this respect.

Index no. 3 (1,07) for refrigerators indicates that our export price is high enough to cover the costs of production.

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(1) For definitions of market prices, producers prices etc., see p. 39 in Part II, under point (2) dealing with the ARE experience. these indexes are based upon information provided by the commodity balances alone. There are some other indexes which require more information than what is provided here.

We need not mention that such indexes have some limitations. The possibility of drawing up certain conclusions is highly affected by the following:

(a) Whether the export and import prices used corresponds to the average international prices or not,

(b) Whether the internal prices correctly reflect the relative scarcity of the factors of production or not,

(c) Whether the foreign exchange rate is the equilibrium one or not.

And there are other economic & non economic factors, too, which may justify the continuation or not of certain line of production or exports.

The use of commodity balances in Regional Planning of foreign trade:

Of course, there is the possibility of drawing up commodity balances on the basis of subdividing both the resources and the uses according to different countries or areas of interest. This would help in constructing the detailed foreign trade plan according to different countries as well as drawing up a regional foreign trade plan for commodity exports and imports.(3)

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(3) Likewise, we can draw a domestic transportation plan according to governorates.

Table (2)

A Working Sheet for Planning: An Export Commodity

Commodity

Period

	Quantity	External Price per unit (fob)	Value, External (expressed in internal currency)
1. Export, total			
of that			
1.1 Developing countries, total			
1.1.1 Arab countries			
1.1.1.1 Federation			
1.1.1.2 Other arab countries			
1.1.2 African countries			
1.1.3 Asian countries			
1.1.4 Other countries			
1.2 Socialist countries, total			
1.2.1 U.S.S.R.			
1.2.2 China			
1.2.3 Poland			
1.2.4 Yugoslavia			
1.2.5 G.D.R.			
etc.			
1.3 Capitalist countries, total			
1.3.1 U.S.A.			
1.3.2 EEC countries			
1.3.3 EFTA countries			
1.3.4 Japan			
1.3.5 Other countries			

Table (3)

Inter-trade relations between the Federation of Arab Countries and External Foreign Trade Relations

Name of commodity:

Year:

Importer / Exporter	A.R.E.	Lybia	Syria	Total exports of the federation	Other Arab countries	Other African countries	Grand total of exports	etc.
A.R.E.	0							
Lybia		0						
Syria			0					
Total imports of federation								
Other Arab countries								
Other developing countries								
Socialist countries, total								
Of that U.S.S.R.								
Capitalist countries, total								
Of that U.S.A.								
E.E.C.								
EFTA								
Japan								
Others								
Grand total of Imports								

Table (2) gives an example of a working sheet for an exportable commodity, where the information are subdivided into different outlets. A similar table could be drawn for an importable commodity on the basis of the same geographical classification including the quantities and prices at CIF values.

Table (3) suggests an interflow table among the Arab countries in the Federation and between them and the rest of the world. The usefulness for drawing up such a table is to orient and coordinate trade policy of the A.R.E. and other federation countries as well.

For example, if the value in the cell for Lybia in the first raw is zero for that commodity, this mean. that the A.R.E. does not export such commodity to Lybia. If there is a figure in the cell for Lybia in the sixth row, this means that it imports the same commodity from other developing countries than the A.R.E.,A comparison then may reveal the direction of A.R.E. trade of this commodity and a policy towards the gain of Lybian market.

Likewise, all cells of the first three columns and rows are zeros, this means no trade exists between Arab federation countries in this commodity, and further studies are needed to reveal the possibility of opening up trade in this commodity among the three.

Commodity balances and the follow-up of the foreign trade plan:

During the follow-up process of the plan implementation, the foreign trade sector ranks a high priority. Since commodity balances do not comprise all foreign trade targets as such, they are not so important in the process of following up the plan implementation of the foreign trade sector. Nevertheless, it is necessary to recognize the fact that previous year (s) record (s) for commodity balances must be known in order to be used in planning purposes. It is therefore recommended for the commodity balancing department in the ministry to construct a follow-up commodity balances for the nomenclature suggested above (which is subject of change over time).

Some limitations in using commodity balances for planning foreign trade:

In addition to the general limitations in using commodity balances for planning foreign trade which we have mentioned earlier, there are some specific but important questions in planning the structure of commodity exports and imports and their geographical distribution which commodity balances alone fails to answer, these are:

(1) The question of intermediate consumption in producing exportables or import substitutables, which is necessary to know in order to calculate the direct as well as the indirect affects of certain investment decision on the foreign trade receipts and expenditures. As we all know, certain inputs are required for certain exportables which can not be furnished by the domestic market but only through importation. Commodity balances cannot reveal such close relationship. Therefore, they cannot be used for this purpose. In fact, this would require the application of input-output analysis.

(2) On the other hand, the question of efficiency in foreign trade is of most important. However, from what we have learned, commodity balances alone cannot be used in calculating efficiency measures, although profitability measures can be calculated as we have mentioned earlier.

(3) Finally, the question of optimality regarding the best structure as well as the best geographical distribution of commodity exports and imports cannot be answered solely by using the tool of commodity balances alone. And here models of optimization can be a useful tool for foreign trade planning.

Part II

Experiences in using commodity balances

2.1 The Experience of the German Democratic Republic

The planning authorities of the G.D.R. have experience in using commodity balances for many years. From the very beginning of planning the economy, i.e. about 20 years ago, commodity balances have been one main instrument for drawing up the plan. From G.D.R. experiences we can distinguish certain stages of developing the planning system and consequently of applying tools and instruments of planning.

But the basic aim in using commodity balances has been and is still to ensure proportionality and consistency of the plan with regard to goods or groups of commodities which are of major significance for the national economic development.

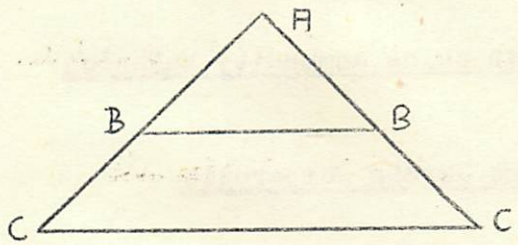
By planning and balancing the resources and uses of the commodities concerned we not only determine the necessary proportions between different sources and different uses, but also can discover certain bottlenecks or disproportions and solve these problems in time.

Characteristics of the use of commodity balances in the G.D.R.

a. The use of commodity balances on different levels and the nomenclature of commodities

Commodity balances are used at various levels of planning. The method is widely applied by the central state organs, especially the State Planning Commission (Ministry of Planning) and also by other ministries.

On the basis of the general framework for planning we have built up a pyramid of commodity balances which looks like that:



A = State Planning Commission - Level

B = Ministries' level

C = Level of Associations of Nationally owned Enterprises (like General Organization) and other balancing organs on decentral level (e.g. producing units).

Besides national economic balances, such as the balance of national income, input-output-balance for the gross national product, on level A we are drawing up commodity balances for goods of top priority. These are commodities of major significance for the national reproduction process within the plan-period.

The Ministries (level B of the balancing pyramid, especially we have in mind the Ministries of Industry, Agriculture and similar) are responsible for drawing up commodity balances for such goods which are also important but the production or the use of which is mainly concentrated in one branch, in the sector of the Ministry concerned.

The level of enterprises or Associations of Enterprises is included in the balncing pyramid for balancing the resources and uses of particular commodity grades, sorts, etc. Sometimes we are balancing on central state level homogeneous groups of commodities whereas the assortment, different types of these commodities will be balanced on enterprise level. But in every case, either on central or decentral level, we must balance all sources with all uses of the commodity or group of commodities concerned.

(Here also private producers are included. They submit their production targets and the needs in intermediate consumption and investments to the balancing organs.)

The balancing pyramid becomes obvieus when determing the nomenclature of commodity balances. At first there is a socalled State-Plan Nomenclature in the G.D.R., which includes at present 300 commodity balances. These balances are elaborated by the State Planning Commission and will be confirmed by the government.

Besides, we draw up 500 commodity balances by other Ministries and 3,500 balances for assortments, different types of commodities etc. in decentral level, so that the total number of commodity balances amounts to more than 4.000 balances.

The balances are mainly constructed on commodity basis and not for groups of commodities, Because of incomplete coverage of all commodities the aggregation of commodity balances would not correspond to the naterial part of the total G.N.P.

The central state organs and the enterprises are responsible both for drawing up the commodity balances as well as for following them up. The latter includes the follow-up from the economic point of viewl) whereas the statistical follow-up (collection of data) will be done by the Central Agency for Statistics.

In In the G.D.R. commodity balances are closely linked with the system of concluding contracts between the suppliers and users on enterprise level and in this respect the corresponding items of the balance concerned are binding both for the suppliers and

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1) Here we have in mind the economic analysis of the followed-up data and their comparison with the planned figures.

for the users. This makes it clear, too, that commodity balances have not an informational character, but a binding decision with regard to all items included in the balance concerned.

b. Valuation of commodity balances

As we have learnt before, there are different possiblilities for valuationg each item included in the commodity balance. In the G.D.R. we prefer drawing up commodity balances in physical units or, if this is not possible, on a unified price basis. There, we use mainly the producers' prices. But there is no direct link with the financial flow and the system of National Accounts.

During the last few years we started to include the current prices for exports and imports (fob and cif) in order to enable a closer relation between commodity balancing and foreign trade planning, especially planning the foreign exchange budget.

c. The required data

In the following, we enclose an example of a final table. There are several working sheets for elaborating this final table.

Principle scheme of a commodity balance used in G.D.R.

	Fulfilment in the previous year	plan year	1. quarter	2.	3.	4.
Resources						
1. Remainder (Commencing stock by the beginning of the year)						
a. with suppliers						
b. with users						
2. Total production						
of that						
a. central industry/branches						
b. bocal industry/branches						

3. Import
4. Release of the State Reserve
5. Other resources

Total resources

USES

1. Uses in production
   a- central branches
   b- local branches
2. Consumption
   a. individual
   b. governmental
3. Export
4. Others users
5. Reserves
   a. operative
   b. State Reserve
6. Carry overs by the end of the year
   a. with suppliers
   b. with users

Total USES

In the G.D.R. we have two working sheets, one for calculating the production and the other for calculating the intermediate consumption and investment. Actually, We combine the latter two in one item named "Uses in Production".

Of course it is also possible to elaborate working sheets for other items such as for exports or imports, showing
a) the regional distribution of exports and imports. (countries and areas) or
b) the domestic suppliers of exports and users of imports.

The construction of such working sheets depends upon the concrete aim of using commodity balances and upon the availability of data.

As we see from the final table above, we are not only planning both sides on annual, but also on quarterly basis. In addition, we include the fulfilment figures for the previous year. As the balances for the coming year are drawn up some months before its beginning the figures are then considered as [illegible] estimations of the possible fulfilment. By doing this, we combine the elaboration of plan balances with an analysis of the balance reports of the preceding year.

The availability of data is one of the most important pre-requisites for drawing up commodity balances and applying them for planning.

A first aspect which must be stressed is the existance of a follow-up of commodity balances, so that we can use follow-up reports for drawing up the future balances. The system of following up commodity balances in the G.D.R. has been mentioned earlier in this paper.

At second we need norms (both statistical and planned norms) for calculating certain items of commodity balances, especially the intermediate consumption. We have a special follow-up of the needs of intermediate goods for production commodity by commodity, on the basis of which we can calculate norms for intermediate consumption per unit of production (statistical norms). Taking into consideration the future development especially in the field of technology we are fixing then planned norms.

At third we would like to mention that there exists a comprehensive system of collecting the necessary data of the resources and uses sides. The producers have to inform about their planned production levels. The users of imports have to submit their

applications for the necessary imports. The intermediate consumption is calculated on the basis of the needs in production by using the norms for certain materials per unit of production. The exports are calculated by the foreign trade Organs in close cooperation with the producing units. Thus we can say that a large number of central state authorities as well as enterprises is engaged in the process of calculating and estimating the different items.

But the balancing organs (State Planning Commission e.g.) are more than only collectors of data.

The balancing organs bear a certain responsibility for a correct calculation of all items on both sides of the balance. Therefore they must have their own standpoint with regard to planned development of the resources and uses and must check whether the estimations and calculations in this field are correct or not.

The balancing organs must prepare the necessary decisions in conformity with the national economic interests and they should not follow special interests of certain sectors and branches if these are in contradiction with the interests of the country as a whole.

d. The timing aspect

Drawing up commodity balances is part of the whole planning process and there exists a concrete time-table for it. On the level of the State Planning Commission we elaborate tentative commodity balances for goods of top priority as part of formulating key figures and the directive for the plan, i.e., about 6 months before the beginning of the plan-year. Following the planning process then, plan proposals will be elaborated on different levels which includes drawing up commodity balances by the balancing organs. The final draft of the balances will be confirmed as a

part of the final draft of the plan, i.e. 1 or 2 months or so before the plan-year will start. Then the implementation and the follow-up of the balances will follow.

At least we will mention that we are using commodity balances as tools for drawing up both annual plans as well as 5-year plans. But the nomenclature will be different to a certain extent, smaller for medium-term planning than for annual planning.

2.2. The Experience of the A.R.E.

2.2. a. Introductory Note:=

The system of commodity balances was not known to the A.R.E. until early in the sixties. Since she has started comprehensive planning, commodity balances were known as an integrated part of the planning apparatus and the system of national accounts.

The Ministry of Planning (then known as the Planning Commission) in the A.R.E. has been, until the present, the only responsible body for the construction of commodity balances to be used for planning purposes in order to mantain consistency and balance of some important commodities and group of commodities. No trial has been made up till now for the use of commodity balances in the process of following-up the plan implementation. In fact, one would challenge the validity of using systematically the system of commodity balances for planning purposes in the absence of a follow-up system of commodity balances. As a matter of order, we will not discuss such a point now, but will come to it in details later in this chapter. In the following, we shall briefly explain the system of commodity balances in the A.R.E. based upon the French and the G.D.R. experiences.

The French experience of commodity balances is characterized by the fact that it is related to other national accounting balances and is integrated with them in order to relate physical flows with financial and monetary flows. Commodity balances according to the french is divided into sectors or economic units such as: the private sector, the government sector, the rest of the world, etc. In addition, all services were included in the respective productive units.

The French experience is characterized by two merits:-

a. That it is classified horizontally according to groups of commodities.

b. and vertically according to sectors.

Commodity balances in France cover all goods and services produced domestically. There are ten classifications or groups, each is subdivided in order to show commodities with special importance.

The French experience in using commodity balances better suites an economy in which the market forces play a significant role in resource allocation.

The French experience was applied to the A.R.E. aconomy for only one-year peoriod, 1954.

As to the German system, commodity balances system is done apart from the financial planning. It is basically a physical balance system taking production in the socialist definition of the work meaning material goods and productive servicas (excluding the non-productive services). The G.D.R. commodity balances system was applied to A.R.E. data for the period from 1952 to 1956. It covered most of the matarial goods in physical as well as in value terms. It should be mentioned that this system fits more an economic system with central planning.

The system applied presently totally in the A.R.E. is affected by the G.D.R. system and totally related to national accounting as to the material side. The commodity balances are constructed for planning periods and are based mainly on information available at other departments in the ministry of planning itself.These infromation come from other ministries and organizations.

2.2.b. Sources of data and other information:-

The dept. of commodity balances at the Ministry of Planning depends on the following sources in getting information and data necessary for the construction of C.b.:-

1. Other departments in the ministry of planning to get:
   - 1.a. domestic production at producer's price.
   - 1.b. The value of inputs at market price.
   - 1.c. Investment components at market prices.
2. Customs department and the Government budget to get:
   - 2.a. Production duties and consumption taxes.
   - 2.b. Import duties.
   - 2.c. Other duties on domestically produced goods.
3. Foreign trade department to get:
   - 3.a. Ratio of import duties to CIF value of commodities.
   - 3.b. Export prices
   - 3.c. Export duties and subsidies

2.2.c. The valuation Bases: -

Because commodity balances aims at showing the consistency and equilibrium of sources and uses of different commodities, physical units have been used. However, it was deemed necessary to establish C.b. on both monetary as well as on physical basis in order to ensure consistency between the flow of goods and the corresponding financial flows.

In constructing commodity balances on value terms, different bases have been used in the ARE, they are:

1. The Cost of Production basis: including only production costs.
2. The Producer Price basis: which includes production costs and normal profits as well as indirect taxes (minus subsidies).

Indirect taxes and subsidies may take the form of:

a. customs duties.
b. duties on production or consumption.
c. import duties and export premiums.
d. subsidies to producers (price support)
e. duties on processing (as in the case of cotton processing).
f. other duties.

3. The Market Price basis: which is the selling price on the market (users prices). This includes the producer price plus a trade margin. This trade margin includes: profit margins plus storage and transportation costs.
Commodity balances are constructed at current as well as at constant prices.

2.2.d. Problem of estimation of different items:

1. The Resources Side:

1.a. Commencing Stock: If the figure is available, the commodity balances department gets it from original sources. If the figure is not available, assumption is made that no changes in stocks will take place, and the figure at the end of the previous period is taken.

1.b. Domestic Production: Figures for this item is obtained from other departments in the ministry according to the plan. Figures are obtained in value and physical units as possible. However, many commodities are available only in physical units. In most cases production is estimated at producer's prices.

1.c. Imports: Imports are estimated as residual representing the difference between total requirements and dommestic production. Usually they are checked with the foreign exchange budget.

2. The Uses Side:

2.a. Final Consumption: Final consumption is classified to private and governmental. As to private consumption, estimation is based on the following:-

1. The rate of increse in population.
2. The planned rise in the standard of living.
3. Income and price elasticities of different commodities.
4. Governmental policy for future development in consumption.

As to governmental consumption, estimation is taken from the budge as well as from other information available at the department of services in the Ministry of Planning. It should be mentioned here that governmental consumption is classified as intermediate since 1962/63 and therefore appears in the vector corresponding to input requirements.

2.b. Inputs (intermediate consumption): Figures for this item are taken from other departments in the ministry. They are available at user's prices. To get them at the producer's prices, the commedity balance department substract from it the trade margin which is estimated by the dept. itself. Information on quantity and prices are available. For some commodities in this case, the trade margin is estimated as follows:-

Trade margin= value at User's price - value

at producer's price, where the value at producer's price = Quantity x Price at producer's price.

2.c. Investment: This figure is taken directly from other departments in the ministry which furnish the commodity balances department with detailed information on investment at market prices.

2.d. Exports: Figures for this item are taken directly from the preliminary report of the plan which represent export targets and estimated on the basis of planned surplus (which usually meet the figures appearing in the foreign exchange budget).

2.e. Stock at end of Period: is estimated by the planning authorities. There is minimum requirement of stocks for strategic commodities which must be sustained.

2.2.e. Nomenclature of commodity Balances in A.R.E.

Up till now there are about 170 commodities or group of commodities for which the ministry of planning is drawing up balances*). The agricultural sector alone is classified into 40 commodities. The commodity balances department in the ministry of planning is the only responsible body for such a job. However, the ministry of economy and foreing trade when drawing up the foreign exchange budget (For.exch.control & comm.marketing Boards), are also undertaking the task of estabishing some balances which can be termed as comm. bal. for some important goods related to the foreign trade sector.

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*. These balances cover all commodities for the national economy.

The commodity balances are grouped according to sector classification such as:

1- Agricultural
2- Mining and Quarying
3- Industry
4. Construction
5. Electricity
6. Transportation and Communication
7. Services

However, one of the major problems in the ARE experience in using commodity balances is the exclusion of services. Total services is added to the aggregate comm. bal. so as to link properly the system of commodity balances with the national accounts system. Also, there is no concrete time table for drawing up such commodities. In addition, this tool was not used by the foreign trade group in the ministry of planning for setting the plan targets of the foreign trade sector proper.

2.2.f. The Partial Aggregation Approach:

In preparing for the construction of commodity balances in the A.R.E. different steps are being made:

1. A separate sheet is made for every commodity or for group of commodities indicating the different sources and uses of the good at the producer, cost, and market prices as well as in physical units (Table 1).
2. From the above sheets, detailed ones are made according to the same classification (or groupings) and at the same three price bases.

3. From the detailed sheets, trade margin is computed (which is the difference between producer and market prices) as well as the commodity taxes (which is the difference between the producer and cost prices).

4. The fourth step represents the partial aggregation (at activity or sector level) indicating all sources (Production, Imports) and uses (Final consumption + Inputs + Investment + Exports + Changes in stocks) of the sector (or economic activity) at both cost and market prices.

All above tables are constructed at current and constant prices. In the following, we shall develop some tables to reveal the partial aggregation approach.

Table (1)

"Final Commodity Balance"

Period:
Name of Commodity:
Unit basis:
Value in £Em.
Date:

Sources	Quantity	Value at Cost	Value at Producer	Value at Market	Uses	Quantity	Value at cost	Value at Producer	Value at Market
Commencing Stock					Final Consumption				
Domestic Production					- Private				
					- Governmental				
Imports					Inputs (Intermediate cons.)				
					Investment				
					Exports				
					Changes in stock				
Total					Total				

Table (2)

"Uses"

Period:
Name of Commodity:
Unit basis:
Value in £Em.

Item	Quantity	Value at cost price	Value at producer price	Value at market price
I. Inputs				
Agriculture				
Industry				
Construction				
Electricity				
Communication & transportation				
Services				
Repairing				
Total Inputs				
2. Total Investment				
3. Consumption				
Governmental				
Private				
4. Exports				
5. Changes in Stocks				
Total aggregate				

Table (3)

"Input Requirements for the Industrial Soctor"

Value: £.E.m.

Quantity:

Sector (or economic Activity)	Value at		
	cost price	producer price	market price
1. Pressing			
2. mining & Quarrying			
3. Crude Oil			
4. Food industries			
5. Beverages			
6. Cigarettes & Cigars			
7. Textiles			
8. Clothes & leather shoes			
9. Wool			
10. Furniture & wooden articles.			
11. Paper & paper-products			
12. Printing & publishing.			
13. Leqther & L. products			
14. Rubber and Rubber Products			
15. Chemicals			
16. Coke & Petroleum products			
17. Coke refinement			
18. Non-metallic prod.			
19. Basic metallurgy			
20. Metal products			
21. Non-electric machines & equipments.			
22. Machines & Electrical equipment.			
23. Transportation equipment			
24. Other industries.			
Total Inputs for Industry			

Table (4)

Commodity balance for 1971 at cost and Market Prices.

Sector or Economic Activity	Resources			Uses				
	Domestic Production	Imports CIF	Total	Final consumption	Inputs	investment	Exports	Changes in stock
Agriculture								
24 Industries as classified in Table (3) above.								
Partial Aggregate								
- Investment Studies - Construction and installment of machines - Trade								
Total Aggregate production (at cost prices)								
Indirect Taxes								
Total (at Market Prices)								

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