

INTRODUCTION

ZenPower International

FAST-Track TPM Consulting

With OEE and LEAN ScoreBoard® Software

RESULTS STARTING FROM 6 to 12 MONTHS
(Especially PROCESS & HI-TECH Industries)

Providing

Training – Consulting – Projects Handholding

IN

Singapore – Malaysia – Indonesia – Europe - China

Our Mission:

Provide FAST TPM RESULTS starting from 6th - 12th month using FAST-Track methodology and building to sustainable Maintenance Knowledge Bank. Fully consistent with JIPM Standards. We're JUST Fast and Better!!

About ZenPower International

{ZenPower where Zen = Continuous Incremental Improvements}

ZenPower International was started by Moses Tan (MSc, BIT) in 1996 after leaving his employment in a Singapore-based TDK Company where he worked as TPM Training Manager for 6 years. During this time, he was personally mentored by several TDK Corporate TPM professionals. TDK Corporation has a long history of over 30 years of success in LEAN/TPM.

During his tenure as LEAN/TPM Training Manager, he was actively sought by many fellow professionals of MNCs for bench-marking of TPM activities. It was then that Moses realized that the complete and detailed methodology of LEAN/TPM implementation has never been effectively shared by the Japanese due to both language and cultural differences as well as a general attitude of secrecy regarding Japanese manufacturing excellence.

As a result of disappointing results, many MNCs today view TPM with a certain cynicism and are turning to the less proven, but more transparent Western TQM methodologies and their tools. To aggravate this general cynicism, many so-called TPM consultants have sprung up almost overnight since the early 1990's flooding the consulting market with diluted versions of TPM methodologies. Companies who engage them invariably find their TPM journeys and results quite a let-down to say the least.

Moses was convinced that there is enough depth and substance in the TPM methodologies to devote his entire professional life into. He believed that TPM if properly understood and deployed can without fail, make very major revolutionary impacts in every manufacturing site. It is such conviction that led him to set up ZenPower International in 1996. In September 06, he developed the new powerful LEAN ScoreBoard software to enable the measurement of LEAN in both COST and Operational Indices with full convertibility.

A Brief History of TPM

Originally TPM is known as Total Productive Maintenance where the word Total = Total employee involvement, Total number of manufacturing equipment in the Factory, Total processes of the factory. Productive means generating and getting the most out of any set of inputs, and Maintenance meaning the careful management and upkeep of the assets and equipment of the Factory.

Today, TPM may also stand for Total Production Management and even Total Perfect Management!!

TPM has its origins at Nippondenso, a subsidiary of the Toyota Motors Company in the late 1960's. By the early '70's, it had become popular throughout Toyota Motors and subsequently formed the backbone of the famous Toyota Production System. The Toyota Production System is a terminology to describe the structured and consistent manner in which Toyota manages, maintains and improves on its Production activities. The Production System is the knowledge bank of a company's manufacturing know-how captured in a permanent yet day-to-day deployable form to build quality and productivity into the day-to-day operations.

Meanwhile, the manufacturing world had only heard of the Japanese success with QC Circles or otherwise known as Small Group Activities. It was not until Seiichi Nakajima published the first two English-text books on TPM that the manufacturing world realizes the missing links in conventional TQC and TQM activities then practiced in the Western world.

Since then, TPM with its structured and sophisticated, yet down-to-earth practical methodologies, have proven to be the best thing that had happened in the manufacturing world through its three-pronged emphasis on Total Employee Involvement, Knowledgeable Workers and Equipment Maintenance excellence.

Achieving Zero Defects and Zero Breakdowns is the pre-requisite for advanced manufacturing concepts like JIT and Lean Manufacturing.



True Meaning Of Kai'zen Or Continuous Improvement Concept.

Kai'zen or Continuous Improvement is a very often mis-understood concept. While the term embraces both big break-through as well as small incremental improvements, it means much more than that.

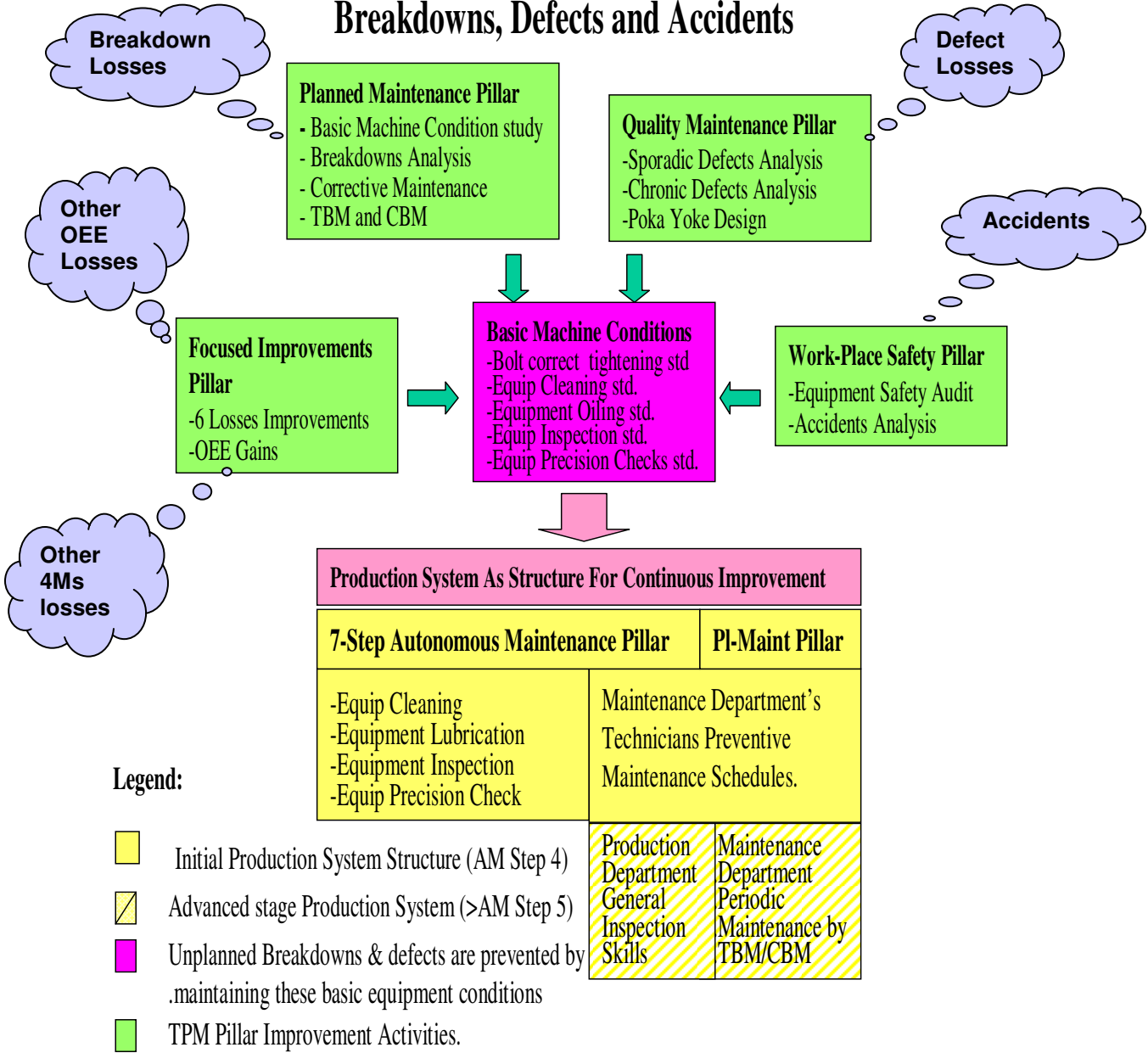
One of the biggest challenges of Industry is the difficulty of sustaining performance. All too often, performance is not sustained or at best erratic because:

- A few key experts whose special knowledge and experiences are 'lost' when they resign or are promoted out of their jobs.
- Most improvements made are forgotten after a while when attention is focused elsewhere and the original problems recur again.
- The company has no structured system to capture the hundreds and thousands of 'lessons' learnt over the years of problem-solving in a practical and usable manner for day-to-day operational purposes.

Kai'zen can be likened to a fixed-deposit savings bank-account of an Organization. Even as every cent deposited into this account is never lost but is accumulated over the years and ready for use anytime, so Kai'zen in an Organization is a structured 'knowledge' fixed-deposit bank where every bit of knowledge for achieving zero defects, breakdowns and accidents is captured permanently in a form that is operationally useful at any time.

The flow chart in the next page shows how the TPM concept of Continuous Improvement for sustainability is structured in such a living and organic manner as to enable an Organization to secure its past learnings even as it continuously strive to learn new things.

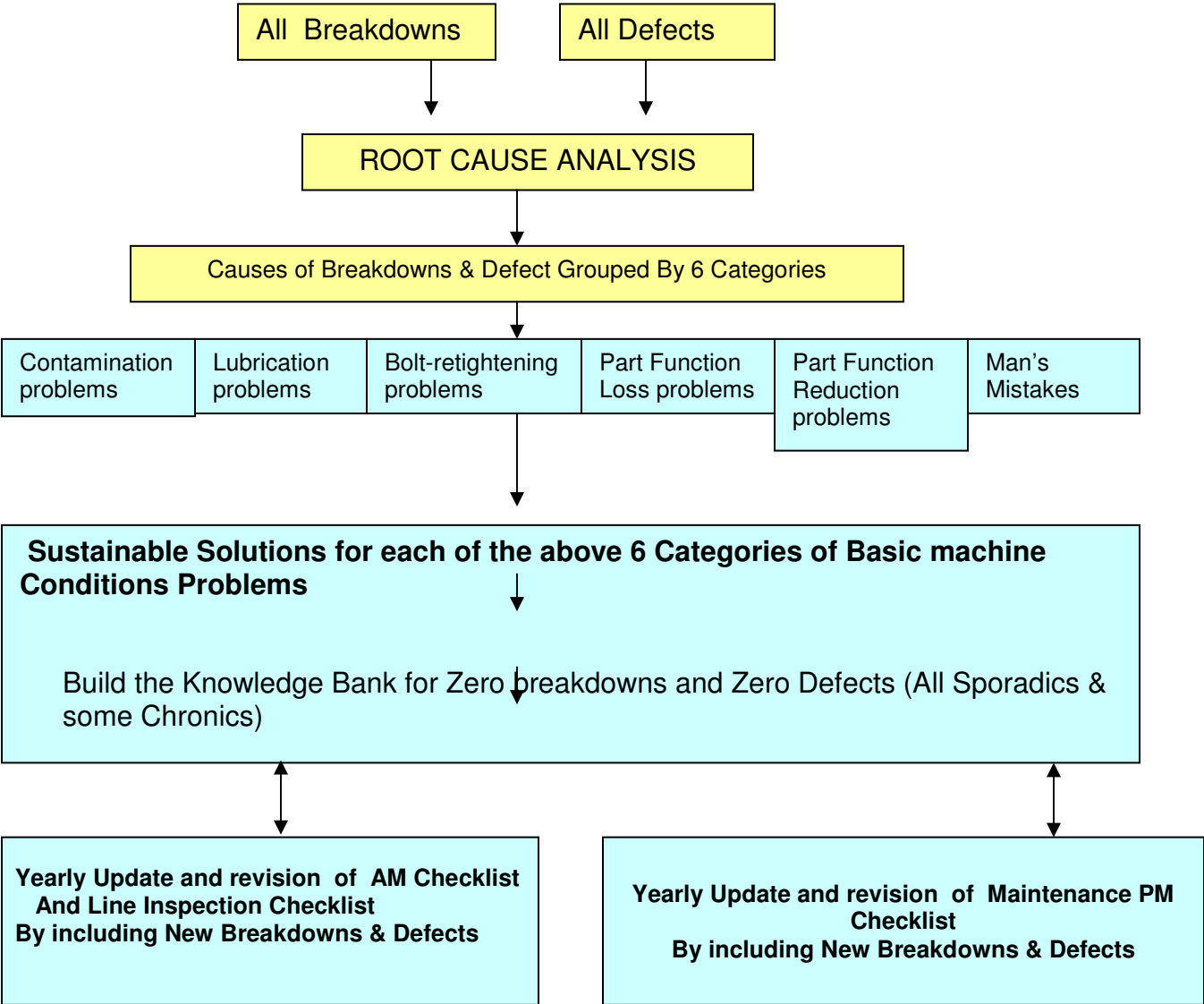
TPM Conceptual Approach For Zero UnPlanned Breakdowns, Defects and Accidents



Note:
 Every unplanned breakdown event and defect occurrence when understood can be traced to a deviation from the Basic Machine Conditions. It therefore follows that all such unplanned events can be avoided by keeping to the Basic Machine conditions.

**FLOW-CHART TO ILLUSTRATE DEVELOPMENT OF TPM KNOWLEDGE BANK
LINKING AUTONOMOUS MAINTENANCE & PREVENTIVE MAINTENANCE**

12-MONTH PROGRAM FOR ZERO DEFECT & BREAKDOWNS CONCEPT & APPROACH



Uniqueness Of Our Fast-Track JIPM-Standard TPM.

One of the Critical Success Factors of any successful programs must be that it should not take too long for results and ROI to be seen. Otherwise, organizational fatigue sets in. Businesses want everything 'instant' and woe to any productivity and quality program that cannot deliver within the psychologically important timeline of roughly 2 to 3 years.

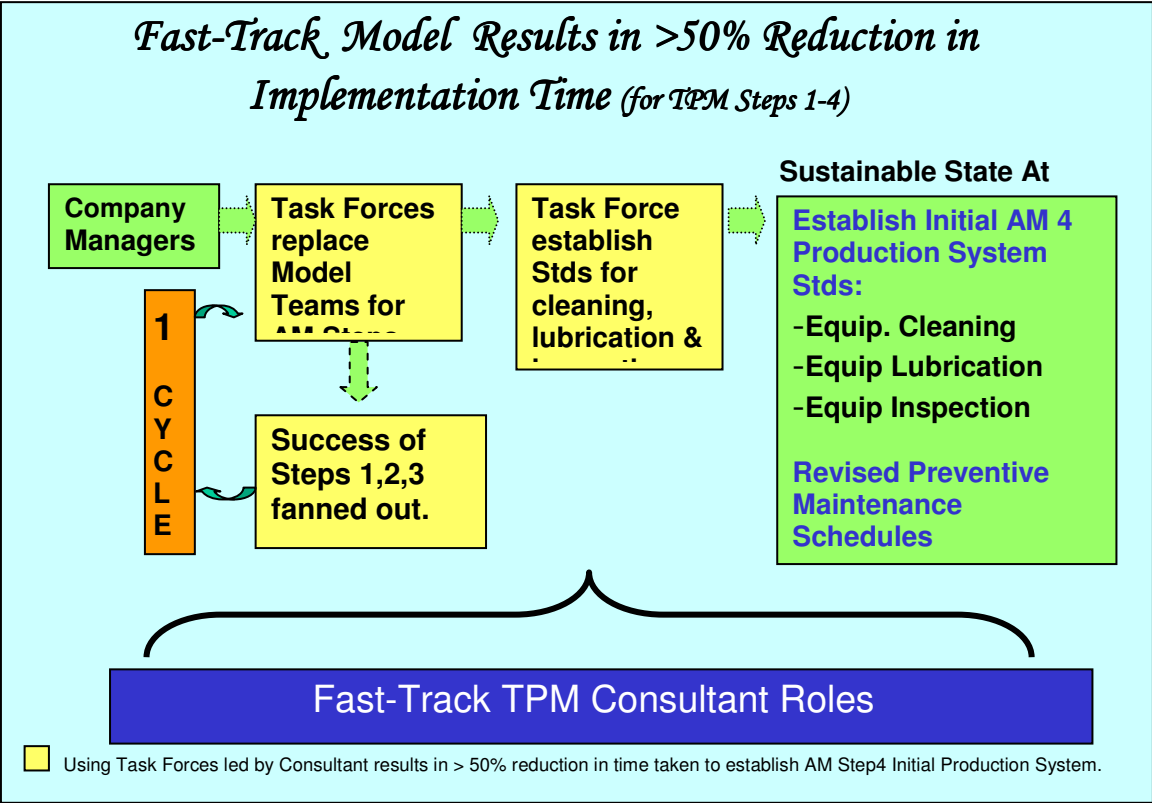
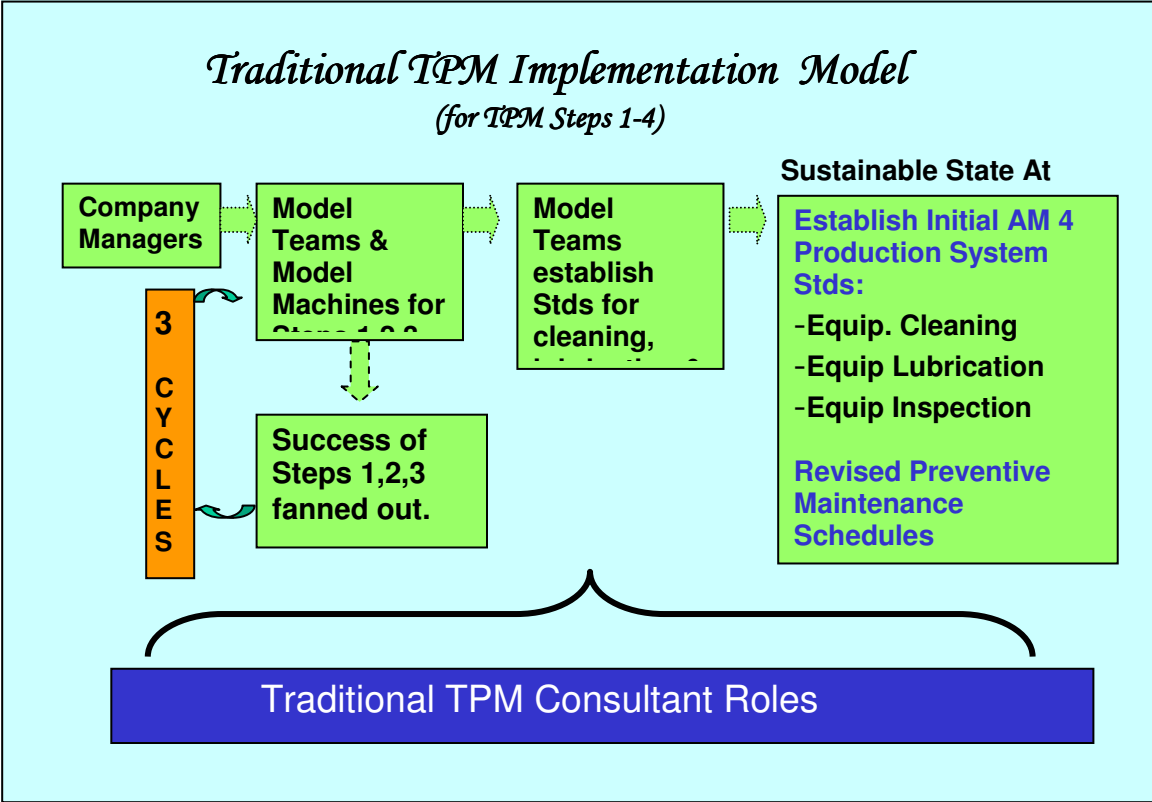
But the traditional way of doing TPM is bottom-up. The problem with this approach is that a lot of time and trail-and-error type of work would be involved as Production Worker-teams with the support of their supervisors and maintenance staffs attempt to make many small but important technical improvements to their equipment as part of the 7-Step Production Autonomous Maintenance activities.

Being the most critical and foundational TPM Pillar, the progress of this Pillar becomes the bottleneck. It is common for even Japanese-owned companies outside of Japan to take 4 years to reach the critically significant Autonomous Maintenance Step-4 of "Initial Maintenance Standards" where sustainability becomes built into a Production System.

Born out of our years of hands-on TPM Implementation consulting experiences in various Process, fabrication and Discrete industries, we had innovated an approach that will reduce your implementation efforts, human resources and time by more than half and with possibly better results and standards than the traditional method.

The ***gist*** of our Fast-Track Method involves the selection of several Task Force Teams hand-held by our Consultants. We guarantee that with management support and company resources, we can deliver the benefits of TPM to your factories within 2 years of implementation – faster, better, more effective and long-term permanent sustainable ROI than you think possible.

Comparison of Implementation Models.



Our Approach.

Our approach uses a tested and twice-proven hands-on expert-driven methodology that is flexible enough to adapt to any Company's existing management culture and quality systems. We understand and place high emphasis on the development of Client's in-house capability so that sustainability for the long-term is ensured as ever higher goals of quality and productivity are pursued over the longer term. In summary our approach can be summarized in the following points:

- Very fast deployment of JIPM-Standard TPM with quantifiable results even for large companies.
- This Fast-Track Method of TPM Implementation was developed over 8 years of solid experiences by ZenPower International on a dozen factory floors and proven in two Factories that were without prior TPM experiences.
- All TPM projects are supported with standard worksheets and formats that are flexible and yet easy to understand.
- All project phases of the Fast-Track TPM implementation at both micro and macro levels are signed off by our experienced ZenPower International Consultants.

We believe also in listening to the Voice of the Customer. Throughout the project timeframe, our Project Consultants will hold regular monthly reviews and feedback sessions with Top Management.

Our Proposal

To support your Esteemed Company to achieve
World-Class Quality & Manufacturing Performance

Through A Fast-Track Implementation of JIPM-Standard
TPM (Total Productive Maintenance)

Within 1-2 Years
In each Participating company

- a) Establish an initial *Production System for Autonomous Maintenance Step 4 (of the 7 Steps) akin to a Maintenance Knowledge Bank, updatable every year.
- b) Establish a synergized Preventive Maintenance scope accordingly.
- c) Establish long-term *effective solutions to 2 to 4 chronic product quality issues.
- d) Create a unique TPM **Production System challenging the famed Toyota Production System in the long run.

** Effective means "more than 70% improvement over an agreed benchmark agreed earlier."

* The Production System is the knowledge banking system of a company's manufacturing know-how captured in a permanent yet day-to-day deployable and useful form for achieving Zero Defects and Highest Productivity.

ROI Anticipated for each Subsidiary Plant at end of 1- 2 Years.

Tangible Benefits:

- More than 50% reduction in unplanned equipment breakdowns.
- More than 70% reduction in 2 to 4 pre-identified Chronic Quality defects.
- Create a unique *Production System that in the long term challenges the famed Toyota *Production System.

* The Production System is the knowledge banking system of a company's manufacturing know-how captured in a permanent yet day-to-day deployable and useful form for achieving Zero Defects and Highest Productivity. The Production System resides in both the Manufacturing and Maintenance departments.

Intangible Benefits:

- Culture of Equipment-Excellence ownership that is demonstrated daily.
- Culture of World-Class Quality mindset to confidently address chronic quality issues successfully.
- Increased Employee pride and morale.
- Increased Corporate Image as a World-Class quality manufacturer.

Why This Fast-Track JIPM-Standard TPM Program Can Benefit You.

- a) Target to be best of class in your particular industry.
- b) Your recognition of need to acquire Japanese manufacturing excellence methodology even as Western partners are being sought.
- c) Your pressing need for urgent and effective solutions to perceived quality issues.
- d) Your need to outdo and out-perform other Asian countries including Thailand, Indonesia and China in your industry for manufacturing excellence.
- e) Need to achieve the above FAST and Permanently.

Supporting TPM Training Package.

ZenPower TPM Training Modules	Duration	For Who
1. Executive TPM Management Overview.	½ -Day	All Top Managers & executives.
2. Executive TPM Pillars Overview. (All Pillars)	½ -Day	Technical Managers & executives.
3. TPM Production System Overview. (AM and Planned Maintenance Pillars)	½ - Day	All Top Managers & executives.
4. TPM Production System Development (AM and Planned Maintenance Pillars)	1 - Day	Technical Managers & executives.
5. Why-Why Analysis Workshop – Managers	½ - Day	All Top Managers & executives.
6. P-M Analysis & Design of Experiments.	3 - Days	Technical Managers & executives.
7. OEE Analysis by graphical method.	½ - Day	All Top Managers & executives.
8. MTBA Improvement Methodology	½ - Day	Technical Managers & executives.
9. SMED Improvement Methodology	½ - Day	Technical Managers & executives.
10. Poka Yoke Design Methodology	1 Day	Technical managers & executives
11. Office and Warehouse TPM	½ Day	All top Managers & executives.
On-site hand-holding of all projects	As needed	Project Teams involved.

Who Were Our Recent And Satisfied TPM Project-Based Clients?

1. SCI Manufacturing (Spore) Pte Ltd
2. Carsem Semiconductor Sdn Bhd.
3. Carsem Manufacturing Sdn Bhd.
4. Carsem Testing Sdn Bhd.
5. Yamaha Motors Sdn Bhd.
6. Malaysia Newsprint Industries Sdn Bhd.
7. Guocera Tiles Industries Sdn Bhd.
8. NEC Electronics (S'pore) Ltd
9. Showa Denko HD Ltd
10. Sony Display Pte Ltd
11. Taiko Electronics Sdn Bhd,
12. Hitachi Nippon Steel Semiconductor (S'pore)
13. Plaskon Electronics Materials Ltd.
14. Sumitomo Bakelite S'pore Ote Ltd.
15. Infineon Technologies Ltd.
16. Singapore Technologies.
17. Mitsubishi Belting Pte Ltd.
18. National SemiConductor – UK Wafer Fab
19. Asia Paper & Pulp – Serang Mill, Tjiwi Mill, Pindo Deli Mill and Perawang Mills.
20. A Semi-conductor Plant in Suzhou, China.

Other Regional Clients...

TATA MOTORS LIMITED; BHARAT HEAVY ELECTRICALS LIMITED; INDIAN OIL CORPORATION LIMITED; HMT MACHINE TOOLS LIMITED; HEG LIMITED; ITC LIMITED; MOSER BAER INDIA LTD; NTPC LIMITED; NORTH DELHI POWER LIMITED; THE TATA IRON AND STEEL COMPANY LIMITED; TRIDENT AUTO COMPONENTS PVT LTD; KIRLOSKAR FERROUS INDUSTRIES LIMITED; TIMKEN INDIA LIMITED; SULZER INDIA LIMITED; KIRLOSKAR COPELAND LIMITED; CAPTIVE POWER PLANT; ALLIED NIPPON LIMITED; UNICHEM LABORATORIES LTD; NATIONAL ALUMINIUM COMPANY LTD; KIRLOSKAR BROTHERS LIMITED; SANDVIK ASIA LTD; TATA CHEMICALS LTD; NALCO; TATA POWER LTD; DR REDDY'S LABS; STERLITE OPTICAL TECHNOLOGIES LTD; RAL'IS LTD; KIRLOSKAR PNEUMATICS LTD; JSPL; LARSEN & TOUBRO LIMITED; KIRLOSKAR OIL ENGINES LTD; CAIRN ENERGY LTD; WHIRLPOOL OF INDIA LIMITED; GMR ENERGY LTD; HPCL; BIRLA CELLULOSIC; ISPAT INDUSTRIES LTD; EXIDE INDUSTRIES LTD; ASHOK LEYLAND LTD; BINANI CEMENT LTD; THERMAX LTD; KSB PUMPS LTD; PETRONET LNG LTD; ESSAR OIL LTD; SUZLER LTD; SAIL; BOSCH CHASSIS SYSTEMS INDIA LTD; ONGC; HINDUSTAN PETROLEUM CORPORATION LTD; JINDAL STEEL & POWER LIMITED;

STERLITE INDUSTRIES (INDIA) LIMITED; STEEL AUTHORITY OF INDIA LIMITED; TATA STEEL LIMITED

Sample Of Reported Gains From Our Clients:

An SMT Manufacturer with a Project Team working on a Chronic Equipment failure reported a reduction of >90% of 'dropped chips' flying off the pick and place machine. ROI in terms of chip wastage saved and improvement of MTBA was significant.

An IC Assembly Plant made break-through improvements on an industry-level chronic quality defect with significant ROI from reliability improvements and increased customer confidence. Another 6 other teams working on other chronic defects also reported significant results.

An IC Assembly Product line using our Fast-Track TPM Methodology achieved Initial Production System (AM Step 4) TPM Implementation within a short period of 1 year versus the expected 3 years with gratifying ROI of lesser breakdowns and defects.

An IC Test Plant reported satisfying results using our Fast-Track TPM Methodology. It was able to deploy its own TPM Production System in less than 2 years across its entire plant of about 400 employees.

An automobile assembly plant successfully prepared for its JIPM Audit to challenge the PM Awards by establishing its TPM Production System with the help of our Fast-Track TPM Methodology within 6 months on a small line. It also made breakthrough improvements by reducing a chronic manufacturing defect by > 70% within 3 months.

A newsprint recycling mill reported reduction of >70% for four serious chronic equipment failures that had been seriously affecting Production. The ROI gained was extremely significant.

A ceramic tile manufacturer established its TPM Production System over 3 years in the entire operations of more than 800 employees and reported significant gains across the board in yield, output, productivity and quality.

Why Partner with ZenPower International Industry TPM Consultants?

- We consult expertly and specifically for TPM alone instead of being Jack of all trades but Master of none.
- Our Principal and Associate TPM consultants are trained in the field with a combined 17 years of experiences.
- We have local knowledge of the culture and languages.
- Our competence is proven by results and our methodology is the most comprehensive based on the JIPM standards.
- We don't just deliver the theory – we hold your teams' hands and journey together. Giving you the confidence of success.

CONTACT US:

Please contact us at zentan@singnet.com.sg for a more detailed no-obligations TPM discussion and presentation at a time convenient to your management.

Or just pick up your phone and call our Principal TPM Consultant, Mr Moses Tan at +65 64545402 or +65 93213555 for a no-obligations discussion.

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