

National Productivity & Competitiveness Council



Case study:

Benchmarking in the Textile and Garment Industry (Mauritius)

Presentation to GBN

Nikhil Treebhoochun

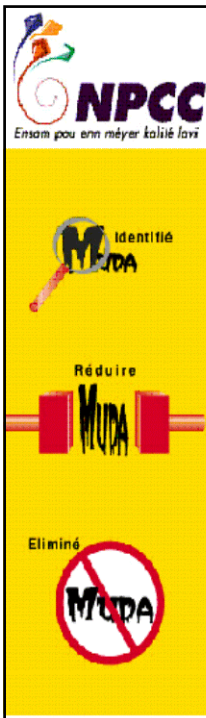
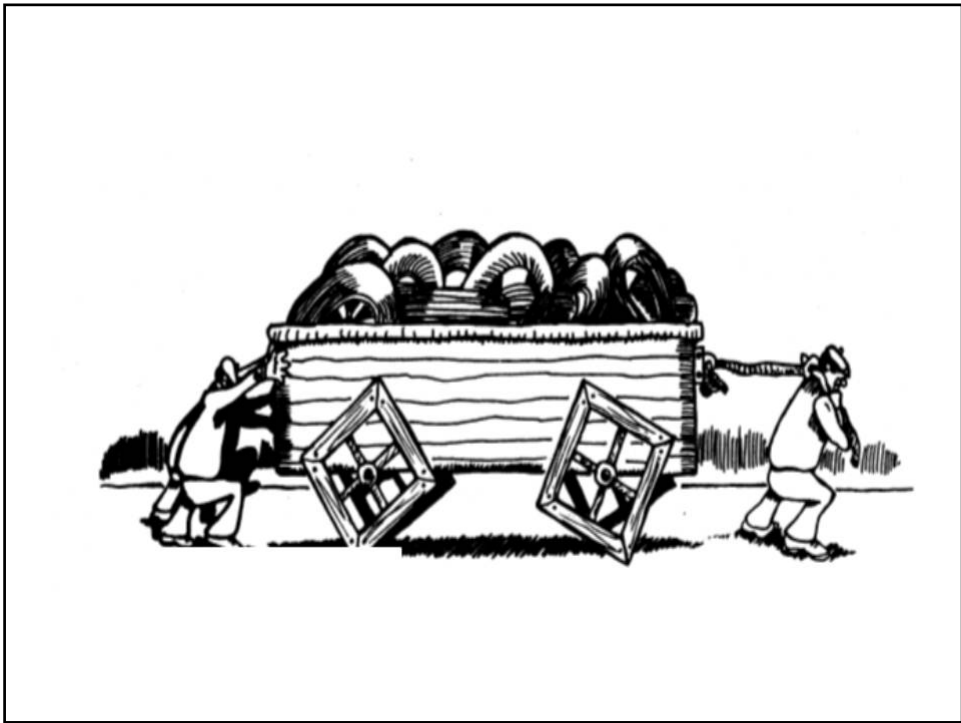
18 – 20 November 2004



Content

- Overview of NPCC
- Achievements of NPCC in benchmarking
- NPCC benchmarking tools
- Benchmarking in the textile and garment industry
- Benchmarking in other sectors
- What next after benchmarking?

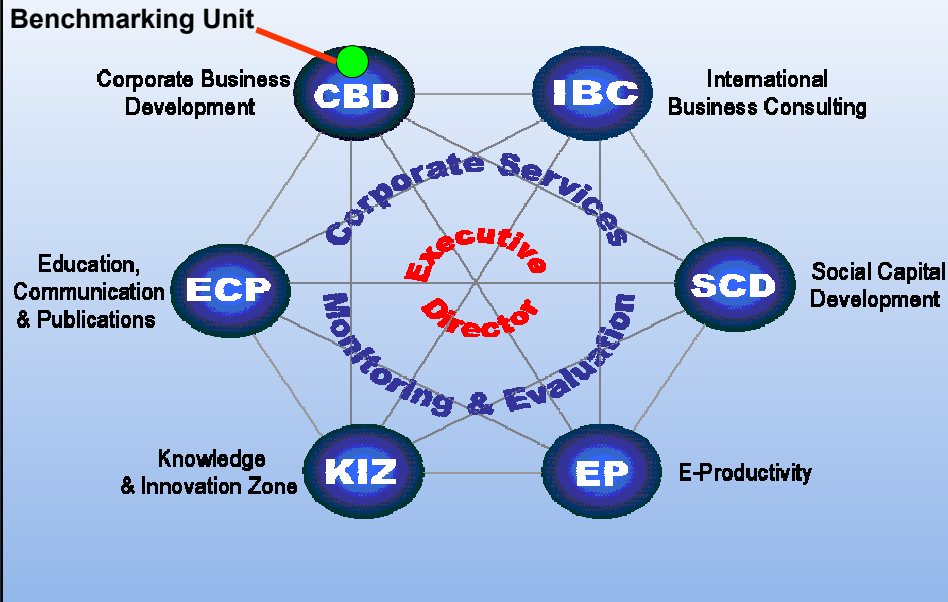




The approach

- Learning by doing
- Focus on implementation
- Improvement on the Gemba
- Team-oriented problem solving

NPCC functions



Main achievements (2003-2004)

- 200 organisations sensitised on the benefits of benchmarking
- Benchmarking of listed companies
- Benchmarking of textile and garment enterprises (since July 2003)
 - Textile Emergency Support Team (TEST): 52 enterprises
 - Launching of FiT (developed by ITC for garment making enterprises)

Main achievements (2003-2004)

- Benchmarking of Insurance sector
 - Data from 9 insurance companies
- Linkage with BenchmarkIndex (DTI)
- Process benchmarking on Customer Care
 - 40 organisations (both public and private)

NPCC benchmarking tools

Overview

- Productivity benchmarking based on RAPMODS (**RA**msay **P**roductivity **MO**DEls **S**ystem)
 - Developed by Dr M. R. Ramsay
 - Application (no limits)
 - Current applications in Mauritius: Listed companies, **Textile and garment industry (TEST)**, Insurance sector, Banking sector
 - Future applications: Sugar industry, Manufacturing sector, Hotel sector

Overview

- Self Assessment and Benchmarking
 - Process benchmarking based on the Malcolm Baldrige criteria
 - eBenchmarking
(<http://www.npccmauritius.com/benchmarking/>)
 - Applications: both public and private sector
- BenchmarkIndex
- FiT - developed by the International Trade Centre (ITC) for garment-making enterprises

The RAPMODS (RAMsay Productivity MODEls System) model

- A performance assessment tool developed by Dr. M. R. Ramsay
 - A model for objective, transparent and credible performance measurement
 - A model for identifying muda from value-adding activities
- Muda are activities or processes not adding to value, but adding to cost***
- A model for linking productivity and profitability
 - A model for assisting planning and budgeting for continuous improvement

Productivity cockpit



What does the model help to measure?

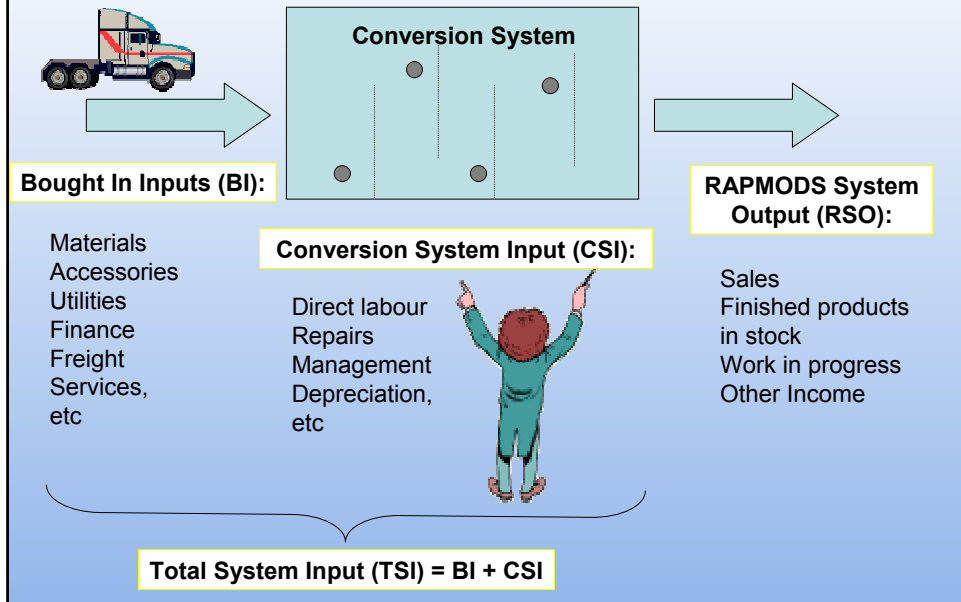
- The contribution of each external input to the output of the company
- The contribution of each internal input to the output of the company
- The contribution of productivity to profitability
- The contribution of each input to value added
- Areas of low productivity and where change has to be initiated

How is productivity measured?

$$\text{PRODUCTIVITY} = \left[\frac{\text{SYSTEM OUTPUT}}{\text{SYSTEM INPUT}} \right]$$

Productivity measures are developed using data from
Company Financial Statements (minimum 3 years)

The value adding process

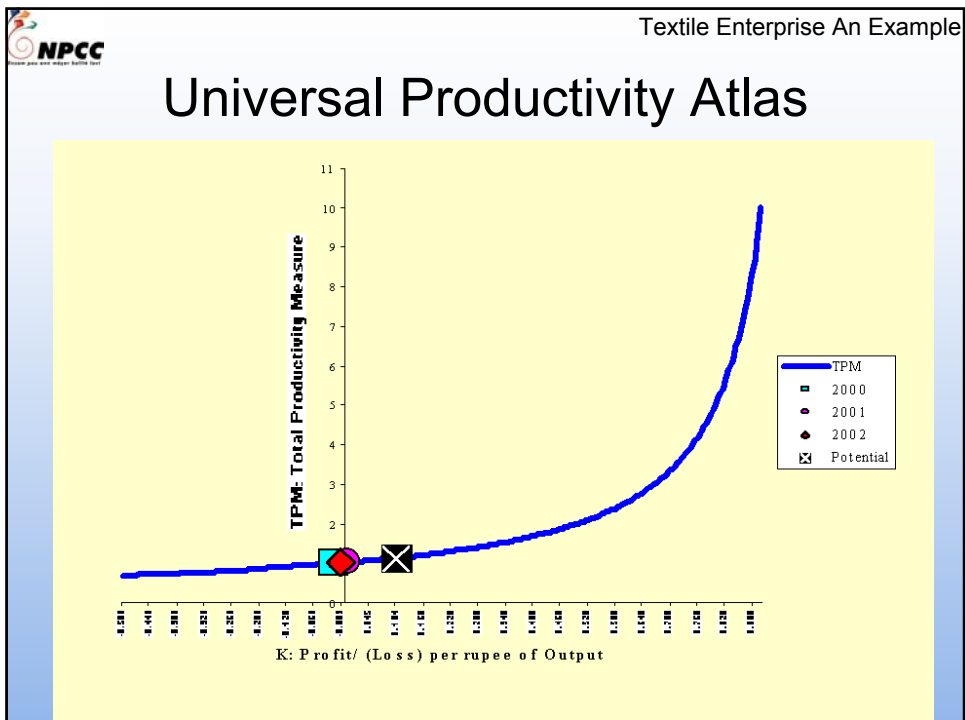


Assessment outcome

- Total Productivity Measure (TPM)
 - Output of the enterprise for every rupee spent
- Profitability (K)
 - Profit of the enterprise for every rupee of output
- Factor Productivity Measure (FPM)
 - Output of the enterprise for every rupee spent on an input
- Capital Productivity (N)
 - Output of the enterprise for every rupee of capital
- Return on Investment (ROI)
 - Return for every rupee invested in the enterprise

A Textile Enterprise

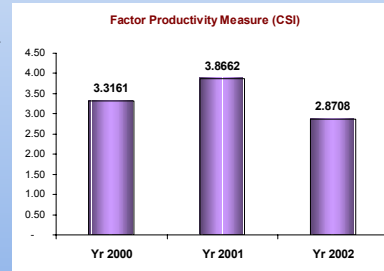
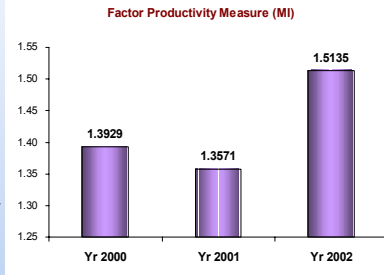
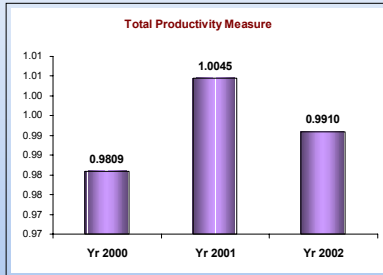
An example



Factor Productivity Measures

Textile Enterprise An example

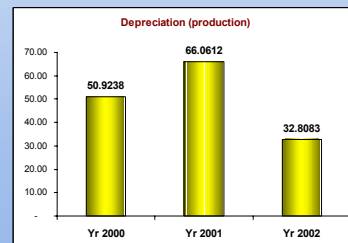
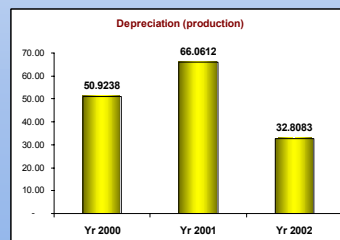
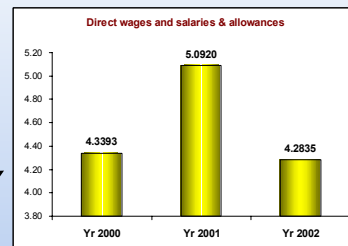
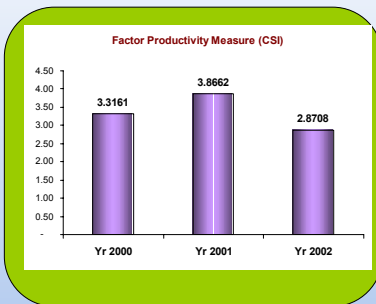
$$\text{Total Inputs} = \text{Bought-out Items} + \text{Conversion System Inputs}$$



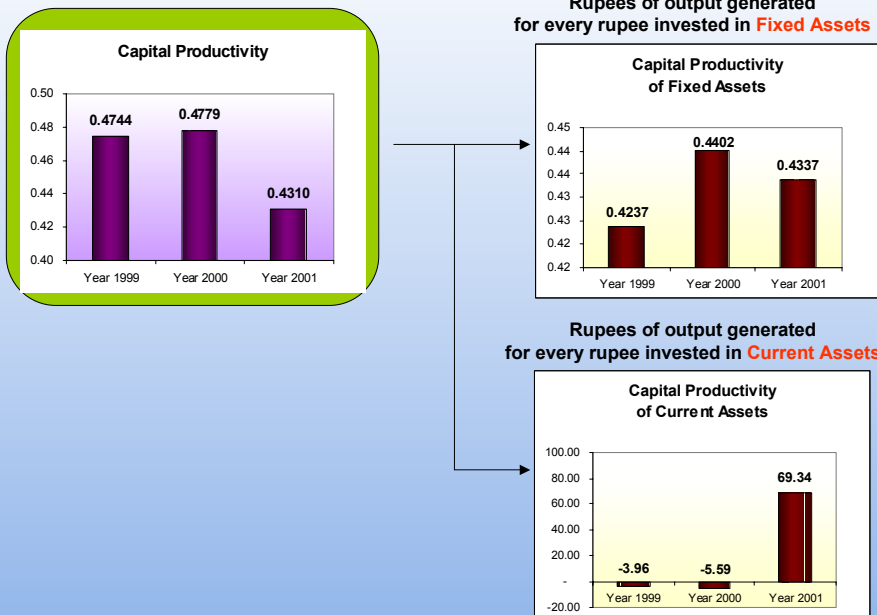
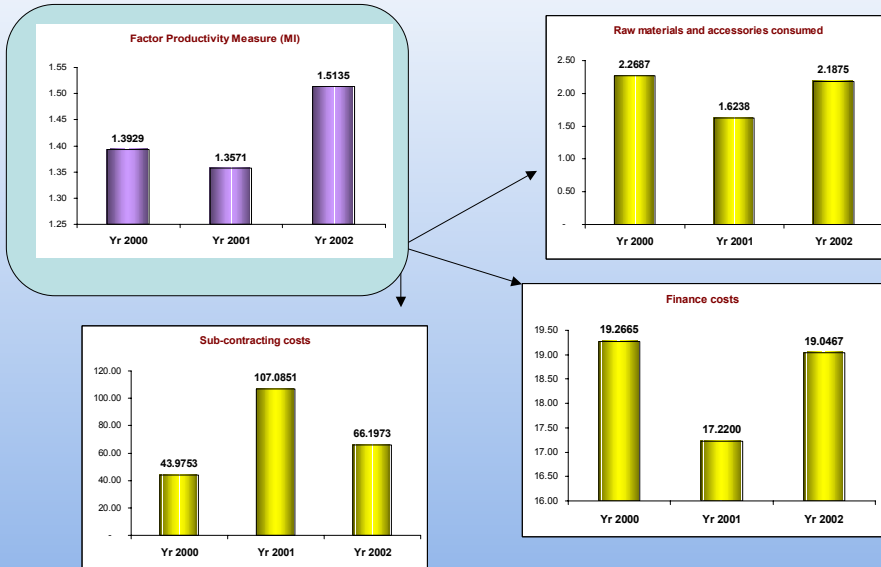
Factor Productivity Measures

Textile Enterprise Case Study

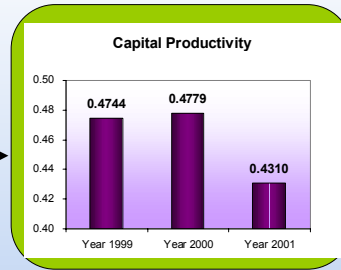
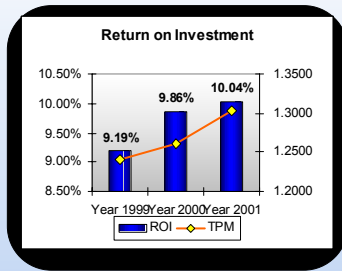
Productivity of Conversion System Inputs



Productivity of Bought-In Items



Return on Investment



Other possible applications

- Productivity monitoring
 - Evolution of enterprise productivity
 - Benchmarking economic productivity
 - Monitoring of expenditures and budgets
- Scenario building
 - Target pricing, Target ROI...
 - Productivity targeting

Benchmarking in the Textile and Garment Sector

Benchmarking of textile and garment enterprises

- Crisis in the textile and garment industry
- National effort to restructure the industry
- Textile Emergency Support Team (TEST) since July 2003

Guiding principles for TEST

- Focus on re-engineering
- Re-engineering through rightsizing
- For rightsizing, you have to measure the contribution of each unit and then each input to cost and profit
- Need for a commonly accepted measurement of contribution of each input to total costs
- Focus on fact-based analysis at enterprise level

Level I Assessment

- Macroeconomic
 - Country, industry
 - Monetary, fiscal, exchange rate, legal and regulatory framework
 - Numerous reports
- Microeconomic
 - Enterprise, management, production process

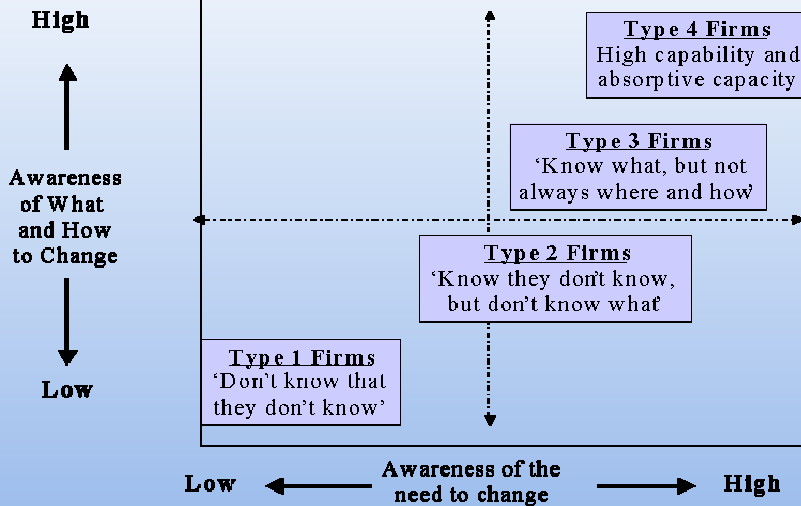
Level I Assessment

- Using the RAPMODS (**RA**msay **P**roductivity **MO**delS **S**ystem) benchmarking tool
- 52 enterprises assessed (size: 7 to 5000 employees)
- One industry report based on indicators (Year 2000-2002) of 35 enterprises (report posted on NPCC website: <http://www.npccmauritius.com/test/>)
- Database of indicators of 52 enterprises
- 28 clinics (October 2004)

Purpose of measurement

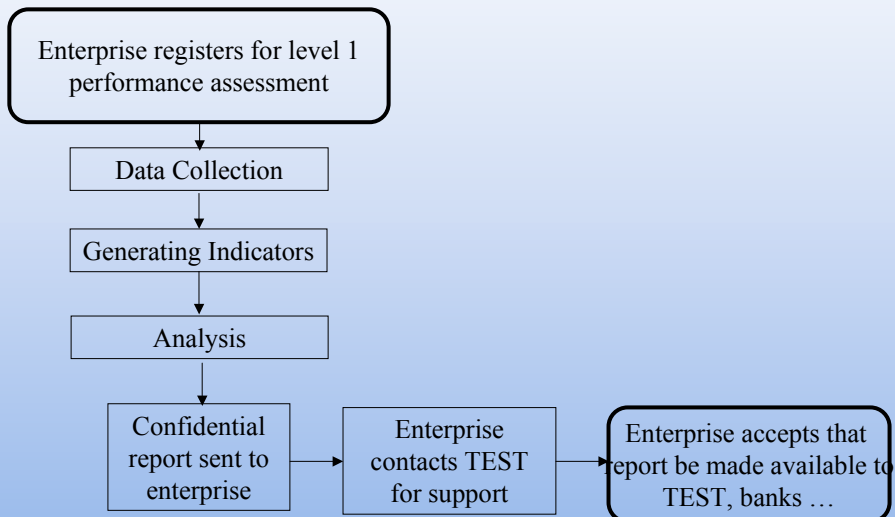
- Healthcheck of enterprises:
 1. **Sick**
 2. **Vulnerable**
 3. **Promising**
 4. **Healthy**

Groups of Firms According to Technological Capability



Source: World Bank 2003

Level I Assessment - process



Confidentiality Agreement

- Individual enterprise data and results are confidential
- Data and reports are not be circulated without prior enterprise approval

www.npccmauritius.com



Data collection mechanism

- Data Collection through
 - **NPCC facilitation**
 - Enterprise visit
 - NPCC meeting (one-to-one)
 - Group data gathering on regional basis
 - **Enterprise collecting data**
 - Download form from NPCC Website:
www.npccmauritius.com , fills and emails completed form to NPCC (natpro@intnet.mu)

Findings

Health check

- Healthy *TPM >1, for last 2 yrs*
- Promising *TPM >1, for last yr*
- Vulnerable *TPM <1, for last yr*
- At Risk *TPM <1, for last 2 yrs*
+ *All indicators in the red*

20

10

10

12

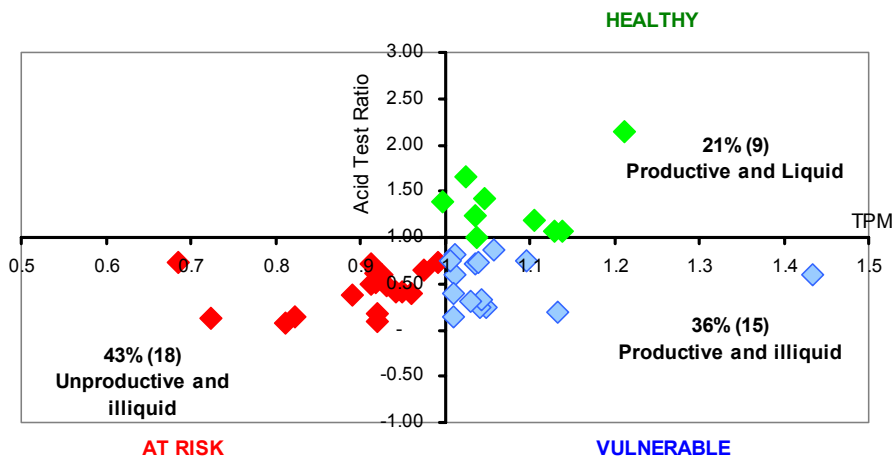
Areas of difficulties

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

Areas for action

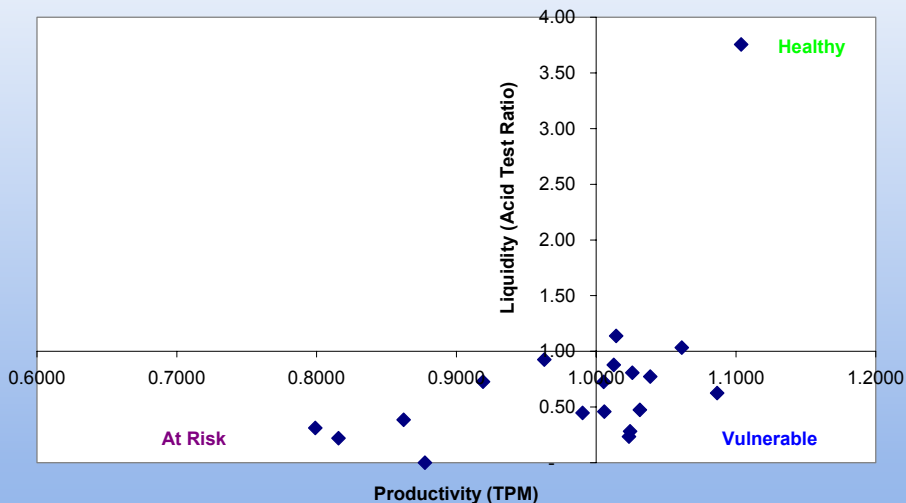
- Productivity improvement at plant level
- Productivity planning and budgeting
- Financial management, including costing
- International marketing
- Technical skills upgrading at all levels (from operators to CEOs)

Enterprise Productivity and Liquidity Year 2002



Data based on 44 enterprises

Enterprise Productivity and liquidity Year 2003

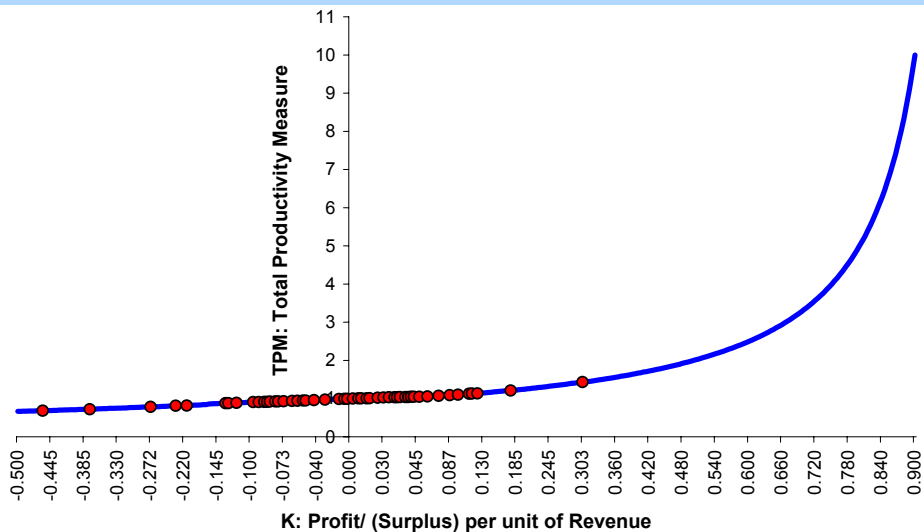


Data based on data of 21 enterprises, October 04

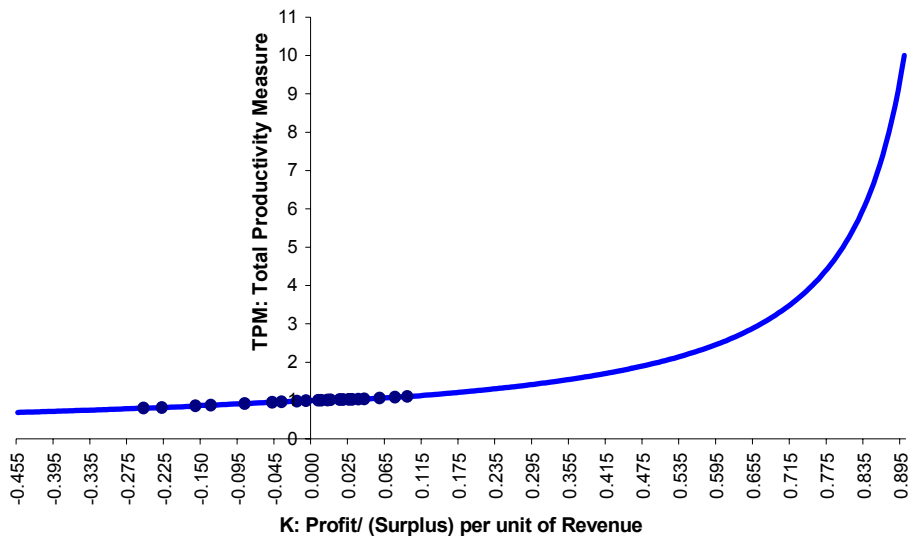
ROI Performance, 2000-2003

| | Number of enterprises | | | |
|-----------|-----------------------|------|------|------|
| ROI | 2000 | 2001 | 2002 | 2003 |
| -ve | 16 | 16 | 17 | 6 |
| +ve, <5% | 13 | 17 | 11 | 10 |
| +ve, ≥ 5% | 9 | 5 | 10 | 4 |

Position of textile and garment enterprises on Productivity Atlas in 2002 (Sample = 51 enterprises)



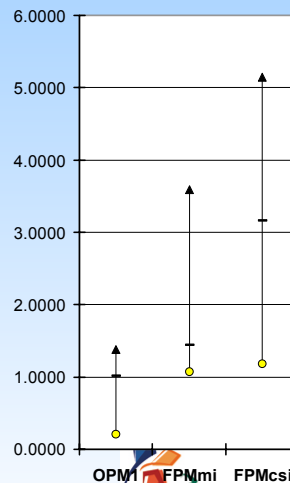
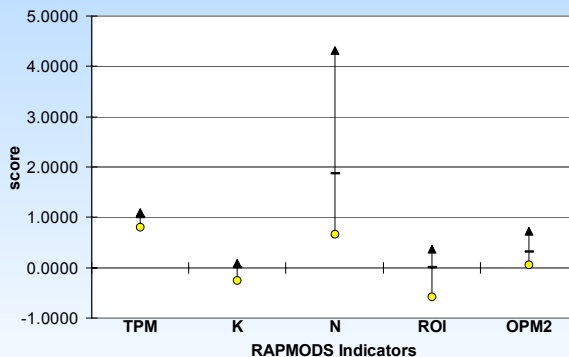
Position of textile and garment enterprises on Productivity Atlas in 2003 (Sample = 22 enterprises)



Performance of the Textile and Garment Sector (Sample data = 22 enterprises in 2003)

Performance of the Textile Sector (Year 2003)
(Sample data = 22 enterprises)

- Worst case
- 2003 average
- ▲ Best Case



FiT – international marketing

- Target: garment-making enterprises
- International benchmarking based on criteria from international customers (USA, Europe and Japan)
- Approached by International Trade Centre (ITC) in April 2003 for a pilot project.
- A survey was launched, but no enterprise responded
- In October 2003, a workshop and in-plant interventions were organised with an ITC expert
 - Only 3 enterprises responded

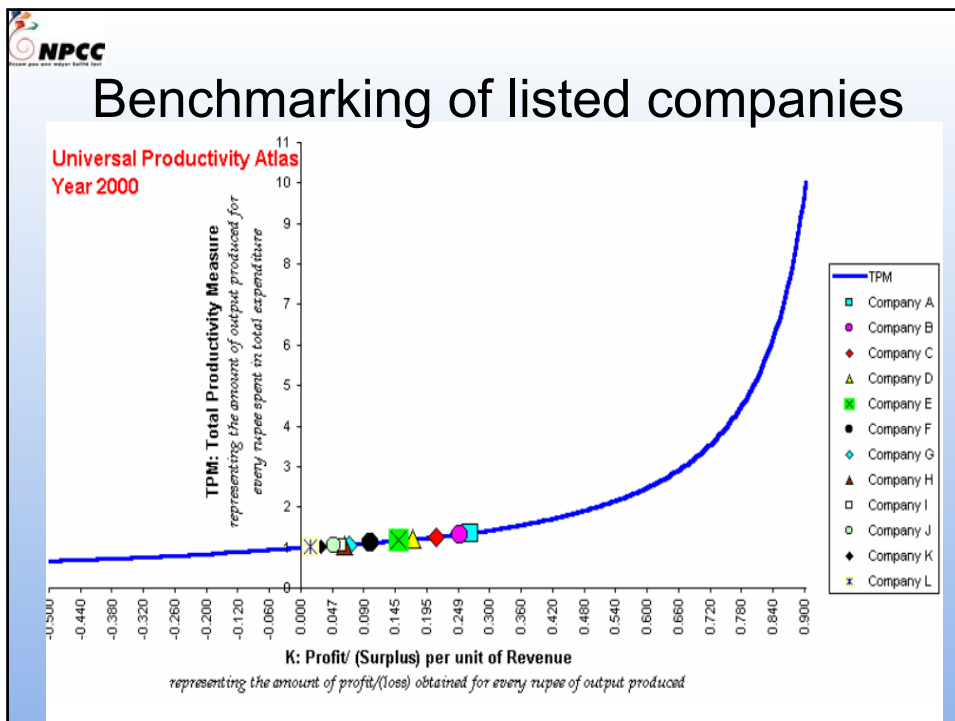
www.npccmauritius.com



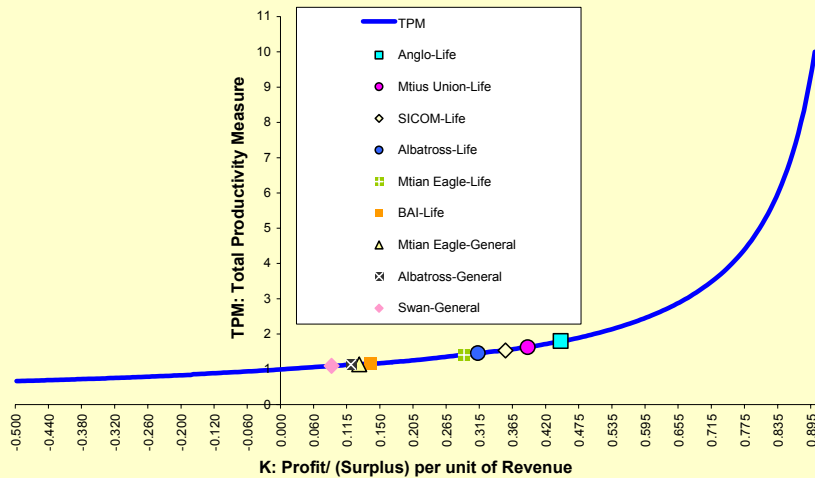
Benchmarking in other sectors

Benchmarking of listed companies

| INDUSTRY GROUP | LISTED COMPANY | TPM Yr 2000 | K Yr 2000 |
|-------------------|------------------------|----------------|--------------|
| Banks & Insurance | State Bank of Mtius | 1.3535 | 0.2612 |
| Banks & Insurance | MCB | 1.2028 | 0.1686 |
| Banks & Insurance | Swan Insurance | 1.0671 | 0.0629 |
| Commerce | Harel Mallac | 1.1104 | 0.0994 |
| Commerce | IBL | 1.0616 | 0.0580 |
| Commerce | Rogers | 1.0598 | 0.0564 |
| Leisure & Hotels | New Mtius Hotels | 1.3314 | 0.2489 |
| Leisure & Hotels | Sun Resorts | 1.2615 | 0.2073 |
| Leisure & Hotels | Automatic Systems Ltd | 1.0302 | 0.0293 |
| Industry | United Basalt Products | 1.1729 | 0.1474 |
| Industry | MCFI | 1.0492 | 0.0469 |
| Transport | Air Mauritius | 1.0122 | 0.0120 |



Benchmarking in the insurance sector



Process benchmarking on Customer Care

- Self Assessment and Benchmarking
- Selected process for benchmarking: customer care (criterion 3.2: customer relationship and satisfaction)
- 40 organizations (both public and private)
- 2 benchmarking visits where 6 organizations participated (both in the public sector)

What next after benchmarking?

- **In-plant productivity improvement interventions (TEST LEVEL II)**
- **Productivity-based budgeting, monitoring and control (based on RAPMODS)**

www.npccmauritius.com



In-plant interventions

- MOU with Kaizen Institute
- 57 Gemba Kaizen workshops
 - 26 in the public sector
 - 31 in the private sector
 - 14 in the textile industry
 - 13 under TEST Level II
- Workshop duration = 5 days

www.npccmauritius.com



Main results of GWs

- Quality improvement
- Cost savings
- Delivery (On time, In full & Error-free)
 - Throughput time
 - Production capacity
- Space release

www.npccmauritius.com



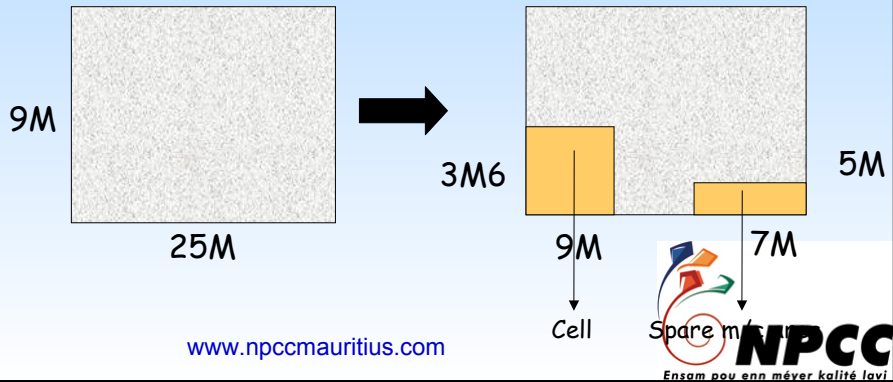
Areas of intervention

- Improvement process flow at the shop floor and administration levels
- Improvement of physical environment
- Improvement of machine utilisation through Total Productive Maintenance
- Stores and inventory management
- Improvement of production changeover

www.npccmauritius.com



Space recovered



SITUATION BEFORE

Finishing Line - Before

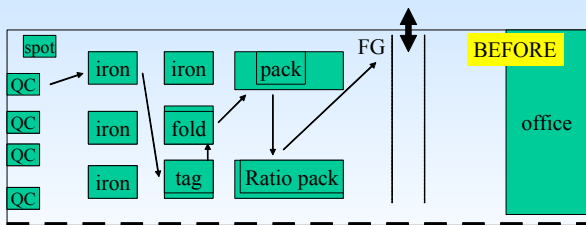
19th Feb 2004



Conventional batch & queue process (theater style)

KAIZEN INSTITUTE

© 2004 Kaizen Institute



www.npccmauritius.com



SITUATION AFTER



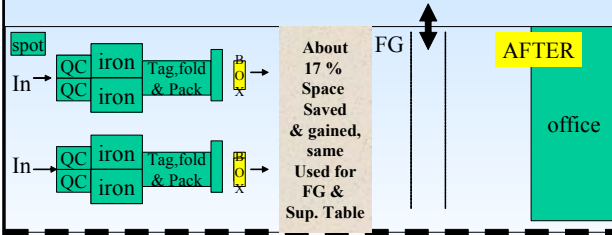
Cell A

Cell B



KAIZEN INSTITUTE

© 2004 Kaizen Institute



www.npccmauritius.com



SITUATION BEFORE

The ironing section- before



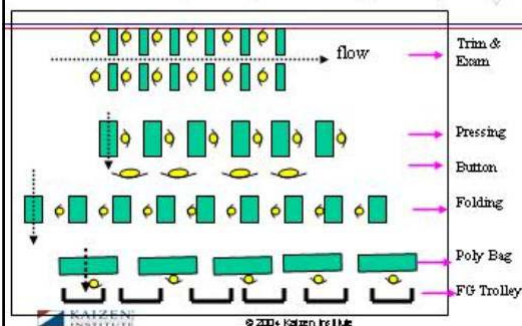
Isolated islands for each process.
No Flow, thus
Causing high
TPT & WIP



KAIZEN INSTITUTE

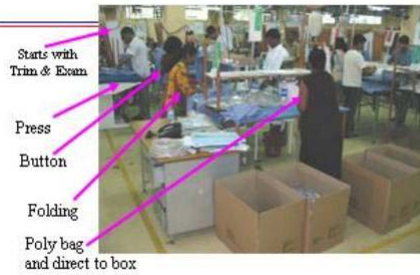
© 2004 Kaizen Institute

Old layout (Finishing area)



SITUATION AFTER

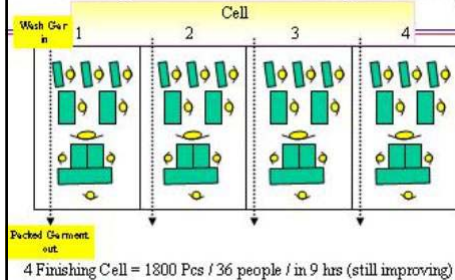
The New Cell created in Finishing Area.



KAIZEN INSTITUTE

© 2004 Kaizen Institute

Design of new Finishing Cell's



KAIZEN INSTITUTE

© 2004 Kaizen Institute



m



SITUATION BEFORE

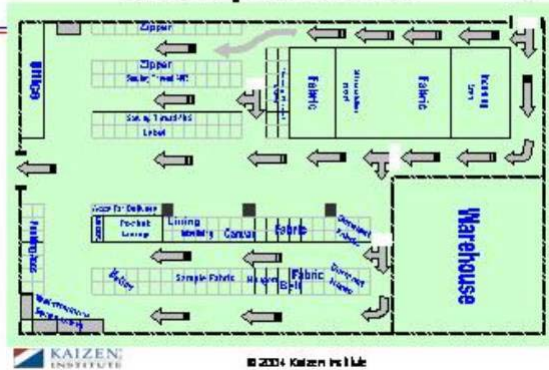


www.npccmauritius.com



www.npccmauritius.com

New layout of store



SITUATION AFTER



Thank you

www.npccmauritius.com

