# Level 1 Assessment of Enterprise Performance

## NPCC FINAL REPORT

To the

## Textile Emergency Support Team (TEST)

## 27 October 03



Ensam pou enn méyer kalité lavi

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# Acronyms

| | |
|---|---|
| CSI | Conversion System Input |
| FPMcsi | Factor Productivity Measure for CSI |
| FPMmi | Factor Productivity Measure for MI |
| K | Profitability Measure |
| MI | Materials and other bought-out items |
| N | Capital Productivity Measure |
| NCA | Capital Productivity of Current Assets |
| NFA | Capital Productivity of Fixed Assets |
| OPM1 | Overall Productivity Measure 1 (CSI) |
| OPM2 | Overall Productivity Measure 2 (TSI) |
| RAPMODS | Ramsay Productivity Models System |
| RM | Raw Materials |
| ROI | Return on Investment |
| RSAV | RAPMODS System Added Value |
| RSO | RAPMODS System Output |
| SME | Small and Medium sized Enterprise |
| TEST | Textile Emergency Support Team |
| TPM | Total Productivity Measure |
| TSI | Total System Input |

# 1 Background

A Textile Emergency Support Team (TEST) was set up in July 2003 to, *inter alia*, "undertake, with the assistance of experts, a corporate diagnosis of individual companies, using performance benchmarks, to identify their strengths and weaknesses in areas such as management, organisation production, finance and marketing."

During subsequent meetings of TEST, a two-stage approach emerged to address the above objective:
- Level 1: Objective assessment of enterprise performance followed by an identification of areas for improvement
- Level 2: Further analysis of enterprise performance as required, directing enterprises to appropriate support instruments/agencies, identifying policy recommendations.

# 2 Methodology

The Level 1 Enterprise Assessment was entrusted by TEST to the NPCC. The NPCC has been responsible for the collection, compilation, and development of enterprise indicators and analysis of enterprise data, following which individual enterprise clinics were conducted and enterprise reports prepared.

The methodology adopted for the first level enterprise assessment is the Ramsay Productivity Models (RAPMODS), which is a tool for measuring the contribution of each unit of input to final output. In other words it measures the productivity of firms – which is the bottom line for any enterprise survival.

A first report was submitted on August 26 and presented the preliminary findings from an examination of a sample of 20 enterprises and from information gathered in 14 clinics, i.e. face-to-face meetings with enterprises who expressed the wish. Since then 20 additional enterprises have sent their data. Moreover, as at September 19, indicators had been compiled for 31 companies, which represent 60 per cent of total garment exports from Mauritius (excluding exports of Hong Kong based firms). These have been used to provide productivity snapshots of the industry as a whole by product groups, by size of enterprise and by market.

This report is a consolidated version of the two reports presented to TEST. It includes an overview of the process through which the assessments were conducted, presents the generic observations made through financial data assessments and clinics and presents some policy recommendations for consideration by TEST supported by a detailed analysis of the enterprise level indicators.

## 2.1 Level 1 Assessment

The approach for Level 1 Assessment of Enterprise performance, namely the RAPMODS, was presented to industry operators on the 31st July 2003 at a meeting with stakeholders held at the Domaine les Pailles. This micro approach basically provides a corporate diagnosis of individual companies, using performance benchmarks, to objectively identify areas of strengths and weaknesses of enterprises. The approach captures the economic

productivity of enterprises; it gives a snapshot of the enterprise effectiveness in using its inputs to generate its output.

The assessment exercise consisted of:

Step 1: Enterprise data collection

Step 2: Analysis of enterprise performance

Step 3: Determination of enterprise potential

Step 4: Enterprise clinics

Step 5: Confidential reports to enterprises

Step 6: Overview report to TEST

## 2.2  Enterprise data collection

The RAPMODS assessment was based on the financial data of enterprises for year 2000 to 2002. Where data was available for 2003, this was also used. Most of the relevant information was collected from enterprise Profit and loss Accounts and Balance Sheets. For the purposes of standardisation and speedier processing a standard Company Data Sheet was developed.

Three options for data gathering were made available to enterprises:
a) Company Data Sheet was faxed or e-mailed as requested. The Company data sheet was also available for download from the NPCC Website.

b) Enterprise assistance was provided to enterprises to complete their Company Data Sheet at enterprise level or at NPCC offices, as requested.

c) The IVTB agreed to provide its Computer Lab (Ebène) for group data collection from 13h00 to 16h00 on Wednesday 6th August 2003. This would have allowed in half a day to gather data for a maximum of 98 enterprises! No enterprise chose this option.

The assistance of MEPZA and EPZDA was sought to contact enterprises and inform them about registration procedures for the Level 1 Assessment. Six enterprises registered with MEPZA for the exercise and the remainder directly with the NPCC.

## 2.3 Analysis of enterprise performance

The following measures were computed using the RAPMODS:

**Table 1: RAPMODS measures and definition**

| | |
|---|---|
| RSO<br><br>Rapmods System Output | Total System Output generated during the year |
| RSAV<br><br>Rapmods System Added Value | Total value added during the year |
| TSI<br><br>Total System Input | Total expenditure effected to produce the Total System Output |
| CSI<br><br>Conversion System Input | Expenditure effected in the conversion system |
| MI<br><br>Materials and other bought-out items | Expenditure effected on inputs bought from outside |
| TPM<br><br>Total Productivity Measure | The value of total output produced for every rupee spent in total expenditure |
| OPM (TSI) | Value added generated for every rupee of total expenditure |
| OPM (CSI) | Value added generated for every rupee spent in Conversion System Inputs |
| FPM (CSI)<br><br>Factor Productivity Measure for CSI | The value of total output produced for every rupee spent in Conversion System Inputs |
| FPM (MI)<br><br>Factor Productivity Measure for MI | The value of total output produced for every rupee spent in inputs bought from outside |
| N<br><br>Capital Productivity Measure | The value of total output produced for every rupee spent in capital |
| K<br><br>Profitability Measure | The value of profit or loss obtained for every rupee of System Output |
| ROI | Returns on Investment (%) |

In addition to the RAPMODS measures some other traditional accounting ratios were computed to provide an indication of the performance level of enterprises. (Ref. Table 2).

**Table 2: List of additional indicators**

| Liquidity |
| --- |
| Current ratio |
| Acid test ratio |
| **Turnover** |
| Stock turnover period |
| Debtors turnover period |
| Creditors turnover period |
| **Financial indicators and other measures** |
| Value added per employee |
| Revenue per employee |
| Percentage of Stocks over System Output |
| Labour burden |
| Materials burden |
| Finance burden |
| Utilities burden |

## 2.4 Enterprise potential

Using enterprise performance obtained in the earlier steps, a studied selection of past best factor and capital productivity measures was made to compute the *potential* Total Productivity Measure (TPM) and Returns on Investment (ROI). These *potential* performance measures give an indication of performance heights that can be reached if past efficiency levels are achieved and maintained. In other words, the basic hypothesis here is that the enterprise may achieve a better performance without additional investment simply by looking at its own strengths and trying to replicate them - or at least by trying to understand the causes of the decline in specific factor performance. In fact, this is a method of internal benchmarking and the reason for providing this measure is to assist banks and funding agencies to assess the viability of the company. Obviously the potential for increased profitability may be further improved if corrective action is taken to address the weaknesses identified by the model.

## 2.5 Enterprise Clinics

One-to-one meetings were held with enterprises to discuss the findings and to identify the root causes of performance variations. Productivity gains and losses were brought to the attention of managers using measures previously computed. The *potential* performance measures were discussed and areas for improvement identified.

## 2.6 Confidential reports to enterprises

Enterprises having undergone the Level 1 assessment obtain a confidential report indicating their strengths and areas for improvement. They may then use the report to approach banks directly or to contact TEST for Level 2 intervention. See in the annex a diagrammatic description of the TEST framework.
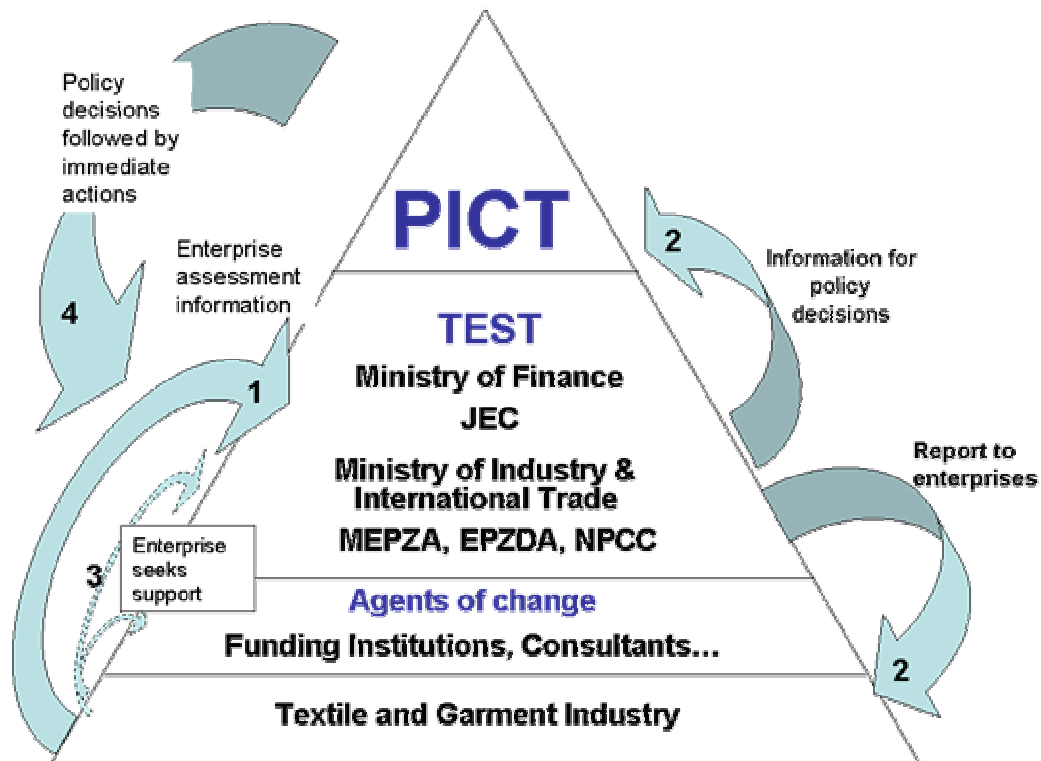


**Figure 1: Test framework**

# 3  Generic Review and Findings

The assessment of the productivity indicators and the meetings with enterprises confirmed that the majority of enterprises in the textile and garment sector that are performing poorly are having difficulties, to varying degrees, in these main areas:

- Materials utilisation and procurement
- Productivity planning and budgeting
- Human resource management
- Financial management
- Inventory management
- Technology enhancement
- International marketing
- Competitive pricing

Further discussions with enterprises revealed a number of issues affecting enterprise reactivity and performance, namely:

- Excessive delays in loan processing from banks
- Availability of collateral securities for loans
- High interest on loans, overdrafts and penalty costs

Some enterprises have developed innovative approaches to address a few of the constraints confronting them:

- 7 companies are pooling to reduce freight costs
- Other enterprises are:
  - Reducing interest on loans by borrowing in foreign exchange
  - Implementing lean manufacturing or already restructuring to improve enterprise productivity[1]
  - Improving lead times through restructuring, reducing unnecessary delays and reducing the reliance on more expensive air freight
  - Expressing interest to share orders with other enterprises due to low capacity

Similar positive experiences and the opportunities they represent have to be shared, multiplied and supported throughout the industry. They represent opportunities for improvement that can be tapped with little or no significant monetary investment on the part of enterprises.

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[1] The NPCC itself has been involved in the restructuring of an enterprise in the garment sector, orienting it towards lean manufacturing through Gemba Kaizen. Results obtained have shown that inventory levels can be reduced by 60 per cent, throughput time has gone down from 6 weeks to 6 days, and space utilization has been improved by more than 80 per cent leading in one case to gains of Rs. 3 million per year.

# 4 Analysis of Productivity Indicators

## 4.1 Total Productivity by size, product, and market

The Total Productivity Measure (TPM) shows the amount of output generated by each rupee spent. If the TPM is less than 1, it means losses are being made – the enterprise is not using effectively its various inputs and factors of production. To produce an output the enterprise has to buy inputs from outside (these are represented as MI in the model), which are then converted to give the final product. Thus, there are expenses related to conversion (CSI). The formula for obtaining the total productivity is as follows:

$$TPM = RSO/TSI$$

$$Where \; TSI = MI + CSI$$



**Figure 2: The Value Adding Process**

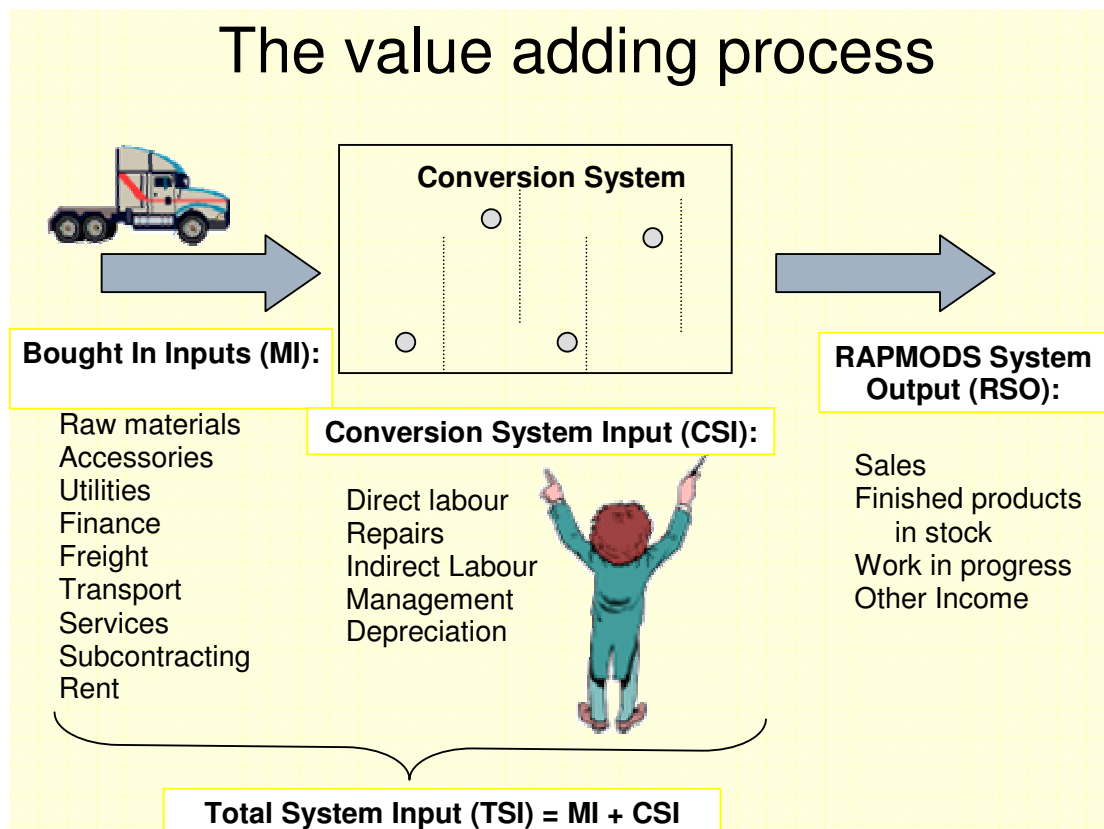## 4.2 Data overview

In tables (in Annexes 1 & 2), the main indicators for the industry have been compiled to show its performance on average. On a global measure all the indicators were on a downward trend in 2002. Interestingly, when the aggregate data is computed excluding firms with a turnover of Rs.1 bn and above, the following picture emerges from a comparison of tables in Annexes 1 and 2:

- Small and medium sized firms (SMEs) have been investing more than the bigger ones as shown by the Average Fixed Assets which increase in the smaller sample
- SMEs have been slightly more productive
- SMEs have on the whole higher capital productivity

The TPM for the industry in 2002 was 0.9706, a decline from 1.0119 in 2001. This is due to input costs rising faster than output. This would tend to show that the clothing industry on aggregate is not productive. However, a breakdown of the indicators reveals that performance is uneven from one enterprise to another, from one product group to another, from one size to another. The industry is not homogeneous and this makes it risky to prescribe across-the-board solutions.

## 4.3 Enterprise Productivity

A head count of enterprise TPM in 2002 shows that 15 enterprises recorded TPM>1, and 16 had TPM <1. Thus, more than 50 per cent of enterprises in the sample were having problems because they were not productive enough. Indeed, the health check carried out yielded the following:

**Objective of the first level assessment**

**Healthcheck**

- o  Healthy    *TPM > 1*    **15**
- o  Promising    *TPM fluctuates around 1, **Potential TPM> 1***    **7**
- o  Vulnerable    *TPM < 1, falling TPM*    **7**
- o  At Risk    *TPM< 1, falling FPMs*    **2**
  
  **All indicators in the red**

**(Sample of 31 enterprises)**
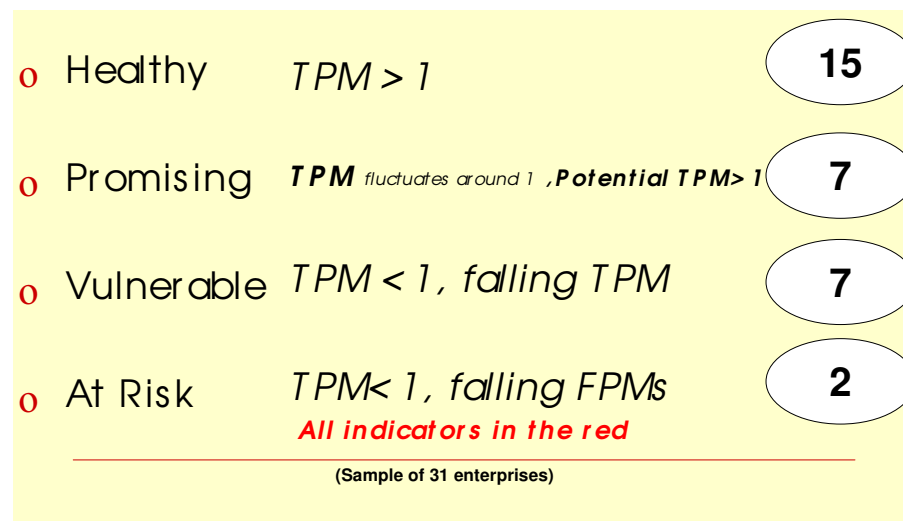
**Figure 3: Enterprise Productivity**

Those with a TPM fluctuating around 1 are considered as promising in the sense that they have the potential to do better with some reorganization. A low TPM on a falling trend is a sign of vulnerability and requires immediate drastic action. All indicators in the red point to probable closure.

## 4.4 TPM by size of enterprise

An analysis of the productivity level by size of enterprises has been carried out to ascertain whether a correlation could be found. Size was defined based on turnover and on employment level respectively:

**Table 3: Classification of enterprises by turnover**

| Size Class | Turnover Range |
|---|---|
| $A_T$ | Turnover less than Rs 20 mn |
| $B_T$ | Turnover between Rs 20 mn and Rs 50 mn |
| $C_T$ | Turnover between Rs 50 mn and Rs 100 mn |
| $D_T$ | Turnover between Rs 100 mn and Rs 500 mn |
| $E_T$ | Turnover between Rs 500 mn and Rs 1 bn |
| $F_T$ | Turnover greater than Rs 1 bn |

The following size classes were defined based on employment level.

**Table 4: Classification of enterprises by employment level**

| Size Class | Employee Range |
|---|---|
| $A_E$ | Employment less than 50 |
| $B_E$ | Employment between 50 and 400 |
| $C_E$ | Employment between 400 and 1000 |
| $D_E$ | Employment between 1000 and 2000 |
| $E_E$ | Employment more than 2000 |

Only small enterprises with a turnover of less than Rs 20mn improved their TPM in 2002 compared to 2001. For all other categories the TPM on average fell. Still, TPM>1 was recorded by two group sizes, namely the medium sized ones (Rs.20 to 50 million) and the large ones with a turnover of greater than Rs. 500 million but less than Rs.1 billion.
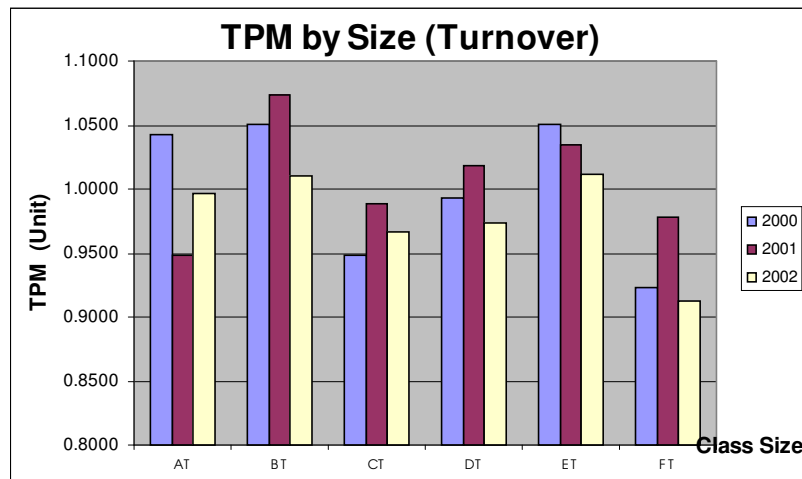


**Chart 1: TPM by Size (Turnover)**

When TPM is examined based on size defined by number of employees it is found that it has been increasing only in the category employing between 50 and 400, i.e. among medium-sized firms. However, TPM is greater than 1 in two categories, BE and DE. Thus, whichever definition of size is used there are two size classes that seem to have fared better on average.

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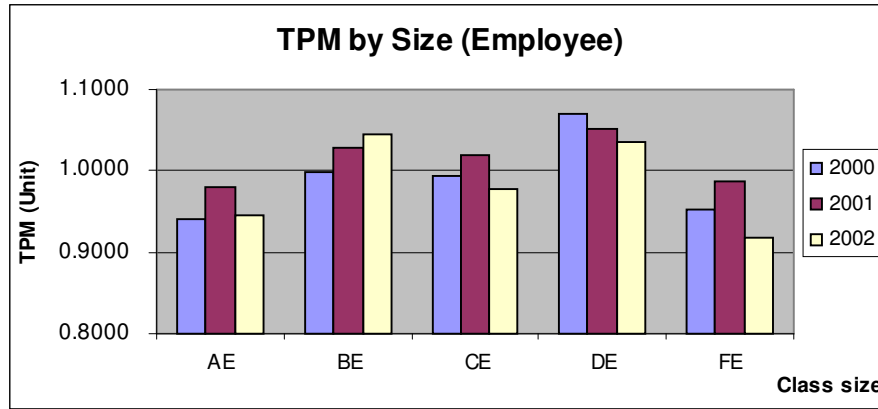
**Chart 2: TPM by Size (Employee)**

Moreover, when the individual enterprise turnover figures for 2002 are taken, we find that out of the 15 which had TPM>1, 9 were SMEs.

| ANALYSIS OF ENTERPRISES WITH TPM > 1 BY **TURNOVER** | | | |
|---|---|---|---|
| **TURNOVER RANGE** | **Size** | **No of Companies** | **Total** |
| Turnover<Rs20m | Very Small | 7 | 11 |
| Rs20m<Turnover<Rs50m | Small | 1 | 3 |
| Rs50m<Turnover<Rs100m | Medium | 1 | 2 |
| Rs100m<Turnover<Rs500m | Large | 3 | 8 |
| Rs500m<Turnover<Rs1bn | Very Large | 3 | 5 |
| Turnover>Rs1bn | | 0 | 2 |
| **TOTAL** | | **15** | **31** |



**Chart 3: Analysis of Enterprises with TPM > 1 by Turnover**

| ANALYSIS OF ENTERPRISES WITH TPM > 1 BY **EMPLOYEES** | | | |
|---|---|---|---|
| **TPM > 1** | **Size** | **No of Companies** | **Total** |
| Employees<50 | Small | 3 | 8 |
| 50<Employees<400 | Medium | 8 | 10 |
| 400<Employees<1,000 | Large | 2 | 7 |
| 1,000<Employees<2,000 | Very Large | 2 | 3 |
| Employees>2,000 | | 0 | 3 |
| **TOTAL** | | **15** | **31** |



**Chart 4: Analysis of Enterprises with TPM > 1 by Employees**

The above pie charts indicate that small and medium enterprises have on average performed better than larger enterprises. This observation stands good when enterprises are categorised both in terms of turnover and employee range.

## 4.5  TPM by main product categories

Out of the fifteen enterprises having a positive TPM, the majority was in t-shirts. The top five products were t-shirts, shirts, trousers and jeans. Enterprises producing pullovers, swimwear and suits had low productivity levels (TPM<1).

**ANALYSIS OF ENTERPRISES WITH TPM > 1 BY PRODUCT GROUP**

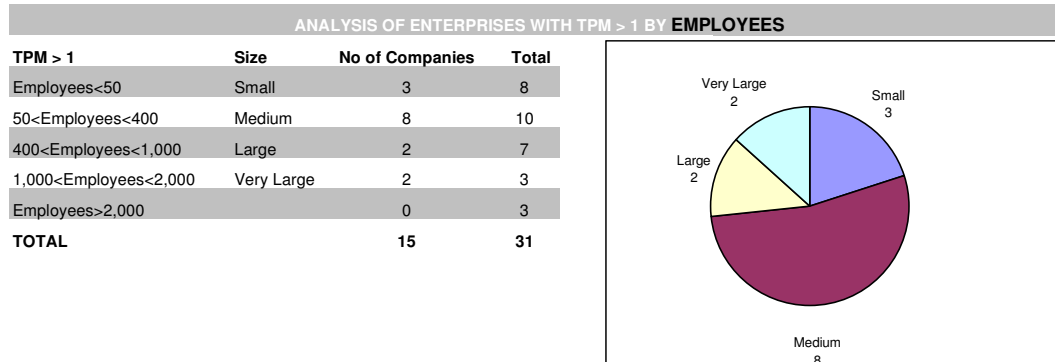| PRODUCT GROUP | No of Companies | Total |
|---|---|---|
| Accessories | 1 | 2 |
| Fabric weaving | 1 | 1 |
| Jeans | 2 | 3 |
| Lingerie | 1 | 1 |
| Others | 1 | 4 |
| Shirts | 3 | 5 |
| Trousers | 2 | 2 |
| T-shirts | 4 | 8 |
| Pullovers | 0 | 3 |
| Swimwear | 0 | 1 |
| Suits | 0 | 1 |
| **TOTAL** | **15** | **31** |
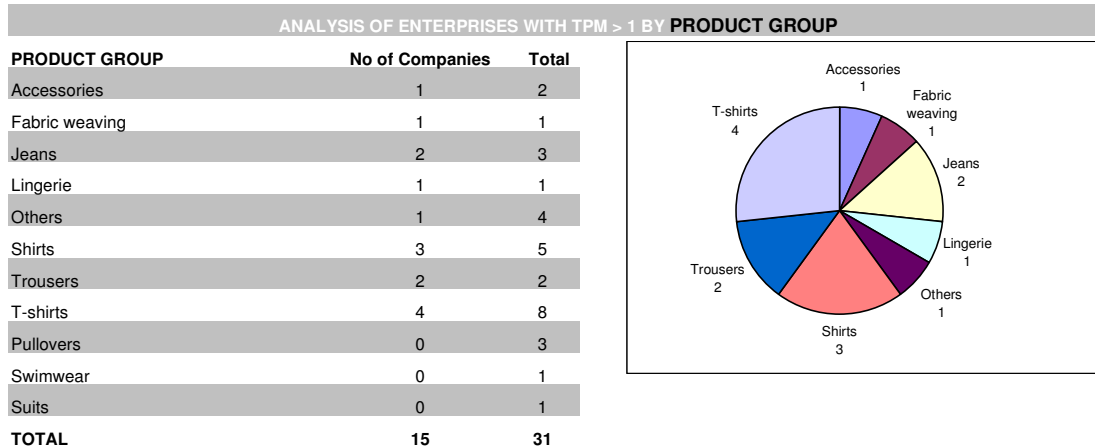
**Chart 5: Analysis of Enterprises with TPM > 1 by Product Group**

## 4.6  TPM by main markets

The table below shows the performance of enterprises across different markets. The total adds to more than the total number of enterprises because some sell on more than one market. These results, however, should be taken with caution, as exact figures were not readily available. Still, it was felt necessary to look at the markets to see if any pattern emerged. The outcome of the analysis is inconclusive though in the clinics marketing came up as an important issue for many SMEs.

Table 5: Enterprise performance by main export market (Year 2002)

| Main export market | TPM >1 (No. of Enterprises) | TPM<1 (No. of Enterprises) |
|---|---|---|
| Europe | 7 | 13 |
| UK | 5 | 6 |
| USA | 1 | 6 |
| Indian Ocean | 5 | 6 |

The figures for industry performance by export market are included in the Statistical Annex.

# 5 Production Management

Why has TPM been falling or been less than one? To be able to answer this question one has to look at the Factor Productivity Measures (FPM). Indeed, while the TPM helps to assess the overall effectiveness of the enterprise, the different FPMs indicate the contribution of each input to total output. They reflect management's ability to source inputs and convert these into final output. Low FPMs would, therefore, indicate that production management and planning is deficient. FPMs are measured in the RAPMODS as given below:
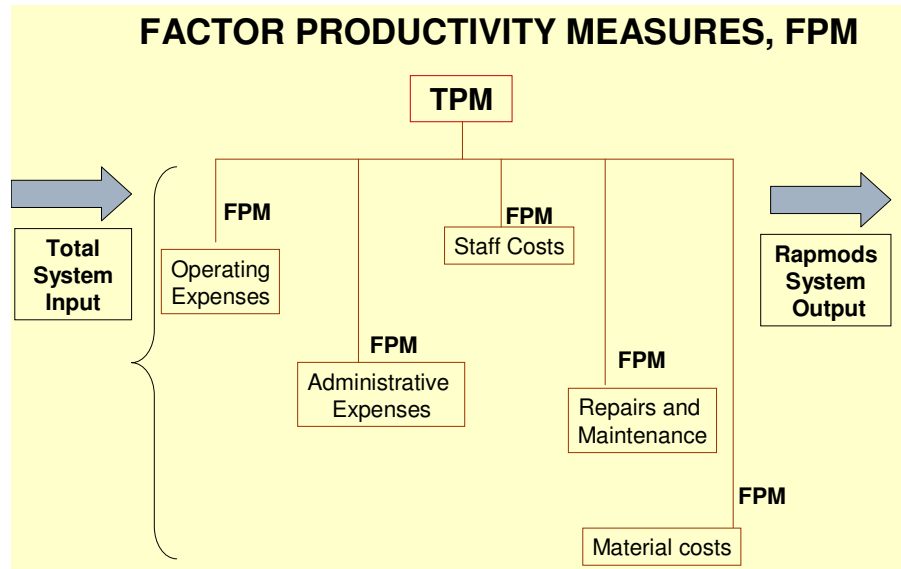


**Figure 4: Factor Productivity Measures**

Evidently, the effectiveness with which an enterprise uses its inputs has a direct impact on the Total Productivity Measure (TPM). It would be recalled that total factor inputs are decomposed as follows:

## Total Inputs = Bought out Inputs (mi) + Conversion System Inputs (csi)

Similarly, the Total Productivity Measure may be subdivided into factor productivity of bought out inputs (FPMmi) and factor productivity of conversion system inputs (FPMcsi).

The relationship between TPM and FPMmi and FPMcsi is as follows:

$$TPM = \cfrac{1}{\cfrac{1}{FPMmi} + \cfrac{1}{FPMcsi}}$$

## 5.1 Productivity of Bought Out Inputs

FPMmi measures the effectiveness with which enterprises use inputs bought from outside. FPMmi is computed as follows:

$$\text{FPMmi} = \frac{\text{RSO}}{\text{Value of bought out inputs}}$$

With the exception of enterprises having a turnover of less than Rs 20mn, there was no significant increase or decrease in the FPMmi across turnover range from 2000 to 2001. Smaller firms tend to use their bought out inputs more effectively.
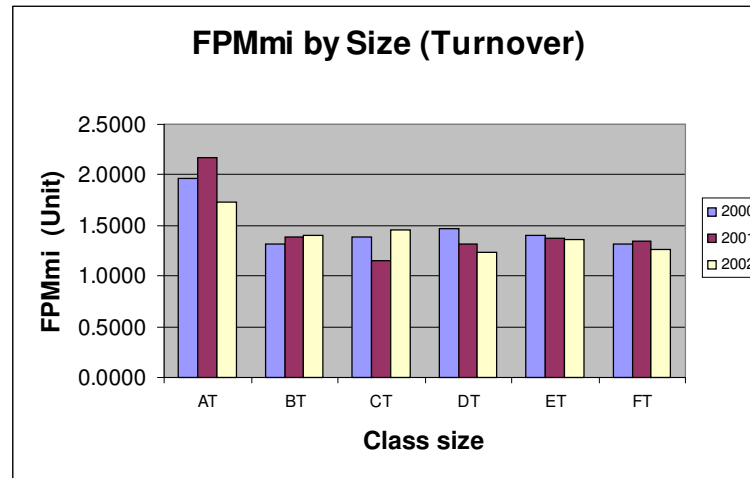


**Chart 6: FPMmi by Size (Turnover)**

When the individual data are analysed it is revealed that the majority fared worse in 2002 than in 2001.Whereas minimum, maximum and median FPMmi's were respectively 1.1251, 8.6925 and 1.4057 in 2001, the figures for 2002 are respectively 1.0925, 5.0582, and 1.3356. In fact, only 13 out of the 31 enterprises improved their factor productivity. This indicates that the majority of firms still have inadequate production, purchasing and inventory control systems.

## 5.2 Productivity of Raw Materials Consumed

Raw material (rm) inputs consumed include raw materials and accessories that have been effectively used in the production process. Material purchases that have not been consumed (stocks of raw materials) during the period are not included under this item, which, however, constitutes the major share of total expenditure, except for companies engaged in marketing and in subcontracting work.
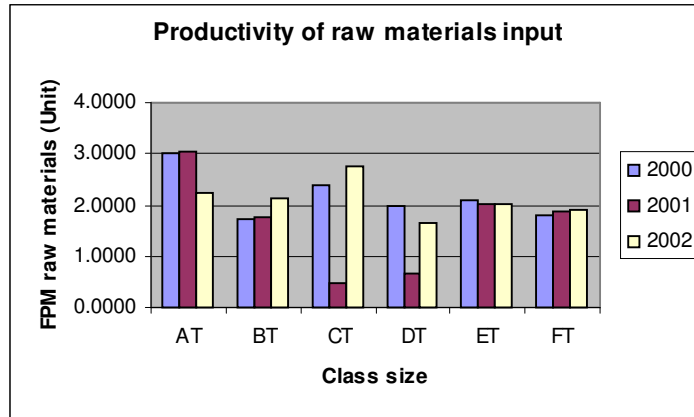
**Chart 7: Productivity of Raw Material Input**

Between 2001 and 2002, FPMrm followed an upward trend for all enterprises except for enterprises with turnover of less than Rs 20mn. Medium-sized enterprises (that is enterprises with a turnover ranging between Rs 20mn and Rs 500mn) have experienced the greatest increase in the productivity of raw material inputs.

Moreover, there is a need to look at the differential in the productivity of the raw materials inputs particularly since material expenses represent around 54 per cent of total expenses. There would seem to be scope for savings, especially when the findings in the clinics are taken into account.

## 5.3  Productivity of Conversion System

FPMcsi assesses the effectiveness of management of overheads in the process of converting material inputs into final output. This indicator measures the total output generated from each rupee spent in internal operations. FPMcsi is computed as follows:

$$\textbf{FPMcsi} = \frac{\text{RSO}}{\text{Value of conversion system inputs}}$$
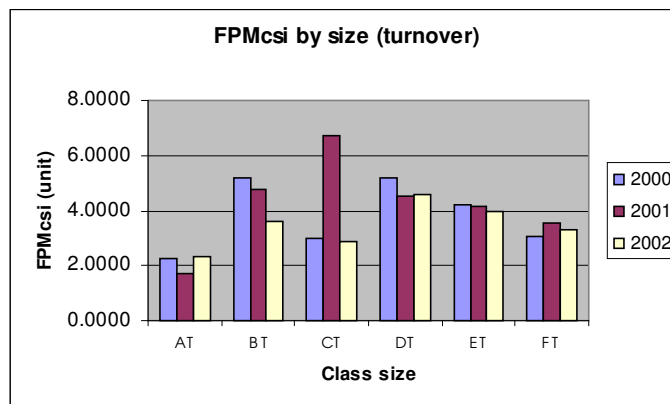


**Chart 8: FPMcsi by Size (Turnover)**

On average most size classes have been doing badly, except for the smaller ones. The individual indicators show improvement for 15 out of 31, some doing much better than

others with the result that the minimum, maximum and median have increased from 2001 to 2002.

## 5.4  Inventory Management

If inventories are not managed efficiently the result may be cash flow problems with finance being unduly tied down in stocks that are not moving fast enough. Assuming that the stocks have been well assessed, it would appear that most enterprises have stocks representing around 17 per cent of total output. Ten had a value of stocks over output exceeding 20 per cent.

High stocks with low turnover are definitely a sign of bad management. The stock turnover period measured in days ranged from 1 to 206, with a median of 67. The outlier can be ignored as it is a firm that contracts out all its manufacturing. The remoteness of Mauritius from its main markets and sources of raw materials can explain the need for keeping relatively high stocks. However, keeping two months' stocks seems to be on the high side especially considering that those with the highest TPM have the lowest turnover periods.

These findings from the data of the enterprises confirm what NPCC has noticed in its interventions in enterprises as part of its Gemba Kaizen programme.

# 6 Value Added

For years now the conventional wisdom has been that the industry should move to higher value added products in order to sustain the competition from low-cost, labour-rich countries. The calculations in this report cannot yield a definitive answer on whether there has been a significant shift because figures for 1990 would be needed to have an appropriate time span. Yet, some tentative conclusions can still be reached when the various indicators are examined.

## 6.1 Value Added per employee

This measure shows how much wealth has been created by the employees of the enterprise. Several factors influence it, some related to management efficiency (which has already been seen above to be low in the majority of cases), some to worker attitudes and work ethics, others to market demand for the specific products, to price effects which in turn depend to the degree of sophistication of the product.

A low value added per employee indicates that the cost of bought-in materials and services may have been too high, that time and materials have been wasted, that the salaries and wage levels are not adequate enough.
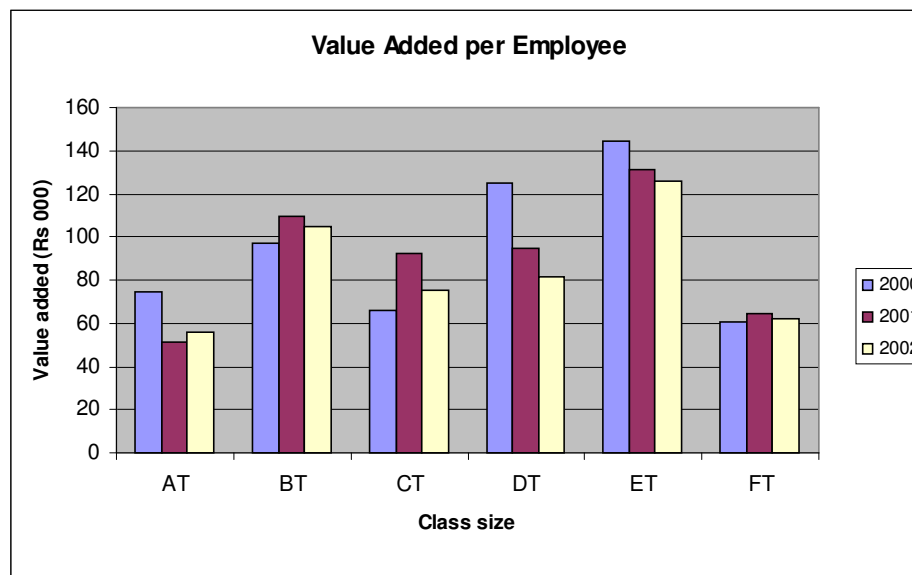


**Chart 9: Value Added per Employee by Size (turnover)**

Value added per employee was adversely affected for all enterprises with a turnover of more than Rs 20mn. It should be noted that there is no significant difference between the value addition per employee for largest enterprises (above Rs 1bn) and the smallest category.

The median value added per employee, which stood at Rs. 74,000 in 2000, fell to Rs.72, 000 in 2002. Only 13 enterprises experienced a growth in that ratio between 2000 and

2002. The wide dispersion from the lowest (Rs. 11,000) to the highest (Rs. 327,000) should also be noted.

## 6.2  The RAPMODS System Added Value (RSAV)

The model uses two different productivity measures to assess the effectiveness of the conversion system at generating value, namely Overall Productivity Measure 1 (OPM1) and Overall Productivity Measure 2 (OPM2). It measures value added as the net realisable value of products and services rendered during a period of time (one year).

## 6.3  Overall Productivity Measure 1

OPM1 measures the amount of value added for every rupee spent in conversion system input.

$$OPM1 = RSAV/CSI$$

This indicator of productivity is interpreted as follows:
- An enterprise is effective in adding value to inputs when OPM1>1.
- When OPM1=1, for each rupee spent in product conversion, the enterprise is obtaining an equivalent amount of value addition.
- Enterprises having OPM1<1 are destroying value. Enterprises maintaining such OPM1 for successive years are not productive internally and are in urgent need of restructuring.

All size categories, with the exception of enterprises having a turnover of less than Rs 20mn, experience a fall in OPM1 from 2001 to 2002.

In the sample of enterprises, OPM1 exceeded 1 for only **15** companies in 2002 (these same companies obtained a TPM>1). This observation confirms that efforts to restructure enterprises internally should be fostered to achieve high TPM.
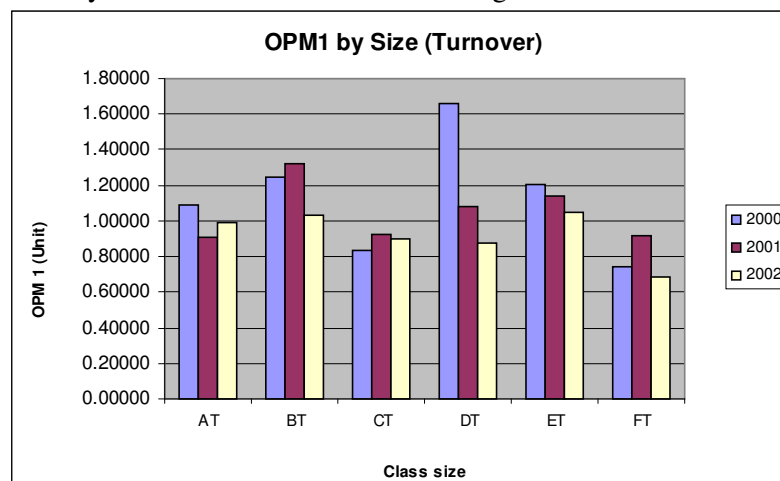


**Chart 10: OPM1 by Size (Turnover)**

## 6.4 Overall Productivity Measure 2

OPM2 measures the amount of value added for every rupee of expenditure. It assesses the ability of the enterprise to manage internal as well as external costs incurred in the process of value addition.

$$OPM2 = RSAV/TSI$$

It would be noted that OPM2 would be expected to be less than one. The 2002 indicators show two companies having OPM2 reaching 0.8378 and 0.8791. This means that for every rupee of expenditure, these companies generated 84 and 88 cents of value addition respectively. These are outliers because they are subcontractors who obtain their raw material inputs from their clients. The average performers had OPM2 of 0.2260. It is clear that the bulk of enterprises has either been producing "basics" and been suffering from price compression or has major marketing weaknesses.

This indicator underlines possibly the weak position of Mauritian firms in the textile and garment supply chain, especially with respect to procurement and marketing.
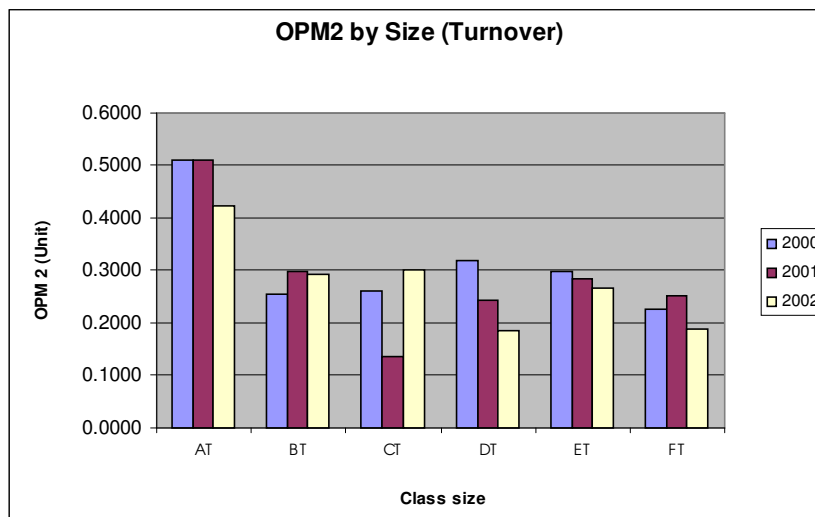


**Chart 11: OPM2 by Size (Turnover)**

The above graph indicates that the value added per unit of expenditure decreases as the size of the firm increases. This is to be expected as large companies tend to focus more on volume than on value added, since the market for the latter products requires greater flexibility in delivery and design. From a policy perspective, the relevant question is what to do in the face of greater competition for basic products, hence declining prices and the real danger of being completely out priced in a few years. Should the focus not be on enhancing the skills, the technology level, the marketing intelligence of SMEs which have a greater potential for adapting to changing market conditions?

# 7 Financial Management

The majority of enterprises have financial problems. The first report highlighted those that came up essentially from the clinics. The focus here is on some key financial indicators. It should be pointed out that financial problems are often the symptoms of inefficient management, viz. inefficient asset utilisation, poor stock control, improper monitoring of debtors, inefficient cash management, low turnover of material and high levels of work in process. Hence, a reduction in financial charges and in interest rates may certainly help but will not necessarily lead to the long term survival of the firm and industry if financial management issues are not tackled seriously at the enterprise level.

## 7.1 Assets Utilisation

Assets utilisation is computed in the model using three measures, namely Capital Productivity (N), Capital Productivity of Fixed Assets (NFA) and Capital Productivity of Current Assets (NCA).

- Capital Productivity (N) shows the amount of output generated by each rupee of total assets (both fixed and current assets)

$$N = \frac{RSO}{\text{Total Assets Employed}}$$

Low capital productivity results from low capacity utilisation, low stock turnover and problems in inventory management and managing debtors.

- Capital productivity of fixed assets (NFA) shows the amount of output generated by each rupee of total fixed assets. This measure also shows the effectiveness of fixed assets utilisation.

$$NFA = \frac{RSO}{\text{Average Fixed Assets}}$$

Low capital productivity of Fixed Assets indicates low capacity utilisation. Increasing values for this indicator means that the enterprise is enhancing capacity utilisation.

- Capital productivity of Current Assets (NCA) shows the amount of output generated by each rupee of current assets. This measure also shows the effectiveness of current assets utilisation.

$$NCA = \frac{RSO}{\text{Average Current Assets}}$$

Enterprises with low stock turnover, difficulties in managing their inventories and high debtors' turnover period will have low capital productivity of current assets.

- Ratio of fixed assets to number of employees shows the level of capital intensity of the enterprises.

High capital intensive enterprises will have high ratio of fixed assets to number of employees. Investment in equipment will also increase this ratio.

The table below shows how effectively the industry as a whole has been using its assets, both fixed and current. These ratios were computed using the data from 31 enterprises.

**Table 6: Capital productivity for the industry**

| Year | Capital productivity | Capital productivity (Current assets) | Capital productivity (Fixed assets) |
|------|---------------------|---------------------------------------|-------------------------------------|
| **2000** | 0.9938 | 1.7838 | 2.2437 |
| **2001** | 1.0270 | 1.8245 | 2.3497 |
| **2002** | 1.0268 | 1.6862 | 2.6260 |

During the period 2000-2002, the effectiveness of fixed assets utilisation improved while the effectiveness of current assets utilisation fell slightly. For every rupee of capital utilisation an output of R.1.0268 was generated in 2002 by the industry as a whole. The best enterprise in terms of capital utilisation generated Rs. 5.66 while the worse performer recorded Rs. 0.5606. Twenty firms registered a ratio greater than one.

Possible explanations are slow rate of stock turnover, inefficient debt collection and low level of investment in Fixed Assets.

Enterprises with turnover less than Rs 20mn have the highest capital productivity. (See graph below)

**Capital productivity by size (turnover), Yr 2002**
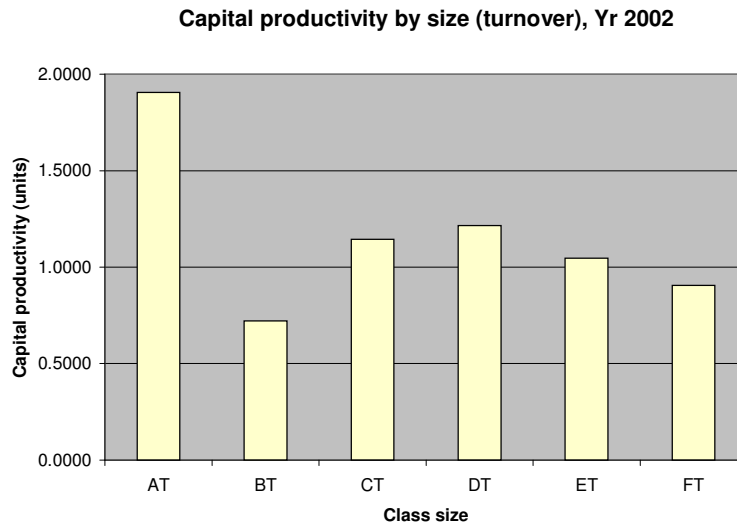


**Chart 12: Capital productivity by size (turnover), Year 2002**

## 7.2 Profitability

Profitability (K) indicates the profit or loss obtained during the year for every rupee of system output. K is computed as follows:

$$K = 1 - 1/TPM$$

From the formula above, profitability (K) and productivity (TPM) are related. This relationship is illustrated in the Universal Productivity Atlas
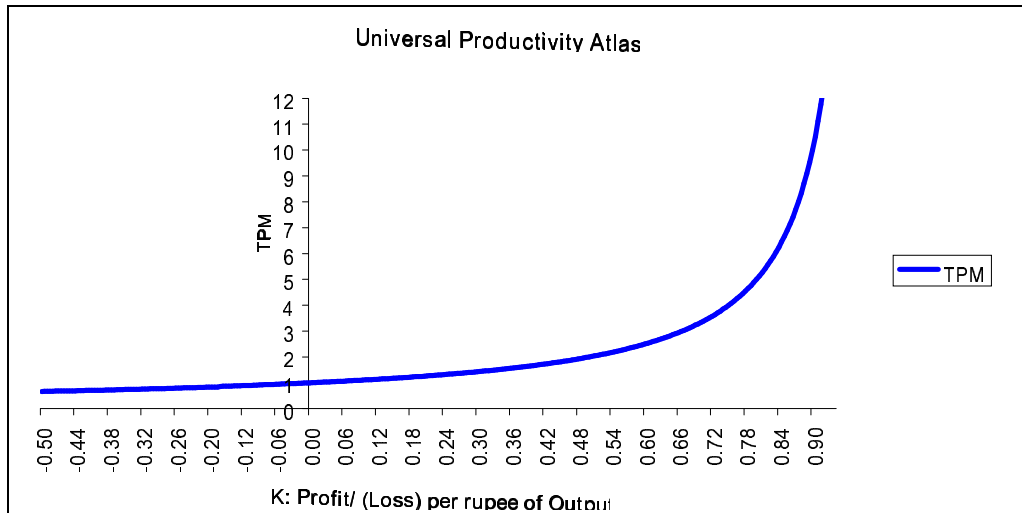


**Figure 5: Universal Productivity Atlas**

When TPM < 1, losses are incurred. A TPM of 1 results in a break-even situation whereby neither profits nor losses are made. When TPM > 1, profits are made. Therefore, low productivity results in low profits. SMEs have been more profitable on the whole.

Enterprises making losses will lie along the TPM curve but left of the TPM axis and those making profits will lie on the TPM curve but right of the TPM axis.
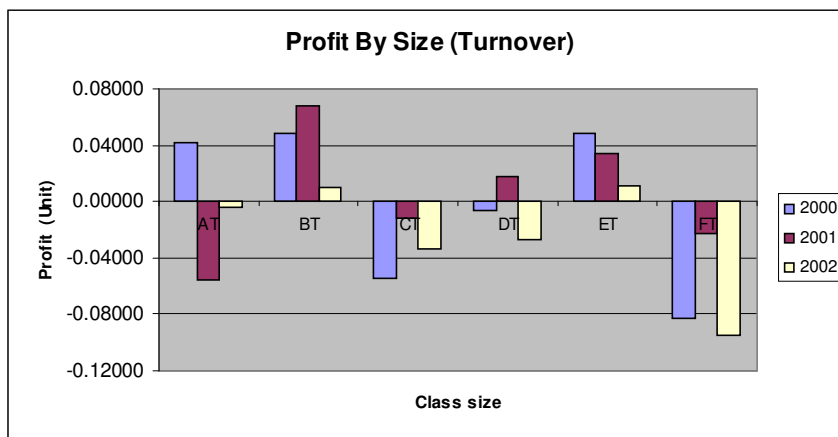


**Chart 13: Profit by size (turnover)**

In 2002, profitability declined for enterprises with turnover above Rs 20mn as a result of falling productivity (TPM). Only small enterprises with turnover between Rs 20mn and large enterprises with turnover of Rs 50mn and Rs 500mn and Rs 1bn have made profits.

## 7.3 Return on Investment

The return on investment has been positive for all three years for only two categories of enterprises, those with turnover between Rs 20mn and Rs 50 mn and those between Rs 500mn and Rs 1 bn.

With the exception of the smallest category, return on investment declined for enterprises in all the other categories.
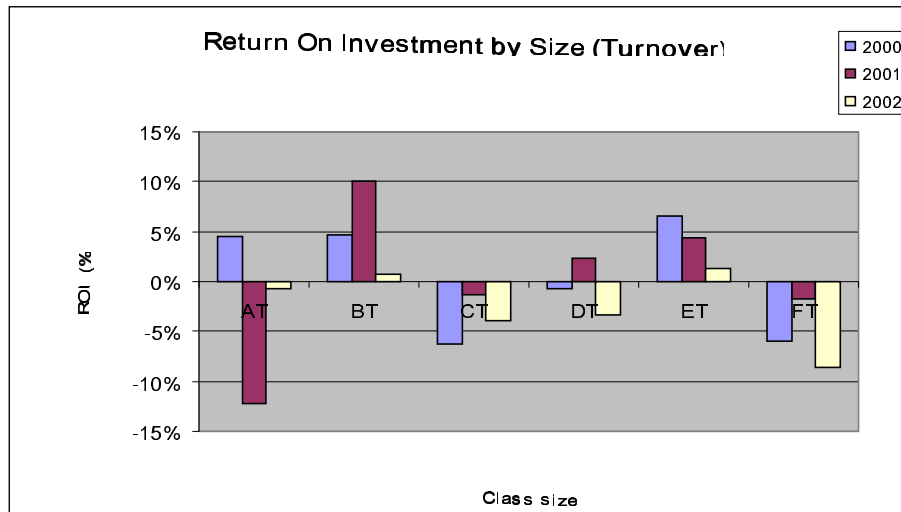


**Chart 14: Return on investment by size (turnover)**

With respect to product group, the ROI for all three pullover manufacturers in the sample was negative while the two trousers manufacturers have positive ROI. For all other product groups ROI varied from one enterprise to another.

# 8 Overall performance of the Industry

The indicators compiled give a range of performance for the industry. While some outliers are the cause of superior performance in N (capital productivity) and FPMcsi (efficiency of internal operations), the diagram below shows that the median performance is very low for the industry.

Around 50% of enterprises are not productive (TPM<1) and are experiencing a negative return on investment. Measures of value added (OPM1 and OPM2) also indicate that 50% of enterprises operate at very low value added levels.
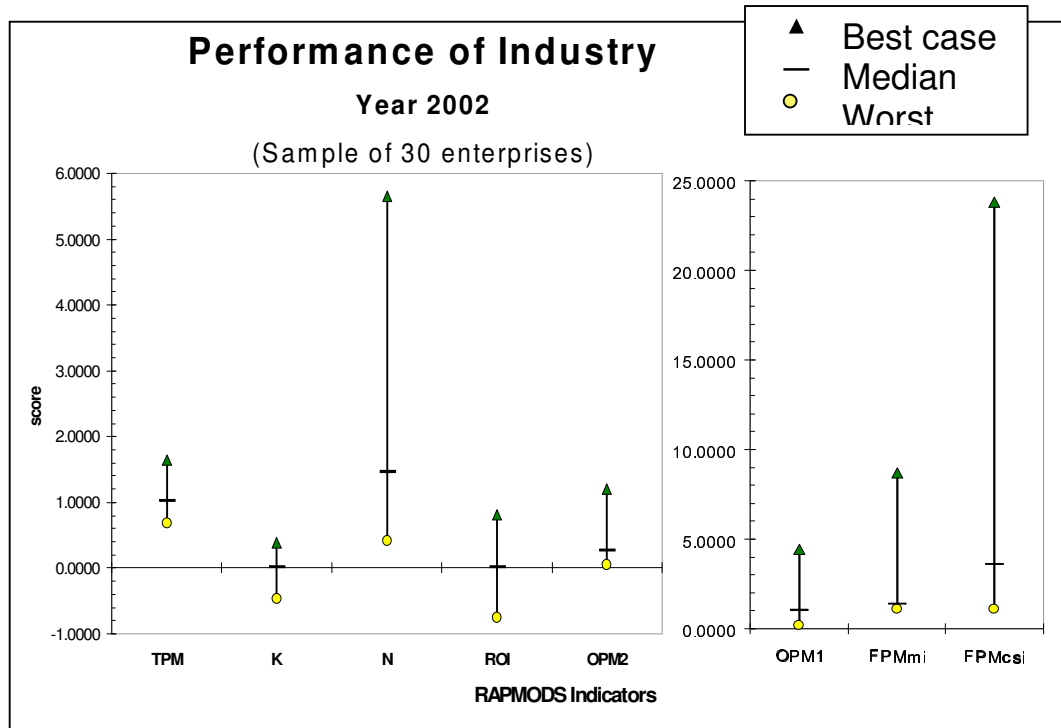


**Figure 6: Performance of the industry (Year 2002)**

Table 7: The performance range

| The Performance Range | | |
|---|---|---|
| | Sample of 30 enterprises | |
| | Minimum | Maximum |
| TPM | 0.6852 | 1.6402 |
| K | (0.4594) | 0.3903 |
| N | 0.4105 | 5.6600 |
| ROI | -75.43% | 81.00% |
| OPM2 | 0.0473 | 1.2001 |
| OPM1 | 0.1556 | 4.4137 |
| FPMcsi | 1.0704 | 23.8079 |
| FPMmi | 1.0565 | 8.6925 |
| **(2000-2002 data)** | | |

The table gives an indication of the performance range for the textile industry. It should be noted that the maximum reflects the performance of the outliers and are not representative of the industry.

Most enterprise indicators would hence lie around the lower end of the distribution, around the median.

# 9 The Potential of the Industry

Enterprise level potentials were derived from the best performance previously achieved for each company. These potentials reflect the performance heights that may be realised if past effectiveness levels are achieved once more. However, it should be noted that there is still room for exceeding this potential if enterprises engage in restructuring.

The potential for industry performance improvement was assessed based on the potential computed at enterprise level. Compared to year 2002 achievements, the figures indicate that performance improvement would still be possible for the industry. On the average, overall enterprise effectiveness (TPM) and capital productivity (N) could increase beyond year 2002 achievements.

On average, return on investment for the industry would reach 15% if action were taken to address all areas for improvement identified in this report.



**Chart 15: Year 2002 performance and industry potential**

# 10 Conclusion

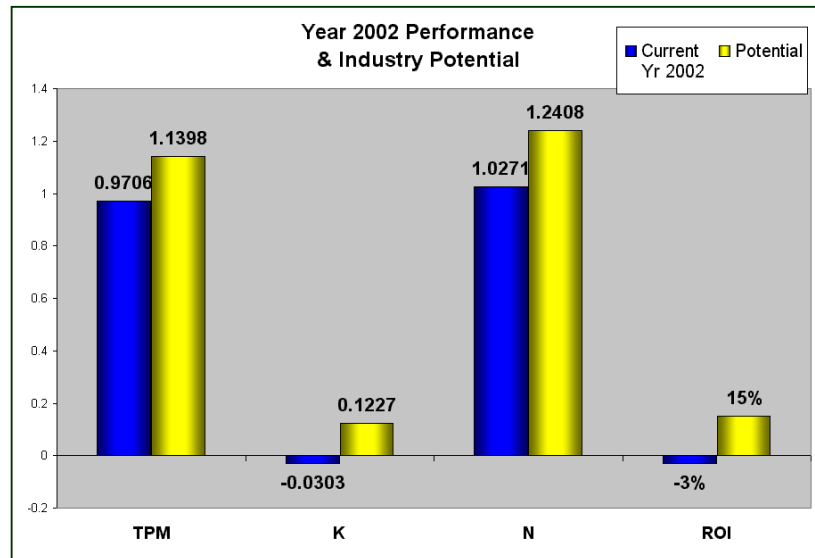The findings indicate that the Textile and garment industry in Mauritius is sick but not terminally ill. For the majority of enterprises, restructuring would be required to improve productivity levels and restore the potential for future growth. Restructuring within the enterprise as well as across enterprises (optimisation of supply chain opportunities through clusters) would provide positive prospects.

Following restructuring efforts, enterprises would have to make sure that they remain 'healthy'. To maintain their competitive edge, industry operators would have to turn towards more value addition. Applied to the textile and garment sector, value addition can come from only three sources: new skills (technical as well as design and marketing), technology, and materials. In other words, the fundamentals, namely the 3 **P**'s (**P**eople, **P**rocesses, **P**roduct) will have to be reviewed to ensure that the industry is **P**roductive and **P**rofitable.

The detailed list of indicators is annexed for further investigation and for benchmarking purposes. These will have to be built upon in order to monitor the progress of the industry. It is hoped that enterprises will realise the importance of having this productivity cockpit to take the right management decisions to strengthen their units to face global competition.

The major question at the beginning of this first level assessment was to evaluate the chances of survival of the industry so as to be sure that "good money is not being thrown after bad money". On the basis of figures provided voluntarily by almost all the main Mauritian players, the following broad conclusions may be arrived at:

1. The industry is not homogeneous.
2. No across-the-board policies are recommendable.
3. Manufacturers of pullovers are facing the most problems.
4. SMEs on the whole seem to be doing better, although there are a few big firms that are also doing quite well.
5. A 1997 IFM (Institut Francais de la Mode) report on "The post-2005 textile strategy for the Mauritian clothing industry" had already established that the survival and growth of the industry depended on the mastery of 4 main components: Price, Technical skills, Creativity, Reactivity. The indicators for the majority of firms prove that the industry has not evolved positively on these four elements.

## 10.1 Areas for Action

The assessment has been based on data provided by the enterprises, cross-checked in clinics, broken down by size, product and market. No conclusive evidence was found to link these characteristics with the performance of the industry. Indeed, within the same product -, size-, or market-group, differing levels of performance were recorded. The only general conclusion that can be drawn is that management skills are what matters.

In the light of the above, the main areas for action at the enterprise level will have to be:

**1. Productivity improvement at plant level**
**2. Productivity planning and budgeting**
**3. Financial management, including costing**
**4. International marketing**
**5. Technical skills upgrading at all levels (from operators to CEOs)**

The indicators computed for the industry potential as well as NPCC's in-plant interventions have revealed that there is scope for improvement, provided the top management commitment to change is present. These findings are also borne out in the technical audits carried out at the request of Textile Emergency Support Team by Mrs. Anne Quai, consultant of Groupement des industries et de l'habillement (GIH). (see Annex 9).

**11 Annexes**

**Annex 1: Average of indicators for the industry, sample of 31 enterprises**

| Year | Average Current Assets | Average Fixed Assets | CSI | BI | RSO | TSI |
|------|------------------------|----------------------|-----|-----|-----|-----|
| 2000 | 3,918,156 | 3,115,033 | 1,812,848 | 5,007,589 | 6,989,246 | 7,064,307 |
| 2001 | 4,200,885 | 3,261,854 | 1,916,377 | 5,657,771 | 7,664,463 | 7,574,125 |
| 2002 | 4,649,961 | 2,985,909 | 2,073,505 | 6,005,184 | 7,840,890 | 8,078,664 |

| Year | RSAV (RSO - MI) | OPM1 (RSAV/CSI) | OPM2 (RSAV/TSI) | FPMcsi (RSO/CSI) | FPMmi (RSO/MI) | TPM (RSO/TSI) |
|------|-----------------|-----------------|-----------------|------------------|----------------|---------------|
| 2000 | 1,981,657 | 1.0931 | 0.2805 | 3.8554 | 1.3957 | 0.9894 |
| 2001 | 2,006,692 | 1.0471 | 0.2649 | 3.9995 | 1.3547 | 1.0119 |
| 2002 | 1,835,707 | 0.8853 | 0.2272 | 3.7815 | 1.3057 | 0.9706 |

| Year | ROI [(1- 1/TPM) X n x 100%] | Profit, K (1-1/TPM) | Capital Productivity, N (RSO/ (ACA + AFA) |
|------|------------------------------|---------------------|--------------------------------------------|
| 2000 | -1.07% | -0.0107 | 0.9938 |
| 2001 | 1.21% | 0.0118 | 1.0270 |
| 2002 | -3.11% | -0.0303 | 1.0268 |

**NPCC**
*Ensam pou enn méyer kalité lavi*

**Annex 2: Average of the indicators for the industry, sample of 29 enterprises (excluding 2 largest)**

| Year | Average Current Assets | Average Fixed Assets | CSI | BI | RSO | TSI |
|---|---|---|---|---|---|---|
| **2000** | 2,115,111 | 1,758,934 | 1,078,222 | 3,316,310 | 4,749,903 | 4,638,402 |
| **2001** | 2,402,171 | 1,893,095 | 1,240,355 | 3,876,048 | 5,261,629 | 5,116,378 |
| **2002** | 2,887,015 | 2,074,046 | 1,342,386 | 4,082,573 | 5,417,786 | 5,424,933 |

| Year | RSAV (RSO - MI) | OPM1 (RSAV/CSI) | OPM2 (RSAV/TSI) | FPMcsi (RSO/CSI) | FPMmi (RSO/MI) | TPM (RSO/TSI) |
|---|---|---|---|---|---|---|
| **2000** | 1,433,593 | 1.3296 | 0.3091 | 4.4053 | 1.4323 | 1.0240 |
| **2001** | 1,385,582 | 1.1171 | 0.2708 | 4.2420 | 1.3575 | 1.0284 |
| **2002** | 1,335,213 | 0.9947 | 0.2461 | 4.0359 | 1.3271 | 0.9987 |

| Year | ROI [(1- 1/TPM) X n x 100%] | Profit, K (1-1/TPM) | Capital Productivity, N (RSO/ (ACA + AFA) |
|---|---|---|---|
| **2000** | 2.88% | 0.0235 | 1.2261 |
| **2001** | 3.38% | 0.0276 | 1.2250 |
| **2002** | -0.14% | -0.0013 | 1.0921 |

# Annex 9: Summary of technical evaluation by Mrs A. Quai

## SUMMARY OF TECHNICAL EVALUATION

| FUNCTIONS MAIN TASKS | | CORRECT | PARTLY CORRECT | WRONG |
|---|---|---|---|---|
| PD Creation | (8 functions) | 4 | 3 | 1 |
| Pattern Design & Construction | (7 functions) | 2 | 3 | 2 |
| Raw Material Storage | (3 functions) | 0 | 3 | 3 |
| Spreading | (3 functions) | 0 | 3 | 3 |
| Cutting | (6 functions) | | 4 | 2 |
| Sewing | (3 functions) | | 3 | |
| Finishing | (3 functions) | | 3 | |
| Methods | (6 functions) | | 6 | |
| 36 | | 6 | 28 | 5 |
| | | 15.00% | 72% | 13% |

Source: Mrs Anne Quai, Groupement des industries de l'habillement (GIH)

# Annex 10: Findings and proposals emerging from clinics

Clinics - face to face discussions of individual reports – were held with 15 enterprises. The discussions gave rise to interesting insights on priority areas for improvement from an industry perspective. This annex gives industry's perception of the issues, and it complements the indicators that have been included before. The issues are included in this report because it was felt important that other stakeholders should be aware of the both subjective and objective data. Action may be taken where deemed necessary by the competent authorities/institutions.

## 10.1    Banking issues

(i)     There is need for an independent banking ombudsman to investigate banking practices and make sure that fair practices are implemented in the banking sector.

(ii)    A loan guarantee scheme is required.

(iii)   Facility for converting overdrafts into loans would have to be investigated.

(iv)    For enterprises suffering from high financial burden, the possibility of debt rescheduling should be explored based on the condition that the enterprise engages into reengineering. Such a scheme would temporarily reduce the burden of financial charges and provide appropriate time for enterprise to re-establish their financial viability.

(v)     Bank practices must be reviewed with respect to (a) personal guarantees (b) bureaucratic rigidity in dealing with disbursements and also in dealing with repayments (should take into consideration specific conditions of customer, e.g. delayed payment on the part of foreign buyer)

(vi)    Receivership laws should be reviewed to take into consideration the potential of enterprises such that intrinsically sound productive units with full order books are not compelled to close down.

(vii)   For some enterprises, assessments have shown that reduction in financial costs (interest rates and bank charges) will be significant in restoring a marginal competitive edge for enterprises.

(viii)  The issue of affordable bank charges was raised several times.

(ix)    During the emergency period banks surcharges on late repayments could be waived.

(x)     Opportunities of access to foreign exchange loans through offshore banks will have to be investigated.

(xi)    DBM could provide long-term loans for acquisition of fixed assets.

(xii)    It was suggested by one participant that the DBM could buy buildings and lease them back to the enterprises to alleviate cash flow problems.

## 10.2    Marketing

A major weakness of many of the smaller firms was seen to be the lack of market intelligence. It might be useful to set up an International Marketing and Technology Intelligence Cell operating under the TEST. The Cell would be helpful to obtain up-to-date information on market and technology trends in existing and new export markets.  It would rely on consultants from countries of major exports, providing appropriate advice to TEST, for a short period of time.

## 10.3    Freight

The cooperative approach to reduce freight costs, developed by the MEPZA would have to be popularised. Services would have to be extended to all enterprises interested to participate.

## 10.4    Labour issues

(i)    Given the problem of labour shortages and given the seasonal nature of demand in the knitwear sector, the possibility of employing local labour on a contractual basis for short periods could be envisaged. This would have the benefit of recouping skilled labour that has been retrenched and which is not attracted to be employed on a full time basis in a factory environment.

(ii)    The possibility of organising specific training (on demand) for new niche products should be explored e.g. if three lingerie producers find it difficult to obtain specialised labour, existing institutions could, in consultation with the enterprises elaborate training courses for retrenched workers.

## 10.5    Access to consultancy services

Enterprises should have access to appropriate consultancy services to deal with the areas for improvement identified at enterprise level, namely:

- Materials utilisation and procurement
- Productivity planning and budgeting
- Human resource management
- Financial management
- Inventory management
- Technology enhancement
- International marketing
- Competitive pricing

However, it may often be the case that enterprises will not have the necessary cash flow for such services. It is therefore proposed that the training refund criteria be reviewed by:

(i) Removing the ceiling for Mauritius Qualifications Authority[2] refund for enterprise reengineering during the emergency period (say, 6 months).

(ii) MQA to give equal treatment for Training and Consultancy assignments aimed at enterprise restructuring. Moreover, service providers (training organizations, consultancy firms) will have to state the extent of improvements that can be achieved during the specific time frame. The projects will have to be monitored to ensure attainment of objectives as well as to maintain benefits reaped.

## 10.6   Capacity Utilisation

While some companies had a problem of capacity in that they could not meet all customer orders on time, others had spare capacity and a lack of orders. In addition, from the sample it would seem that subcontractors are faring better than the rest. Hence, there would seem to be a lot of scope for clustering. However, an information brokerage system will have to be put in place to facilitate matching of capacities.

## 10.7   Export Charges

(i) Proper production planning and scheduling systems have to be developed so as to reduce delays in meeting delivery deadlines and hence eliminate the frequent use of airfreight to despatch products.

(ii) Collaboration opportunities: The industry has to identify opportunities to collaborate to reduce freight costs, for example, through shared container shipments.

## 10.8   Procurement

The procurement practice of enterprises often leads to cash flow problems. Raw materials are usually needed one to two months before production starts so as to perform required inspections and quality checks. While some suppliers allow 40 days credit to the enterprise, others do not provide any credit facility. This creates a pressure and needs the support of banks.

Possible measures could be:

(i) To get supplier firms to allow longer delays to enterprises (reducing the need for excessive overdrafts, and reduced bank charges and interest payments, enhancing the possibility of enterprise survival and long term benefits for suppliers themselves).

(ii) Develop a scheme for local purchases of raw materials and accessories. Enterprises may provide an indication of long-term order requirements from suppliers (for 1 year). Suppliers may forward raw materials on a just in time basis (e.g. 2 weeks earlier) such that enterprises do not purchase and store excessive amounts. Arrangement may also have to be made for payments to be made when

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[2] The Mauritius Qualifications Authority (MQA) has been set up with a view to regulating training in Mauritius.  The MQA manages a levy grant system whereby EPZ firms are provided 75% refund of expenses incurred for employee training.

consumption is effected. Here again, clustering might be a solution. In addition improved production planning techniques will have to be utilised.

## 10.9 Information dissemination

It was noticed that a lot of enterprises are not aware of facilities available at institutions and banks.

## 10.10 Other issues raised in clinics

*(i)     Energy saving*
Although the cost of electricity was not found to be an excessive burden in the sample of companies, yet one company indicated that it was taking measures to improve its utilisation of energy.

*(ii)     EPZ Bank*
Given the perceived 'tyranny' of the banks, one operator even suggested that the EPZ firms should explore the possibility of starting an EPZ bank.

*(iii)     Improve supply chain competitiveness*
This was suggested as a solution to remedy the problem of sourcing of raw materials on time and at affordable price.

## 10.11 Debt-equity Ratio

It is a generally accepted view that the EPZ enterprises are undercapitalised in the sense that their equity is low compared to their debt. The ratios we obtained varied from 2.5:1 to 22.5: 1. However, as these loans are obtained against personal guarantees, which in some cases exceed the amount of the loan, this issue has to be looked at more deeply. There may be need for special debt management or financial management training for most of the CEOs.

# Annex 11: List of enterprises

1   A & W Thread Ltd
2   A & W ZIP Ltd
3   ANM Garments Ltd
4   Aquarelle Clothing Ltd
5   Corona Clothing
6   Création Vacances Ltée
7   Créations Isle du Cygne
8   Firemount Textiles Ltd
9   Fisaa Tex Ltd
10  Floreal Knitwear Ltd
11  Hesler Marine Co. Ltd.
12  J. L Tropiko Fashion Ltd
13  Job Textiles Ltd
14  La Palette Ltée
15  Lindenwear Ltd
16  Maraly Fashion
17  Mklen Fashions Ltd
18  Noblesse Cie Ltée
19  Palmar Ltd
20  Promintex Co Ltd
21  Richfield Textiles Ltd
22  Select Style Ltd
23  Seriyan Ltd
24  Shibani Knitting
25  Socota Textile Mills Ltd
26  Southern Textiles Ltd
27  Star Knitwear Ltd
28  Texto Limitée
29  Tropic Knits Ltd
30  Vieo Industries Ltd
31  World Knits Ltd