



CASE STUDY

Toyota Motor Company Australia

1. Company profile

Toyota is Australia's leading automotive manufacturer and is located in Altona North where it has been operating since the late 1970s. Toyota employs about 3500 personnel at the Toyota Altona plant (4,500 personnel Australia-wide), manufacturing Camry and Aurion vehicles over two shifts, usually from 7am to 2am.

The major manufacturing processes performed at Toyota are:

- Engine casting and assembly
- Foundry
- Panel and unit parts pressing
- Body and unit parts welding
- Bumper bars resin moulding and painting
- Vehicle painting
- Vehicle assembly

Toyota's environmental targets are contained in a 5 Year Environment Action Plan. Under the plan, Toyota aims to reduce its water consumption by 25% per vehicle from 2005/06 consumption data and in the process significantly reduce trade waste impacts on the sewage system.

Toyota's environmental performance is managed through dedicated shop based TEMS (Toyota Environment Management System) teams that are responsible for ensuring compliance, utility tracking and Kaizen (continual improvement) activities. These teams are cross functional and include members from production, maintenance and engineering. The TEMS teams are supported by the

Environment Group who work together to achieve Toyota's Environment Action Plan.

Toyota is currently involved in the Victorian Government's water management action plan (waterMAP) program. As part of the program users of > 10 ML of drinking water per year are required to:

- Assess their current water use
- Identify inefficiencies and opportunities for water savings
- Prepare an action plan to implement water conservation activities
- Annually report on implementation of water conservation activities

As part of ongoing Kaizen programs and to comply with the Water Resource Map requirements, Toyota undertook a detailed assessment of water use on-site. The action plan developed in this process in turn formed the basis of the company's EPA Environment and Resource Efficiency Plan (EREP).

2. waterMAP Assist

Ai Group is committed to working with member companies to encourage continuous improvement, resource efficiency, use of recycled water where possible, and reduced usage of drinking water. Ai Group's waterMAP Assist program has provided resources and funding to member companies to assist them implement initiatives contained in waterMAPs and deliver water savings in industry.



3. Project overview

Ai Group's waterMAP Assist program provided funding to assist Toyota develop its Water Resource Map. To develop the Water Resource Map, the TEMS teams participated in a series of workshops that generated new project ideas and tabulated existing projects. During these workshops, detailed mass balance data from the previous 12 months utility reports and metering data for processes that consume significant amounts of water were reviewed and used as the basis for identifying key areas for reduction projects.

Using the cross functional TEMS teams to investigate project opportunities ensured that the key people who understand water-using processes were identifying reduction opportunities. This process also enabled consideration of potential production impacts that projects may have. Further, senior management were included in the projected prioritisation listing which ensured support and adequate budgeting for the implementation phases.

Due to the size of the Altona plant, it was necessary for the TEMS groups to prioritise projects according to savings, cost, payback and difficulty to implement. The groups then spent a further two weeks on collecting data, such as metering

individual equipment, obtaining quotes and determining design versus actual operation of equipment. Those projects that were not prioritised for immediate investigation were placed on Toyota's environmental project list for future feasibility studies.

The projects that were considered feasible from the detailed assessment phase formed the basis of Toyota's Water Resource Map. An example of a key water saving project is the reduction of seal flush water for the pumps on the Unit Parts paint line. The pumps' seals for this area currently require high quality water (generated using reverse osmosis) to ensure operation. By implementing a recovery system to re-circulate the high quality water, Toyota plans to save over 3 ML of precious drinking water each year.

4. Project benefits

Using the cross functional teams and specialist technical support, Toyota has developed its Water Resource Map which includes 12 projects with water savings of 42 ML. These projects have a staged implementation to be completed by December 2011.

Further information

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Ai Group's waterMAP Assist program, supported by the Department of Sustainability and Environment (DSE) has enabled Ai Group to work with large industrial water users to identify and implement water savings.