

ECLA/POS 72/8

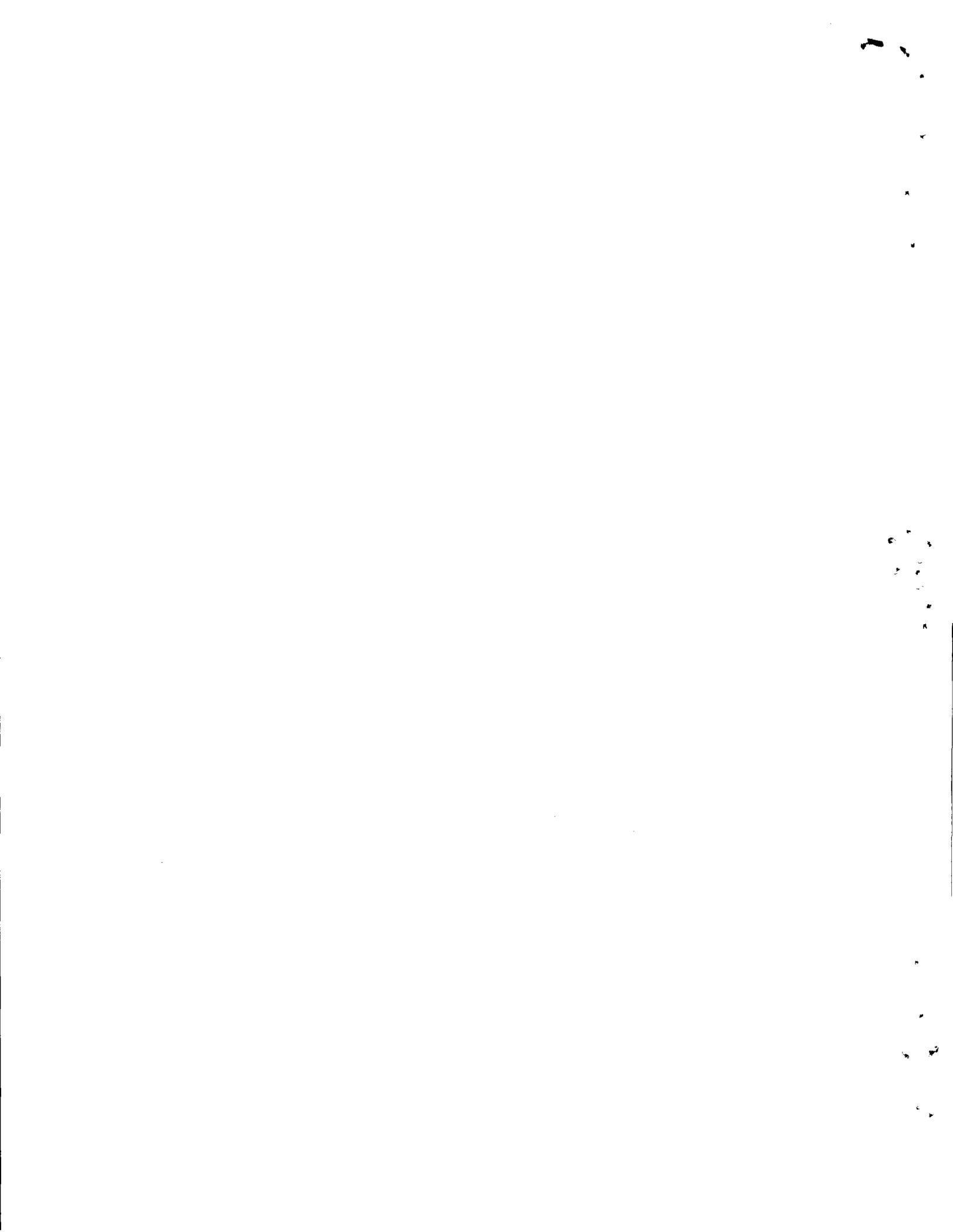
Date: 4 October 1972



ECONOMIC COMMISSION FOR LATIN AMERICA
Office for the Caribbean

STUDY
OF THE
MEASUREMENT OF VALUE-ADDED



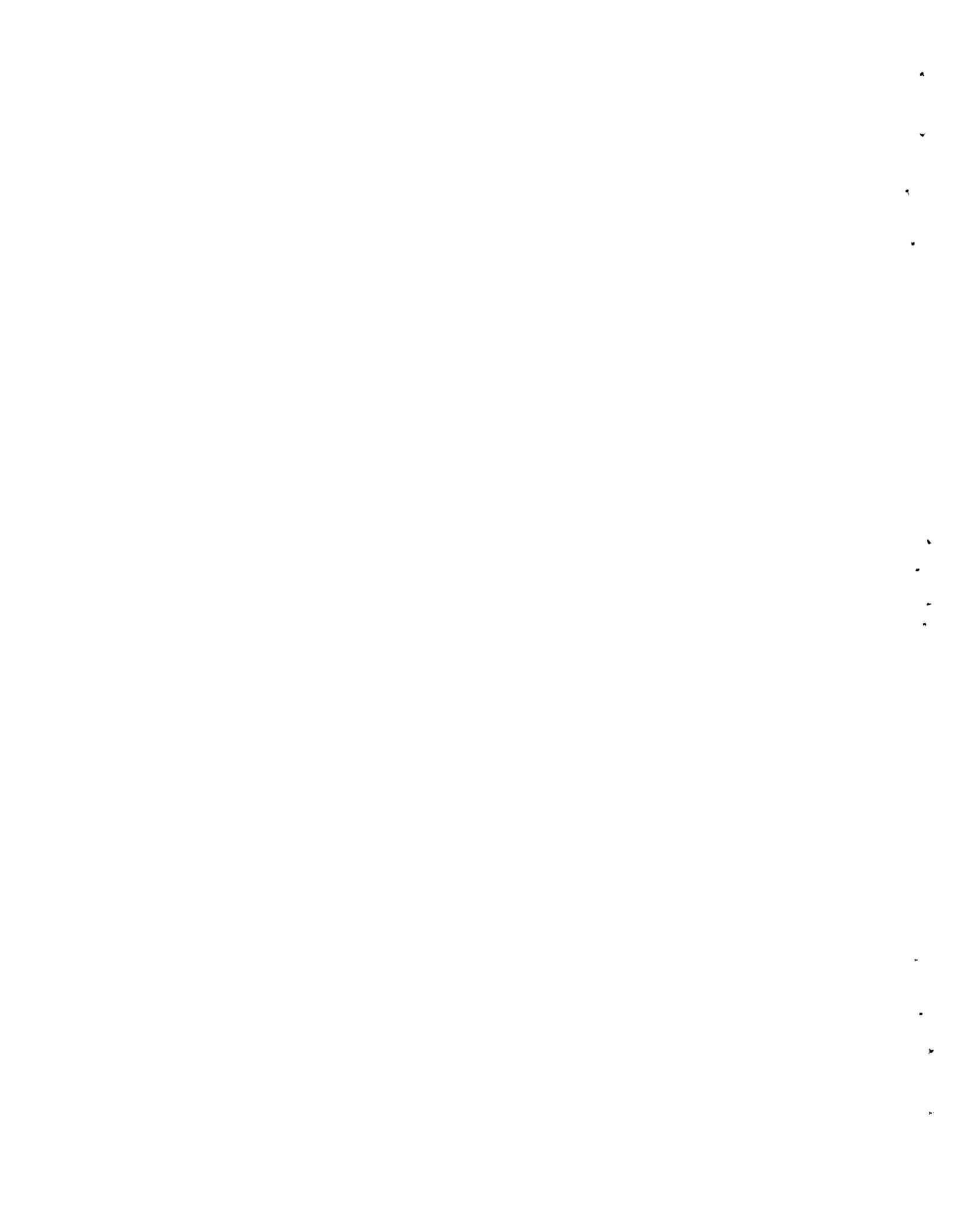


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STUDY OF THE MEASUREMENT OF VALUE-ADDED

Purpose of the Study

1. At a meeting of CARIFTA officials prior to the Tenth Meeting of the CARIFTA Council in June 1972, it was recommended that in order to facilitate finalisation of the Scheme for the Harmonization of Fiscal Incentives to Industry, a team of independent experts

"....should examine a sample of industries in Member Countries, with a view to determining the actual percentage of value-added as a basis for the Classification of Industries into groups for the purpose of determining the number of years tax holiday to be allowed to each group."

2. More precisely, the team was asked to measure local value-added by applying the formula that had been under discussion in various CARIFTA meetings. In doing this the team was to test that the formula was not too complex in application and that the information could be obtained in practice. An important aspect therefore, was the extent to which presently collected data could be used, recognising that once the regional harmonization scheme is introduced the collection of data would be oriented to the specific requirements.

3. The second aspect was to recommend a two dimensional scale for the granting of incentives which in the opinion of the group would make possible of achievement the fundamental principles which had been agreed by the governments. A prime objective is that the calculation of value-added locally should seek to introduce a bias not only for the use of local labour and materials but also for local processing, including local fabrication of tools and plant, and ploughing back of profits within the area.

4. The following formula had been devised for measuring the local value-added component:

TOTAL SALES

Minus (a) Imported raw materials, components and services.

- (b) Wages and salaries paid to non-citizens of CARIFTA.
- (c) Profits (before tax) distributed and remitted abroad (including all branch profits of foreign companies not reinvested locally).
- (d) Interest, management changes and other income payments accruing to non-resident and non-resident principals of resident companies, where the non-resident person or principal is the beneficial owner of such payments.
- (e) Depreciation of duty-free imports of Plant, Machinery and Spare Parts.
- (f) The element of protection enjoyed with respect to local sales, calculated according to the given formula:

$$(P_1 - P_2) \times V : \text{ where}$$

P_1 = ex factory price

P_2 = c.i.f. comparable price
of the dominant supplier

= volume of local sales.

5. It was immediately apparent that the two main areas of difficulty would be to get complete estimates for the purchases of factor payments from abroad, and to achieve a satisfactory application of the technique for measuring the element of protection that could be applied throughout the CARIFTA area, across the whole range of industries. The latter would present the greater difficulty; for example, when quantitative restrictions are operated there may be no readily comparable c.i.f. price. Secondly, even in normal situations there would be significant variations in the c.i.f. prices for any given commodity depending on choice of brands and suppliers; but this could be met by taking the price of the dominant supplier.

Organization of Work

6. A preliminary meeting of the group convened on 15 June 1972 at the Commonwealth Caribbean Regional Secretariat, considered methodology and organization of work. It emerged that previous trial measurements of local value-added had been conducted by the Trinidad/Tobago Industrial

Development Corporation in conjunction with ECLA. These measurements were made on the basis of two groups of data: (a) information submitted in new applications for concessionary terms, and (b) information collected from firms already in operation and enjoying concessions. The Jamaica Industrial Development Corporation had also made some preliminary calculations to test how the then proposed scale for fiscal incentives might affect Jamaica firms. In this case the measurement was limited to computation of the ratio of imported raw materials to total sales over several types of industries.

7. No trial measurements of local value-added had been done by other CARIFTA countries. In respect of Guyana it was considered possible, for the purpose of this particular exercise, to obtain the necessary data from the body of information brought together for national accounting purposes. For Barbados, a field enquiry would need to be conducted; and given the relative absence of industry in the LDC's of CARIFTA, it was decided to explore the possibility of utilising the industry pro-formas that it was understood would be prepared by the EIU team.

8. The allocation of work among the technicians, therefore followed the pattern, that the appropriate country officials would assume responsibility for the measurement of value-added by firms within their own countries. In addition, Miss Marshall (Statistician) would be the main co-ordinator with the primary function of ensuring comparability of the country calculations. In this she would be assisted by Prof. Brewster and Mr. Clarke.

The Enquiry

9. Work on this study began towards the end of June when the Statistician visited Trinidad and Tobago, Barbados and Jamaica to collect data for the measurement of local value-added.

10. A questionnaire was accordingly designed to yield information under the various heads. This questionnaire was used in Trinidad and Barbados. ^{1/} In Jamaica an enquiry was carried out by the JIDC from

^{1/} See Appendix II.

which part of the required information was secured. Results of a second survey designed to yield further details are not yet to hand. No independent specific enquiry was carried out.

11. It is common in such exercises for stratification in sample selection to be made on the basis of "size of firms". However the test measurements conducted by Trinidad and Tobago IDC and the JIDC suggested that the extent of value added was often affected more by the nature of the operation than by the size of the firm, i.e. by the extent to which it is integrated to the natural resource base. Consequently, it was decided that in each country the firms would be grouped by type of industry, and that within each type a proportion of firms would be chosen for assembling the information needed to measure value added. This approach it was felt could give a better cross section and more useful results.

12. A total of ninety-two manufacturing companies (excluding enclave industries) were covered, comprising the following groups: food, clothing and footwear, furniture and fixtures, paper products, concrete products, metal and electrical products, chemical products, rubber and pharmaceutical goods. Total coverage was distributed as follows:

Barbados:	12	} 92
Guyana:	27	
Jamaica:	35	
Trinidad & Tobago:	18	

In the case of Barbados, Jamaica and Trinidad and Tobago a 10% sample was drawn from manufacturing companies and/or processes either enjoying incentive benefits, or likely to be accorded incentive benefits.

Respondents were asked to submit data for at least three years, including the most recent year for which information was available. Average annual data were derived. In the case of Guyana where no specific enquiry was carried out, data were based on returns submitted to the Statistical Bureau for National Income and Balance of Payments studies.

13. To ensure an acceptable level of comparability of the Guyana samples with those for the other countries, industries that would not have received concessions in the other countries were omitted. ^{2/}

14. Actual data was obtained in all cases for total sales, but the enquiry yielded less complete data for the other items. Some difficulty was expressed in securing data on the foreign element embodied in raw materials and components derived locally. It was recognised that where these inputs to the firm were purchased from another local manufacturer all such purchases would need to be regarded as local. However purchases through import agents cannot correctly be regarded as local. Some attempt was made by respondents to accurately reflect the import content but it was not known to what degree the information given was reliable.

15. While it is true that the enquiry sought to obtain data in a form that had not before been requested from the private sector, i.e. separating the local and foreign elements, it was still instructive to find the extent to which information on the outflow of factor incomes was not to hand. As Jamaica did not submit any data on the outflow of factor incomes, an estimate of 10% of sale was used to represent this category. It is probable that this estimate was not too high. While in Barbados and Guyana the outflow of factor incomes averaged 5% and 6% respectively, factor income outflow reached as high as 15% in Trinidad and Tobago.

16. The efforts to measure the element of protection enjoyed were not successful. The main difficulty was in establishing the c.i.f. price. This was largely due to heterogeneity of products manufactured as well as to non-comparability of product. In some cases it was impossible to isolate a comparable imported product (non-existence in the extreme case), and in other cases where this was possible, account had to be taken of quality difference, rather than only price difference. Because of these difficulties the alternative approach of basing it on the

^{2/} Namely, stone crushing, alcoholic and non-alcoholic beverages, confectionery, printing, sugar manufacture, saw-milling, cigarettes, bakeries.

general levels of the customs tariffs was adopted and a uniform ratio applied. By this technique the element of protection was assumed to be about 5% of Sales in all cases.

17. The suggestion is therefore made that the practical rule be adopted of deducting the percentage of the tariff in each individual case.

18. In the absence of specific information about industry in the IDC's the assumption has to be made that the value-added percentage for a particular type of industry if located in an IDC would be in the range that obtains for that industry type in the MDC's.

The Results

19. The distribution pattern of local value-added percentage derived from the 10% sample by intervals of 10 is as follows:

<u>Local Value Added Percentage</u>					
<u>%</u>	<u>f</u>	<u>Barbados</u> (12)	<u>Guyana</u> (27)	<u>Jamaica</u> (35)	<u>Trinidad & Tobago</u> (18)
0 - 9.9	9	-	4	3	2
10.0 - 19.9	16	1	5	8	2
20.0 - 29.9	19	2	9	6	2
30.0 - 39.9	19	3	3	10	3
40.0 - 49.9	13	2	5	4	2
50.0 - 59.9	7	2	1	1	3
60.0 - 69.9	-	-	-	-	-
70.0 - 79.9	6	1	-	1	4
80.0 and over	3	1	-	2	-

It will be observed from the above table that in Guyana and Jamaica a greater proportion of companies tended to concentrate in the range 10% - 49.9% local value-added, while in Barbados and Trinidad and Tobago companies tended to concentrate in the higher range 25% - 50% and over. ^{3/}

^{3/} Appendix III shows the detailed numerical results.

20. It emerged in the results that (1) the extent of local value-added varied widely in any single industrial activity, and (2) no particular industrial activity showed a consistent tendency to yield a higher or lower level of local value-added percentage. The level of local value-added seemed to be more affected by capital ownership, (foreign entrepreneurs being more oriented towards utilization of raw materials and components from abroad), and the availability of raw materials in the region.

21. Within the sample there were not many reportings of payments of wages and salaries to non-citizens, but among the cases identified the variation was substantial, as also was the incidence among the countries. Trinidad-Tobago reported only two cases out of eighteen and the payments as percentage of total sales were low - 1% and 5%. Guyana reported only four cases out of thirty - 5%, 3%, 2% and 5%. None was reported for Barbados among the twelve firms covered.

Application of the Results

22. The operation of the scheme for the harmonization of fiscal incentives to industries is to be based on the combination of:

- (a) grouping industries according to the extent of value-added locally, and
- (b) allocated periods of tax holidays according to the groups.

In selecting the groups, and in apportioning the periods, the arrangement of the steps should be so ordered as to provide the encouragement that is sought for entrepreneurs to deepen the local element of their manufacturing operations.

23. A cutt-off is necessary to ensure that there is some minimum of local value-added before there is any question of eligibility for tax concessions. This was set at 10%. Above this level ascending steps were adopted, the points chosen according to the distribution pattern revealed by the enquiry, with the intervals, 15 and 25 respectively. There was on the one hand the consideration that the steps should not be too numerous, taking into account the total number of industry enterprises in the area; and also the other important consideration

that the steps should not be so wide as not to provide the bias towards local orientation which is being sought.

24. Applying these considerations to the distribution pattern of local value-added percentage revealed by the enquiry, the most preferable grouping was found to be:

Percentage value-added locally

50.0 and over	-	(group I)
25.0 to 49.9	-	(group II)
10.0 to 24.9	-	(group III)
0 to 9.9	-	not qualifying.

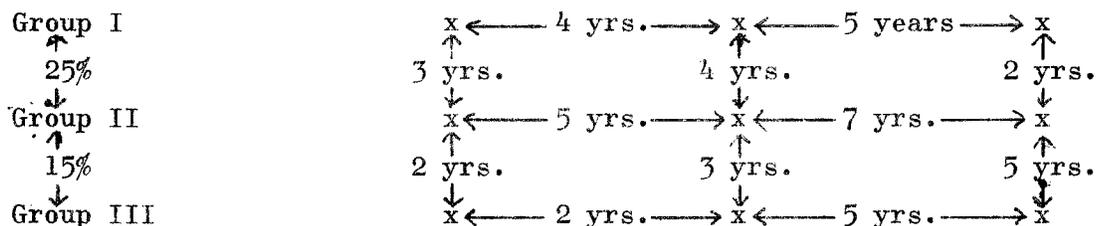
25. In completing the scale, account had to be taken of the area of manoeuvre that the Governments had indicated in negotiations. First, the upper limit for tax holidays was set by the LDC's at 17 years. Secondly, there was the view that there should be a differential of 7 years in the maximum period of tax holiday an LDC can give and what an MDC can give. Also there were the arguments regarding special areas in the MDC's.

26. Account was taken too of the fact that the differentials in incentives at groups III and II would be more meaningful for the LDC's at this stage of their development, than at group I.

Accordingly the scale devised was:

	<u>MDC's</u>		<u>LDC's</u>
Group I (50 and over)	8	12	17
Group II (25 to 49)	5	8	15
Group III (10 to 25)	3	5	10
Enclave industries	8	12	17

27. It would be noted that the intervals in this scale are:



which would provide encouragement for the entrepreneur to move to the next higher group where the concession is better. The exception is the step between group II and group I for the LDC's, which is considered to be less critical because with the long period involved the margin assumes much less significance; and the various other measures favouring the LDC's particularly lower value-added percentage to qualify for area treatment, are relatively more important.

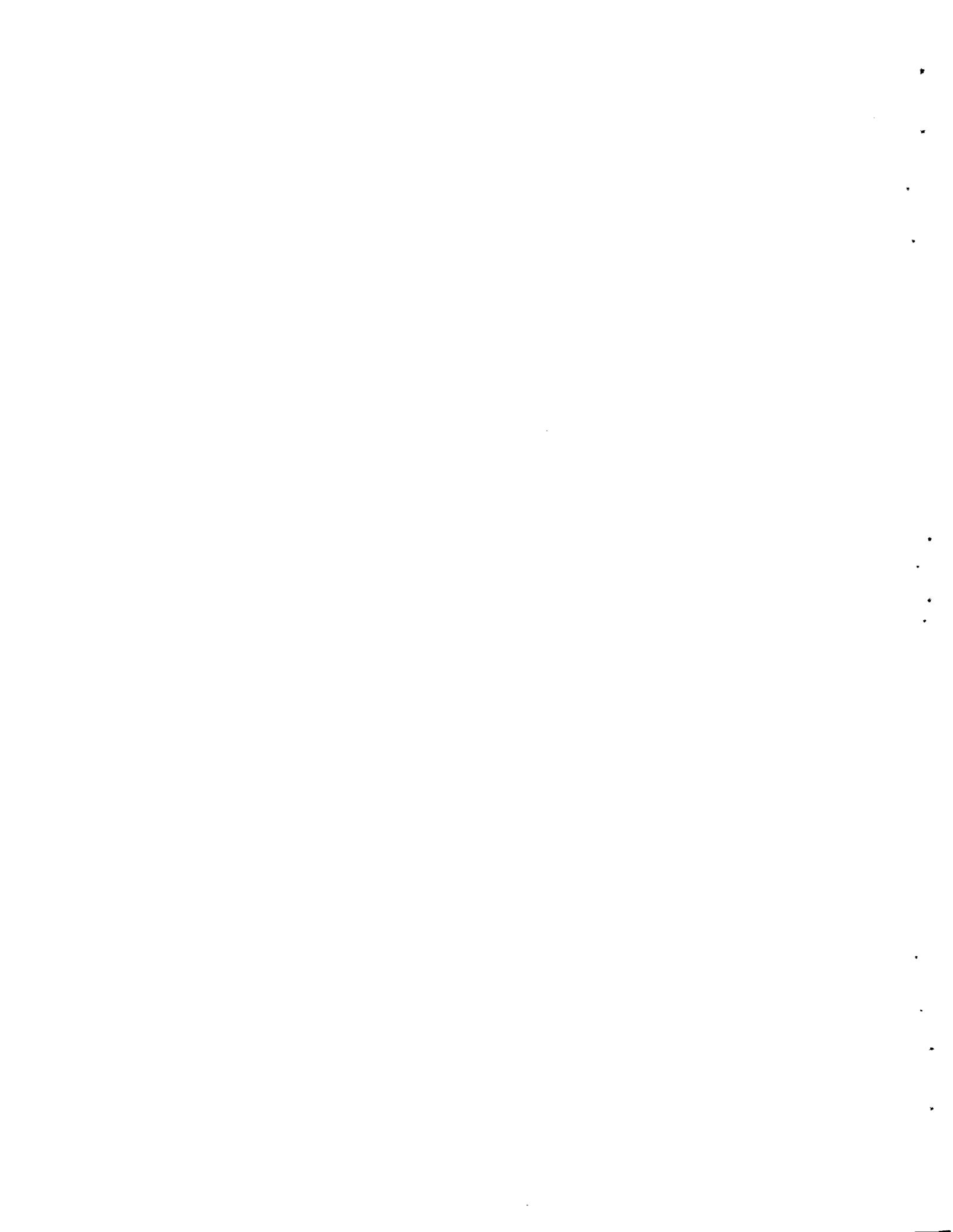
28. In preparing the scale it was recognised that new requests for concessionary treatment would in fact reflect forecasts of intentions, and that accurate data on value added locally would not be available until the first review of the firm's activities. This effectively indicates a three-year bottom limit for concessions.

29. Particularly because the scale is devised to generate a dynamic situation it will be necessary to review it from time to time in the light of the changing pattern of distribution of local value-added percentage in the CARIFTA area. It is therefore recommended that this be done periodically.

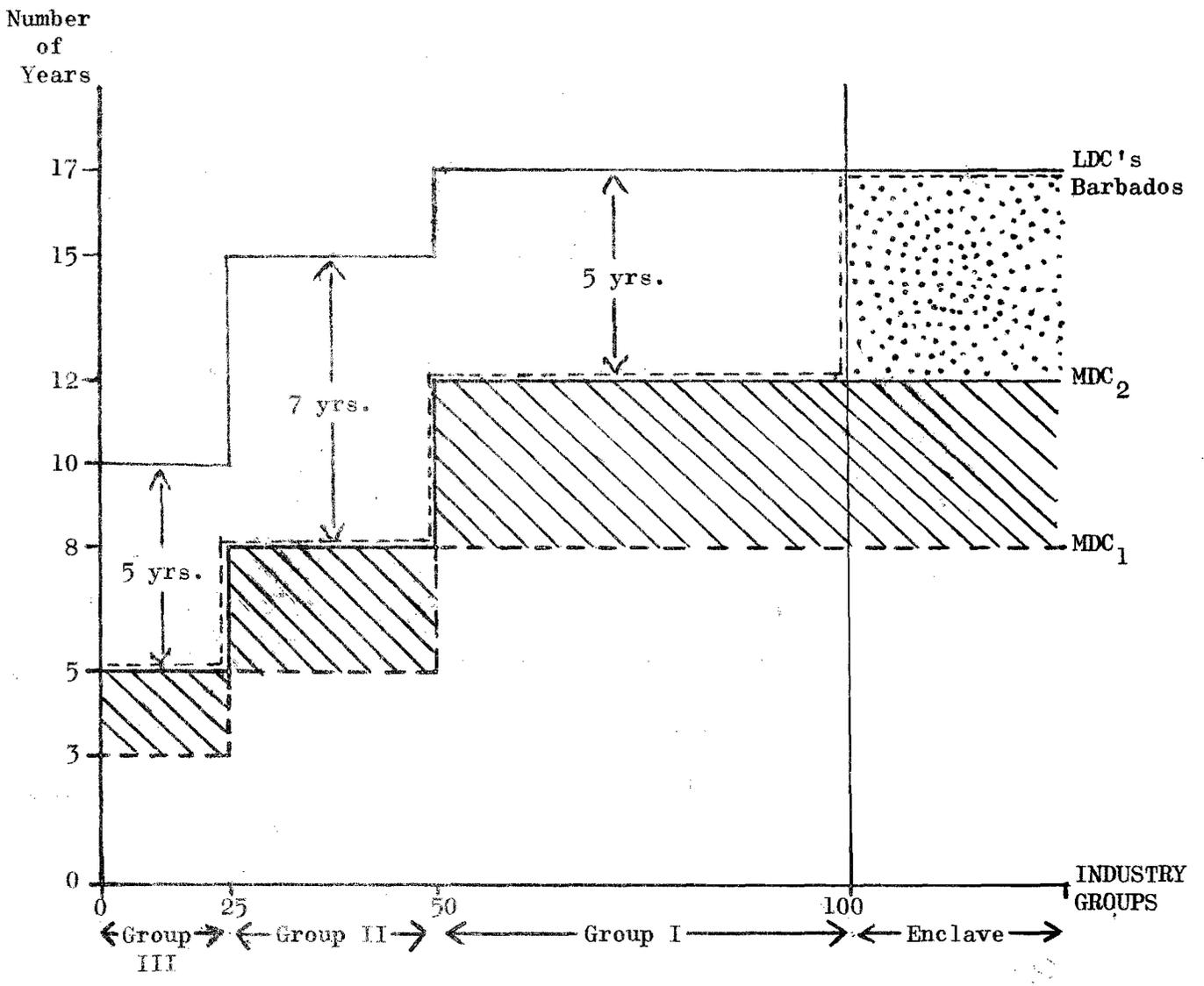
30. Finally, recognising the need for CARIFTA countries to adopt as uniform a system of reporting as possible, it is strongly recommended that a standard questionnaire be adopted.

S. St. A. Clarke

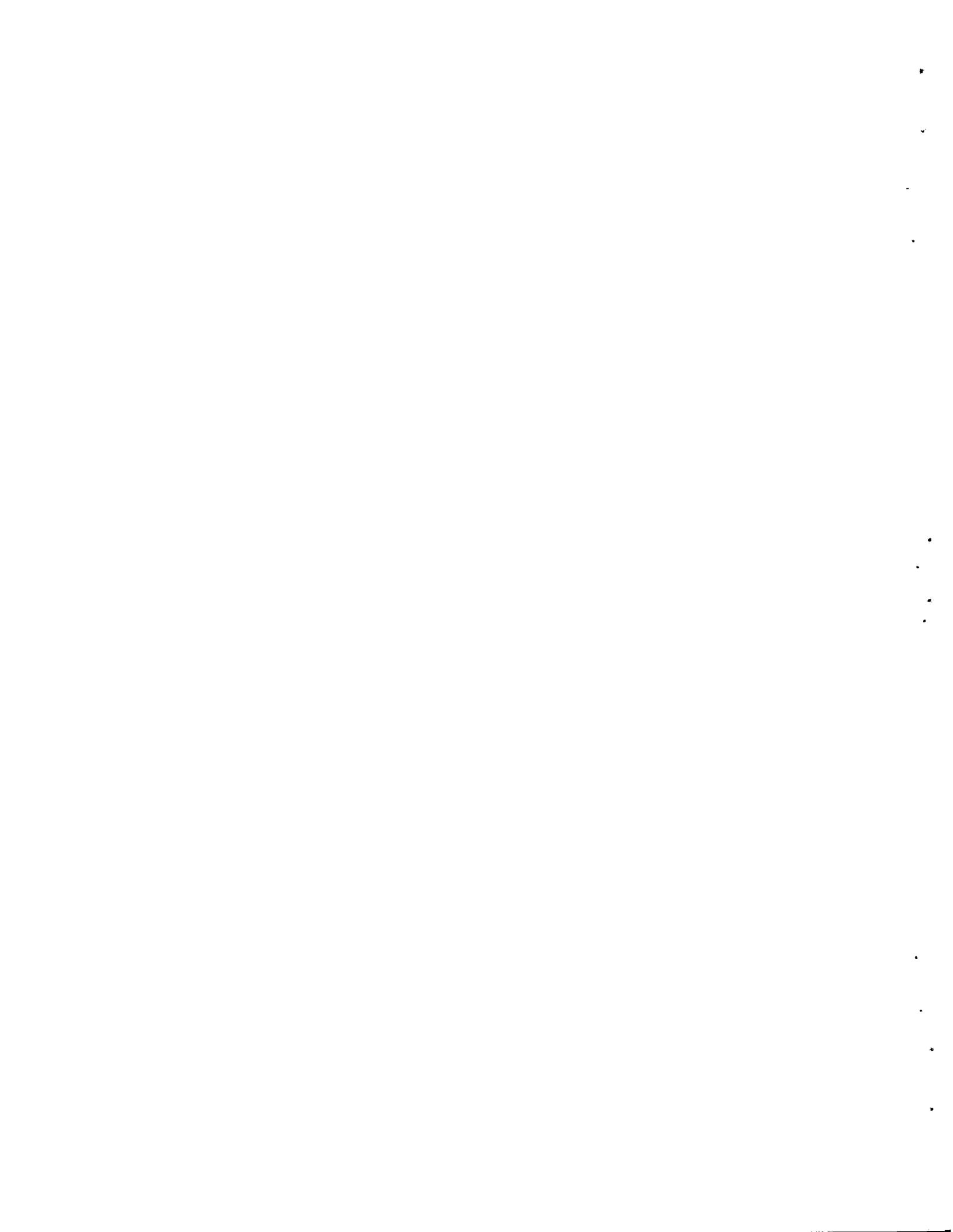
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DIAGRAMMATIC REPRESENTATION OF THE
RECOMMENDED SCALE



For Barbados see text footnote 2/



(i)

QUESTIONNAIRE EMPLOYED FOR THE ENQUIRY

(1) How much wages and salaries were paid out as follows:

YEARS	TOTAL WAGES & SALARIES	PAID TO NON-CARIFTA CITIZENS
1968		
1969		
1970		

(2) What were your Profits, before tax, after making all deductions including depreciation, broken down as follows for the years:-

YEARS	TOTAL PROFITS BEFORE TAX	PROFITS DISTRIBUTED AND REMITTED TO OUTSIDE CARIFTA
1968		
1969		
1970		

(3) What were your Total Depreciation deductions, broken down as follows for the years:-

YEARS	AMT. AS ALLOWED UNDER THE INCOME-TAX RULES	AMT. YOU WOULD HAVE NORMALLY CLAIMED IF NOT THE SAME
1968		
1969		
1970		

(ii)

(4) What were the values of your depreciable assets, broken down as follows:-

YEARS	TOTAL VALUE OF DEPRECIABLE ASSETS AT THE BEGINNING OF THE YEAR	VALUE OF IMPORTED DEPRECIABLE ASSETS AT THE BEGINNING OF THE YEAR
1968		
1969		
1970		

* "Imported" means coming directly or indirectly from Outside the CARIFTA.

(5) How much did you pay out as interests, management charges and other income payments, broken down as follows for the years:-

YEARS	TOTAL TO CARIFTA	TO NON-CARIFTA
1968		
1969		
1970		

(6) Give the value of all inputs of raw materials, components and services which:-

(A) were either wholly produced within the CARIFTA or which were partially manufactured within the CARIFTA and meet the Area Origin Criterion of the CARIFTA Agreement;

(B) did not fall under (a) for the years:-

YEARS	(A)	(B)
1968		
1969		
1970		

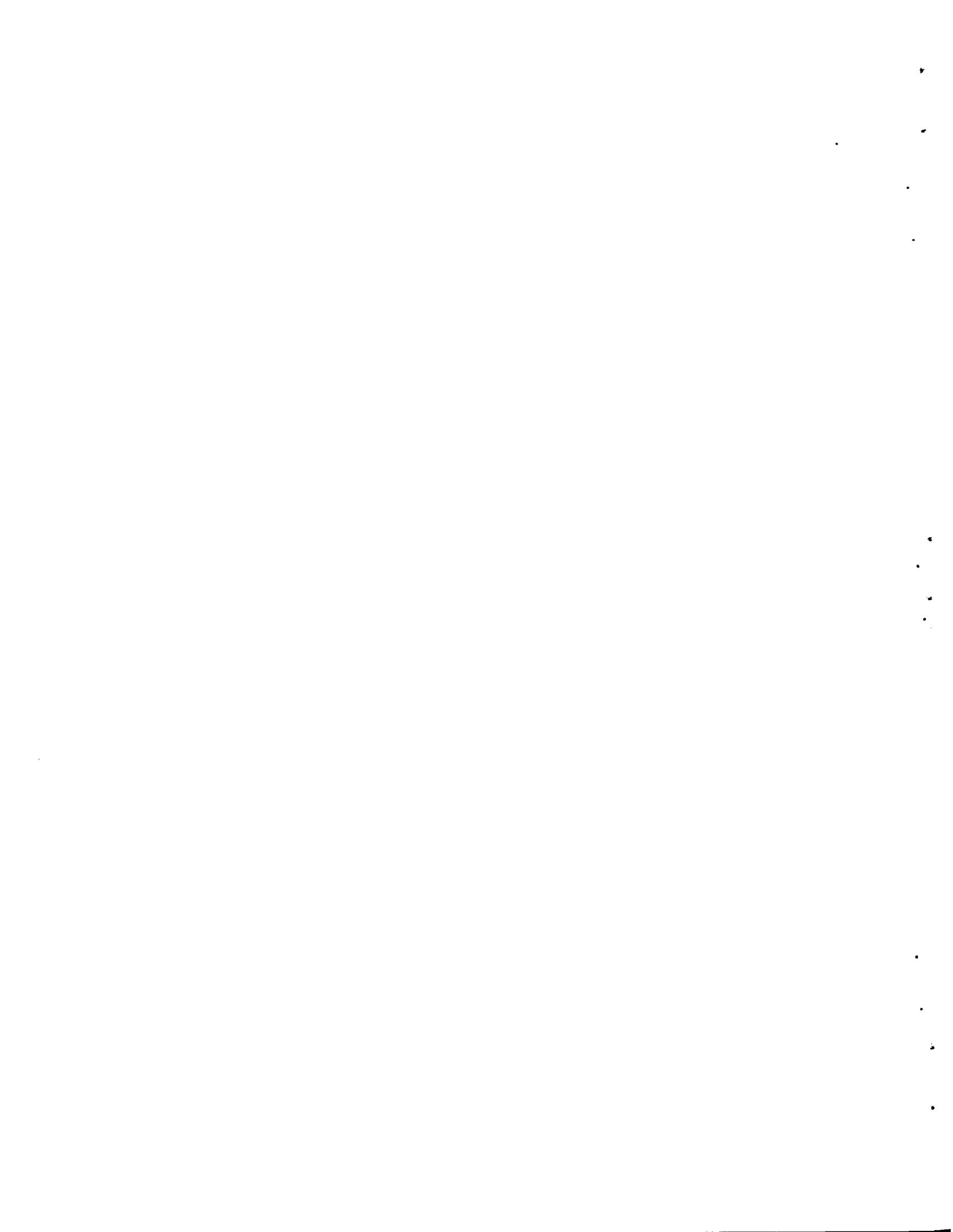
* Criterion 1C of Article 5 of the CARIFTA Agreement reads:

"that they have been produced within the Area and that the value of any materials imported from outside the area or of undetermined origin which have been used at any stage of the production of the goods does not exceed 50% of the export price of the goods."

Please do not invoke paragraph 2 of Article 5 in making these estimates.

(iii)

- (7) Give, in accordance with the S.I.T.C. Code Numbers:-
- (a) a list of the products you manufactured and sold during the financial years ending in 1968, 1969, 1970.
 - (b) their respective ex-factory prices; and
 - (c) their respective physical volume of output for the three consecutive years.
- (8) Give the name/names, if any, of the closest imported substitute product/s to those mentioned under the previous items, and please indicate the c.i.f. prices of these imported substitutes, if known.
-



(i)

THE TABULATED RESULTS OF THE ENQUIRYTABLE 1LOCAL VALUE-ADDED PERCENTAGE

BARBADOS (12) %	GUYANA (27) %	JAMAICA (35) %	TRINIDAD & TOBAGO (18) %
19.8	3.0	0.6	8.6
28.5	13.8	11.6	10.9
32.0	13.8	12.4	16.6
36.1	14.4	15.0	24.0
37.5	18.8	15.0	25.5
42.8	21.5	17.1	27.3
50.6	22.6	18.2	35.7
52.3	22.7	19.0	38.2
55.2	23.7	21.6	44.4
64.2	25.3	23.5	45.6
78.5	28.4	24.8	46.5
89.6	28.6	25.0	57.5
	30.0	29.4	61.2
	30.7	29.7	63.5
	32.0	29.8	76.3
	32.4	31.4	77.1
	32.6	31.7	79.2
	34.4	36.2	81.3
	37.7	36.7	
	43.5	37.9	
	44.7	39.2	
	45.2	42.7	
	45.3	43.3	
	48.0	43.4	
	48.1	44.3	
	54.0	44.3	
	59.4	44.5	
		46.0	
		46.6	
		48.0	
		48.4	
		58.2	
		75.9	
		85.0	
		85.0	

(ii)

TABLE 2: BARBADOS

\$'000

No.	Total Sales	Imported raw materials other goods & services		Foreign factor income payments	Element of pro- tection	VALUE ADDED	
		Amount	%			Amt.	%
1	497	304	61.1	27	25	142	28.5
2	1,387	72	5.2	3	69	1,243	89.6
3	330	184	55.7	6	17	123	37.5
4	959	382	39.8	44	48	485	50.6
5	449	156	34.9	23	22	248	55.2
6	236	19	8.0	20	12	186	78.5
7	176	124	70.4	9	9	35	19.8
8	244	77	31.6	50	12	104	42.8
9	455	229	50.3	58	23	146	32.0
10	106	35	33.5	10	5	56	52.3
11	1,642	492	29.9	14	82	1,055	64.2
12	466	161	34.5	113	23	169	36.1

TABLE 3: GUYANA

\$'000

No.	Total Sales	Imported Raw Materials other goods & services		Foreign Factor Income Payments	Element of pro- tection	VALUE ADDED	
		Amount	%			Amt.	%
1	8,566	7,010	81.8	874	428	255	3.0
2	256	117	45.9	3	13	123	48.1
3	247	116	47.1	-	12	119	48.0
4	985	277	28.1	126	49	532	54.0
5	1,326	664	50.0	19	66	578	43.5
6	338	248	73.3	10	17	64	18.8
7	5,436	3,805	70.0	124	272	1,235	22.7
8	626	356	56.8	47	31	193	30.7
9	721	510	70.7	5	36	171	23.7
10	2,961	1,902	64.2	23	148	888	30.0
11	433	321	74.0	29	22	62	14.4
12	17	9	49.8	-	1	8	45.2
13	55	43	76.7	2	3	8	13.8
14	187	67	35.6	-	9	112	59.4
15	873	535	61.3	12	44	282	32.4
16	136	94	69.3	1	7	35	25.3
17	229	148	64.5	4	11	66	28.6
18	96	44	45.9	4	5	44	45.3
19	383	303	79.0	9	19	53	13.8
20	528	376	71.3	6	26	120	22.6
21	1,291	647	50.1	158	65	421	32.6
22	1,108	716	64.6	23	55	315	28.4
23	758	265	35.0	291	38	163	21.5
24	47	24	50.3	-	2	22	44.7
25	138	83	60.1	4	7	44	32.0
26	2,550	1,196	46.9	265	128	960	37.7
27	560	335	59.9	4	28	193	34.4

TABLE 4: JAMAICA

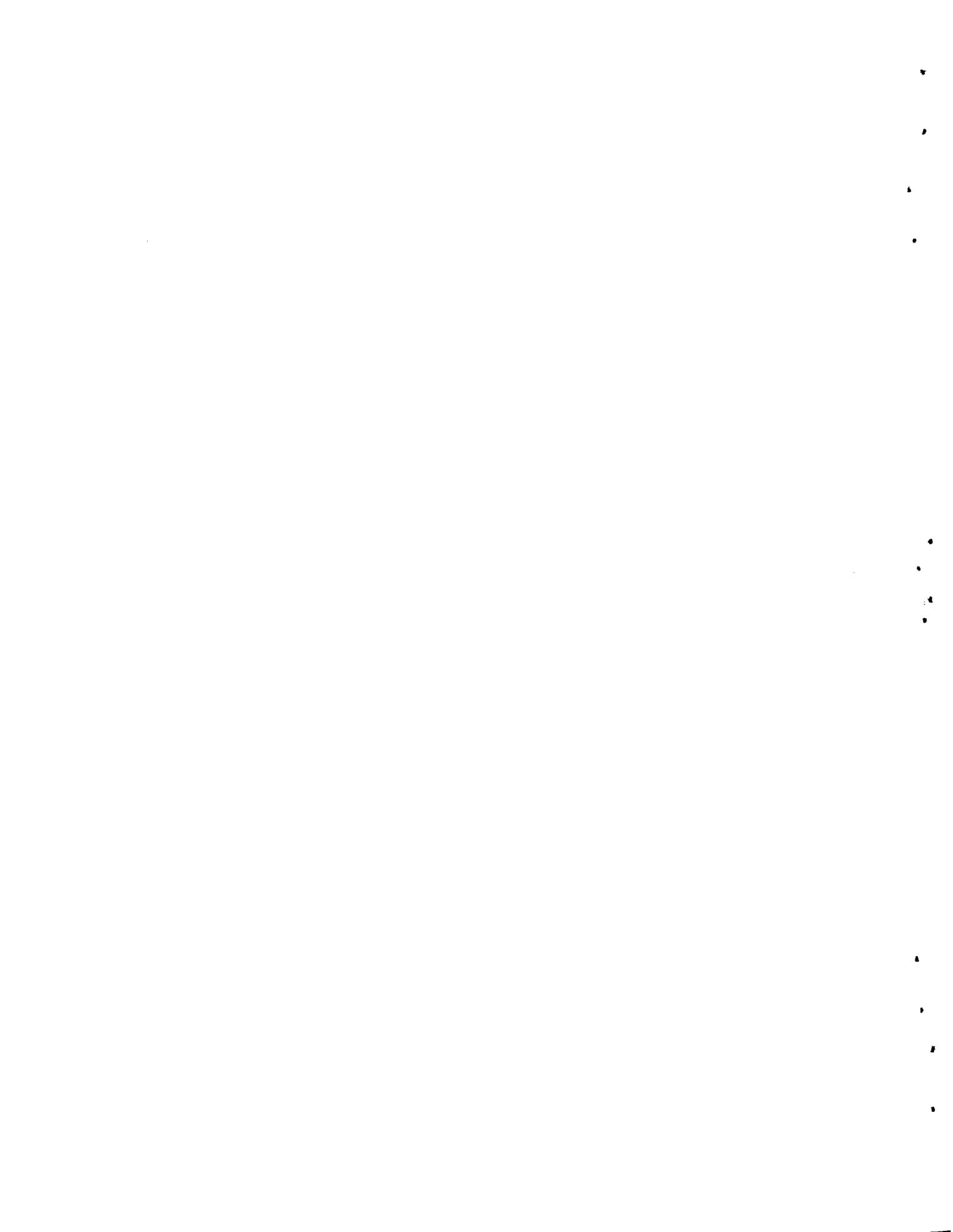
\$'000

No.	Total Sales	Imported Raw Materials other goods & services		Foreign Factor Income Payments	Element of pro- tection	VALUE ADDED	
		Amount	%			Amt.	%
1	1,022	494	48.3	102	51	375	36.7
2	5,982	4,064	67.9	598	299	1,021	17.1
3	2,300	896	38.9	230	115	1,059	46.0
4	40	-	-	4	2	34	85.0
5	139	-	-	14	7	118	85.0
6	1,100	677	61.5	110	55	258	23.5
7	394	263	66.7	39	20	71	18.2
8	142	52	36.6	14	7	69	48.4
9	470	329	70.0	47	23	71	15.0
10	1,200	840	70.0	120	60	180	15.0
11	2,914	1,552	53.2	291	146	924	31.7
12	231	96	41.5	23	12	100	43.4
13	194	79	40.7	19	10	85	44.3
14	3,486	1,700	48.7	349	174	1,264	36.2
15	264	121	45.8	26	13	103	39.2
16	1,392	1,022	73.4	139	70	161	11.6
17	750	402	53.6	75	37	236	31.4
18	1,365	755	55.3	137	68	406	29.7
19	1,689	1,115	66.0	169	84	321	19.0
20	1,917	800	41.7	192	96	830	43.3
21	1,474	820	55.6	147	74	432	29.4
22	1,121	454	40.5	112	56	499	44.5
23	1,209	324	26.8	121	60	704	58.2
24	602	245	40.7	60	30	267	44.3
25	1,410	1,024	72.6	141	70	175	12.4
26	71	45	63.3	7	4	15	21.6
27	300	180	60.0	30	15	75	25.0
28	355	150	42.2	36	18	152	42.7
29	1,181	454	38.4	118	59	550	46.6
30	17	8	47.1	2	1	7	37.9
31	32,000	27,000	84.3	3,200	1,600	200	0.6
32	3,330	2,004	60.1	333	166	827	24.8
33	690	63	9.1	69	34	524	75.9
34	784	433	55.2	78	39	233	29.8
35	1,225	453	36.9	123	61	589	48.0

TABLE 5: TRINIDAD & TOBAGO

\$'000

No.	Total Sales	Imported Raw Materials other goods & services		Foreign factor income payments	Element of pro- tection	VALUE ADDED	
		Amount	%			Amt.	%
1	2,237	1,675	74.9	80	112	371	16.6
2	901	162	18.0	142	45	552	61.2
3	627	283	45.1	27	31	286	45.6
4	441	147	33.4	160	22	112	25.5
5	3,874	3,242	83.7	104	194	333	8.6
6	1,841	1,019	55.4	27	92	703	38.2
7	1,761	1,195	67.9	57	88	422	24.0
8	1,391	911	65.5	30	69	380	27.3
9	60	22	36.8	..	3	34	57.5
10	287	28	9.7	24	14	222	77.1
11	1,247	13	1.1	157	62	1,014	81.3
12	557	83	15.0	22	28	425	76.3
13	7,928	6,560	82.7	109	396	864	10.9
14	4,148	1,349	32.5	750	207	1,842	44.4
15	30,061	2,159	7.2	7,321	1,503	19,079	63.5
16	842	403	47.9	5	42	391	46.5
17	472	54	11.4	21	24	373	79.2
18	1,612	878	54.5	78	81	575	35.7



THE STUDY GROUP

It was decided that this study group should comprise

"..... Mr. S. St. A. Clarke, Director, ECLA Office for the Caribbean; Professor Havelock Brewster, University of the West Indies (Cave Hill); Mr. Roy Jones, Vice-President of the Caribbean Development Bank; and one representative each of the ECCM and CARIFTA Secretariats."

Attendance at First Meeting

*Mr. S. St. A. Clarke	ECLA Office for the Caribbean
*Prof. Havelock Brewster	University of the West Indies
*Mr. D. Sylvester	ECCM Secretariat
*Miss I. Marshall	CARIFTA Secretariat
Mr. E. Carrington	CARIFTA Secretariat
Mr. Frank Hope	Guyana
Mrs. Carmen Campbell	Jamaica
Mr. Frank Thompson	Trinidad-Tobago

Mr. Clarke was pressed into service as Convenor.

Attendance at Second Meeting

*Mr. S. St. A. Clarke	ECLA Office for the Caribbean
*Miss I. Marshall	CARIFTA Secretariat
Mr. E. Carrington	CARIFTA Secretariat
Mr. Frank Thompson	Trinidad-Tobago
Dr. Headly Brown	Jamaica
Mr. R. Irving	Jamaica
Mr. A. Thompson	Jamaica

