THE COMPETITION FOR RESOURCES (ESPECIALLY LABOUR AND LAND) BETWEEN THE OIL INDUSTRY AND AGRICULTURE IN TRINIDAD AND TOBAGO

Hamid O'Brien
(Economist I, Ministry of Finance, Trinidad & Tobago)

Introduction

It is a popularly held belief that agriculture in Trinidad and Tobago has suffered as a result of the presence of the oil industry. Indeed, it has often been said that oil may be more of curse than a blessing to the country. Undoubtedly, agriculture has suffered a serious decline over the past 70 years, and continues to be faced with a multitude of problems.

This paper in discussing the competition for resources between the oil industry and agriculture in Trinidad and Tobago, hopes to throw some light on the extent to which petroleum has really been responsible for the problems in agriculture.

We recognise that competition for resources between the oil industry and agriculture may not always be direct. The paper therefore treats the subject in broad terms, taking into account other elements of competition such as the manufacturing sector, the education system, wage-differentials etc. The result is that we have tried to look at the subject more in terms of developmental strategies, than on a narrower sectoral basis.

We have found it useful to view the subject from two levels: the historical aspects of the competition up to the mid 1960's; and the present situation (with some outlook for the future). Section I therefore, traces the development of oil and agriculture up to the mid 1960's examining the competition for resources between the two sectors. Section II deals with the present situation, while Section III gives a summary and our conclusions.

Section I

Historical Aspects: 1900 - circa 1965

The beginning of the twentieth century found Trinidad and Tobago an agricultural economy. Today, however, the economy is basically a petroleum economy with a growing manufacturing sector. The transition from an agricultural to a more diversified but basically petroleum economy, provides the framework for reviewing the historical aspects of the competition for resources between agriculture and the oil industry in Trinidad and Tobago.

The Transition from Agriculture to Oil

Commercial oil production first began in Trinidad in 1906. The oil industry, however, quickly came into its own, and within two decades was well on its way to outstripping agriculture as an earner of foreign exchange and a contributor to Government Revenues.

Oil exports as a percentage of total exports moved from an annual average of 15 per cent for 1919-23 to 59 per cent for 1934-38.

Further, for the period 1939-47, exports of oil showed an annual average of about 75 per cent of total exports. In addition, over the 1939-47 period, the direct contributions of the oil industry to Government Revenues ranged between 20 and 331/3 per cent.

During this time agriculture was subjected to fluctuations around a declining trend. Moreover, within agriculture, there was a shift in the relative importance of individual export crops. Cocoa, which has emerged as the leading export from the late nineteenth to the early twentieth centuries, declined seriously, and gave way to sugar.

Over the period 1918-37, agricultural exports declined from a position to 72 per cent (1919-23) to 33 per cent (1934-38). In 1947, agricultural exports only accounted for about 15 per cent of total exports. In addition, sugar's contribution to total exports moved from an annual average of 31 per cent in 1919-23 to 22 per cent in 1934-38 and 10 per cent in 1947. Cocoa also fell from 40 per cent in 1919-23 to only 4 per cent in 1947.

The shift in importance from agriculture to oil in the field of exports is clearly illustrated in Table 1 below.

Table 1. Percentage Distribution of Exports; Trinidad & Tobago, 1919-47

	Annual Averages				
	1919-23	1924-28	1929-33	1934-38	1947
Minerals:					
Oil and Petrol	15	34	44	59	76
Asphalt	6	8	6	4	3
Main Agricultural Products:					
Sugar	30	21	21	22	10
Rum and Molasses	1	1	1	1	1
Cocoa	40	28	21	10	4
Other Products	8	8	7	4	6
Total	100	100	100	100	100

Source: (1)

In the area of domestic food production during the period indications were that this was fairly substantial, reaching a peak during World War II, and then going into a decline. In 1938 it was estimated that about 34,950 tons of food crops were produced on 20,000 acres. In 1944, the estimates were a production of 150,829 tons from 77,540 acres largely the result of the *Grow More Food* campaign of World War II. Since

then, with the opening up of channels of imports, domestic food production has gone into a steady decline.

During the 1950's and 1960's the dependence of the economy on the performance of the oil industry further increased. While petroleum continued booming the gross domestic product grew apace. In the later sixties when petroleum declined the rate of growth of the GDP slackened considerably (Table 2). By this time, the fortunes of the economy were unedniably and closely tied to the oil industry.

Table 2. Percentage Growth in GDP Petroleum and Agriculture at Factor Cost; Trinidad & Tobago, 1951-71

	1951-61	1961-71
GDP	206.9	86.7
Petroleum	205.6	17.0
Agriculture	109.7	21.5

Source: (3).

Historical Aspects of the Competition for Resources

There is no evidence of any causal relationship between the decline of agriculture over the period and the rise of the oil industry. In terms of competition for land resources, total agricultural acreage fell from 497,000 acres in 1938 to 444,000 acres in 1958. Acreage held by the oil companies however, also decreased, moving from 346,971 acres in 1939 to 326,669 acres in 1959.

There is no data showing the amount of agricultural lands held by the oil companies of the extent to which these lands may have been diverted from agricultural usages by the companies. However, there must have been some displacement and disruptions due to drilling and exploration activities of the oil companies, and in the construction of their industrial and housing complexes. Such diversion of lands however would have been marginal.

Nevertheless, there is ample evidence of estates and farms, not located on oil lands, being abandoned over the period. Indications are, therefore, that in the decline of agricultural usage of lands, the oil companies' holdings has not been significant.

Further, with respect to labour, direct employment in the oil industry grew from 6,440 in 1933 to 13,493 in 1940 and to over 20,000 by the mid 1950's. The industry never directly employed more than 15 per cent of the labour force at any given time, and since the latter half of the 1950's it has been throwing off labour.

The real effect of the oil industry on the supply of agricultural labour has been through the higher wages paid. In its report,

the Economics Committee, appointed in 1947, had this to say of the oil industry:

> *In the labour field it creates a difficult problem for itself and the less prosperous other economic activities of the island. In any community there are some activities that pay better wages than others, but the numbers they can employ at higher wages are limited.* (1, p.46.)

During World War II, labour had been attracted from agriculture by higher wages in the oil industry and on the American Bases. As a result, export agriculture declined considerably. After the War, much of this labour preferred to remain unemployed rather than return to agriculture.

The decline of agriculture over this period, however, is not so much due to a shortage of labour as to problems of markets, diseases, falling prices and a changing attitude to agriculture. Indeed, the sugar industry, which had favourable marketing arrangements, revived, finding sufficient labour.

In the field of public investment funds, there was hardly any investment in the oil industry before the late 1960's. The relatively low level of public sector investment in agriculture over the period is attributable to other factors, than investment in the oil industry.

There is a paucity of data on private investment in agriculture and the oil industry. However, with respect to private foreign investment in oil, such investment came specifically to be invested in the oil industry, and would hardly have been diverted into agriculture. As far as private domestic investment is concerned, loans and advances of commercial banks provide an indicator of the attitude to investment in agriculture. In 1945 agriculture received 26 per cent of loans and advances of commercial banks. By 1951, this had fallen to about 6 per cent.

Agricultural Policy

In the report of the Economics Committee, it was recognised and recommended that the future of the country lay in developing agriculture, while encouraging other industries to provide a broad based economy, and to provide additional employment. It was also recognised that the oil industry had an important part to play in providing finance.

However, no formulated policy on agricultural development emerged, largely because of the appearance of the Lewis model of industrialization and the apparent success of the Puerto Rican case. Agriculture therefore staggered along, being propped up in times of crises. The first clear statement of policy and indication of an integrated approach to agriculture was sounded in the Second Five Year Development Plan (1964-68):

> *The achievement of the goal of greater self-sufficiency in food with a consequent reduction in the share of imports in food consumption, and dampening down of the incipient*

inflationary pressure on food prices, depend to a very great extent over the plan period on the small and medium sized farmer.

The aim over the plan period is therefore, to establish the basis for a productive small and medium farm system geared to produce increasing quantities of milk, eggs, poultry, green vegetables, root crops, pork and pulses for the local market and in some instances for export in processed form. The establishment of such a system would do much to encourage existing small farmers to stay on the land and make use of the opportunities that exist.

There is no real conflict between the goals of promoting domestic agriculture and encouraging export agriculture. Increased expenditure in both sectors automatically strengthens the foreign balance. But the markets for the traditional export crops are not indefinitely extensible. Such markets depend in most cases on the existence of special agreements not necessarily related to cost and price factors. To the extent, however that such markets can be extended through negotiations, increased production in export agriculture should come from increases in yields from existing acreage rather than from extended acreages.

The present situation of the competition for resources between agriculture and the oil industry can therefore be now reviewed with the framework of this stated agricultural policy. It also makes it possible to more readily isolate the effects of the oil industry on agriculture.

Section II

The Present Situation

Competition for Land

In viewing the competition for land resources between agriculture and oil in the present situation, we bear in mind two aspects of the agricultural policy stated above. Firstly, that the acreage under traditional export crops will not be extended, although non-traditional export crops such as citrus may be extended. Secondly, that domestic agriculture will be encouraged and promoted on new lands and through the reorganisation of existing farms.

At present the oil companies hold approximately 360,000 acres of land. Of this acreage about 3 per cent is utilized for industrial, residential and recreational purposes. These 360,000 acres are stretched across the southern section of the country principally in the counties of Nariva/Mayaro, St. Patrick and Victoria. Texaco Trinidad Inc. is the largest land holder with 248,000 acres.

In order to determine whether or not the fact that these

lands are held by the oil companies constitutes a competition with agriculture, for such resources, the agricultural capabilities of such lands must first be ascertained. Secondly, their present usage must be examined and the attitudes of the oil companies to these lands must also be known.

Agricultural Capabilities: Data from the Land Capability Survey of Trinidad and Tobago show that about half the lands held by the oil companies fall within Class VI. There are fairly large pockets of Class III land, mainly in the Fyzabad, Point Fortin, Penal, Sadoowah, Siparia, Palo Seco, Moruga and Mayaro/Guayaguayare areas.

There are also large sections of Class IV land in the Point Fortin, La Brea, Oropouche, Mayaro/Guyaguayare, Fyzabad and the Tabaquite/Piparo areas. About 20 per cent of the lands are classified as Class V. These are contained in very large pockets in the Point Fortin, La Brea, Penal/Sadoowah, Mayaro/Guayaguayare and the Basse Terre areas.

The Land Capability description of the different classes of soils is as follows (2):

Class I - Very good land that can be easily cultivated.

Class II - Very good land that can be easily cultivated, simple protective measures required.

Class III - Good land, requires moderate to intensive conservation and management practices.

Class IV - Moderately good land requires intensive conservation and management practices.

Class V - Fairly good land, should be used for forest, tree crops, grazing and buildings depending on the slope.

Class VI - Unsuitable for agriculture due to slope and/or water limitations, should be left under indigenous growth in forests.

Class VII - Unsuitable for agriculture due to very steep slopes. Should be left under indigenous growth or forest.

From the foregoing, it would appear that the greatest potential competition for land resources between agriculture and oil should take place in the following areas: Point Fortin, Fyzabad, Oropouche, Penal/Sadoowah, Siparia, Palo Seco/Los Bajos, Mayaro/Guayaguayare, La Brea, Piparo/Tableland and Basse Terre/Moruga.

Present Land Use: Information from the Land Capability Survey on the present land use in these areas shows fairly intensive agricultural usage. Only in the Mayaro/Guayaguayare area is there extensive growth of forests and very little other agriculture, except for coconuts. The principal crops in the areas appear to be coffee, cocoa and bananas, with citrus. There are also three large teak plantations.

In the more built-up areas of Point Fortin, Fyzabad and Penal there is a considerable mixture of food crops and vegetables. The Oropouche area is given over almost entirely to the production of rice and vegetables. The Piparo/Tableland areas are given over to sugar cane. In addition, there is the Texaco Star Farm (Dairy) at Point-a-Pierre.

The oil lands therefore which are capable of supporting agriculture are being made use of for this purpose. Indeed, it can be said that much of these lands came under agricultural usage because the oil companies in their explorations laid down roads and other infrastructure.

The level of agricultural practices in these areas, is not of the highest, with much of the food crop planting being done on a shifting cultivation, part-time basis. The point to be made here however, is that the lands are available and that agricultural usage has been made of these lands. The element of competition in this respect is therefore diminished.

Attitudes of the Oil Companies to Land Usage: The general attitude of the oil companies towards the surface use of the lands which they hold appear to be reasonable and fairly generous. The general attitute is one of allowing the lands to be used for agricultural purposes, as long as such lands are not immediately needed for exploration and drilling purposes. In cases where lands are under cultivation, the policy is to compensate the farmer for disruptions or displacement, when such lands are needed by the companies. In such cases the Government compensation scale is used. The policy is also to pay compensation for pollution damages.

In the case of Texaco, the policy has been to lease out Freehold lands on which there are tree crop estates. The motivating factor here is the shifting of the cost of maintaining existing estates or lands which the company bought on leased for oil-mining purposes. The important consequence is that the agricultural usage of the land is maintained and the farmer derives an income from the venture.

The tenure of such leases have been for periods of 10 years, with the option of renewal. In addition the company rents out lands to bona fide farmers to undertake small scale farming. Further there appears to be a working relationship between the company and the Subintendant of Crown Lands Division whereby crown lands held under lease may be made available for agriculture.

This attitude is not restricted to the Texaco Company. Indeed the Shell Company has gone as far as to set up an agricultural project, the Lot 10 project (4), providing lands, supplies and a paid Agronomist. This project has proved to be fairly successful. The Trinidad/Tesoro Oil Company is also in the process of handing over a viable, on-going citrus estate and dairy farm complex in the Palo Seco area, to the government.

The competition for land resources between agriculture and oil therefore continues to be marginal and almost entirely limited to temporary disruptions due to exploration and pollution. In the

case where lands are held back for exploration purposes, there is very likely to be the future benefit of more access roads and other infrastructure. The constraints to developing these lands for agriculture appear to be other than the fact that the lands are held by the oil companies.

Labour

The competition for labour between agriculture and oil in a labour surplus economy, by definition, must be indirect. Agriculture is relatively labour intensive, while the oil industry is highly capital intensive. In addition, the skills required in a substantial percentage of the labour force in the oil industry are not generally applicable to agriculture. The only element of competition must therefore be focussed in the area of the unskilled labour force, and in those skills which can be used in agriculture.

The number employed in the oil industry are small relative to the total supply of labour. Further, since a substantial portion of these are skilled or clerical, then the element of direct competition for unskilled labour is indeed small. In fact it is almost non-existent since the labour force in the oil industry is well organised and is virtually a closed shop. Also employment in the oil industry declined by 2.1 per cent from 1965 to 1970, while employment in agriculture increased by 0.9 per cent.

With respect to skills applicable in agriculture, there is a greater potential direct competition. Many young people upon graduating from secondary schools with subjects like chemistry and biology, seek employment in the oil industry as laboratory assistants, etc. Such young people are generally attracted by the higher wages in this sector. These skills, if channelled into agriculture, could have a proportionately greater impact. Indeed, agriculture suffers from a lack of such skills.

It is then more accurate to state that there is little direct competition for labour resources between agriculture and oil, but that the oil industry has an adverse effect on the supply of labour for agriculture. This adverse effect operates through the wage differentials between the oil industry and agriculture.

There is a lack of data on average earnings in agriculture. However, using data for manual workers in Sugar, and the manufacture of foods as indicative of earning in agriculture, and comparing these with similar data for the oil industry, we find that on the average the manual worker in agriculture earned half the earnings of his counterpart in the oil industry (Table 3). This gap has been steadily widened.

The present situation in the labour market is one of wide disparities in the earnings of similar workers in different industries, with the oil sector leading. This is within a framework of increasing mobility of the population and an island-wide coverage by the news media. There is also an ever increasing exposure to advertisements of the *good life* and the higher standards of living being associated with white-collar jobs and the city life.

Table 3. Average Earnings Per Week

($ TT)

Sector	1966	1968
Mining, Marketing & Refining of Oil and Asphalt	70.16	74.55
Manufacture of Food	32.55	37.42
Sugar	32.05	30.69

In addition, the education system tends to emphasize these values and attach a stigma to working on the land. Also the presence of the Special Works Programme, offering very high wages, has had a very serious adverse effect on the supply of agricultural labour. Moreover, people leave the rural areas for the city, in the hope of getting jobs at the higher wages.

The end result of this combination of factors is that in a labour surplus economy, there is a shortage of agricultural labour. The main cause for this shortage however, is the fact that within a society, in which the cost and standards of living are steadily rising, it is almost impossible to obtain a decent living from agriculture. Nevertheless, the oil industry, through the demonstration effect of its wages structure has undoubtedly contributed to this shortage in the supply of agricultural labour.

In looking towards the future however, a potential direct competition for labour between the oil industry and agriculture can be seen, in the expansion of the oil industry. The proposed construction of the Liquified Natural Gas Plant is expected to employ thousands of workers. The development of related petro-chemical industries will also provide considerable employment opportunities. The consequence of such however may very well be a further disenchantment with agriculture as a source of income. In any case it makes the task of enticing people back to the land so much more difficult and costly.

Capital

In considering the competition for investment funds between agriculture and the oil industry in Trinidad and Tobago, it must be borne in mind that one industry is highly capital intensive while the other is not. Therefore, the impact of a relatively small investment in agriculture may be significant, while the impact of the same level of investment in the oil industry may be negligible.

Public Sector Investment: It is against this background that the competition for public investment funds between agriculture and the oil industry is examined. Until recently, there was no direct competition for public investment between agriculture and oil. In the proposed capital expenditure programme of the Third Five Year Development Plan

(1969-73) only $10m. of 3.8 per cent of Total Expenditure was set aside for the oil industry. This was for the purchase of the assets of British Petroleum Limited. On the other hand $61.5m. or 16 per cent of Total Capital Expenditure was earmarked for agricultural development.

In terms of actual expenditures in the development programme, during 1971, $11.1m. was spent on agriculture while only $0.4m. was spent on oil. Again in 1972, $12.4m. was spent on agriculture with $0.2m. being expended on oil. Expenditures in the petroleum sectors were largely for research purposes.

With respect to the indirect benefits of government capital expenditures however, the oil industry has undoubtedly been the greater beenficiary. The expansion of services such as electricity and telephones have benefitted the oil industry much more than agriculture. Further, for example, the new Solomon Hochoy Highway, is of neglible benefit to agriculture, but immediately, it improves services for the oil sector. It is indeed difficult to quantify such benefits and to measure the extent to which the existence of the oil industry in particular areas have influenced Government's decisions to lay down infrastructure and expand services in those areas. The point however, must be made.

A more direct competition of agriculture for public investment has been the manufacturing sector. As in previous years, the oil industry remained the largest single contributor to government revenues. It might even be said that oil primed the pumps. Revenues from manufacturing however fell far below its potential because of the extensive tax concessions and other allowances granted to that sector. The result is that revenues have not grown as fast as they should.

In the distribution of this revenue, already artificially diminished, agriculture suffers at the hands of the manufacturing sector, education and other social services. This is as a result of the strategy of development which tends to emphasize the manufacturing sector and the provision of certain social services, to the detriment of agriculture.

With respect to the potential direct competition for public funds between agriculture and the oil industry, the situation has been changing dramatically since 1972. Government's policy of directly participating in the exploitation of the country's oil resources has entailed large investments in this area. There have been the acquisition of 50.1 per cent of the Trinidad Tesoro Oil Company and the establishment of the National Petroleum Marketing Company. There are also the proposed liquified natural gas project, the liguified natural gas project, the liquified ammonia plant and the petro-chemical complex. It is anticipated however, that government will have carried participation in much of these.

In the 1974 Budget Speech a *de facto* short-term development programme was outlined, based on the windfall revenues from the oil industry. In the projected expenditures, initial targets of $351.0m. and $125.0m. have been set for the development of petroleum and agriculture respectively. While on the surface the proposed investment

in petroleum is almost three times that proposed for agriculture, when we consider the different capital intensities of each sector, they come out about even.

Private Sector Investment: With respect to domestic private sector investment, very little data is available. Again, the best indication of the movement of such funds remains the commercial banks' loans and advances statistics. In 1963, agriculture received 2.2 per cent of commercial bank loans and advances while mining and refining received 0.5 per cent. At the end of the third quarter in 1973, agriculture had received 2 per cent with 2.8 per cent going to mining and refining.

In contrast, the shares going to the manufacturing and distributive trades sectors were 16 per cent and 31.2 per cent respectively in 1963, and 19 per cent and 18.5 per cent in 1973. From this type of distribution, it appears that there is no real competition for private domestic investment between agriculture and the oil industry. The real competitors of agriculture in this area are the manufacturing and distributive trades' sectors. Indeed, this type of discrimination has become traditional.

Section III

Summary and Conclusions

On the basis of the evidence, it would appear that the direct competition for resources, (especially land and labour) between the oil industry and agriculture in Trinidad and Tobago is minimal. There are however, very real adverse effects exerted in the supply of agricultural labour, and on the general development of agriculture.

In terms of the agricultural potential of the lands held by the oil companies, and which are capable of supporting agriculture, such lands are under cultivation of one crop or another. Disruptions and any element of competition are only marginal and short-term. It is clear that the full development of the agricultural potential of these lands are hindered by factors other than the fact that these lands are held by the oil companies, for example, the low incomes derived from agriculture and the uncertainty that shrouds the future of this society. Further in the cases where the freehold lands of the oil companies are rented or leased for agriculture, the tenure of such leases are relatively secure. Indeed the attitudes of the oil companies appear to be to encourage such usage of their lands, thereby decreasing the cost to themselves of holding such lands. The oil companies have further actively engaged in contributing to agricultural development, through the financing of demonstration farms, a land settlement scheme, the land capability survey and fellowships at the University of the West Indies.

With respect to labour, the element of direct competition is indeed small. The potential competition in this area, however, is significant because of the proposed expansion of the oil industry and establishment of a petro-chemical complex.

At present, however, the oil industry does exert an adverse effect on the supply of labour for agriculture through the demonstration

effect of its wage structure. This adverse effect is compounded by other factors such as the system of education; the presence of the *high-wage-paying-easy-work* Special Works Programme; a growing manufacturing sector; growing communications media; and perhaps most importantly, because of low incomes from agriculture.

The position with respect to capital is pretty much the same. Public investment in agriculture is low because of competition from manufacturing and social services, resulting from the particular emphasis of the development strategy.

In the case of private investment in agriculture, the banking system has never really supported domestic agriculture. Traditionally, export agriculture was supported, but the decline of this sector is due primarily to other factors than the lack of finance.

The general conclusion which can be drawn is that the decline in agriculture cannot really be blamed on the competition for tangible resources, with the oil industry. There is however, an intangible, but very real competition between agriculture and other sectors, which has, to a very large extent, been responsible for its present and continuing plight. This can be termed a competition for *attention*.

Ever since the 1950's with the emergence of the Lewis Model of industrialization, the Commonwealth Caribbean tended to view the development of a manufacturing sector - any type of manufacturing sector - as a sure and easy way to economic development. In this flirtation with industrialization by invitation, Lewis' role for agriculture was almost completely ignored. In this milieu, agriculture suffered from lack of attention or motivation.

In Trinidad and Tobago the situation is compounded by the presence of the oil industry. Being the driving force behind the economy, it naturally preoccupies a great deal of the active attention of the Government. Also, because of the extensive and expensive manufacturing programme embarked upon, the Government is forced to give active attention to this sector. Further, the growing social awareness of the population and increasing political tensions have forced the Government to actively attend to social services as education and health. On the contrary, while agriculture has received much lip service, it has received very little of Government's active attention.

The investment that has gone into agriculture has not been productively absorbed because of social, political and economic factors. Some of these factors are political patronage, the low social value and priority given to agriculture and the failure to solve problems of marketing and pricing, and consequently the failure to raise agricultural incomes. This situation has hardened into a self-perpetuating and vicious cycle, in which agriculture is the chief victim.

The likelihood of this cycle being broken in the near future is remote. With the development of the present world energy situation and the increasing revenues derived from oil, the Government has clearly

indicated that its thrust for development will be in this area. Further, the heavy investment already put into the manufacturing sector is unlikely to be abandoned. Efforts will very likely be made to salvage something out of this. With the limited technical expertise and administrative skills at the disposal of the Government, the future of agriculture looks dim indeed.

Finally, the fact that the oil industry has been able to carry the economy along and that the GDP has been growing with little effort on the part of the majority of the population, has adverse implications for attitudes toward productivity and sacrifice. In an economy as open as that of Trinidad and Tobago this can only be a bad thing. In the strategy of development therefore, care has to be taken to use the revenues from petroleum to decrease the heavy dependence on this industry and insulate the economy against external factors, by promoting an active agricultural sector and an agricultural based manufacturing sector.

References

1. "Report of the Economic Committee." 1949.

2. "Land Capability Survey of Trinidad and Tobago."

3. Central Statistical Office Publications.

4. James, L.J. *Lot 10: An Introduction of a Small-farm Project in an Oilfield Area*. Occasional Series No.4, Dept. of Agric. Economics, U.W.I., 1969.

WORKSHOP REPORTS