VEHICLE ASSEMBLY PLANTS IN NIGERIA AS A MEANS OF TECHNOLOGY TRANSFER/ACQUISITION: A PRELIMINARY ASSESSMENT

By

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This article is in the main concerned with the nature of economic co-operation, for purposes of technology transfer/acquisition, between foreign technical partners and the Nigerian government. The thrust of analysis is on the performance of the Peugeot and Volkswagen Assembly Plants of Nigeria in transferring technology to Nigerians by developing, through linkages, local parts and components manufacturing capacities and the integration of their products as local contents in the assembly operations.

For well over a decade and especially from the end of the Nigerian Civil War in 1970, Nigerian industrial development policies and strategies have been vigorously geared towards the realisation of import substituting industrialisation which would mitigate frequent balance of payment difficulties. In summary the broad policy objectives have been:

(i) the promotion of even development of industries all over the country thus evenly spreading employment opportunities.

(ii) the promotion of import substituting industries to raise the level of intermediate and capital goods production, and enhance the level of indigenous manpower development.

(iii) to increase significantly the proportion of indigenous ownership in industrial investments *(1)*.

Official policy presumption has since been that the goals of industrialisation were achievable within the shortest possible time and the current unprecedented increase in the number of imported commercial vehicles and private cars into the country seemed to lend superficial plausibility to the economic argument for the establishment of Peugeot and Volkswagen assembly plants. In official perception this approach represented the boldest and most viable of available policy options in the achievement of the goal of technology transfer/acquisition in our given sequence of circumstances.

There was, for example, a sizeable domestic market for this class of vehicles; there was the drain on foreign exchange resulting from car and machinery importations and the perceived prospects of reversing the trend to encourage local manufactures in a situation where the oil boom had generated increased incomes and expenditure.

THE BACKGROUND OF THE ASSEMBLY PLANTS

On the basis of feasibility studies conducted by United Nations experts and other consultants, the government in early 1970's decided to establish three car assembly plants in the country. To this effect an «Invitation for Proposals for the Establishment of Passenger car Assembly

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Industry in Nigeria» was published in the Federal Republic of Nigeria Official Gazette No. 53 of 9th October, 1969. Several companies responded to this invitation and on the basis of certain criteria Peugeot and Volkswagen were selected in May, 1971. The criteria for choice seemed to be namely, the relative strengths of the two companies in terms of market share in their country of origin and the relative importance of the Nigerian market to their total operations and their strategy for future growth.

Peugeot Automobile of France was a transnational family enterprise until 1975 when Peugeot S.A., the Holding company of the Peugeot Group merged with Citroen S.A. to form what is now P.S.A. Peugeot Citroen, with the Peugeot family still controlling with 41 per cent equity, and Michellin, an industrial ally, holding 7 per cent equity. Volkswagen Aktiengesellschaft (AG) of Germany is also a major multinational company in partnership with Audi Nsu Auto Union AC. It has manufacturing subsidiaries in Brasil, Yugoslavia, Mexico, U.S.A. and South Africa and so on. Both Peugeot and Volkswagen had the longer lists of export countries for their fully built up (FBU) cars. Peugeot Automobile of Nigeria (PAN) was established in Kaduna and Volkswagen of Nigeria (VWON) was established in Lagos, all in 1975.

TERMS OF THE COLLABORATION AGREEMENT

The ownership structures or equity participations in the two enterprises were as follows:

In PAN, the Federal Government held 35 per cent, Kaduna State government 10 per cent, Nigeria Industrial Development Bank 5 per cent; Automobiles Peugeot of France, 40 per cent.

In VWON, the Federal Government held 35 per cent equity, Lagos State government 4 per cent; local distributors 10 per cent; BHF (German Investment Bank) 11 per cent and Volkswagen AG 40 per cent. The equity distribution in PAN reflects the general government determination to leave a significant proportion of industrial ownership and control in the hands of Nigerians. Currently it has become mandatory for government to acquire 60 per cent equity holding in any foreign sponsored project in which it may have a financial interest.

The salient features in the collaboration agreement between the government and the two foreign partners are summarised as follows to clarify our analysis:

(a) PAN and VWON are to procure their assembly equipment from Automobiles Peugeot of France and Volkswagen AG respectively.

(b) A Standing Technical Committee to be established and given «the necessary powers to liaise with the assembly industry initiate, and supervise policies and programmes for locally manufactured parts incorporation, concessions, (and) protection required by the car assembly and local parts manufacturing industries, the development and expansion of the assembly plants generally, and other relevant matters, including pricing of local products;»

(c) PAN and VWON are «to assemble/manufacture» the companies' makes of passenger cars under licence from completely knocked-down (CKD) components supplied by the foreign automobile companies, subject to the progressive replacement with such parts, components and elements made under licence in Nigeria or purchased from Nigerian suppliers».
(d) the mix of models is to be determined by local market demand.
(e) indigenous managerial and technical personnel are to be trained by foreign automobile companies locally, in activities such as «designing and procurement of equipment, planning, installing and maintaining assembly machinery, tools and jigs».
(f) the foreign automobile companies are to «assist the local assembly plants in achieving substantial local parts incorporation, and in making use of locally manufactured parts when available, provided that the quality is acceptable to the former;
(g) in the first three years of the plants' existence, there is to be 30 per cent local content by value of CKD; (15 per cent through in-plant manufacture, and 15 per cent through procurement from local manufacturers of parts and components), and in five years (that was 1980) there is to be 50 per cent local content, and in thirteen years, 100 per cent;
(h) initially, the capacity of each plant was to be at least 10,000 vehicles per year in one shift;
(i) the prices ex-factory at which CKD components are consigned, («that is, cost of production plus normal profit»), are to be the same as the prices at which identical components are exported to other parts of the world;
(j) there should be duty concession of 10 percentage points on components of passenger cars to be imported by the assembly plants from the foreign automobile companies;
(k) built-up passenger cars with less than 2000 c.c. engine capacity are to be placed under import licence upon the commencement of local assembly operations by either of the two plants, and imposition of progressive restrictions on the numbers of imported built-up cars under licence are to be in force, to ensure that the volume of imports do not exceed the shortfall between market demand and total local production by the assembly plants, and the assembly are also to have licensing option to import the shortfall of their production targets;
(l) royalties/licence fees are to be payable to the foreign automobile companies only when «the deletion value or the CKD pack of a car exceeds 30 per cent of its ex-factory price, but subject to negotiation» in accordance with the prevailing laws and regulations in Nigeria *(2)*.

It is evident that the dominant issue as reflected in terms (b), (f), (g) and (j) of the agreement relates to the achievement of a substantial integration of locally manufactured parts and components into the assembly operations.

LOCAL PRODUCTION OF PARTS AND COMPONENTS FIRST STAGE INVESTIGATIONS

Our investigation on the existence of spare parts and components manufacturing capacity was carried out in two stages because of the prevailing local impression about the quality and origins of some Peugeot and Volkswagen spare parts. The first stage involved the study of some selected Nigerian markets for car parts by means of interviews with the distributors or sellers. The second stage involved the study, through interviews, of the assemblies' officially recognised suppliers and manufacturers of Peugeot and Volkswagen spare parts and components.

The investigations were designed to give information on some of the following:

(i) Location and size of markets for car parts and components, and the existence of manufacturing capacities in less organised forms.
(ii) Sources and composition of raw materials input.
(iii) Types of skills acquired by the work force and the nature of diffusion of such skills – a linkage or multiplier effect of technology acquisition.
(iv) The degree of dependence by the plants on locally manufactured parts and on imported components.
(v) Productivity and labour commitment in the units.

It needs to be stated that throughout our field enquiry, it was not possible to obtain information which could be lined up and analysed in the schematic way outlined above due to the suspicions of the distributors and their innate tendency to remain secretive. This tendency is usually based on fears that the responses to the enquiries might be used for arbitrary tax assessment. Nevertheless, we tried to extract information within the limits set by these constraints, on areas in which the suppliers felt freer to respond to our enquiries.

The original plan was to visit selected towns which are reputed for their large car parts markets. These are Nnewi, Onitsha and Enugu in Anambra State, Aba and Owerri in Imo State, Port Harcourt in Rivers State, Kaduna in Kaduna State, Ibadan and Oshogbo in Oyo State and Ilupeju and Apapa in Lagos State.

Nnewi is easily the largest vehicle spare parts market in West Africa followed by Onitsha. Two facts came to light from the investigations. First, no actual manufacturing units existed in any of the towns Nnewi and Aba which were thought, on the basis of general reports and belief, to be the centres for the fabrication of inferior but certainly serviceable car spare parts. What actually existed were hideouts where the filing, polishing and respraying of old parts and components took place and these parts were repackaged and displayed for sale as new «original» parts. A respondent who took us into confidence showed us two of these «workshops» and even informed us that much of their products were sold in more distant Nigerian markets where customers were less cautious about imitations.

Invariably most of the distributors marketed an assortment of car parts especially of Peugeot and Volkswagen, but there were significant locational differences for different car components and specialisation was clearly in evidence. There were, however, many instances of combined distribution or marketing of Peugeot and Volkswagen spare parts.

SOURCES OF THE SPARE PARTS MARKETED

There were wide variations in the sources or origins of the spare parts marketed. The dealers in Enugu claimed to have procured their parts mainly from Lagos and Onitsha. Others claimed to have got theirs, especially radiator and exhaust pipes, from Kaduna, the location of an approved company manufacturing these components for Peugeot Automobiles of Nigeria (PAN).

According to them, the main source of Peugeot and Volkswagen spare parts are France, Japan, Taiwan and Brasil. These parts are procured by open import licences. A dealer in Ibadan stated that his monthly expenditure on car parts importation ranged from ₦72.000 to ₦350.000, depending on demand conditions. Another distributor at Aka claimed that his monthly «profits» ranged from ₦2.000 to ₦3.000.

Although reliable figures on annual import bills of the distributors were hard to come by, on the basis of the submissions by the several distributors interviewed, the influence of the assembly plants on local components manufacturing is still insignificant and therefore unlikely to have any mitigating effects on aggregate foreign exchange expenditure. Indeed many of the large distributors expressed the wish to establish car spare parts factories if they received government support.

From this part of our field investigation it was not possible to find answers to the questions we had lined up above. Three rather surprising and significant facts, however, emerged from the enquiries.

1. The mistaken but firm belief that certain inferior but serviceable car parts were fabricated at Nnewi and Aba was conclusively disproved.
2. Apart from one dealer at Aba, no dealer mentioned as his source of supply any of the several manufacturing units registered with PAN and VWON as approved suppliers of parts and components.
3. By logical inference, this implies that no substantial linkages and multiplier effects have, as hitherto hoped, emerged from the operations of the existing manufacturing units, since they had transmitted no discernible impact on the activities of local car parts distributors.

SECOND STAGE INVESTIGATION ON LOCAL CONTENTS OF PAN AND VWON VEHICLES

At this stage of the investigation it became necessary to work through the assembly plants' management. On the basis of the lists of local suppliers obtained from PAN and VWON, field visits were made to a selected group. Visits to study some of the parts and components suppliers and

their workshops were beset by several difficulties similar to those outlined earlier about the small local spare parts suppliers. Information secured from this stage of our enquiry was fragmentary and inadequate for conducting our analysis along the lines we had proposed earlier. Many of the listed suppliers had not actually gone into production.

Several manufacturing units were visited and it will be convenient to report our findings or observations on a few of the approved components manufacturing firms.

1. Radiators Nigeria Ltd., Port Harcourt is situated at Plot 15, Trans Amadi Layout, wholly Nigerian owned, and has a share capital of ₦4 million. The company produces radiators for PAN under licence from a French Company. It began production in May 1979 and currently produces about 200 radiators per day, and plans to increase output to 300 a day in the near future. It also plans to produce bumpers; but currently produces as well water tubes from tinned brass sheets, and copper corrugates from copper sheets. Most components are imported from abroad and assembled locally.

The company is manned almost entirely by Nigerians, although there are few French personnel both in top management and in advisory capacities.

The product of this company is slightly more expensive than the imported counterpart. This was attributed largely to poor infrastructure, especially public utilities. The company unavoidably provides these services for its plants, thus raising the unit cost of its products. The quantity of local material input in these manufactures is relatively small, but it is important that a sizeable number of Nigerians is involved in production. It was gathered during our enquiry that the materials used were entirely imported and the iron panels already cut into shape. The technology transfered and acquired involved practically no complexity, consisting mainly of welding the panels together.

2. The Nigerian Automotive Components Ltd., this is a joint venture between the Magneti Marelli, Milan, Italy, which is the major partner, and Bayajiba (Nig.) Ltd., Kano. It is a ₦5 million industrial project established in 1978 and with considerable scope for expansion. It has a well equiped factory for the manufacture of ignition coils but currently imports ignition coils and sells these to PAN under the trade name of «NIACO». The company has four technical officers, namely the Managing Director, Production Manager, Quality Controller and Materials Manager, all of whom, are expatriates. The Accounts and Personnel Departments are headed by Nigerians and the company plans to employ a Nigerian assitant Managing Director during 1981. The total work force is about 100.

Ignition coils are the main products of this company but it has plans to produce air brake equipments and other electrical components. It is difficult to see how the plans can be executed in future considering the engineering sophistication required in the production of these components.

The company has capability for the production of generators and alternators in the near future for PAN and VWON, and the Federal Ministry of Industries has given it approval to do so and to manufacture batteries as well. The company had a contract to supply NIACO ignition coils as original equipment according to the following monthly schedule for 1981: March, 5.000 units; April, May and June 3.000 per month; July and thereafter, 6.000 units per month.

The usual practice which PAN insists on is that NIACO produces a few units which PAN approves as having satisfied standard specification before it embarks on full production. The company also plans to commence the production of alternators from CKD units in the near future for local assembly plants with an initial annual output of 40.000 units. It is currently giving considerable emphasis to on-the-job training and its mechanics are grouped into two classes. There are those with a combination or primary school leaving certificate and trade test certificates, and those with practical experience as roadside mechanics.

Although the CKD prices of the electrical components the company plans to produce are considered low, the estimated cost of the finished products is unlikely to be competitive with imported ones. This possibility had been brought to the attention of the Standard Technical Committee of the Ministry of Industries with a suggestion about the need for adequate subsidy to make the prices of locally manufactured components relatively competitive. Available statistics make it difficult to give any meaningful estimate of value-added in this company.

3. Polyplast (Nig.) Ltd., Kano, produces seat covers and upholstery which are supplied to PAN. The company commenced production in 1980 and procures some of its inputs from abroad. Its plastic input is locally supplied. The workforce consists of two expatriates and fifty Nigerians and the company has recently added to its product lines silencers and exhaust pipes. This division has two expatriates and twenty-six Nigerians one of whom is a production manager.

The technology transferred and acquired here is the welding together of iron metals already cut to specifications in France. There are no local contents in terms of local raw material inputs in this activity in which 300 – 400 units are produced per day.

In all industries visited, the experiences were the same and, for the sake of completeness we may just mention the other enterprises interviewed. There are as follows:

4. Northern Cables Processing Company (NOCACO) – a joint venture between a Nigerian Investment Bank, private Nigerian investors, BEG–German Development Bank for producing cable harnesses. All its inputs are imported.

5. Berger Paints (Nigeria) Ltd., Apapa, produces paints, acquatic primer, top coating, degreasing and phosphating products. It is the primary supplier of PAN.

6. Michellin and Dunlop (Nig.) Ltd.: these supply PAN the full requirements in respect of tyres and tubes, but do not produce enough to meet

the total country's requirement and imports still filter in.

7. Silencer and Exhaust Pipe Company, Kano: This company supplies seat frames which are imported from France.

8. Total and Agip (Nig.) Ltd., are the suppliers of all the requirements of PAN in respect of oil, brakefluid, steering power oil, gear oil and high pressure oil. These products are wholly produced in Nigeria and a large number of Nigerians are employed, some in management posts.

9. General Appliance Company Ltd., Otta, is the primary supplier to PAN of air conditioning equipment including compressors. The units are assembled locally from semi-knocked down components.

10. Philips (Nig.) Ltd., Ojota, Lagos, is the supplier of all the radio cassette needs of PAN. The company employs a large number of Nigerians, but predates the establishment of PAN *(3)*.

FINDINGS

With these reporting of the interviews in the second stage of our investigation it is easy to state in more specific terms, the extent of integration of local parts and components in the activities of the two assembly plants. Our findings reveal:

(i) that the manufacturing units of the approved suppliers are located mainly in Kaduna, Lagos, Kano, Port Harcourt and Ibadan. The unique thing about this locational pattern is that they are all based in the state capitals of the country, except Kano. This keeps them in touch with state governments and suitable utilities.

(ii) Most of the raw material inputs are imported and scarcely any case of local material input was reported. This implies that local content in the total assembly activities is insignificant.

(iii) That the technologies transferred and acquired are of rudimentary nature – lacking in complexity and having limited linkage effects. The limited scope for vertical and horizontal integration manifested in the plants operations was confirmed by PAN and VWON which claimed in 1981 to have achieved 12 % and 10 % of local content respectively.

(iv) The degree of dependence by the plants on locally manufactured parts and components is minimal and this accounts for the heavy expenditure on importation of car spare parts in the country.

(v) Employment generation of the units is modest.

(vi) Productivity and labour commitment in the units are poor. For example Northern Cables Processing Company (NOCACO) complained of the poor attitude to work of its workforce most of whom had to be chased around to do their work and most spend much time daily in prayers.

Indeed the local contents achieved by PAN and VWON vehicles are far behind the schedules outlined in the terms of agreement between the technical partners and the government, and both plants have failed to meet their own local content projections.

This was six years after the first passenger car was assembled in Nigeria. On the basis of existing local capabilities and available data, the extent of local content indicated by the plants over the past three years have tended to overstate, by 3 to 4 per cent, the extent of local content integration actually achieved. When the import contents of the locally produced parts and components are taken into account, the estimates are considerably lower.

Various projections on local contents have failed evidently because there is no national programme of local integration. In 1978 the Managing Director of PAN gave projections showing that by 1980 the plant would have achieved 30 per cent local content. The following table shows in summary, the composition and value of local contents for a popular model of Peugeot car. The table illustrates that for this model the plan is yet to attain 10 per cent.

Table 1 – Local contents
Example of composition for Peugeot 504 GR

Product	Supplier	Quantity/ Car	Unit Price	Price Per car
Battery filling	Pace Engineering Group, Kaduna	1	5.52	5.52
Rear Exhaust	Silencers & Exhaust	1	23.45	23.45
Frt pipe	Pipes, Kano	1	6.61	6.61
Intermediate muffler	Kano	1	15.52	15.52
Oil EP 90	Total Nig. Ltd.,	1.6 Lt.	.802	1.28
Oil GTS 20 W 50	Lagos	5.7 Lt.	.875	4.99
Brake Fluid		0.47 Lt.	1.959	0.92
RH seat Frame	Silencer & Exhaust	1	39.11	39.11
LH seat Frame	Pipe, Kano	1	39.11	39.11
Frt Plate lifting Jake Sale	Polyplast, Kano	1	.12	.12
RH wheel Arch Linning		1	.21	.21
LH wheel Arch Linning		1	.10	.10
Dirt Profing sheet		1	1.40	1.40
Linnings LH Scuttle side		1	1.40	1.40
Linning RH Scuttle side		1	.08	.08
RH Lower linning		1	9.29	9.29
Joint/Fixing wedge Weather strip of Back Window Glass		1	11.70	11.70
Weather strip of Wind Screen Glass	SPN	2	5.71	11.42
Weather Strip of Doors Front				

Product	Supplier	Quantity/ Car	Unit Price	Price Per car
Tyre & Tube	Michelin & Dunlop	5	35.44	177.20
Degreasers Touch up thinner Enamel Top coat, etc.	1 Chemical & Allied Products, Ikeja 2 Berger Paints Ikeja		35.00	99.00
Half shroud	Radiator Nig. Ltd.,	1	3.50	3.50
Half shroud		1	3.50	3.50
Radiator		1	77.00	77.00
Miscellaneous				103.70
		TOTAL		636.34

Source: *Peugeot Automobiles Nig. Kaduna.*

CAUSES OF THE POOR PERFORMANCE

It will be convenient to identify some of the principal causes of the poor performance of the plants in achieving the objectives of policy with regards to achievement of local content integration.

The pattern of development in the automotive industry which has emerged in most developing countries, such as Brasil and South Korea, has three phases as follows:

(i) the importation of fully built-up (FBU) cars with sales and service outlets and the bulk of replacement parts imported;

(ii) the development of repair shops and the manufacture of parts and components of low technological complexity, encouraged by the perceived opportunity for profits in the replacement market.

(iii) importation of CKD components for local assembly encouraged by growth in the network of parts and components manufactures and opportunities for local integration.

(iv) substantial local horizontal integration of vehicle production. A very instructive and interesting example of transition through these stages is the Chinese experience where motor-vehicle repair plants have been converted into assembly and manufacturing facilities.

In the Nigerian case we find a leap from phase (i) to phase (iii). This leap constitutes one of the most unimaginative actions of government in the total transaction. The successful development of the automotive industry in the countries mentioned above did not precede the development of a network of repair shops and parts manufacturing as has been the case in Nigeria. This explains why optimal internationalisation of imported technologies is impossible because there is a serious lack of the requisite local scientific and technical manpower with a consequent reliance on foreign personnel to operate imported plants.

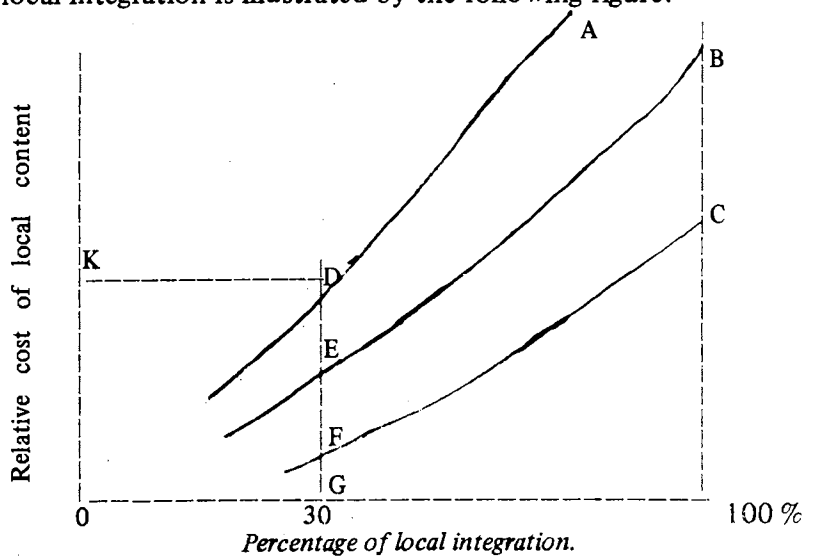
The failure to achieve the various projections of local contents is primarily due to the absence of a national programme of local integration. Since there was already a large domestic demand for Peugeot and Volkswagen spare parts, a good starting point would have been to pursue vigorously a policy of establishing car spare parts manufacturing units all over the country as a prelude to establishing the assembly plants.

Part of the causes of the assemblies' poor performance lies also in terms of the agreement with the technical partners. The terms cover a wide range of policy goals but most of these terms lack operational content or appropriate instruments for their implementation.

Although the Ministry of Industries has a project Monitoring Section, there is no provision for any Unit to scrutinise the activities of the plants so as to ascertain whether or not technology is being effectively transferred and acquired.

Thus unlike the case of Brasil, South Korea and China one fails to find in the Nigerian situation an appreciation of the importance of political will and close working relationship between government and the plants. In particular no deliberate policies for generating effective linkages between the automotive industry, research and development existed. Such policies are particularly important because of the initially prohibitive cost of a systematic and rapidly expanding local content programme. The high initial cost to a country occurs for several reasons such as absence of comparative cost advantage, poor quality, absence of economics of scale and poor utility services.

At the early stages of the local parts manufacturing the relationship between the relative cost of local production and the percentage of local integration is illustrated by the following figure.



Percentage of local integration.

The three curves AD, BE, CF illustrate the behaviour of the relative costs of local production as local integration increases. At 30 % local integration

three levels of relative costs can be discerned. Curve AD indicates the very prohibitive cost level when there is no comparative cost advantage, no scale economies and poor utilities exist. Curve BE indicates the level of cost when some economies are reaped and curve CF indicates the optimum situation when relative cost is minimum and relative cost falls to GF. That is, the relative cost, at 30 % local integration begins from DG level and falls to EG and FG progressively as economies of scale increase. The point here is that it is an important function of policy to prescribe methods by which the cost must be pushed down from AD level to CF through BE over time. This effort must persist even when local integration has been pushed to the 100 level.

A final identifiable source of poor performance of the plants is the provision, in the agreement, to impose heavy tariffs on FBU cars while imported components and spare parts attract concessionary rates of duty. This provision tends to discourage any efforts in the local manufacture of parts and components and should have been seen as a strategy for long-term sales promotion of the imported parts. Thus either a deliberate effort should have been made to specify the terminal period for such importation or provision made for a time-phased programme of local parts integration in a way to permit the removal of tariff concessions on specific parts when they become due for integration as local components. The failure of the assembly plants to produce a far-reaching favourable impact through linkages and eventual integration of local parts and components is reflected by the increased import expenditure on motor vehicle spare parts and components. Table 2 illustrates this fact clearly.

CONCLUSION

A fact usually not always appreciated by developing countries trying to acquire foreign technology is that the background to the transfer/acquisition of technology is essentially oligopolistic; and in the ensuing game-theoretic situation each party to the collaboration agreement tries, over time, to maximise his payoff.

The foreign transferer of technology certainly does not wish to transfer it in such a way as to quickly terminate the long-term advantages that normally would acrue to him in his operations. For example, it would be to the advantage of the foreign partners to tactically delay transfer of technology so that the loopholes in the clause permiting continued importation of parts and components at concessionary rate may be exploited for long. Moreover, although the game is of a cooperative variety, the foreign partner is quite conscious of the fact that he is being invited to hasten the sharing of his production secrets and of his well-established markets.

This is borne out by the fact that nowhere in the agreement is it stated that Nigeria would export its cars to countries or markets served by the foreign assembly plants. We also see that the rate of annual production is undersubscribed to maintain the constant pressure of local demand as a

Table 2 – Importation of Motor Parts into Nigeria by Country of Origin, 1978.

Country of Origin	Bodies, Chassis Frames and other Motor Vehicle Parts (₦'000)	Engines		Chassis of Trucks and Lorries, especial Vehicles etc.		Articles of Rubber (including outer covers and inner Tubes,etc. for Motor Cycles, Cars,Lorries Tractors etc.)* (₦'000)	Total Value of Spare Parts Imported (1 + 5 + 6) (₦ '000)
		No.	Value (₦'000)	No.	Value (₦'000)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
U.K.	51,300	3,929	779	31	417	18,949	71,446
U.S.A. and Canada	6,297	537	138	5	176	2,993	9,605
Italy	11,457	164	122	38	585	11,254	23,419
Germany	64,629	1,287	988	118	504	11,900	78,022
France	106,752	2,669	1,023	1	4	16,120	123,901
Brasil	9,068	56	76			417	9,562
Japan	27,240	1,065	679	69	911	5,094	33,920
Other Countries	22,527	350	185	2	16	22,609	45,330
TOTAL	299,272	10,057	3,992	314	2,615	89,341	395,221

* Includes SITC 629 – 19: Rubber tyres, solid outer covers and inner tubes including Aircraft N.E.S. amounting to ₦ 3,504,234.00

Source: *Federal Office of Statistics, Digest of Statifstics, 1980.*

way of diverting attention from considerations of outside markets for earning foreign exchange. The purpose of establishing the assembly plants is to reduce foreign exchange expenditure. Import bills on car components, however, have continued to escalate beyond expectation as table 2 illustrates.

Thus in the co-operative game confronting both parties the foreign partner is clearly seen to be maximising his payoff while the Nigerian government is not doing that. It has established neither a legal framework for enforcing the terms of the contract nor an efficient institutional mechanism for checking the performance of the plants against policy targets. The Nigerian experience represents perhaps the typical climax of a complicated, and sometimes bizarre, saga in the attempts of developing countries to acquire foreign technology without having accumulated a critical mass of technical manpower capable of absorbing and improving on acquired technology.

It needs to be stressed that the motivations for the sale of technology, euphemistically called the transfer of it, must be seen as part of the

normal commercial operations of multinational corporations or enterprises from which acceptable level of profits must be secured. Many of these enterprises use the transfer of technology as a cover to penetrate, conquer and preserve markets with high tariff protection in countries experiencing foreign exchange shortages or balance of payment difficulties. They try to maintain these markets also when they can no longer be exploited on monopolistic basis either because competition has increased or because the specific technology is getting assimilated into the «states of the art».

The best way to transfer/acquire a sophisticated technology is undeniably through joint enterprise in which the foreign technical collaborator participates through training, technical and administrative assistance, quality control and intervenes at its discretion in the production process. This power of intervention opens the flood gate for massive and growing penetration of the most dynamic sectors of the host country's economy. It should be noted also that many of the technology suppliers are often induced by unfavourable economic factors at home, such as high labour cost and tariff policies, to seek more profitable openings in developing countries. It would therefore be naive to imagine that they have come with a missionary spirit to transfer technology to a technologically needy people.

We suggest that in any programme of technology transfer, the Nigerian government should produce a time-bound schedule of target levels of achievement. The programme should clearly include plans for a Research and Development Unit, engineering design, training of human resources and other measures necessary for the absorption, adaptation and further development of the new technology. An agency fully manned by professionally qualified personnel rather than ministry administrators, should be established to monitor general performance and should have powers to inspect and assess the technological and local content of the output of the programme *(4)*.

It is particularly important that the collaboration agreement contains a penalty clause which, for example, stipulates that in the event of a failure on the part of the foreign partner to transfer the technology to schedule, the equity contribution or part thereof the foreign company would revert to the host country. This could help matters if the multinational company accepts the term.

Generally, however, it needs always to be borne in mind that for any foreign multinational company the motivation behind all commercial negotiations consists of:

> «... establishing subsidiaries abroad with explicit purpose of supplying the markets of the host country... Organizing veritable business empires with complex logistical networks among their affiliates... Decisions are made not in terms of what is best for the home country or any particular product group, but in terms of what is best for the corporation as a whole on international basis.» *(5)*

FOOTNOTES

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1. See Federal Republic of Nigeria: National Development Plan, 1970–1974 and National Development Plan 1975–80.
2. I have relied entirely here on the contribution by Dr. D.B. Thomas who directed this study while we were on the staff of the university of Ife. He and other colleagues will see how much I have, with appreciation, borrowed from their work.
3. I am immensely grateful to Mr. Sanya Ewedemi for his assistance in these interviews.
4. For a more forceful statement of these views see Carlos Contrera Q., The Transfer of Technology to Developing Countries, Venezuela, Lithographia Melvin, 1978.
5. Gyorgy Adam, «Multinational Corporations Worldwide Sourcing», International Firms and Modern Imperialism. Penguin Modern Economics Readings, 1975, p. 90, quoted in Carlos Contrera Q., op. cit. pp. 157–158.

RESUME

En 1975, le gouvernement du Nigéria ouvrait en même les usines de montage Peugeot et Volkswagen. Le but de cette politique était de lancer une industrie de substitution d'importation capable d'assurer un transfert de la technologie étrangère appropriée aux Nigerians. Il était convenu que les matières premières locales seraient systématiquement incorporées dans le processus de production aux taux de 30 % d'intégration locale dans les trois premières années, de 50 % dans cinq ans et de 100 % dans treize ans. Les résultats de notre recherche ont montré qu'après plus de six ans de fonctionnement,

1. *pas un seul fournisseur des marchés locaux du nigéria que nous avons couverts n'a mentionné comme source d'approvisionnement en composants et pièces qu'ils vendaient un seul des fournisseurs agréés de ces pièces et composants pour la PAN et la VWON. Aussi les distributeurs locaux dépensent-ils de fortes sommes d'argent en devises étrangères pour importer du Japon, de la France et de Taïwan.*
2. *aucune technologie significative autre que celle qui est la plus rudimentaire n'a été transférée et le contenu des inputs en matériel local reste inférieur à 10 %.*
3. *l'importation des composants et pièces de rechange des voitures Peugeot et Volkswagen s'est accrue entraînant ainsi une forte saignée de devises étrangères ainsi qu'un élargissement du marché local de ces pièces.*
4. *Les termes de l'accord de collaboration ne prévoient aucune peine pour le non-transfert de technologie comme cela a été prévu permettant ainsi des manœuvres de tactiques relâchées qui ne s'intéressent qu'à la promotion de concurences rentables.*