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DUPAUL WOOD TREATMENT

(GHANA) LIMITED

Prepared for

**Agency for International Development
AFR/MDI
(Contract No. AFR-0438-C-00-5037-00)
Task Order No. 40**

Prepared by

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I. INTRODUCTION

This is the report of a mission to Ghana, carried out by an independent consultant, Tener Eckelberry, for the International Science and Technology Institute, Inc. The scope of work consisted of a reconnaissance study of a Ghanaian wood products company, Dupaul Wood Treatment (Ghana) Ltd., and included the following assessments;

- Dupaul as a supplier for a major Bangladesh transmission pole contract.
- Dupaul's financial, technical, and overall capabilities; management, assets, location, marketing and customer base.

Dupaul that would prevent it from achieving necessary competence levels.

If Dupaul was to be found weak, the consultant was to advise as what might be done to bring Dupaul up to strength.

The field portion of the Mission took place from August 22nd through August 29th. Two and one-half days were spend in Accra, and three and one-half days were spend in Takoradi, the site of the factory. Takoradi has the largest port in Ghana. It is approximately 145 miles west of Accra. Most of Ghana's wood exports are shipped from Takoradi.

The mission was carried out for the Office of Market Development and Investment of the Agency for International Development's Bureau for Africa under Contract No. AFR-0438-C-00-5037-00, Task 40.

II. BACKGROUND

This Ghanaian company was started in 1979 by Dr. Kwame Duffour, a Ph.D. in Chemical Engineering; and a local businessman, Nicholas Asare, to add value to secondary tropical hardwoods through chemical treatment.

Dr. Duffour, 49, holds a doctorate in Chemical Engineering from Edinburgh University, and has taught (University of Maryland), and worked (Electronics Associates-New Jersey) extensively in the United States.

Mr. Asare is an Accra merchant, owning his own trading company, dealing in consumer goods and textiles.

At the present time, Dr. Duffour controls the company with 65% of the shares. Mr. Asare holds 10% and an American company, K.I.C. International of Vancouver, Washington, holds the remaining 25% of the shares.

Theoretically, the company is run by the Board of Directors, which includes a number of very distinguished local personalities, but Dr. Duffour manages it virtually single-handed.

The original project was based on the possibility of exploiting a large variety of Ghanaian hardwoods -- over 300 species -- that would ordinarily never be put to commercial use because of their vulnerability to termites. Only about 20 tropical hardwoods, including the best known, mahogany, have natural resistance to insects, and these species are being used up at a faster rate than they can be replenished.

This forestry conservation aspect is of course of interest not only to the local authorities, but also to the World Bank. (In fact, at the beginning, the Ghana Timber Marketing Board was to take shares in the Company).

From the outset, Dr. Duffour's plan was to chemically treat this secondary wood for a large number of cost effective local uses such as housing, railway sleepers, silos, bridges etc. While these applications still form a large part of his long range plan, he has wisely concentrated on one large volume use which has significant export, as well as, local, sales potential -- electrical and telecommunications transmission poles. Such treated poles are long lasting, and cheaper than concrete poles, which are in wide use throughout the world in various conditions of decay. Therefore, the pole business, has a potential for replacement as well as in new electrification projects.

In 1983, a factory was commissioned by a representative of the Koppers Corp., whom Dr. Duffour had contracted with for the treatment technology. This consists of:

- reducing the moisture content of raw wood from 70% to 20-30% (depending upon the species) by drying in large kilns. Generally, this drying process takes 14 days.
- vacuuming and pressure chemical impregnation. This takes place in a large cylinder; the chemical used is Chromated Copper Arsenate which is a mixture of copper oxide, chromium, and arsenic, toxic to insects and fungi, but harmless to humans. Dupaul has the exclusive rights to the Koppers process in Ghana.

The chemical treatment only takes four hours, so that kiln capacity is the key to productivity.

To date, aside from modest production of fence poles, shingles etc., the main activity of the plant has been the supply of some 8,000 transmission poles to the Volta River Authority. This same customer is today contracting for 18,000 poles, to be delivered in 1989.

In 1985, the company erected a house, made from its own treated wood, at the national industrial fair grounds in Accra. The occasion was GIFEX 85, a well-attended industrial exhibition. The house was one of the hits of the show, and Chairman Rawling's visit resulted in a \$3 million import credit, underwritten by the World Bank for the Ministry of Lands and Natural Resources. These funds, channeled through the Company's bank, the Social Security Bank Ltd (Government-owned), were used mainly to purchase sawmill and related equipment from the K.I.C. International Co., with whom Dr. Duffour had been in contact for some time.

This resulted, in 1987, in the signing of a technical agreement between K.I.C. and Dupaul under which, inter alia, K.I.C. was to have the technical management of the company. At the same time, K.I.C. subscribed to 25% of the equity, mostly represented by additional equipment.

In May 1987, K.I.C. seconded a seasoned sawmill engineer to the project. This man is still residing and working in country and is expected to stay on the job until the sawmill is successfully operating.

Planning called for the sawmill to be in operation by early 1988. A number of unforeseen delays now put this date forward to January 1990. Uncrated equipment has been on the site for over a year.

The Social Security Bank, which has been the main source of funds for the Company, has been asked to lend the additional working capital required to finish construction of the sawmill. Having already granted an overdraft of 43 million Cedis, in the spring of 1988, on top of an already heavy load of debt, the bank has been refused any more financing for Dupaul by the Central Bank of Ghana. (This does not appear to be deliberate; a severe regime of credit restriction has been instituted in Ghana.)

Hence, at the present time, on a very large, and well situated site near Takoradi, two main activities are taking place, one, the treatment of poles, and two, the construction of a sawmill. Ancillary, but essential construction of a workshop and a molding plant are also underway. The company, in fact, is already operating a small scale molding shop.

Recently, K.I.C. obtained a major international contract, to supply Bangladesh with an initial 18,600 transmission poles, under a World Bank - financed rural electrification program. This contract has been sub-contracted to Dupaul, and is the biggest in the Company's young life. Its timely completion is crucial to Dupaul's obtaining further international contracts.

Finally, it must be noted that the conduct of this consultancy was complicated by the state of the Company's books. Dupaul has been without an accountant until very recently, and the books are incomplete, not well kept, and not current. They are mostly kept by the bank, whose offices were very cooperative but obviously inexperienced in industrial finance (cost accounting, allocations, fixed or variable costs, project estimating etc.).

Hence many of the figures shown in this report are reconstructed from an incomplete base, and represent approximations only. For the income statement projections, all available human resources were used; management, engineers (including expatriates), the bank, and an Accra consulting firm. The figures were all reviewed by management, and agreed to. At best they represent a fairly clear, general view of the situation.

III. CONCLUSIONS

Our major, overriding conclusion is that this company has a very large potential for growth, profit, and a worthwhile social contribution to make to Ghana. We therefore recommend that immediate detailed studies be made, with the object of justifying complementary investment.

However, there are a number of important conditions, in our opinion, that must be met for new investments to be justified, and we have outlined these below.

SPECIFIC CONCLUSIONS

1. The Pole Business is a presently viable one, and should remain so:

Using present equipment and installations coming on stream, the Pole Division should be able to turn out 30,000 poles annually. This quantity, based on current prices, results in net annual sales revenues of approximately \$2,760,000, yielding an operating profit-before depreciation, interest and corporate income taxes (not applicable for five years, as the Company has been granted a tax holiday) -- of approximately \$800,000 or about 29% of sales. Of this figure approximately \$570,000 will be available in foreign currency. (Chapter IV)

As explained below, productivity of the pole treatment plant can be increased by one third with relatively small additional investment.

2. The critical Bangladesh order will probably be successfully filled, assuming that the current working capital squeeze is relieved.

While this key order is behind schedule, work is proceeding apace to meet the following new deadlines:

(Loaded Takoradi)

4,000 poles	end Sept. 1988
4,000 poles	end Dec. 1988
10,000 poles	by end April 1989

A good deal of professional assistance is being applied to this project, including the physical presence in Takoradi of two Bangladesh experts seconded from the customer, and an American transmission pole expert, Robert Page.

3. The lumber business appears to be an especially profitable one, potentially.

Projections of production, sales, and income from the planned sawmill and molding operations show excellent results, even when very conservative volume and pricing estimates are used. (Chapter V) The potential volume is a minimum of \$10 million, with a close-to 50% operating margin.

However, construction of the sawmill is woefully behind schedule, and additional unforeseen, working capital is needed to reach completion.

In addition, a rather sizeable amount of new capital investment is required to efficiently extract logs and transport them to the production site.

4. There is an urgent need for additional working capital now--for all phases of the Company's operations. Failure to obtain these funds in the coming weeks, would shut down current (pole) operations and further delay the sawmill project.

We estimate net cash needs through December 1988 at approximately 37.6 million cedis, or about \$150,000 at the current exchange rate. The squeeze on cash extends into the second quarter of 1989, but a fast decreasing rate, due to expected payments for the Bangladesh, and two local, pole contracts.

Local management is keenly aware of the acuteness of this problem and is taking steps to solve it. Unfortunately, the company's bank has no more funds to lend.

A detailed projection of cash needs is provided in Chapter VII.

5. The Company's bank debt is so high that substantial relief, in payment of accumulated interest, must be negotiated before any new capital is invested.

The Company has two types of loans outstanding with its local bank, loans guaranteed by the World Bank for equipment purchases, and an overdraft for working capital. A schedule of these loans is shown in Chapter VIII.

No principal or interest has been paid on these loans. At present the total combined principal stands at somewhere between 575 and 615 million cedis (there are conflicting sets of figures), \$2.5-\$2.7 million at the current official exchange rate. (However, interest (which presently runs at 26 1/2%) has accumulated to about 125 million Cedis, and if no payments are made against these loans, the total accrued

interest will amount to a staggering 289 million Cedis by June 1989. (In the meantime, the Bank will have probably capitalized some portion of the interest).

It is very fortunate for the Company that it borrowed these funds with relatively expensive Cedis -- ranging from 2.5 to 85 to the U.S. Dollar -- and will pay them back in much depreciated Cedis coming from exports in dollars. (The current free market rate is 275 Cedis to one U.S. Dollar).

Although we have not reviewed the loan covenants, we were told that the Company's debt is indeed denominated in local currency, so that this reasoning should hold. (The Bank's offset is the higher interest rates charged).

Nevertheless, the debt burden on this company is too heavy under any circumstances. Should new capital be invested, it is likely that the local bank will agree to reasonable rescheduling, and more importantly, to some forgiveness.

6. The present management structure is weak in a number of key disciplines. Both short term and long term (planned) changes must be instituted promptly.

Due to the importance, and complexity, of this problem, we have devoted a special section of this report to it -- Chapter IX.

7. Technical support from American sources is excellent.

It seems quite clear that both the suppliers of the wood treatment technology (Koppers, and the sawmill the now joint venture partner and shareholder, K.I.C.) have, and are transferring technology well, under the conditions of West Africa.

Kopper's role is now virtually limited to the supply of chemicals and occasional spot technical assistance. K.I.C.'s role is continuing and will, in fact, become considerably larger as sawmill construction and initial operations proceed. A competent American engineer, Mr. Russ Job, is on the spot.

Most importantly, K.I.C.'s world-wide marketing strength is vital, especially for transmission pole orders.

Indeed, this situation can be viewed as a possible model of U.S. technology transfer to Western Africa.

8. The market for both poles and sawmill products appears to be large and growing.

Some remarks concerning the markets for Dupaul products will be found in Chapter X.

In Chapter XI, an attempt has been made to assemble some rough guide-line figures for return on investment purposes.

IV. TREATED POLES

PROJECTED INCOME STATEMENT

<u>Net Revenues</u>	<u>\$ 000</u>
50% Export	1,425.0
50% Domestic	<u>1,337.0</u>
Total	2,762.0
<u>Costs-Raw Materials</u>	
Poles	207.0
Chemicals	<u>683.8</u>
Total	890.8
<u>Operating Costs</u>	
Transport	581.5
Labor	115.0
Utilities and Maintenance	30.0
Overheads	<u>346.0</u>
Total	1,072.5
Total Costs	1,963.3
Operating Profits Before:	
Depreciation	
Interest	
Taxes	798.7
Of which "retained" in overseas Dollar account:	28.9% of Sales 570.0

Assumptions used:

1. Sales will be divided equally between exports and the domestic market - 15,000 poles each.
2. Prices used are \$100 per pole for exports, and 22,000 cedis per pole for Ghana.
3. The exchange rate used is 260 cedis to \$1.00.
4. No provision has been made for top management compensation.

IV. TREATED POLES

Continued

SECOND PHASE INVESTMENT SCHEDULE

It appears that, with present and anticipated kiln/impregnation capacity, production of poles could increase from 30,000 to 40,000 annually with an investment of approximately \$331,000, broken down as follows:

1	1T28 Caterpillar	\$144,000
1	Knuckle Boom Loader	97,000
1	Logger	<u>87,000</u>

Total \$331,000

(landed Takoradi)

V. PROJECTED SAWMILL OPERATIONS

1st Year
(\$000 Converted at Cedis 260 = \$1 where applicable)

<u>Net Revenue</u> ¹	<u>One 8</u> <u>Hour Shifts</u>		<u>Two 8</u> <u>Hour Shifts</u>	
	<u>\$</u>	<u>%</u>	<u>\$</u>	<u>%</u>
Lumber	3,907		7,815	
Molded				
Products	<u>981</u>		<u>1,962</u>	
Total	4,888	100.0%	9,777	100.0%
 <u>Cost of Goods Sold</u>				
Logs	1,443		2,886	
Transportation of Logs	514		1,028	
Direct Labor	90		180	
Utilities	25		50	
Maintenance	<u>110</u>		<u>165</u>	
Total	2,182		4,309	
 <u>Gross Profit</u>	 2,706		 5,468	
 <u>Overheads</u>	 546		 726	
 <u>Operating Profit</u>	 2,160	 (44.2%)	 4,742	 (48.5%)
 <u>Depreciation</u>				
1. Fixed Assets as of				
8/88 (853)	146 ²		146 ²	
2. New Assets				
- Trans. Equip.	1,000		1,000	
- Road Bldg. Equip.	183		183	
- Wood Extract. Equip.	177		177	
- Other	<u>64</u>		<u>64</u>	
Total	1,570		1,570	
 <u>Profit Before Interest</u>				
<u>Taxes Etc.</u>	590	(12.1%)	3,172	(32.4%)

¹ Gross revenues less 5% (agents and bank fees)

² In dollar terms, using the 260 rate, the depreciation indicates a large write down of existing assets. In Cedis, the depreciation rate would appear much larger. No provision has been made for top management compensation.

VI. REVISED SCHEDULE FOR SAWMILL COMPLETION

The key bottleneck today (8/31/88) is the availability of lumber for construction. This is apparently a function entirely of lack of working capital.

Key Phase Landmarks (Taking into account work in parallel)

9/15/88	Lumber available
10/15/88	Lumber treated and prepared
11/07/88	Framing-up
12/15/88	Flooring (Electrical work starts)
12/25/88	Footings for log handling
1/15/89	Retaining wall
4/01/89	Building construction completed
9/1/89	Machines in place and in operating condition
11/01/89	Sorting chain
12/01/89	Shake-down
1/01/90	Full commercial operations begin - 1 shift
6/90	Two shift operations

Estimated cost of completion:

50 million Cedis or \$192,000 at exchange rate of 260.

This program can be compressed under certain conditions; it is a conservative plan.

VI. REVISED SCHEDULE FOR SAWMILL COMPLETION

Continued

Assumptions used:

1. Sales

Lumber - Sales are based on European prices as of August 1988. They consist of a wood mix of Wawa (50%), average price 358 DM/M³, and Odum (50%), average price 533 DM/M³.

Molded Products - Only 10% of lumber cut shows as sales. The unit of sale is a standard profile which sells for 16 DM/M² or 694 DM/M³.

2. Cost of Goods Sold

Logs - Production is based on only 60% of sawmill capacity, or 60m³ per 8 hour shift. It is estimated that 3 times as much wood, or 180m³, will be required. Log costs are calculated at 10,000 Cedis per m³.

Transportation - Transportation of logs is calculated at 3,000 Cedis/m³, the current rate, regardless of whether transportation is contracted or self-owned. (The argument for ownership of transport vehicles is reliability).

3. Overheads

In the absence of a company cost accounting system, the average Ghanian forestry historical rate of 25% of all other costs is used, with considerate marginal economies realized with two shifts.

It appears that maximum efficiencies can only be attained in the sawmill operations by an integration program which would make Dupaul independent of contract loggers and truckers.

The following schedule of investments were outlined: (All Figures Approximate)

Wood Extraction Equipment

2 Skidders, Caterpillar 528s Hydraulic @ \$140,000 ea.	\$280,000
1 Loader, Caterpillar 966, including chainsaws	<u>\$250,000</u>
Total	\$530,000

VI. REVISED SCHEDULE FOR SAWMILL COMPLETION

Continued

Road Building Equipment
(Primarily for use within the Company's timber concessions).

1 Caterpillar D-7 (Bulldozer)	\$300,000
1 Roller-Compactor	\$50,000
2 Tippers @ \$100,000 each	<u>\$200,000</u>
Total	\$550,000

Road Grading Equipment

1 Grader-Caterpillar Series 12	\$100,000
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Log Transportation Equipment

30 Trucks @ \$100,000 each	\$3,000,000
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Miscellaneous

1 Low Loader ("Low-Boy") 40-50 ton capacity	\$40,000
3 Flat Bed Lumber Trailers @ \$15,000 each	\$45,000
2 Fork Lift Trucks	
1 Caterpillar IT28	80,000
1 Caterpillar Fork Lift	<u>30,000</u>
Total	\$155,000

GRAND TOTAL **\$4,335,000**

Remarks

1. High depreciation rates -- mainly on the basis of a three year useful life -- have been reflected in the projected P/L of the sawmill.
2. All equipment is priced as new. In some cases, reconditioned equipment could be bought.
3. One make, Caterpillar, has been used throughout to insure standardization of maintenance and spare parts.
4. Some of the equipment is apparently essential, the most important being the trucks. Local truckers are proving to be unreliable and train service is erratic.

VII. PROJECTION OF CASH NEEDS

Sept 1988 - Dec 1989
in Million Cedis
(non-cumulative)

	<u>Sept 88-Dec 88</u> 4 months	<u>Jan 89-June 98</u> 6 months	<u>July 89-Dec 89</u> 6 months
<u>Cash Inflow:</u>			
Pole Orders:			
Bangladesh	29.7	89.1	-
VRA	24.0	48.0	141.0
ECG	33.0	10.0	10.0
Other	<u>-</u>	<u>-</u>	<u>NA</u>
Total	86.7	147.1	151.0
Other Cash Sources			
	<u>-</u>	<u>5.0</u>	<u>5.0</u>
Total	86.7	152.1	156.0
<u>Cash Outflow:</u>			
General Operating Expenses	32.0	60.0	75.0
Raw Materials	46.0	20.0	18.0
Transportation of Timber	5.0	35.0	30.0
Sawmill Construction	20.0	20.0	10.0
New Equipment	10.8	11.8	-
Misc. Equipment Purchases	3.0	8.0	-
Post Overdue Bills	<u>7.5</u>	<u>10.0</u>	<u>-</u>
Total	124.3	164.8	133.0
Net Cash Position	(37.6)	(12.7)	23.0
Retention Acct. (see notes)		11.0	11.0

NOTES TO "PROJECTION OF CASH NEEDS"Cash SourcesPole Orders

1. Bangladesh. The Bangladesh order is for 18,600 poles. The best delivery schedule now available (and therefore reflected in cash inflows) is:

End September	4,000 poles
Before 1988 Year End	4,000 poles
By April 1989	<u>10,600 poles</u>
Total	18,600 poles

Payment for the poles is immediate -- upon shiploading in Takoradi -- and is guaranteed by the World Bank. Payment is made in U.S. Dollars.

The Cedis shown in the table represent 60% of the total payments. The balance is kept in a "retention" account, a dollar balance offshore. After Timber Board commissions of 4% and bank charges of 1%, the retention account of 35% is normally to be used for authorized overseas purchases, such as spare parts.

In this case, the Ghanaian government already discounted a part of this retention account by making advance payments for certain supplies -- chemicals and ropes -- needed to process and ship the order. The surplus balance in favor of Dupaul is shown at the bottom of the tables and amounts to approximately 22 million Cedis at the current rate of exchange. These funds cannot be used for internal cost needs.

2. The Volta River Authority. This project consists of supplying 18,000 poles. Although the final contract negotiations are still being carried out, every indication is positive. The revenue schedules and the costs to be incurred in carrying out this important local contract have been studied with care, and reflected conservatively in the tables.
3. The Electricity Company of Ghana (ECG) order is being processed now. The figures shown in the tables reflect the revenues and costs as they are collected and incurred. Although more orders are expected from the ECG, none has been projected for the period under study.

VII. PROJECTION OF CASH NEEDS

Continued

Other Cash Sources

Since the sawmill, on present estimates, will not be fully operational until January 1990, we have shown only miscellaneous income of 10 million Cedis. This will come from sales of logs from the Company's concessions, and some molded wood products.

Cash Outflow

1. General Operating Expenses

These consist of the normal costs of operating the business as it is today. They do not include:

- Any accruals. (The Company's accounts are now on a cash bases.)
- Charges to the K.I.C. technical assistance account, which has been accumulating since April 1986 at the rate of \$100,000 per year.
- The Managing Director's salary (not paid since Company formation).
- The Accra Office Costs (minor)
- Depreciation

At the present time, these general charges are running at 7 to 9 million Cedis per month. The table reflects this trend, adjusted for local inflation.

2. Raw Materials

These consists mainly of poles, 30 million of the 46 million Cedis shown in the Sept-Dec 1988 period are forestry and pole bills associated with the Bangladesh order, and are past due.

We have shown a month's supply of logs (8 million Cedis) in the last period for start-up production of the sawmill.

3. Transportation of Timber

A large amount of timber, in the form of poles, is already on site. The figures shown in the tables are based on the costs of transporting - at 3360 Cedis per pole -- the poles for the balance of the three orders. Payment schedules have been considerably stretched.

VII. PROJECTION OF CASH NEEDS

Continued

6. Miscellaneous Equipment Purchases

These consist of auxiliary, but apparently essential equipment for both the pole division and the sawmill.

New Kilns (completion)	2.8 million
Work shop	5.2 million
Molding shop	1.7 million
Cable Laying/Welding Plant	1.1 million
Treatment plant	<u>.2 million</u>
Total	\$ 11.0 million Cedis

7. Past Due Bills

The Company is seriously behind in certain payments, as follows:

	(<u>Approx. Amounts</u>)
Chemicals	27.0 million
Poles	15.0 million
Ropes	11.0 million
Wood (logs)	<u>2.5 million</u>
Total	\$ 55.5 million Cedis

As noted above, the Ghanaian government has already paid for the chemicals and poles, and, therefore 38 million Cedis of these overdue bills will be paid by the retention account.

The remainder, 17.5 million, is shown in the tables as local company outlays.

VIII. BANK DEBT-INVESTMENTS

The Company's bank, the Social Security Bank Ltd. shows the following historical schedule of loans and equity inputs (next page).

Of the total investment, it appears that fixed investment accounted for approximately 75%, and working capital (including an item labeled "capital work-in-progress"), 25%.

The very high equity to debt ratio of 1:5.9 does not take into account unpaid accumulated interest.

VIII. BANK DEBT-INVESTMENTS

Continued

HISTORICAL SCHEDULE OF LOANS AND EQUITY INPUTS

<u>Year</u>	<u>Forest Rate</u>	<u>Equity</u>		<u>Loans</u>		<u>Total</u>	
		<u>\$000</u>	<u>000 Cedis</u>	<u>\$000</u>	<u>000 Cedis</u>	<u>\$000</u>	<u>000 Cedis</u>
1982	2.75	585.00	1,608.75	2,524.00	6,941.00	3,109.00	8,549.75
1983	38.50	104.00	4,004.00	151.00	5,813.50	255.00	9,817.50
1984	50.00			453.00	22,650.00	453.00	22,650.00
1985	57.00	45.50	2,593.50	910.00	51,870.00	955.50	54,463.50
1986	89.60	150.00	13,440.00	3,000.00	268,800.00	3,150.00	282,240.00
1987	90.00	15.50	1,395.00	309.40	27,846.00	324.90	29,241.00
1987	185.00	250.00	46,250.00	270.30	50,005.50	520.30	96,255.50
1987	185.00	156.80	29,008.00			156.80	29,008.00
1988	226.00			190.26	43,000.00	190.26	43,000.00
	TOTAL	<u>1,306.80</u>	<u>98,299.25</u>	<u>7,707.96</u>	<u>476,926.00</u>	<u>9,114.76</u>	<u>575,225.25</u>

IX. MANAGEMENT, PRESENT, AND FUTURE

At the present time, there is no formal management structure at Dupaul, aside from the position of Managing Director, presently held by Dr. Duffour, and a Board of Directors. The Board, recently assembled, is made up of key insiders and influential outside directors, as follows:

Board of Directors

Dr. Kwame Duffour	Executive Chairman	Officer/Shareholder
Mr. Nicholas Asare	Executive Director	Shareholder
Mr. G.P. Kuzmer (U.S.)	Member	Shareholder
Mr. Y.M. Sarpong	Member	Outside
Mr. F.M. Addo-Ashong	Member	Outside
Mr. J.K.A. Wiredu	Member	Outside
Mr. D.K. Nsiah	Member	Outside
Dr. S. Dufu	Member	Outside
Mr. Okoh	Member	Outside
Mr. E.P.J. Gyampoh	Member	Outside

The outside directors have been appointed to provide broad representation from national and international institutions:

Mr. Sarpong runs the Ghanian Merchant Bank (affiliated with Grindleys in London)

Mr. Addo-Ashong is the Director of Ghana's Forest Products (Govt.)

Mr. Wiredu runs a government-owned management consulting company that does work for both public and private concerns. He is presently attempting to regularize the company's books and computerize them.

Mr. Naiah is a Director of the Social Security Bank.

Mr. Dufu is a prominent local businessman.

Mr. Okoh is the President of the Ghana Institute of chartered Accountants.

Mr. Gyampoh is a prominent local attorney, who acts as Dupaul's outside counsel.

This Board is largely controlled by Dr. Duffour, who continues to enjoy local prestige as the potential builder of low-cost housing, the partner of an American company, and the conserver of Ghana hardwoods.

Dr. Duffour has not set up an effective management team, and does not have definite plans for the future. Discussions with him concerning these matters did not produce a clear resolution of this problem.

He is a visionary genius, with a very thorough understanding of forestry and forest products, but he is not an experienced businessman. Should any further outside funds be invested in Dupaul, they should come with the following conditions.

1. That Dr. Duffour becomes a non-operating Chairman.
2. That a strong Chief Executive Officer be found and put in place. This man can be either local or expatriate, should come out of the forestry industry and be experienced in all aspects of running a company. Although there is good specialized talent at Dupaul now, there is no one of managerial stature, so recruitment must be external.
3. Prior to this step, a Chief Financial Officer should be hired and put in place without delay. Cost accounting is lacking at Dupaul. Income statements and balance sheets are not available, or are incorrect.
4. The relationship between Dupaul and K.I.C. should be clarified for the future. Although K.I.C. legally has the technical management of the company, Dr. Duffour apparently plans to use K.I.C. as "advisors". K.I.C. could be asked to take over the management of the company, either temporarily, pending a staff reorganization, or permanently. As relations between the two companies are very good, this should create no difficulties.

At the present time, the key managerial problem is accounting and financial planning.

Dr. Duffour, to his credit, has recognized this need to some extent with the appointment of MDPI, Dr. Wiredu's consulting group, to take over the accounts (which are largely at the Bank). Dr. Wiredu, a graduate of both M.I.T. and the Sloan School of Business Administration at M.I.T., is well-equipped to do the job of reorganizing the accounting systems. However, to date his progress has been slow and some of the figures he has produced are not accurate -- due to faulty input.

The need for good internal financial controls has been reinforced by this experience.

X. MARKETS

Poles

The market for wooden utility poles seems to be growing at a fast rate, although no market study as such exists at Dupaul.

Locally, both the Ghana Electric Corporation and the Volta River Agency have switched from concrete to wood, thanks to the existence of Dupaul. Their annual requirements are put at 40,000 poles, in excess of Dupaul's current production capacity.

Abroad, the company has received inquiries for the supply of railway sleepers as well as poles. Bangladesh's annual pole requirements exceed 100,000. Inquiries from neighboring countries such as Togo, Burkina Faso, Liberia, and Mali have been received. Dupaul has a monopoly on treated hardwood poles in the region.

Lumber

Except for one other company, MIM, no Ghanaian company will be able to produce extremely precise and well-cut lumber for the European Market. A visit to the Ghana Timber Marketing Board, through which all Ghana timber goes, and study of their market documentation, shows that European demand for such quality products is never filled from West Africa. The problem appears to be one of production, not demand stimulation. Prices are high and stable. The best markets are Western Germany and the U.K.

The U.S. undoubtedly represents a large potential market but the Timber Marketing Board has never attempted to study it, let alone test it.

Molded Products

There is a relatively constant market in Germany alone of 45 million DM for profiles and other molded wood products that can't be satisfied. Once again, production is the key, not demand.

Local Housing

A visit to the Secretary (Minister) of Housing and Public Works revealed that there will be a demand for 133,000 new houses annually for the next 20 years. This number is the minimum required to bring Ghana to the U.N. standard of seven people per dwelling. At present, it is estimated that the Ghana ratio is 13 to each house.

From every source it appears that demand for Dupaul's present and planned product line far outstrips local production capacity.

XI. RETURNS

Combining the operations of the two activities, poles and lumber gives us the following proforma income statement.

\$000 at 260

	<u>Total</u>	<u>Poles</u>	<u>Sawmill (2 shifts)</u>
Sales	12,539.0	2,762.0	9,777.0
Operating Income Income Before Management Fee Depreciation, Interest and Taxes	5,540.7	798.7	4,742.0
Depreciation	<u>1,645.0</u>	<u>75.0</u>	<u>1,570.0³</u>
Available for Debt Service, Management Fee and Profits	3,895.7	723.7	3,172.0
			<u>(\$000)</u>
Total Investment to Date: (Debt plus Equity)			2,212 @ 260
Add: Working Capital for Period 9/88-6/89			105 @ 260
New Assets			<u>4,335</u>
Total Capital Employed 1990			6,652

On this basis, the return on capital employed before debt servicing is about 58%. If, indeed, the local bank debt can be fully paid down in local currency at any time, this provides a substantial margin for new investors.

Thus, the calculations must, to some extent depend on writing down assets for exchange considerations alone.

³ Based on assets in place plus 4,335,000 new assets (Chapter VI).

XI. RETURNS**Continued**

However, even if the stated bank figure of current capital employed is used, the returns are still reasonable, viz:

	<u>\$000</u>
Book entry of capital employed	9,115
Working capital needed	105
New assets	<u>4,335</u>
Total	13,555

Which would result in a (roughly) 28% return on capital employed before debt servicing.

N.B. It was not possible to establish a pro forma balance sheet, because proper data was not available.