

## ***30 Years since the western world first learnt about Total Productive Maintenance (TPM) – but do we really understand it?***

***Lean and Six Sigma are essential ingredients to Operational Excellence, however if you require a more stable plant operation while maximising capacity, minimising costs and creating a safer and more productive workplace, not to mention significantly minimising Operational Risk, maybe the time is right to revisit TPM.***

TPM was initially developed in Japan in the 1960's to support the development of the Toyota Production System. It was discovered by the Japan Institute of Plant Maintenance while doing a PM Audit at Nippon Denso, a subsidiary of Toyota in the 1970s. The first Japanese book on TPM was published in 1982. Since then the Japanese have developed it through 3 generations and taken the original 6 Big Losses to 16 and the original 5 pillars to 8.

The western world first learnt about TPM in 1989, **some 30 years ago**, following the publication by Productivity Press in the USA of the first English translated Japanese book on the subject – TPM Development Program by Seiichi Nakajima.

Following a majority audience request to the chairman at the first TPM Conference in Australasia held in Sydney in 1995, CTPM – The Centre for Australasian TPM & Lean was established the following year to develop an Australasian version of TPM to support industry, academia and government. It was recognised from many case studies at the conference that the Japanese approach, although technically very good, did not sustain in the Australasian workplace environment. There was a need to develop an enhanced Australasian version of TPM which recognises the unique attributes of our Australasian workplace culture and the critical role equipment reliability plays in Operational Excellence.

### **Case Studies**

Over the years CTPM has had the opportunity to work with, and assist many sites on their TPM journey in Australia, New Zealand, Thailand and Indonesia, always learning as we go. Below are some of the early key learnings that emerged:

#### ***Procter & Gamble – Wyong NSW***

Initially tried TPM using the Japanese approach however, after 6 months, they realised all the Japanese jargon and ceremony did not bide well with their workforce so they stopped. Some 12 months later, realising the need to improve performance of their production equipment they tried again using a US / Aussie approach they developed which focused on projects to address equipment losses. This worked well lifting their OEEs up from the 50% range to around 70%, then they stalled.

It then dawned on them they had addressed all the technical or engineering losses but had not addressed the people development losses. Hence the need to engage all their Operators and use an area based team development process to support TPM. The outcome after several years was OEEs in the 80% range, no breakdowns and a perfect safety record.

### ***Nissan Casting Plant – Dandenong VIC***

As a Japanese owned company they were committed to following the Japanese pathway for TPM with support of a Japanese consultant. Initially they struggled to fully understand TPM so their management team attended one of our TPM public workshops in Melbourne to learn what TPM was really about. Following this they decided to change the language of their TPM so it became Total Productive Manufacturing, and 5S became Work Area Management which was more focused on getting buy-in from a multi-shift environment, and Autonomous Maintenance became Operator Equipment Management where Operators with management support had regular time to conduct clean for inspections.

They also took an approach that TPM was not just about improving equipment performance, but more importantly about developing their frontline people who would then improve equipment performance applying Prevention at Source thinking. The outcome was that their site was the first site in Australia to achieve the Japanese TPM Excellence Award which required OEEs to be above 80% and zero accidents for longer than 12 months.

### **Kodak – Coburg VIC**

At the time, being a leader in its field, Kodak was keen to introduce the latest Operational Excellence thinking and as such was one of the first companies in Australasia to introduce TPM. Unfortunately, senior management thought Total Productive Maintenance was about improving the maintenance department so they charged the then Maintenance Manager with the task of introducing TPM along with the Overall Equipment Effectiveness (OEE) measure. Sadly after 2 years of trying very hard, without the support of the production people, there was little to no progress. Then the Maintenance Manager was promoted to one of their Factory Manager roles. The result was that with an Operations / Production focus supported by Maintenance, his factory started to make good progress with TPM as evidenced by a significant improvement in OEE performance.

### ***Coopers Brewery – Regency Park SA***



With the building of their new Brewery in Regency Park, it was recognised from the start the need to get their production lines running as effectively as possible. Taking the learning from above, they recognised TPM was not just about getting the production equipment to perform better, but more about developing their frontline people.

Over the following 10 years as the business grew more than 15% per year, they were able to increase capacity without adding extra shifts or another bottling line. When they finally introduced their new extra bottling line using New Equipment Management teams, they were able to achieve rapid high performance because of the development of their people through their Australasian TPM activities.

## ***Sugar Australia – Glebe NSW***

Prompted by an explosion in one of their bucket elevators involving sugar dust which could have had very dire consequences, it was decided by corporate to use Australasian TPM to minimise operational risk. Starting from a very low base with OEEs in the 30% range, the site was able to embrace the latest Australasian TPM thinking recognising there are 7 Losses of OEE, not 6, and the need to embrace the 10 improvement activities not the 5 or 8 pillars to engage their workforce, develop their frontline leaders and workforce, and transform the site.



Getting effective Daily Review Meetings at all levels, having the right structure of no more than 7 direct reports at any level, and establishing an effective Leadership Team to oversee the Australasian TPM implementation proved invaluable. Even though the site went through 3 site managers over 5 years, they were still able to maintain the Australasian TPM focus and achieve OEEs in the 80% range along with a much cleaner and safer workplace.

## **Summary**

TPM is not a maintenance / engineering initiative. It is an operations / production initiative supported by everyone at the site, especially maintenance.

TPM cannot be introduced by a handful of people, it is a site wide initiative involving everyone recognising the need to cascade it at a rate that can be properly supported.

TPM requires time for your Operators to stop their equipment and carry out regular Clean for Inspection activities. As such you need to create time for this by improving Overall Equipment Effectiveness (OEE) before introducing regular Clean for Inspection activities. You also have to recognise that you will take a hit on your labour efficiency measure however your total cost of Operations will significantly reduce.

TPM requires your maintenance people to reprioritise small jobs such as fixing equipment defects found by the Operators so they are addressed quickly thus encouraging more to be found. This often requires a different approach to current maintenance planning & scheduling practices.

TPM requires maintenance to fix the many equipment defects identified by the Operators and as such maintenance costs may initially rise, however Operational Cost reduction should significantly cover this as well as seeing maintenance cost significantly reduce in the longer term (typically 30-50%).

***If you would like to find out more about Australasian TPM, please contact Ross Kennedy via email [ross.kennedy@ctpm.org.au](mailto:ross.kennedy@ctpm.org.au).***