

## CAUSES AND IMPLICATIONS OF WORKING CAPITAL PROBLEMS IN TANZANIAN ORGANIZATIONS: LESSONS FROM MOROGORO CERAMIC WARES LIMITED EXPERIENCE

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### Abstract

*One of the major problems that face Tanzanian organizations is how to establish working capital requirements and how to effectively manage the available working capital in those organizations. This Article presents the results of a study carried out in one such organization in Tanzania. The study explored the causes and implications of working capital problems and lessons that other organizations in the country can draw from it.*

### INTRODUCTION

The drawing up of a financial plan to ensure that there will be adequate funds not only for completing the project but also for operating it is an integral part of project preparation.

This may seem obvious but the number of development projects launched without adequate attention to future availability of funds is surprisingly high in developing countries like Tanzania.

A number of projects and indeed a number of operating companies in the country have failed or collapsed due to lack of working capital. The way working capital is managed has an immediate and significant impact on a firm's liquidity (ability to meet its maturing obligations) and profitability (ability to grow). Many firms, companies, corporations and even sole proprietorships in Tanzania have been hit by poor financial and operational results mainly due to poor working capital management. Inadequate working capital has been mentioned several times to be the major problem in many non-performing entities.

Many reasons have been advanced by different entities as causes of working capital problems. But the major ones are thought to include the following:

- (i) Most of these entities were established without adequate equity capital base.
- (ii) Foreign exchange constraints facing the country have led to lack of vital imported inputs and consequently the entities began and continued to sustain persistent losses, constant liquidity crises and very low capacity utilization.
- (iii) The diversion of operational funds to purposes other than those falling under the working capital requirements.
- (iv) Low sales due to trade liberalization. This is due to stiff competition from similar imported products.
- (v) Improper feasibility studies and planning. Long delays in project implementation has caused cost overruns rendering the projects unviable when operations commenced.
- (vi) Lack of clear working capital management policies.
- (vii) Lack of experienced technical staff, management team and work force in general.

- (viii) Lack of transport facilities for haulage of raw materials and finished products.

- Where necessary descriptive rather than quantitative data were used.

In trying to identify the real causes of working capital problems of Tanzanian organizations, the writer studied the financial and operational performance of Morogoro Ceramic Wares Ltd. (MCWL) during a five year period from 1986 to 1990. The choice of the company as a sample was only a matter of convenience more than anything else. However, the writer is aware that causes of working capital problems are not homogeneous across companies neither are they uniform within any industry.

It was envisaged that the study will attempt to establish the impact of four factors thought by the writer to be the most influential on working capital of MCWL. These are the independent variables on which working capital depends. They include the owners equity, accrued interest charges, production volume and sales revenue.

### **DATABASE AND METHODOLOGY**

### **MOROGORO CERAMIC WARES LIMITED (MCWL)**

The study focused only on the performance of Morogoro Ceramic Wares Ltd. in the period 1986 - 1990 when the company was in operation. A variety of related decisions that affect the working capital level were examined. These include the variables such as stocks, debtors, cash receivables, creditors, bank overdraft, accruals, long-term loans, share capital, interest charges, production volume, cost of sales and expenses. Primary data and information on various aspects of the study were obtained by means of personal interviews and intensive discussions with officials of the holding corporation herein referred to as "Tanzania Saruji Corporation (TSC)" and also from MCWL. Secondary data were obtained from the TSC head office, the MCWL offices in Dar es Salaam and Morogoro and from several libraries. These were in the form of annual reports, journals, research papers, corporate plans and audited accounts. Both qualitative and quantitative tools were used to analyse data. Specifically the following methods were used:

MCWL was incorporated on 13th June, 1980 under the Companies Ordinance (Cap 212). The company is a subsidiary of Tanzania Saruji Corporation holding 66.4% of the issued share capital. Other shareholders include Building Hardware and Electrical Supplies Company Limited (BHESCO) and Household Supplies Company Limited (HOSCO) with 30% of the issued share capital, respectively. The management of the company is vested in a board of directors appointed by the Minister for Industries. The General Manager of the holding corporation is also the Chairman of the board and other shareholders are also represented in the board. The day to day operations of the company are looked after by the management team headed by the General Manager appointed by the board of directors. The main objectives of the company are: to manufacture, import and distribute all types of ceramic goods and products.

- Regression and correlation analysis to establish the relationship and extent of relationship between the variables thought to be affecting working capital and amount of working capital.
- Ratio analysis - efficiency ratios, profitability ratios, liquidity ratios and gearing ratios.

A contract to construct Morogoro factory was signed on 27th October 1979 with M/s Progoinvest of Czechoslovakia and the civil works commenced in February 1981. Commissioning of the plant commenced in September 1985 and guarantee tests on the sanitary and table ware products were completed in February 1986. Commercial production started in March 1986.

It was envisaged that MCWL would produce table wares, sanitary wares, and wall tiles. The factory has a capacity to produce 850 tones of table wares per year, 680 tones of sanitary

wares per year (wash basins and water closets) and 1092 tones of wall tiles per year. The raw materials for the plant are mostly found within a radius of 100 km, with exception of ball clay and kaolin which are obtained from Iringa and Dar es Salaam respectively.

Since 1986, when the plant started production, it had faced a number of industrial constraints and operational problems including only five years after started operations. The writer, while being aware of the many other problems, decided to find out the causes of working problems only.

### **WORKING CAPITAL - WHAT IS IT**

Broadly, working capital may be defined as investment in current or short term assets - cash, debtors, stocks, short term securities like promissory notes, recoverable prepayments, etc. More specifically, working capital is often understood to mean net current assets i.e. the excess of current assets over current liabilities. The Accounting Research Bulletin (ARB) issued by the American Institute of Certified Public Accountants (AICPA) defined current assets as "cash and other resources commonly identified as those reasonably expected to be realized in cash or sold or consumed during the normal operating cycle of the business" (ARB No.43, Chap.3, Sec.A, par.4). It also defined current liabilities as "Obligations whose liquidation is reasonably expected to require the use of existing resources properly classifiable as current assets or the creation of other current liabilities ARB No.43, Chap.3, Sec. A, par.7".

Tanzania Statement of Standard Accounting Practice (TSSAP 2, sec.7.9, para 7.9.2) defines working capital as "an excess of current assets over current liabilities". The statement under the above quoted para 7.9.2 also permits the undue of the terms "working capital" and "net current assets" interchangeably. Other scholars such as Weston and Copeland (1989) Samuels and Wilkes (1980); Van Horne (1968) and Baum and Tolbert (1985) concur with this definition of working capital. On the other hand, Kolb (1983) defines working capital as the

investment of the firm in short term (or current) assets which include cash, marketable securities, accounts receivables, short-term notes receivable, inventories and in some firms expense prepayments. This definition which ignores the netting off of current liabilities is also shared by other writers such as Weston and Brigham (1975); Hampton (1986).

Those who define working capital as the investment of the firm in short-term or current assets contend that, once the current liabilities have been netted off, it gives rise to a new term known as net working capital. However, the two terms, "working capital" and "net working capital" have been used by many other writers interchangeably. For the purpose of this study working capital is defined as current assets less current liabilities.

### **WORKING CAPITAL MANAGEMENT IN ORGANIZATIONS**

Management of working capital revolves around the planning and control of the acquisition and utilization of liquid resources. Management of working capital is part and parcel - and a very important component - of the overall financial management of a business enterprise. Hampton (1986) pointed out that one of the most important areas in the day-to-day management of the firm deals with the management of working capital. This idea is similar to that of Gitman (1979) who believes that, the management of working capital is one of the most important aspects for the firm's overall financial management. The definition of working capital management given by Kolb (1983) appears to be shared by many management scholars. he defines working capital management as the administration and control of current assets, utilization of short-term financing via various current liability sources, and control of the amounts of net working capital.

The specific objectives of working capital management, according to Kolb (1983) are:

- (1) To contribute to the firm's goal of value maximization by managing current assets so that the marginal return on

- investment in these assets is equal to or greater than the cost of capital utilized to finance them.
- (2) To minimize - over the long run - the cost of capital employed in financing the current assets.
  - (3) To control the flow of funds upwards through the current assets and the availability of funds from debt sources in such a way that the firm is always able to meet its financial obligations when due.
  - (4) The relationship between sales growth and the need to finance current assets is close and direct. Sales increases will raise the level of receivables, stock and perhaps cash balance. All such needs must be financed.

Kibonde (1987) summarised the importance of working capital management as follows:

*“Working capital may be regarded as the life blood of any company/business. Therefore, its effective management can contribute positively to ensuring the success of a company while its mismanagement can lead not only to the loss of company profits but also to the ultimate downfall of the company. It is generally realized that working capital is the source of profits and the life stream which sustains and nourishes any company”.*

According to Hampton (1986), the management of current assets basically involves two processes:

- (1) Forecasting needed funds.
- (2) Acquiring funds.

The effective management of working capital is the primary means of achieving the firm’s goal of adequate liquidity. Working capital management includes a number of aspects that make it an important area of study. Weston and Brigham (1975) stated some of these aspects and they include:

- (1) The largest portion of the finance manager’s time is devoted or spent on working capital decisions.
- (2) Characteristically, current assets represent more than half the total assets of a business firm. Because they represent a large investment and because this investment tends to be relative volatile, current assets are worth of the financial manager’s careful attention.
- (3) Because small firms have relatively limited access to the long-term capital markets, they must necessarily rely heavily on trade credit and short-term bank loans, both of which affect net working capital by increasing current liabilities.

A consideration of the management of working capital must necessarily start with a consideration of how they are acquired-specifically how they are financed or funded. There is a wide range of possible financing policies of which the following two are the extreme alternatives:

- Finance all working capital needs with funds from short-term sources only.
- Finance all working capital requirements with funds from long-term sources (permanent sources).

Differences in management’s degree of risk aversion give rise to a broad spectrum of possible policy alternatives ranging from those that are classified as “conservative” to that may be labelled as “aggressive”. In between these extremes are differing degrees of “moderate” policies.

### THE EMPIRICAL FINDINGS

MCWL had experienced working capital problems since it started commercial operations. As can be seen from table “A below, the working capital position was negative throughout the 5 years to 30th June 1990 and that it had increased

from negative T.sh. 45,952,000/= as at 30th June 1986 to negative T.sh. 276,680,000/= as at 30th June 1990.

**TABLE "A"**  
**STATEMENT OF WORKING CAPITAL FOR MCWL**  
**(1985/86 - 1989/90) (IN'000 TSH.)**

<b>CURRENT ASSETS</b>	<b>1985/86</b>	<b>1986/87</b>	<b>1987/88</b>	<b>1988/89</b>	<b>1989/90</b>
Stocks	11,563	37,076	45,225	89,882	85,900
Staff Debtors	482	960	590	2,004	711
Debtors Deposit and prepayments	4,255	4,506	4,311	15,201	16,178
Cash & Bank Balance	12,581	7	2,321	679	441
<b>Total Current Assets</b>	<b>28,881</b>	<b>42,548</b>	<b>52,447</b>	<b>107,766</b>	<b>103,230</b>
<b>Current Liabilities</b>					
Bank Overdraft	9,246	18,997	52,774	49,324	77,223
Creditors Accruals and Provisions	65,587	138,936	181,238	233,356	302,687
<b>Total Current Liabilities</b>	<b>74,833</b>	<b>157,933</b>	<b>234,012</b>	<b>282,680</b>	<b>379,910</b>
<b>Net current assets/(Liabilities)</b>	<b>(45,952)</b>	<b>(115,384)</b>	<b>(181,565)</b>	<b>(174,914)</b>	<b>(276,680)</b>

Source: MCWL Audited Accounts and Reports (1985/86 - 1989/90)

This poor state of affairs contributed to operational losses and inability to meet financial commitments as and when they fell due. Horizontal and vertical analysis of working capital components (current liabilities and current assets) was done using different relevant ratios and other descriptive data. Other analyses were carried out including funds flow statement analysis, analysis of long-term loans and advances, analysis of cost of sales, operating expenses and owners equity.

Findings revealed the following trend and behaviour of these different operational and financial factors which are thought to have caused the company's working capital problems:-

- (a) **Cash and Bank balance**  
The company possessed virtually no cash and bank balance. All of the cash coming in from sales was immediately used for salaries and the most basic items

to keep production running. The ratio of cash to total current assets ranged between 0.44:1 in the year 1985/86 and 0.0043:1 in 1989/90.

- (b) **Stocks**  
Stocks of MCWL includes finished goods stocks, working progress stocks, raw materials stocks, stores, spares and consumables, building materials and stocks in transit. The real figures were in fact considerably lower as stocks were calculated on a cost basis while selling prices were far below the actual cost. the finished and semi-finished goods had been between 58.8% and 87.3% of total stocks respectively. Stocks alone constituted up to 78% of total current assets.
- (c) **Staff Debtors**  
Staff debtors included outstanding salaries advances and unretired imprest

by various employees of the company. (e) Although the ratio of staff debtors appeared to be reasonably low that is a range of 0.69% to 2% of total current assets over the five years period to 1989/90, some of these staff debts had been outstanding for quite a long time and hence do not reasonably qualify to be treated as current.

(d) **Debtors, Deposits and Prepayments**

This group of assets include trade debtors, deposits, advances to contractors, prepayments, amount due to group companies, other debtors and claims. Most of these debts had been outstanding during the whole five year period to 1989/90. These assets cannot therefore be reasonably categorized as current assets. MCWL maintained a trade debtors turnover of between 9.88 times in 1988/89 and 7.71 time in 1989/90. The debtors collection period was 37 days and 47 days for the financial years 1988/89 and 1989/90 respectively. Comparing the debtors collection period with the company's credit policy one finds that the company was not efficiently managing its debtors. The credit policy was, for obvious reasons, restrictive (due to lack of working capital). Some clients received 10 - 15 days credit period while others were requested to pay in advance, all depending on the specific circumstances.

The percentage of total debtors to sales indicated that the company had tied a range of 1½ to 5½ months average monthly sales in debts during the four months that ended on 30th June 1990. For a company faced with liquidity problems this was not a healthy credit policy. In a company which does not have a clear and consistent marketing strategy, the above results were expected.

(e) **Bank Overdraft**

Due to liquidity problems, the National Bank of Commerce availed MCWL an overdraft facility to cover part of its working capital requirements. The overdraft facility was limited to T.sh 80 million carrying interest rate of 29% per annum. the overdraft was covered by stocks and debtors with a margin of 25%. This facility accounted for 12.4% to 22.6% of the total short-term financing during the five years to 30th June 1990. There had been a continuous yearly increase (except for the year 1988/89) in the use of the facility over the five years ranging from T.sh 9,246,421 in 1985/86 to T.sh 27,899,652 in 1989/90. The management of this facility, however, appeared to be within the bank limits given.

(f) **Creditors, Accruals and Provisions**

These included everything from unpaid sales tax, electricity bills, supplier credits and unpaid interests on various loans. this group of current liabilities constitute the greatest percentage of all current liabilities. The percentage of these current liabilities to total current liabilities ranged from 77.5% to 87% during the five years to 30th June 1990. However, some of the liabilities such as retention money, interest payable, amounts due to group companies do not actually qualify to be considered as part of the current liabilities as these had been outstanding for a period of more than one financial year and their liquidation was not in sight due to liquidity problems.

(g) **Current Assets and Current Liabilities Relationship**

The relationship between current assets and current liabilities is a measure of the liquidity position of the firm. Liquidity is the ability to realize value in money - the most liquid of assets. This relationship may be expressed by the use

of two accounting ratios, namely, the current ratio and acid - test ratio. The current ratio which is calculated by dividing current assets by current liabilities is used to judge a firm's ability to meet short-term obligations. the higher the ratio, supposedly, the greater the ability of the firm to pay its bills. the acid-test or quick ratio is the same as the current ratio, except that it excludes stocks (presumably the least liquid portion of current assets) from the numerator. In MCWL the current ratio ranked between 0.39:1 and 0.27:1 during the five years period to 1989/90. The acid - test ratio during the same period ranged between 0.03:1. This adverse position could be worse considering the fact that current assets are exceedingly over valued.

#### (h) Long-Term Loans

##### (i) TIB Loan

This loan of T.sh 74 mill. was sanctioned in 1980 and was to be repaid in semi-equal installments. No repayment was made as on 30th June 1990. The loan was secured by first charge on fixed assets and mortgage of title of the factory plot. it was also to be secured by the Tanzania Saruji Corporation but for administrative reasons this process was never completed.

##### (ii) Treasury Loan

This loan was taken to finance the plant itself. It is a loan from the Czechoslovakian Government through the Treasury and is secured by a government guarantee. However, it was taken in Swiss franc and must therefore be adjusted according to the falling value of the shilling. As on 30th June 1990 the debt had

never been serviced. The loan balance had increased from 209.5 million T.shs in 1985/86 to 1,082.9 million T.shs. in 1989/90.

##### (iii) N.B.C. Loan

This loan of 32.7 million t.sh. refers to a part of the bank overdraft which was turned into a long-term loan in 1988/89.

##### (iv) TSC Loan

This loan of 29 million T.shs had no formal agreement and was transferred to advances towards share capital in 1987/88.

##### (v) Karadha Co. Ltd. Loan

This loan of 383,595 T.shs was granted in the year 1985/86 and was repaid back in 1986/87 and 1987/88.

#### (i) Advances towards share capital

This comprised of sales tax and customs duty on plant and machinery exempted by sales tax (Remission) (Morogoro ceramic project) orders, both dated 17th March, 1982; Treasury contributions towards freight on machinery in respect of wall tiles line and various accounts paid by T.S.C. on behalf of MCWL (including 47.7 mill. T.shs received from Treasury in the financial year 1989/90). The balance of this account increased from 11.7 million T.shs in 1985/86 to 198.1 million T.shs in 1989/90. It was expected that these will finally be transferred to share capital account.

#### (j) Cost of Sales

The dominant production cost was depreciation of machinery which accounted for  $\frac{1}{2}$  to  $\frac{3}{4}$  of production costs

over the production years up to 30th June 1990. This was mainly the result of the high costs of machinery. The other dominating production cost items were fuel, labor, light, heat and water, raw materials consumption and repairs and maintenance.

(k) **Operating Expenses**

Administrative expenses were not very high considering the size of the company but they were out of proportion in relation to the level of activities. Selling and distribution expenses had been reduced to a minimum while financial expenses had grown to a point where they were just as high as sales and four times that of raw materials costs.

(l) **Equity Capital Structure**

Morogoro Ceramic Wares Ltd was incorporated with an authorised share capital of T.shs 250 mill. divided into 2.5 mill. ordinary shares of T.shs. 100/= each. The issued share capital was T.shs. 199,635,000/= out of which T.shs. 25,036,000 was in arrears. MCWL had been operating with a negative equity capital balance since 1987/88 financial year mainly due to huge operating losses since it started commercial activities. When the company started operations in 1986, the ratio of debt (long-term and advances to capital) to share capital was 2:1 but as at the end of the financial year 1989/90 i.e. as at 30th June 1990, the ratio of debt to share capital was 7.9:1. The debt-equity ratio at the time of commencement of business in 1982 was almost 2:1 but as on 30th June 1990, the debt-equity ratio was negative i.e. (3.4):1. The reasons behind this adverse position was the appreciation of Treasury Loan which was secured from Czechoslovakian Government in Swiss francs. The loan had been adjusted to incorporate additional liability arising from devaluations of Tanzanian shillings. As a result of this additional

liability the loan balance increased from 209,573,446 T.sh. in 1985/86 to 1,082,902,093 T.shs in 1989/90.

(m) **Financial Charges (Interest Expense)**

The long term loans and bank overdraft interest charges commonly known as financial expenses had grown to a point where they were just as high as sales and four times that of raw material costs. Financial charges alone accounted for between 47.4% and 70.9% of the total operating expenses and was between 87.5% and 254.5% of total sales during the four years to 30th June 1990. Due to the fact that these charges had never been paid they had been accumulating and thus increased the current liabilities of the company. Some of these long outstanding financial charges were correctly transferred to long term liabilities but most of it remained as current liabilities.

(n) **Under-Utilization of Production Capacity**

The factory machinery supplied and installed by Czechoslovakian "pragoinvest" was planned for a production of 850 tons first grade table ware and 680 tons first grade sanitary ware per year. The plant was accepted and handed over after a guarantee test in February 1986, during which the planned output performance was achieved. Full production started in March 1986.

Production of wall tiles faced a snag due to incomplete machinery installation as on 30th June 1990 and as such the product could not form the product mix projected earlier.

MWCL had never operated beyond 17.9% of the sanitary ware rated capacity and 29.1% of the table ware rated capacity. In addition, the company



had not produced beyond 30.5% of the total planned capacity for both the sanitary ware and table ware.

Because of this low capacity utilization, the company could not assuming there existed adequate demand and vigorous marketing strategy, sell enough to cover all production fixed costs.

Moreover MCWL had, ever since it started production, been producing a lot of sub-standard products or rejects as they are commonly known. This performance of sub-standard was said to be expected during initial production because almost all workers were new to this technology and also new to the factory. It has been observed that MCWL experienced a level of rejects to the tune of 74% of the total production just at the start. This is 6% higher than a normal standard reject of 68% of total production in any ceramic factory at the beginning of production (as per verbal discussion with ceramic experts). With this level of 68% of rejects expected, the factories can smoothen and stabilize rejects to a level of 10% of total production. But MCWL had maintained a level of well above 40% up to the end of the financial year 1989/90.

### (o) **Poor Marketing Strategy**

MCWL had no consistent marketing strategy, but acted on an ad hoc basis. the company's low turnover could thus only partly be considered a production problem. It was just as much a marketing problem, involving product mix, pricing policy, distribution and market communication.

The product range was one introduced by the Czechoslovakian team. a few items had been phased out overtime, and some designs modified, but most remained unchanged since the start of the production. The market (according

to ICS intersonsult, Sweden AB. report-1990) perceived MCWL wares as a low quality/low price brand.

Due to stiff competition, cost pricing would make the MCWL products unsaleable and MCWL's prices were therefore based on ruling market prices. This means that instead of a "mark-up" MCWL maintained a "mark-down" of about 75%.

Both the total assets and fixed assets turnovers were in average 0.08% during the 5 years period of 30 June 1980. this indicates that the assets were greatly under-utilized. Also, comparison of sales and production at selling prices indicated that the company had been selling between 43.9% and 88.3% of its production.

## **REGRESSION AND CORRELATION ANALYSIS**

### **Regression Analysis**

Regression analysis is a general statistical technique that can be used to examine the relationship between a single dependent variable and a single or a set of independent variable(s). The chief purpose of regression analysis is to predict the value of a dependent variable from values of independent variables which are highly correlated with the dependent variable. When the problem involves a single dependent variable that is predicted by a single independent variable, the statistical technique is referred to as "simple regression analysis". But when the problem involves a single dependent variable predicted by two or more independent variables, it is referred to as "multiple regression analysis." The formula describing the simple regression analysis is as follows:

$$Y = a + bx$$

Where:

Y = depend variable (criterion variable)

x = independent variable (predictor variable)

a = constant

$$\frac{\sum xy - \frac{(\sum x) \times (\sum y)}{n}}{\sum x^2 - \frac{(\sum x)^2}{n}}$$

$$= \frac{\sum y - \frac{\sum x}{n}}{n}$$

b  
n = Regression Coefficient  
= number of observations

Regression analysis is valid within three main assumptions:

- Each must be normal distributed at each value of x.
- The variation about the regression line is constant for each value of x.
- Residuals i.e. (Observed-predicted) must be independent for each value of x.

### Correlation Analysis

Correlation measures the degree of association among variables. A high degree of association between two variables is revealed by a coefficient of correlation (r) approaching + 1 or - 1 with 0 indicating no relationship and + 1 indicating a direct perfect relationship while - 1 indicate a reversed relationship. Simple correlation refers to the association of two variables (one dependent variable and one independent variable).

Multiple correlation refers to the association of one dependent variable acted on by two or more independent variables.

The coefficient of correlation can be obtained by the following formula:

$$\frac{n \sum (xy) - (\sum x)(\sum y)}{\sqrt{n \sum (x)^2 - (\sum x)^2} \sqrt{n \sum (y)^2 - (\sum y)^2}}$$

with d.f. = n - 2

where: y = dependent variable

x = independent variable

d.f = degree of freedom calculated from the total number of parameters estimated from those data  
n = number of observations.

### Coefficient of Determination

This measures the proportion of the variation of the dependent variable about its mean that is explained by the independent or predictor variable(s). The coefficient can vary between 0 and +1. The higher the coefficient of determination, the greater the explanatory power of the regression equation, and therefore the better the prediction of the criterion variable.

This is calculated by squaring the coefficient of correlation, thus it is represented by  $r^2$ .

### Significance Tests for Correlation and Regression

When a sample correlation study is made, it may be desirable to estimate the value of the correlation coefficient in the universe or to test the significance of the coefficient. A common test of significance normally used, where the sample size is small (n < 30), to test the hypothesis that the universe correlation coefficient is zero applies the "student's t - distribution Table for small samples. The formula is:

$$t = \frac{\sqrt{r^2(N-2)}}{1-r^2}$$

where:

- r = correlation coefficient
- N = number of observations (sample size)

### Application of Regression and Correlation Model to MCWL

While aware of the many operational and technical problems and constraints that confronted MCWL and that might have caused working capital problems for the company, the writer, using regression and correlation analysis decided to test four hypotheses related to four issues listed below:-

- (a) In Adequate Equity Capital
- (b) High interest charges

- (c) Under utilization of production capacity  
 (d) Absence of marketing strategies resulting to low sales.

To find out whether there was any significant relationship between the working capital and the four factors mentioned above, a simple regression analysis was worked out in which working capital balances over the 5 years were taken to be the dependent variables (y) and the balances of each of the four factors listed above during the same period were considered as independent variables (x). Furthermore, the same data were used to compute the coefficient of correlation (r) and coefficient of determination (r<sup>2</sup>) so as to find out if there was any significant correlation between the dependent and independent variables and to determine the amount of variation in the dependent variable that can be explained in terms of a percentage change in independent variable. the following tabulated results were obtained:

**TABLE "B"**  
**SUMMARY OF REGRESSION AND CORRELATION ANALYSIS ON MCWL WORKING CAPITAL**

Item No	DETAILS	To Test the effect of inadequacy of equity Capital on the Working Capital of MCWL	To test the effect of Accrued interest charges on the working capital of the MCWL	To test the effect of under-utilization of production capacity on the working capital MCWL	To rest the effect of sales on the working capital of MCWL
(i)	Dependent Variable	Working Capital	Current Liabilities	Working Capital	Current Assets
(ii)	Independent Variable	Owner equity	Accrued interest charges	Production volume (tons)	Sales
(iii)	Regression coefficient	0.387	.598	-588.272	1.218
(iv)	Constant	-126,197.272	116,679.55	-33,597,534	31,614.334
(v)	Regression Equation	$y=126,197.272+0.387x$	$y=11679.55 + 1.598x$	$y=33597.534- 588.272x$	$y=31,614.334 + 1.218x$
(vi)	Calculated Value of t(at DF = 3)	6.250	8.375	-4.680	2.487
(vii)	Critical probability	0.00826	0.00038	0.01843	0.08872
(viii)	Tabulated Value of t(t <sub>3,0.95</sub> )	2.353	2.353	-2.353	2.353
(ix)	Coefficient of correlation (r) <sup>1</sup>	0.964	0.979	-0.938	0.821
(x)	Coefficient (r <sup>2</sup> )	0.9292	0.959	0.880	0.673

## CONCLUSIONS DRAWN

The study came out with the following conclusions:-

- (a) That there was an expected positive correlation between current assets and sales for the sampled period 1985/86 to 1989/90. Thus absence of comprehensive marketing strategies resulting into low sales reduced the level of working capital of MCWL.
- (b) That there was an inverse relationship between production volume and working capital for the sampled period 1985/86 to 1989/90. Thus underutilization of production capacity had not affected the working capital of MCWL.
- (c) That there was an inverse relationship between working capital and accrued interest charges for the samples period 1985/86 to 1989/90. The higher the interest payable the higher the current liabilities and therefore the lower the working capital. Thus high accrued interest charges had affected the working capital of MCWL.
- (d) That there was a positive relationship between the working capital and owners equity for sampled period 1985/86 to 1989/90. Thus inadequate equity capital had adversely affected the working capital of MCWL.

## RECOMMENDATIONS MADE

The writer made the following recommendations to the Government, Tanzania Saruji Corporation (TSC) and Morogoro Ceramic Wares Limited (MCWL):

- (a) The fact that MCWL has an overdrawn owners equity makes the company's operations appear very risky in the eyes of prospective financiers. The most logical steps to restore the strength of the owners equity would be as follows:-

- (i) The company must undergo an immediate quasi-reorganization. this step calls for the revaluation of all assets and liabilities (individual items can be written up or down to their fair value but no increase in stock holder's equity should be raised from these adjustments); the closure of the profit and loss account (retained earning account) and the recapitalization of equity structure.
- (ii) The company must increase its issued share capital and the shareholders be requested to contribute towards this increase. all those calls in arrears must be paid.
- (iii) If the present shareholders cannot contribute towards increased equity then the company must seek for other subscribers to share holding and/or partnership or joint venture with private firms or companies.

- (b) A comprehensive loan repayment schedule should be prepare and efforts should be undertaken to convince the lenders to re-schedule their loans and interests payments. In any case, whenever a need for more debt financing is felt, priority should be to long-term financing over short-term financing e.g. overdraft, because long-term debts have a grace payment period and also have a comparatively lower interest rates as compared to bank overdrafts.

- (c) MCWL should establish a fully fledged marketing department. This department must be charged with (as a matter of priority) the preparation and implementation of comprehensive marketing strategies including product, pricing, communication and distribution strategies.
- (d) MCWL should not divert working capital funds available to meet operational activities to capital use. This brings an unbalance and deficit in the company's liquidity position. Activities of capital nature should be financed through long-term finances i.e through issue of shares, or through long-term loans.
- (e) The government should help MCWL by converting the foreign loan under its guarantee into equity capital. Since this loan constitute 91% of the total debt capital, its conversion to equity capital will restore the required debt/equity ratio and thus enable the company to get long-term debt financing from prospective lenders and it will decrease the riskiness of the company.
- (f) Further studies be made into MCWL operational problems and the recommendations already made through different studies be updated and implemented.

started commercial operations without a good working capital base. The obvious result was that it could not finance its operations five years after it had started. Since then the company had never operated again. Lack of working capital to run the organizations had very many severe consequences in many organizations including receiverships, liquidations/bankruptcies. Good Management of working capital revolves around the planning and control of the acquisition and utilization of liquid resources. The effective implementation of these two functions requires high level supervision by the owners of the entities and by the directors or managements of those entities. Is it really possible then for the government, with all its vast activities, to effectively manage working capitals of those organizations it owns? Should the government continue to be involved in running business organizations! MCWL's experience is a clear testimony of what happens in most of the state owned business organizations.

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## LESSONS FROM THE MCWL CASE

Working capital alone cannot sustain the existence and growth of business or non-business entities. There are obviously many other factors that have to be considered. In the long run a firm can grow only if it operates profitably. In the short run survival, however, a firm crucially depends on its solvency i.e. its ability to meet financial obligations as and when they fall due. This ability is measured by the level of current assets relative to that of current liabilities. The importance of working capital in organizations can not, therefore, be undermined. MCWL

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