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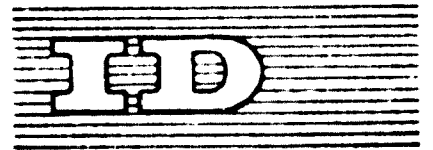
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24 July 1968

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Seminar on the Establishment and Development of the
Automotive Industry in Developing Countries

Karlovy Vary, CSSR
14 October - 1 November 1968

**THE ESTABLISHMENT AND DEVELOPMENT OF THE
AUTOMOTIVE INDUSTRY IN BRAZIL**

by

Carl Nebelung,
Purchase Manager, Volkswagen, Wolfsburg
Federal Republic of Germany

1/ The views and opinions expressed in this paper are those of the author and do not necessarily reflect the views of the secretariat of UNIDO.

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THE ESTABLISHMENT AND DEVELOPMENT OF THE
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SUMMARY

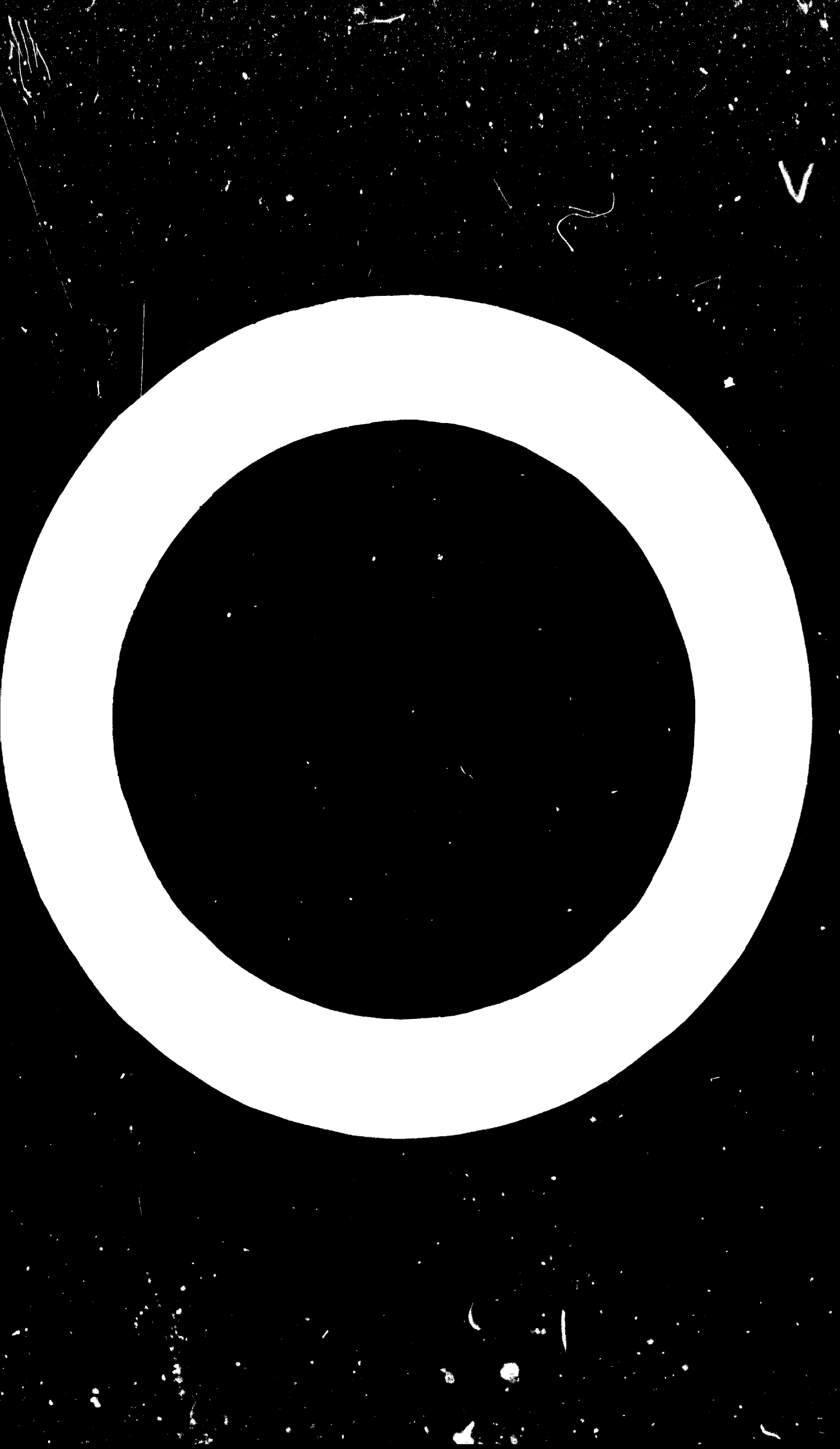
1. The shortage of foreign currency and large potential market paved the way for the Brazilian automotive industry. Import controls and existing know-how helped much in its development.
2. In 1956 and 1957 laws were passed that prescribed a progressive increase in the locally produced content of commercial and passenger automobiles.

* This is a summary of a paper issued under the same title as ID/WG.13/7.

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3. The paper lists aids and incentives given by the Government to the manufacturers of automotive parts and vehicles that committed themselves to these schedules, e.g. duty protection, provision of foreign currency for necessary imports under favourable conditions, duty-free import of machinery and equipment constituting a capital contribution.
4. All these laws and regulations influenced the decision to establish and develop Volkswagen do Brasil S.A., Sao Bernardo do Campo, Sao Paulo.
5. The paper describes how Volkswagen do Brasil solved the problem of reaching the prescribed content of locally produced parts in their cars and deals with the co-operation of Volkswagen do Brasil with local auxiliary industries. The technical and commercial assistance which the parent company, Volkswagen, Germany, provided to Volkswagen do Brasil is recorded in a comprehensive way.
6. The special problems caused by the Brazilian taxation law, the laws concerning transfer of dividends and engineering fees and the social laws, are reviewed. Recommendations for the solution of some of these problems are made.
7. The paper contains a considerable amount of statistical data illustrating the development of the Brazilian automotive industry and its importance to the economy of Brazil.



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Introduction

1. The purpose of this study is to demonstrate the establishment and development of the automotive industry in Brazil. It deals with the conditions that initially existed and with various phases of creating such an industry. Not only will the positive effects on the Brazilian economy be indicated, but also the serious problems involved and a number of limitations generally existing when developing an automotive industry in a developing country.

2. Parts of this report will show the history of Volkswagen of Brasil S.A., Sao Bernardo do Campo (Sao Paulo), the largest manufacturer of motor cars in Latin America. Special consideration will be given to the experience of Volkswagenwerk AG in Wolfsburg, Federal Republic of Germany, the parent company of Volkswagen of Brasil. Volkswagenwerk AG is the world's largest manufacturer of motor cars outside the United States of America. It maintains subsidiaries in many countries and exports more automobiles than any other car manufacturer in the world.

I. THE AREA AND POPULATION OF BRAZIL

3. Brazil covers nearly half of South America and its population accounts for almost half of this subcontinent. Thus, Brazil is one of the most populous nations in the world. The following table shows the population of the various Brazilian states (1965):

Table 1
Population of Brazilian States (1965)
(in millions)

Sao Paulo	15.0
Minas Gerais	10.7
Rio Grande do Sul	6.1
Parana	5.7
Pernambuco	4.5
Rio de Janeiro	4.0
Guanabara	3.8
Ceará	3.6
Maranhás	3.0
Other 13 states and 4 territories	<u>25.6</u>
T o t a l	82.0

While Brazil had only about 30 million inhabitants in 1920 and 41 million in 1940, the population increased to approximately 82 million in 1965, and it is estimated that 95 million may be reached by 1970.

4. Brazil has a predominantly young population: 0 - 9 years of age constitute 26 per cent of the total population; 10 - 19 years of age, 19 per cent; and 20 - 29 years of age, 14 per cent. Therefore, almost two thirds of the population are under 30 years of age.

5. In 1950 approximately 36 per cent of the total population lived in cities and towns; this figure has since changed to about 50 per cent. At present more than 14 million people live in the ten largest cities, Sao Paulo being the largest with 5 million inhabitants. The growing urbanization during the last fifteen years was primarily due to industrialization. For example, the state of Sao Paulo increased in population from 9 million in 1950 to 13 million in 1960 and 15 million inhabitants in 1965. The state of Sao Paulo, covering only 3 per cent of the nation's area, houses 18 per cent of the total population. It contains approximately 20 per cent of Brazil's railway and road network.

II. SAO PAULO: THE CENTRE OF BRAZILIAN INDUSTRY AND PARTICULARLY THE AUTOMOTIVE INDUSTRY

6. The climate of Sao Paulo is ideal for the industrialization of this region. It has been observed for many years that the moderate climate has a favourable influence on the high immigration from Europe and also on the efficiency of Brazilian workers.

7. Immigration into the state of Sao Paulo developed as follows:

Table 2

Immigration of State of Sao Paulo, 1901 - 1965

	<u>Foreigners</u>	<u>Brazilians from other states</u>	<u>Total</u>
1901 - 1915	723 000	39 000	762 000
1916 - 1930	576 000	241 000	817 000
1931 - 1945	131 000	594 000	775 000
1946 - 1960	431 000	1 665 000	2 096 000
1961 - 1965 (March)	62 000	475 000	537 000
	<u>1 973 000</u>	<u>3 014 000</u>	<u>4 987 000</u>
Per cent of total:	40	60	100

8. While most of the foreign immigrants in the early years were farmers, since the beginning of the 1920s an increasing number of arrivals from abroad have been trained in trade and industry. Most of these immigrants remained permanently in this country, because of the well-known Brazilian tolerance and respect for differences in race, religion, political opinion and foreign habits.

9. Before the local production of automobiles started, Sao Paulo had a number of small industries which in the early years were founded primarily by European and Japanese settlers. This industry essentially aided in building up the automobile industry in Sao Paulo. It was also of some importance that a certain nucleus of personnel, already experienced in the assembly of vehicles, could be found and trained in the manufacture of automobiles.

III. THE BRAZILIAN AUTOMOBILE MARKET

10. From 1957 until 1965 the eleven automobile companies in Brazil manufactured approximately 1.2 million motor vehicles, the production figures for the various years being as follows:

Table 3
Production of vehicles, 1957 - 1965

	<u>Commercials, trucks and buses</u>	<u>Per cent of total</u>	<u>Passenger cars</u>	<u>Per cent of total</u>	<u>Total production</u>
1957	31,000	100	-	-	31,000
1958	57,000	94	4,000	6	61,000
1959	82,000	85	14,000	15	96,000
1960	95,000	71	38,000	29	133,000
1961	91,000	62	55,000	38	146,000
1962	116,000	61	75,000	39	191,000
1963	88,000	51	86,000	49	174,000
1964	86,000	47	97,000	53	183,000
1965	82,000	44	104,000	56	186,000

11. The above figures show that volume local production started with commercial vehicles and trucks. There existed an enormous demand for this type of vehicle which - due to the relatively small railway network - is most important for the Brazilian economy. Since 1964, however, the production of passenger cars has exceeded that of commercial vehicles. According to the statistics of

the Brazilian automotive industry just under 800,000 vehicles were registered at the end of 1957, reaching nearly 2 million at the end of 1965. Today two out of three motor vehicles in use are of local origin (1957 only one out of 25).

12. Local production resulted in a considerable improvement in the ratio of inhabitants per registered motor car, which, compared to such highly industrialized countries as the Federal Republic of Germany and the United States of America, developed as follows:

Table 4
Inhabitants per registered automobile
in Brazil, Federal Republic of Germany, the United States of America
1951 - 1966

	<u>Brazil</u>	<u>Federal Republic of Germany</u>	<u>USA</u>
1951	118	47	3
1952	93	41	3
1953	94	35	3
1954	86	32	2.9
1955	79	27	2.8
1956	94	23	2.7
1957	93	20	2.6
1958	76	17	2.5
1959	78	14	2.6
1960	65	13	2.5
1961	57	11	2.4
1962	50	9.2	2.4
1963	53	7.4	2.4
1964	49	6.6	2.3
1965	45	6.0	2.2
1966	43	5.5	2.1

Source: Statistics of the "Verband deutscher Automobilindustrie"
(Association of German Motor Manufacturers).

13. There is no doubt that in Brazil the average income per capita is still low, a fact which of course sets certain limits for an expansion of the automobile market. It is astonishing, however, that Brazil in 1965 had already

reached a ratio of inhabitants per motor car equal to that of the Federal Republic of Germany in the years 1951/52.

14. As in all other countries, the major part of the production of motor cars is concentrated in a few big companies. It is therefore interesting to see a break-down of the production figures by manufacturer during the last four years:

Table 5
Production of motor vehicles by major manufacturers, 1962 - 1965

	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
Volkswagen of Brasil	53,752	53,653	66,418	75,031
Willys Overland	61,319	56,405	55,371	54,133
VEIAS	15,466	14,123	12,705	15,260
Ford	21,712	12,963	12,074	11,754
General Motors	18,960	12,173	13,463	10,981
Simca	6,905	9,549	10,949	7,275
Mercedes-Benz	8,937	5,700	6,249	6,358
4 other companies	3,942	4,624	5,077	4,368
T o t a l	191,013	174,200	183,206	185,660

It would be wrong to conclude from the above figures that the Brazilian motor car market stagnates. During the first half of 1966 the total production reached approximately 116,000.

15. The growing production figures of Volkswagen prove that Brasil always had and still has a great demand for an economic vehicle. The following table indicates this demand in relation to Volkswagen:

Table 6
Automobile production in Brasil, 1957 - 1965

	<u>All makes</u> <u>(in round figures)</u>	<u>Volkswagen</u>	<u>Penetration</u> <u>of Volkswagen</u> <u>(percentage)</u>
1957	31,000	371	1.1
1958	61,000	4,818	7.8
1959	96,000	16,828	17.4
1960	133,000	28,358	21.3
1961	146,000	47,340	32.5
1962	191,000	53,752	28.1
1963	174,000	58,658	33.7
1964	183,000	66,418	36.3
1965	186,000	75,031	40.4

Table 6 covers all vehicles: passenger cars, buses and trucks. There is even a more marked increase in the area of passenger transportation: Volkswagen passenger cars reached a penetration of 59.9 per cent in 1965 (1965 = 55.4 per cent)

16. Volkswagen of Brazil planned a large capital expenditure programme. In 1965 the average daily output was 310 vehicles. The company reached 413 units per day in August 1966. It was planned that this figure increase to 450 by the end of 1966 and to 600 in late 1968.

17. Optimism concerning the Brazilian automobile market can be based on the following facts:

- (a) A predominately young and fast growing population in a country with steadily increasing income per head of population;
- (b) New groups of customers with the growing of industrialization;
- (c) Approximately one third of the motor vehicles at present in use at least ten years old (registered prior to the establishment of local production), indicating a high replacement demand.

IV. SHORTAGE OF FOREIGN CURRENCY STIMULATED ESTABLISHMENT OF MOTOR INDUSTRY

18. The normal instrument of controlling imports all over the world is duty legislation. As regards import of automobiles, duty played only a minor role until the middle of 1957, because a relatively low custom tariff (based on weight) was imposed. In the early stages manufacturers of motor cars were exempted from duty and/or entitled to high rebates. With increasing local content, however, tariff legislation was tightened. Therefore, parts imported today carry enormous duty rates.

19. The Brazilian Government adhered strictly to its policy of giving the necessary duty protection to committed manufacturers as far as components of motor cars were concerned. Unfortunately, not all countries establishing a local motor industry, followed the same course as Brazil.

20. The regulations concerning the purchase of foreign currency were of a greater importance than duty legislation. In the early 1950s the shortage of foreign currency commenced to have a growing influence on the import of motor cars. Though enormous amounts were spent, they were not sufficient for the increasing demand. During 1953 the shortage of foreign funds completely stopped the importation of cars and spare parts. In October 1953 this ban was suspended and tight import controls have remained.

21. Brazil introduced a special system of making the purchase of foreign currency very expensive. Five import categories were established in order to distinguish the priority of various types of imports. As well as the so-called "official exchange rate" an agio had to be paid which differed for the various categories. Imports of automobiles were only allowed in categories four and five which were the most expensive ones.

22. In January 1956, for instance, the free market exchange rate was cruzeiros 73 for US \$1. For imported automobiles, however, the exchange rate for US \$1 at this time was as follows:

Table 7
Exchange rate for imported vehicles, 1956

	<u>Passenger Vehicles</u>	<u>Commercial Vehicles</u>
Official rate	cruz. 18.82	cruz. 18.82
Average agio	<u>cruz. 304.</u>	<u>cruz. 250.</u>
Total rate for US \$1	cruz. 322.82	cruz. 268.82

The above shows that 3 1/2 to 4 1/2 times the realistic free market exchange rate had to be paid for imported automobiles. This of course narrowed the market for potential car buyers to a very few privileged. Indeed, such a currency barrier added great urgency to the establishment of the Brazilian motor industry, which was then further enhanced by appropriate legislation.

V. IMPORTANT LAWS REGARDING THE ESTABLISHMENT OF THE MOTOR INDUSTRY

23. In August 1956 Law 39676 A was passed which prescribed that commercial vehicles with a weight up to 4,200 kilos had to reach a gradually increasing local content as follows:

Table 8
Local content in commercial vehicles, 1956 - 1960

	<u>Brazilian content (percentage of total weight)</u>
31 December 1956	40
July 1957	50
July 1958	65
July 1959	75
July 1960	90

24. Following the same principles, the Brazilian Government in February 1957 issued law 41,018 which governed the local manufacturing programme for passenger cars.

Table 9
Local content in automobiles, 1957 - 1960

	<u>Brazilian content</u> <u>(percentage of total weight)</u>
July 1957	50
July 1958	65
July 1959	85
July 1960	90 - 95

Only those automobile manufacturers committing themselves to these schedules were allowed further imports which meant future access to the Brazilian motor car market.

VI. GOVERNMENT AIDS AND INCENTIVES

25. It must be mentioned that the Brazilian Government provided a number of incentives for the committed manufacturers, thus making a necessary and much appreciated contribution to the development of the local motor industry. In many respects other countries with the same problems were not as co-operative as Brazil. To summarize the most important aids and incentives:

- (a) Strict duty protection was given for all parts necessary for the local production of motor cars;
- (b) Foreign currency for imports (necessary to reach the government targets) was made available at reasonable rates;
- (c) The Banco do Brasil carried the exchange risk for the payment of CKD (completely knocked down) motor car parts. This was consistent with the edict that the foreign parent company had to supply on 180 days credit for commercial vehicles and on three years credit for passenger cars. It is clear that the Brazilian manufacturers would not have been in a position to carry the exchange risk without increasing their sales prices considerably, because of perpetual inflation;
- (d) Duty-free import of production machinery and equipment could be brought into the country for a certain period as capital contribution in kind.

26. All these factors have been most positive. Nevertheless, it is worthwhile mentioning that from a manufacturer's point of view, the question of a duty-free

import of machines and equipment has not been solved satisfactorily. On 6 December 1956, Law 2993 came into effect granting duty-free import of machines, tools and equipment needed by the automotive industry. This duty exemption was valid for 30 months. In other words, duty-free import expired on 6 June 1959. It was impossible, however, to import all the goods needed before this date, especially since a lot of overseas suppliers for special machinery had long waiting lists.

27. In the meantime, the draft of a law extending the duty-free import for another twelve months had passed several committees of the parliament, but no appropriate law was issued. The automotive companies were permitted to continue with duty-free import, if they committed themselves to pay duty in case the law in process should later require it. A year later, interim Law 3768 of 3 June 1960 extended the duty-free import to 6 June 1961. But again, importers had to declare that they would be prepared to pay duty for the past if a final law should require this. This situation meant that the automobile industry was left with the risk of substantial duty payment on accruing values of machinery and equipment.

28. At last in November 1964 a law came into effect regulating the duty-free import of machines and equipment which had been brought into Brazil with import licences issued prior to 1 October 1960. At present some cases exist in which import licences were issued after 1 October 1960, and it has not yet been finally decided whether duty has to be paid or not.

29. The period allowed for the establishment of the automotive industry in Brazil was short, a fact which created delays and problems in making available the necessary production machinery. The investor was often in an unfavourable position when he had to make such important decisions. However, it is important to note that the Brazilian authorities were aware of the fact that the establishment of such an important local industry could not be carried out without governmental co-operation. Therefore, it should be emphasized that the motor industry generally had this support when building up local production.

VII. ESTABLISHMENT AND DEVELOPMENT OF VOLKSWAGEN DO BRASIL S. A., SAO BERNARDO DO CAMPO, SAO PAULO

30. Although this paper presents information primarily from Volkswagen do Brasil, it is quite clear that this company is the representative example to demonstrate the establishment and development of the Brazilian motor industry. Up to 1954

VW-vehicles were merchandised in Brasil on an imported and later, an assembled basis. In the assembly stage the VW-vehicles reached a Brazilian manufacturing content of 20 to 30 per cent. The system of import licencing and foreign exchange control prevented Volkswagen from reaching a significant import volume. Only approximately 9,000 vehicles were imported during the seven years from 1950 to 1956.

Volkswagen do Brasil established local manufacturing content

11. The law passed in August 1956 concerning the local production of commercial vehicles forced Volkswagen to reconsider whether it was worthwhile to stay in the Brazilian market. It was felt that they had a good chance and in October 1956 Volkswagen do Brasil presented a manufacturing programme which was accepted by the Brazilian Government on 12 November 1956.

12. Due to the law concerning passenger cars which was passed in February 1957 all the automobile companies were faced with the most important question: "Does Brasil really have the necessary facilities and market potential justifying the enormous capital expenditure involved?" Volkswagenwerk Germany studied the situation carefully and came to the following conclusions:

- (a) The Volkswagen is a product suitable for Brasil;
- (b) Brasil is a promising market. (In the long run, a large volume would be required to absorb the heavy capital expenditure, especially the cost of tools for the press shop);
- (c) The development of local content as prescribed by the Brazilian Government was not realistic as far as the time schedule was concerned. The Brazilian Government wanted 50 per cent (of total weight) local content by 1 July 1957, 65 per cent by 1 July 1958, 85 per cent by 1 July 1959 and 90-95 per cent by 1 July 1960.

13. The company was certain that it would be unable to fulfill these requirements because the in-plant production could not be built up as quickly as required, and the Brazilian subcontractors were not developed enough to meet this target.

14. Therefore, in October 1957 it was decided to submit an application to the Brazilian Government as follows:

Table 10

Volkswagen do Brasil proposal for local content, 1958 - 1960

	<u>Local content (percentage of total weight of motor car)</u>
1st half 1958	25.47
2nd half 1958	41.16
1st half 1959	41.16
2nd half 1959	66.19
1st half 1960	66.19
2nd half 1960	90.74

This application was approved by the Brazilian Government in December 1957.

35. In November 1960 it was decided by GEIPEC (authority for the local automobile industry) that a 100 per cent local manufacturing content had to be reached by the end of 1961. Passenger cars were allowed to be 1 per cent and commercial cars 2 per cent below this target. Only in 1962/63 could these targets be reached because the time allowed was too short.

36. Committing the company to this manufacturing programme meant that the following main factors had to be taken into consideration:

- (a) How quickly must the machinery necessary for in-plant production be shipped to Brazil;
- (b) To what extent can domestic suppliers be relied upon;
- (c) Which are the most suitable parts which would enable the company to comply with the time table set by the Brazilian Government;
- (d) Which parts deleted from the CKD-pack give the best economic effect?

It is obvious that these questions required great efforts by a number of technical and commercial departments in the parent company before the final detailed plan was completed.

37. Following are the steps which Volkswagen of Brasil took to solve the problem of increasing local content according to government regulations:

Table 11

Progress of Brazilian content (weight) of Volkswagen, 1954 - 1965

	<u>Commercial vehicles (percentage)</u>	<u>Passenger cars (percentage)</u>
1954 - 1956	20	20
1957	50	26
1958	65	26
1959	84.4	54.3
1960	93.2	90.4
1961	95.1	95.2
1962	98.0	97.9
1963	98.2	99.0
1964	99.29	99.55
1965	99.92	99.93

33. Local content in the early stages mainly contained those materials which could be purchased by local suppliers available in Brazil at this time. These local parts were tires, batteries, rubber parts, seats, window panels, etc. Later the in-plant manufacturing of chassis and body, axle, engine and transmission parts followed.

39. Based on the above schedules and the targets mentioned, the following resulted:

(a) Commercial vehicles

In the early stages considerable difficulties existed to reach the prescribed local content. During the year 1959, however, the situation improved. Domestic suppliers had developed in the meantime, and Volkswagen do Brasil was put in a much more favourable position to comply with the targets.

(b) Passenger cars

During the years 1958 and 1959 it was not possible to reach as much local content as had been wanted, primarily because the supplying industry needed time to be further developed and to increase its capacity. Moreover, total establishment of Volkswagen in-plant manufacturing facilities required great efforts. The time schedule was too demanding. Due to the joint efforts of Volkswagen do Brasil, the Brazilian suppliers and Volkswagenwerk Germany it was possible, however, to have a more than 90 per cent Brazilian made Volkswagen sedan ready in 1960.

40. Long before the manufacturing of automobiles started in Brazil, there was already a diversified industry, such as steel mills, machine tool factories, a

textile and a chemical industry. Therefore, there existed a certain basis for further rapid industrialization. Of great importance was that, with the beginning of local motor car production, great efforts were made to build up the necessary auxiliary industries. On one hand foreign capital and foreign know-how were attracted, but on the other hand a considerable amount of Brazilian capital started to be engaged, a fact which resulted in a large number of successful joint ventures.

The most important problems to be solved

41. The development of the Brazilian automotive industry was rather complicated and a lot of problems had to be faced. On the following pages a few of them will be analysed.

Local supply

42. The planning of the suppliers' capital expenditure programmes often did not comply with the timing schedules of the automobile industry. In many cases the local suppliers waited to see how the production capacity of the automotive industry would develop. This often - especially in the early period - resulted in a shortage or delay in local supplies. In a number of cases financing problems prevented a quicker development of supplying industries. It was sometimes necessary to make advance payments to suppliers, thus enabling them to increase their production facilities as requested.

43. As mentioned before, the timing set by the Brazilian Government prescribed rapid progress. The responsible engineers of the young supplying industry often had difficulties in interpreting technical drawings and specifications. It was hard to find suitable interpreters who were able to translate technical terms into a language not before used in local industry. Fortunately, a number of key industries of German origin had already settled in Brazil, i.e. forging plants, foundries and also manufacturers of plastics and rubber parts as well as locks and electrical instruments. This meant an enormous help to Volkswagen do Brasil.

44. When purchasing industrial goods in a developing country, one of the main problems is to have the suppliers in a position to sell their products at a reasonable price. In many cases there does not exist any competition and monopolies govern the market of some branches. This necessitates careful investigation concerning the "buy or make" decision by the manufacturer of motor cars who

cannot afford to run the risk of exaggerated purchasing prices which would result in high sales prices for his products.

45. Of equal importance are plant investments such as machines, tools and equipment. Prior to the introduction of the automotive industry, a number of machine and tool factories existed producing turning-lathes, boring and planing machines, drills, grinders etc., which were of simple construction and not always up to date with international standards. The local production of automobiles meant an enormous incentive to all these manufacturers. Today Brazil's industry, producing special machines such as large presses and paint shop equipment, as well as complicated tools such as milling heads, reamers, hones, drills and bores, special grinders and chucks, is well developed.

In-plant manufacturing

46. To indicate the enormous capital expenditure, it should be mentioned that the fixed assets of Volkswagen do Brasil amounted to the equivalent of over US \$100 million by the end of 1965. (In calculating this figure, the exchange rates valid at the time of acquisition are used.) Of the total fixed assets, approximately 70 per cent comprise machinery, special tools and equipment, while 30 per cent represent lands and buildings. A large portion of the machinery and equipment necessarily was brought into the country as capital contribution in kind by Volkswagenwerk Germany.

47. At the end of 1965 more than 3,900 machines were producing in Volkswagen do Brasil and over seven kilometres of transport equipment were installed to bring parts to the final assembly. Volkswagen do Brasil employed 11,374 people, and this figure increased to 12,896 in August 1966. It might be of interest to note to what extent the number of employees comprises foreigners and naturalized foreigners. The figures used in the following table represent the status during the month of April in the various years:

Table 12

Employees of Volkswagen do Brasil, 1955 - 1966

	<u>Brazilians</u>	Foreigners, incl. naturalized <u>Brazilians</u>	<u>Total</u>	Percentage of foreigners, incl. <u>nat. Brazilians</u>
1955	181	48	229	21.0
1956	106	41	147	27.9
1957	243	172	415	41.4

Table 12 (continued)

	<u>Brazilians</u>	Foreigners, incl. naturalized <u>Brazilians</u>	<u>Total</u>	Percentage of foreigners, incl. <u>nat. Brazilians</u>
1958	1,037	220	1,257	17.5
1959	2,272	502	2,774	18.1
1960	3,741	1,138	4,879	23.3
1961	6,806	1,235	8,041	15.4
1962	6,863	1,283	8,146	15.8
1963	8,367	1,379	9,746	14.2
1964	7,927	1,233	9,160	13.5
1965	9,320	1,252	10,572	11.8
1966	10,762	1,239	12,001	10.3

48. Included in the above column of foreigners are the experts sent by the German parent company to the staff of Volkswagen do Brasil. The number of such employees during the last few years amounted to an average of thirty. (Later in this report, it will be pointed out to what extent technical and commercial assistance was and still is being provided by the parent company.) When building up a new industry in a developing country, there always exists a severe shortage of experts in the production and planning field as well as in many other areas. This is not only experienced during the early stages of development, but it will remain to be a permanent problem. To mention a few examples:

- (a) International production methods will be modernized constantly, thus requiring growing technical experience;
- (b) The originally new machinery and equipment will require increasing maintenance and replacement. This definitely will be a difficult task in the highly mechanized automobile industry. As a lot of special machinery had to be imported, maintenance required a great deal of special technical knowledge;
- (c) Great efforts will always be necessary to keep the quality of the product at a high level. It might be of interest to know that one out of eleven employees of Volkswagen of Brazil is a member of the inspection department, which is responsible for the quality control of all purchased material and locally manufactured products;
- (d) It has been found that Brazilian employees are very co-operative and industrious. They have also shown a great ability to learn and to improvise with their own initiative. It was, of course, of great importance that technically trained immigrants were available. Many of the German key staff decided to settle in Brazil, because they liked to work in this country where there was a promising future. A frequent exchange of qualified people, which would have been very expensive, could thus be avoided.

As can be detected from the above mentioned factors, constantly increasing technical assistance will have to be provided by the overseas parent company in order to put the Brazilian subsidiary in a position to take part in international progress.

Assistance provided by Volkswagenwerk Germany

49. Providing expertise from the parent company is of such importance for the efficiency of a subsidiary that it is worthwhile demonstrating the main types of technical and commercial assistance provided by Volkswagenwerk Germany.

50. Technical development: Volkswagen do Brasil is always kept up to date regarding the latest programmes in technical development and product engineering. This also includes all information concerning improvement of quality. If circumstances in Brazil require new or additional designs, then all the engineering is carried out by Volkswagenwerk Germany. The engineers of the German company develop the necessary technical drawings, and also inform the subsidiary about the results of tests in the research laboratories. Volkswagen of Brazil also receives full assistance as regards patents, licences and so on.

51. Production: Detailed guidance is provided in all production problems. This includes factory lay-out, planning of capital expenditure, installation of equipment and machines as well as the implementation of new manufacturing techniques and procedures. Advice is also given in problems concerning maintenance and replacement of machinery, equipment and transport facilities.

52. Control of quality: To maintain the high quality of the products the laboratories of the German parent company constantly examine samples of parts manufactured by its subsidiary or Brazilian suppliers. Thus the modern facilities in Germany are made available for Volkswagen do Brasil, which, as well, has efficient laboratories of its own. The field engineers of the German quality control section also test the quality of steel sheets, special tools and other parts which Volkswagen do Brasil has to import from Europe. It is in the mutual interest of the parent company and the subsidiary that new testing techniques are constantly transferred to Brazil.

53. Procurement: Advice is given in all purchasing problems which Volkswagen do Brasil may have with local or overseas suppliers. This includes comparison of quality, prices and so on. Volkswagen do Brasil has the opportunity of checking purchasing prices with the parent company in Germany, which generally deals

with the same firms and, therefore, has close business relations with suppliers of Volkswagen do Brasil. Thus the checking of offers and negotiations with the suppliers, and also the handling of complaints or special wishes are facilitated. This procedure enables Volkswagen do Brasil to benefit from the purchasing power and experience of an international organization.

54. Sales and marketing: Marketing research made by Volkswagenwerk Germany from all parts of the world is passed on to Volkswagen do Brasil. This includes service publications, advice on the development and the technical furnishings of dealers and workshops, as well as questions concerning economics of the dealer organization. Advice is also given on advertising by providing films (in Portuguese in the case of Brazil), samples of catalogues and so on. All new techniques regarding storage and transport of spare parts are made available to Volkswagen do Brasil.

55. Finance and cost control: Modern international techniques of accounting and cost control are sent to Volkswagen do Brasil from the parent company. The subsidiary has the possibility of either having its key personnel trained at the parent company or benefit from visits of German experts to Brazil. (This possibility, of course, also exists in all departments of the company.) Part of this assistance is provided by expert cost engineers, and consists of advice in checking the profitability of new capital expenditure projects, investigating of Brazilian suppliers' prices, and in making the "buy or make" decision. The German parent company will make available to Volkswagen do Brasil its world-wide banking facilities if necessary. All the experience of Volkswagenwerk Germany in insurance questions is also passed on to Brazil.

56. Organization and internal auditing: Systems and procedures are offered for introduction into Volkswagen do Brasil, enabling the company to benefit in many respects from the experience of the group. It goes without saying that the newest development on electronic data processing is part of the information provided.

57. Legal matters: The Brazilian subsidiary is assisted in difficult legal matters, especially if international law is involved when contracts with foreign business partners have to be concluded.

58. Personnel: Guidance is given on important personnel matters. This includes information on educational and training possibilities in the parent company as

well as job descriptions and pension schemes. Assistance is always provided concerning the hiring of top executives and experts for special tasks.

59. Summary: It can be clearly seen that the Brazilian subsidiary benefits to a large extent from the experience and guidance of the overseas parent company, a fact which will be common not only to Volkswagen, but to most subsidiaries in developing countries. It would be impossible and uneconomic for a subsidiary to afford all the facilities which the parent company has. It is quite obvious that the overseas parent company incurs enormous expenses in order to provide all these facilities to a foreign subsidiary. Therefore, this assistance and guidance cannot be given without an appropriate payment by the subsidiary. The Brazilian authorities do, in principle, recognize this. However, a number of problems in this respect have not yet been solved satisfactorily. This paper will deal with this under section X Taxation problems and remittances to foreign shareholders.

Volkswagen dealers and workshops in Brazil

60. Volkswagen's expansion on the Brazilian market required a large service organisation which developed as follows:

Table 12
Volkswagen expansion in Brazil, 1957 - 1965

	<u>Number of dealers and workshops</u>	<u>Employees</u>
1957	89	710
1958	104	885
1959	135	1,175
1960	192	1,657
1961	225	2,899
1962	290	4,417
1963	330	4,568
1964	371	7,749
1965	416	10,076

These figures indicate that the sales and service organization in 1965 employed almost as many people as the manufacturing plant.

61. During 1965 Volkswagen do Brasil arranged 214 training courses for dealer and workshop personnel. These courses were attended by 2,240 employees who - as in previous years - gained considerable benefit in their technical education.

Social benefits and voluntary welfare service in Volkswagen do Brasil

62. Law 62, passed in 1935, regulates the compensation payable by a Brazilian company when an employee is discharged; it is considered of great importance. This law prescribes that for each year of service with the same company the employee is entitled to receive a compensation equivalent to his last month's salary. After ten years of service with the same firm, he reaches so-called "stability". This means that the compensation in case of discharge will double.

63. In practice this law has resulted in a number of complications which are common to all companies. For example, practically all employees are discharged after eight or nine years of service at the latest. This includes the skilled worker, because no company can afford the enormous expense which would be payable if such an employee would have to be discharged after having reached "stability". In some companies unskilled labour (in particular, the building trade) often is discharged after ten months' service. Thus the company avoids any compensation, as the worker has not been employed a full year. Skilled as well as unskilled workers often try to be less efficient after some years. They hope that then the employer may discharge them. The compensation due in such cases means, to many people, a greater advantage than continuance of work with the same company for a few years more.

64. It is obvious that the high rate of personnel fluctuation resulting from this law means huge expenses for all companies. As an example, Volkswagen do Brasil in 1965 made appropriate provisions for this purpose, which amounted to the equivalent of US \$35 per manufactured motor car.

65. Therefore it follows that in the automotive industry, the discharge and new hiring of personnel is very expensive. High training expenses accrue which increase the cost of production. The perpetual exchange of skilled labour slows down the process of industrialization. (It is the author's opinion that certain delays in the establishment of the Brazilian industry resulted from this law of "stability".)

66. Without doubt, this law was planned originally for good social reasons. However, with the changing economy, laws of this kind grow to have a considerable negative effect. Recognizing this situation, the Brazilian Government has recently changed this law. In future the employee will have the possibility to choose between the regulations of the old law and a long-term savings account (paid for

by the employer). At least this gives the hope that the rapid fluctuation of personnel will diminish.

67. Volkswagen do Brasil is giving voluntary social contributions to its employees. The company is generous in its social policy. The social contributions granted exceed, by far, the requirements of the law. A feeling of security is given to the employees through such welfare benefits as the following:

- (a) Medical and dental treatment is offered by company doctors and outside specialists. This includes stay in hospitals not only for the factory's employees but also for the members of their families;
- (b) The company paid 70 per cent of approximately 2.6 million meals served to the employees during 1965;
- (c) Foods, textiles, all kinds of household goods, as well as land and material for building homes can be purchased at moderate prices and in installments from a co-operative organized by the company for its employees. The co-operative reached a sales volume in the equivalent of nearly one million US dollars during 1965.

68. Without doubt this welfare service is one of the reasons for the excellent atmosphere in the company, which up to now has not had a strike. Volkswagen do Brasil has a very low rate of fluctuation in personnel.

VIII. THE IMPORTANCE OF THE AUTOMOBILE INDUSTRY FOR THE BRAZILIAN ECONOMY

69. The state of Sao Paulo benefited most from the Brazilian industrialization. There is no doubt that the automotive industry and its suppliers have contributed a lot to this development. It is quite clear that this is one of the reasons why the income per capita in the state of Sao Paulo is approximately 75 per cent higher than the average in Brazil. The state of Sao Paulo only accounts for less than one fifth of the total population of Brazil, but the national income of Sao Paulo amounts to approximately one third of Brazil's total.

70. As far as tax payments are concerned, the dominating position of this state is even more marked. Sao Paulo's share of taxes in relation to Brazil's total was 41.4 per cent in 1955, 47.1 per cent in 1960 and 48.3 per cent in 1964.

71. The following figures show how the number of people employed in the Brazilian automotive industry developed.

Table 14
Number of employees in automotive industry, 1953 - 1966

	<u>Employees</u>
1953	3,154
1954	4,588
1955	3,891
1956	5,476
1957	9,086
1958	19,787
1959	23,693
1960	32,279
1961	32,719
1962	42,237
1963	37,188
1964	42,640
1965	44,411
1966 (July)	49,601

It is estimated that the Brazilian automobile manufacturers, their dealers, workshops and suppliers employ at present approximately 250,000 people. If it is assumed that the average family consists of four persons, the livelihood of about one million Brazilians depends on automobiles.

72. In 1965 Volkswagen do Brasil spent the equivalent of just over US \$20 million for wages, salaries and social contributions. It can be indicated in the following table the extent to which the wages of hourly paid employees exceeded the legal minimum wage per month in Sao Paulo:

Table 15
Wages of Volkswagen do Brasil, 1964 and 1965

	<u>December 1964</u> <u>Cruzeiros</u>	<u>December 1965</u> <u>Cruzeiros</u>
Regional legal minimum wage	42,000	66,000
VW minimum wage	78,000	109,440
VW average wage for hourly paid employees	126,496	131,082

The average wages paid by Volkswagen do Brasil are approximately three times as high as the regional legal minimum wage. Compared with other Brazilian states, this difference would be even higher.

21. Taxes paid by Volkswagen do Brasil in 1965 amount to the equivalent of more than US \$36 million, nearly 80 per cent of this total sum being consumer and sales tax. Under section VI of this report, it was noted that the Brazilian Government made a considerable contribution to the development of the automobile industry by carrying exchange risks and so on. It is worthwhile mentioning, however, that consumer and sales taxes paid today for automobiles have a considerable share in financing the national budget.

22. The establishment of suitable local suppliers caused considerable concern. In order to demonstrate the importance of the automobile industry for the country's economy, it might be worthwhile mentioning the number of firms which are suppliers of Volkswagen do Brasil:

Table II

Local suppliers of Volkswagen do Brasil, 1957 - 1965

	<u>Approximate number of suppliers</u>
1957	150
1958	250
1959	450
1960	600
1961	660
1962	700
1963	800
1964	1,100
1965	1,300

The increasing number of suppliers during the last few years is mainly a result of a growing industry producing machinery, tools and equipment.

23. The following table is a selection of eleven large suppliers of Volkswagen do Brasil taking one company from each important field, to show the stimulating effect of the automobile industry. The number of employees of these eleven sub-contractors may give an impression of the rapid industrialisation.

Table 17

A sampling indicating number of employees
in components industry, 1956 and 1966

	<u>Number of employees</u>	
	<u>1956</u>	<u>1966</u>
Electrical parts	40	3,100
Forged parts	- a/	2,700
Castings	830	2,500
Rubber parts	1,100	1,400
Steering parts	- b/	1,000
Locks	350	950
Break cylinders	150	580
Window panels	66	463
Spring seats	30	448
Carburettors	- b/	330
Paints	60	200

a/ Commenced in 1958.

b/ Commenced in 1960.

76. The growing local manufacturing as well as the increasing production figures resulted in a substantial growth in value of local purchases. From 1957 to 1965 Volkswagen do Brasil bought local goods equivalent to far more than 500 million US dollars. During 1965 local purchases considerably exceeded 100 million US dollars. All these figures include components for motor cars, spare parts, tools etc., as well as production machinery. From 1957 to 1965 the company's total imports averaged approximately 8 per cent of its total purchases. Therefore an average of approximately 92 per cent consisted of local supplies. It can be estimated that the Brazilian manufacture of motor cars during the years 1957 to 1965 saved an amount of more than two billion US dollars of the country's foreign currency, which would have been spent if all these motor vehicles had been imported.

IX. THE AUTOMOTIVE INDUSTRY SUPPORTS THE ANTI-INFLATION EFFORTS OF THE BRAZILIAN GOVERNMENT

77. It would be difficult to find other branches of industry or trade in Brazil which are giving as much support to governmental anti-inflation targets as does the automotive industry. The following figures should give an impression that

the manufacturers of motor vehicles kept good discipline in fixing their selling prices, which did not increase as much as the cost of living. A few representative automobile makes are selected to illustrate this point.

Table 12

Selling price of vehicles in relation to cost of living, 1960 - 1966

	<u>Cost of living index</u>	<u>Price index of passenger cars and jeeps</u>			
		<u>Volks-wagen</u>	<u>Aero-Willys</u>	<u>Willys Jeep</u>	<u>VENAG-Belcar</u>
Nov. 1960	100	100	100	100	100
Jan. 1965	836	755	950	822	382
Dec. 1965	1,116	942	1,094	932	972
March 1966	1,313	1,024	1,173	970	1,057
May 1966	1,414	1,024	1,218	1,008	1,110
July 1966	1,488	1,063	1,248	1,033	1,110

Price index of commercial vehicles and trucks

		<u>Volks-wagen</u>	<u>Willys Rural</u>	<u>Gen.Mot. C 1400</u>	<u>Ford F 600</u>
		Nov. 1960	100	100	100
Jan. 1965	836	822	a/	a/	1,089
Dec. 1965	1,116	1,038	1,003	1,199	1,335
March 1966	1,313	1,129	1,063	1,221	1,431
May 1966	1,414	1,129	1,110	1,294	1,431
July 1966	1,488	1,172	1,137	1,343	1,485

a/ No price information available.

78. Selling prices depend on quite a number of factors, such as competition and market conditions, growth rate of the specific branch and so on. From the expansion of the automobile market one may conclude that it should be easy for the motor car manufacturers to be disciplined in the establishment of their selling prices. However, costs increase because not all suppliers maintain price discipline. Furthermore, if wages and salaries continue to climb according to the cost of living, then, the automobile industry must, as well, raise selling prices. It need be emphasized also that the governmental price control, which affected all companies in 1965, did mean a heavy burden to the manufacturers of motor vehicles.

X. TAXATION PROBLEMS AND REMITTANCES TO FOREIGN SHAREHOLDERS

Taxation Problems

79. The Brazilian tax laws are as complicated as tax laws in most other countries. For a long time the Brazilian tax legislation completely ignored inflation. The situation improved in 1964 when, for the first time, it was allowed (for tax purposes) to depreciate those amounts resulting from the revaluation of fixed assets. This revaluation was necessary due to inflation. In 1964, however, it was possible for the first time to apply to these revaluation amounts 50 per cent of the normal depreciation rates. In 1965, this 50 per cent rate was increased to 70 per cent and in 1966 to 100 per cent. Therefore, only since 1966 has normal depreciation been allowed for tax purposes. In previous years profits, which were only fictitious due to inflation, were subject to income tax.

80. In previous years an excess profit tax had to be paid if taxable income exceeded a certain percentage of a shareholder's funds. This might be considered quite normal, as it is not unusual to apply a progressive income tax rate. However, the companies hesitated to increase share capital by a revaluation of assets, because they had to pay a special tax on the amount by which the share capital was increased. Without a raise of capital, however, profits (due to inflation) were measured against low capital.

81. It should be mentioned, however, that they were allowed to reinvest these excess taxes if the companies were in a position to use these amounts for government promoted capital expenditure. Government approval in this respect, of course, needed some time. Thus the tax amounts, which had to be deposited, were subject to inflation.

82. There was also a "reserve tax". This tax had to be paid in previous years if reserves and provisions exceeded share capital. Provisions, of course, had to be high (due to inflation) while it was preferred to keep the capital low for the reasons mentioned.

83. Today, the revaluation of assets is compulsory. Companies still have to pay a 5 per cent tax on the revaluation amount, though the entire situation is only due to inflation.

84. Service and engineering fees as well as licence fees credited to foreign majority shareholders are not allowed to be deducted from the taxable income of

the Brazilian company. Most of the provisions, being absolutely necessary, are not permitted to be deducted from the taxable income.

Remittances to foreign shareholders

85. The Brazilian law prescribes that all foreign capital has to be registered with the Brazilian Central Bank before permission is given to a company to remit dividends to foreign shareholders. One of the purposes of this is to ensure that the transfer of dividends does not exceed 12 per cent per year. In case of higher remittances, an additional withholding tax has to be paid. Because of the large number of registrations this procedure requires a lot of time. Therefore, the Brazilian authorities have allowed dividends to be transferred prior to the registration of capital. In this case, however, the companies have to commit themselves to withhold, at a later time, those amounts which previously might have been paid in excess, if the registered capital should be lower than anticipated. From a foreign investor's point of view this is not satisfactory.

86. Service and engineering fees also are allowed to be remitted abroad as soon as an appropriate contract has been registered with the Brazilian authorities. When dividends and engineering fees are transferred, a special deduction (encargo financeiro) of 20 per cent is made (10 per cent if the Brazilian company is committed for a price ceiling for its products). The percentage of encargo financeiro in the past depended on the foreign currency situation. At times this surcharge amounted to 30 per cent. Thus the foreign investors received less money.

87. Another factor which made financial remittances expensive during recent years was a special deposit, which until November 1965, had to be maintained for each remittance. At times this additional deposit had to be as high as the amounts transferred. The importance of this regulation becomes clear, if one realizes that considerable losses were incurred during the seven months duration of the deposit. This, of course, meant a financial burden to the foreign investor. (According to information in the press the encargo financeiro was abolished in late 1966.)

88. Contrary to regulations regarding dividends and engineering fees, it is not allowed to remit licence fees to foreign majority shareholders. In that Volkswagenwerk spends an enormous amount of money to transfer know-how, as well as additional amounts on processes and patents, it is the opinion of the author that licence fees should also be transferable without restrictions. The above

mentioned factors have caused a number of foreign companies to hesitate in deciding whether to invest in Brazil.

XI. POSSIBLE CO-OPERATION ON A GOVERNMENT BASIS

89. The latest severe shortage of foreign currency in Brazil was during the years 1962 to 1964. The Profit Remittance Law for quite a period prevented any transfer of dividends, service and engineering fees, interest etc. to foreign countries. The cruzeiro devalued and the foreign investors received considerably less money when remittances in larger amounts recommenced during 1965. When there are foreign currency shortages a close co-operation on a governmental basis could help considerably to overcome problems such as these. Perhaps one way of solving such questions would be to consider the following idea.

90. A number of overseas governments have aid programmes for developing countries. Only part of the aid money is needed for imports into the assisted country, while the other portion is used for local purchases. Money which is only used for local purchases need not be transferred to the developing country. Instead of remitting the full amount of the aid programmes the assisting governments could pay the investors in their own country, while the subsidiary in the developing country pays to the local government, instead of paying its liability to the overseas parent company. Such a procedure might facilitate international liaisons. It would help both the government of the developing country as well as the foreign investor. The government providing the aid programme would also reach its targets. The result might be that more companies would decide to invest in developing countries.

XII. SUMMARY AND CONCLUSIONS

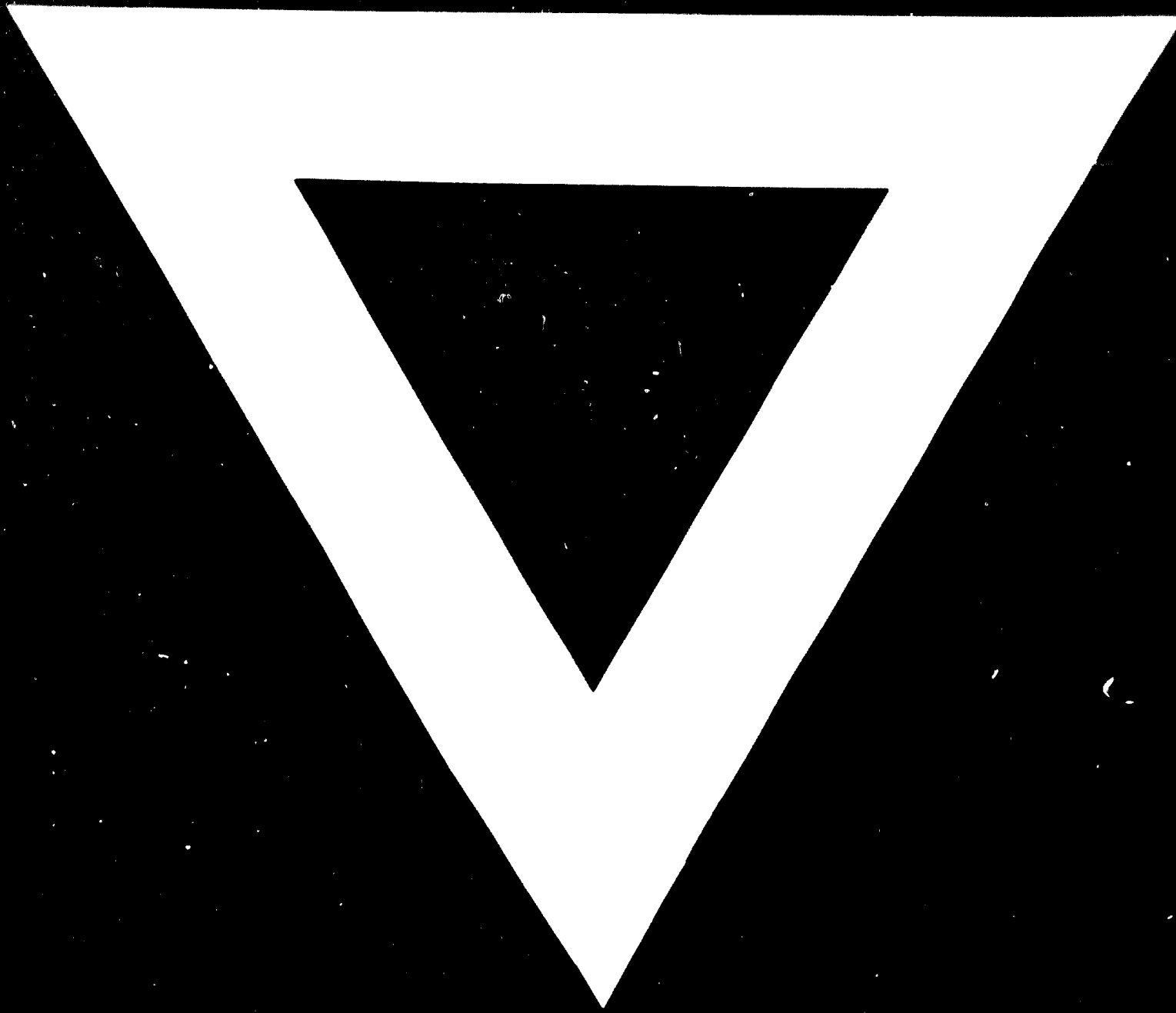
91. This report attempts to explain the development and importance of the Brazilian automotive industry by dealing with problems of employment, local supply, transfer of know-how, availability of technically trained immigrants and so on. Despite all the positive effects mentioned on the Brazilian economy, however, it should be pointed out that motor cars are still very expensive in Brazil. A Volkswagen sedan at present, for instance, retails for cruzeiros 6,164,200 (US \$2,300). In Germany the car retails for the equivalent of just under US \$1,300. The reasons for this considerable variance in price are that there are higher fixed expenses in Brazil due to a much lower production volume.

There are considerably higher purchasing prices for local material, due to less competition in a not yet fully developed supplying industry. Approximately 17 per cent of the retail price are sales and consumer taxes.

92. However, Brazil in many respects offered conditions, such as a promising market and local industry etc., which very few other developing countries or even few developed countries were able to provide. Moreover, it is necessary to mention that in most stages of the development of the Brazilian motor industry, the local authorities showed extraordinarily good co-operation.

93. The establishment of the Brazilian motor industry up to now has definitely proved to be a success. Because of the difficulties and the prerequisites mentioned, however, the establishment of a motor industry in developing countries has certain limits. In each case it will be necessary to investigate very carefully whether it is worthwhile to develop local manufacturers. The example of Brazil can be recommended for only very rare situations.





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