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No. 31 Pollution prevention case studies

Pollution prevention measures in a fish canning industry

Company background	Case study under the GEM project: in-house pollution prevention, an environmental protection tool, 1995.
Industrial sector	Food industry. Canned fish.
Environmental considerations	The company carried out an environmental audit and identified opportunities for improvement with regard to water and energy consumption and other opportunities to optimise its production process. With regard to water consumption, the company uses water from its own well, which leads to an economic saving (although the water must be pre-treated) as $1m^3$ from the well costs €0.96 (including pumping and chlorination) compared to €5.3 from the mains supply.
Background	The opportunity to save water (centred on washing) and energy, and the possibility of reducing the organic load of the wastewater, led to a series of in-house actions aimed at reducing raw materials and energy and preventing pollution at source.
Summary of actions	With regard to saving water and reducing the organic load of wastewater, the company introduced the following measures: 1. The installation of smaller nozzles for the cleaning lines and floor. 2. The use of soft water for washing and recovery of tins to avoid rusting and lime deposits. 3. Closed circuiting. 4. Improvements in the grid and bin washing system. 5. Dry cleaning of lines to recover guano and minimise the organic load of wastewater. With regard to energy saving, the company put the following measures into practice: 1. Energy recovery in sterilisers and its reuse in heating soft water. 2. Improvement in boiler output. 3. Lagging of pipes. 4. Condensate recovery. 5. Optimisation of electricity consumption. 6. Improvement of lighting system.

Balances

Saving and prevention measures		Savings in raw materials	Economic savings (€)	Investment (€)	Payback period
Savings in water and reduction of the organic load of wastewater	1	2,218.50 m^3 of well water/year	218.43	122.52	7 months
	2	654.47 m^3 of well water /year 91,905 m^3 of soft water/year 450 kg of soap/year	142.43	842.30	6 years
	3	2,860.99 m^3 of well water/year	282.10	988.30	3.5 years
	4	3,009.41 m^3/year 562.5 kg of caustic soda/year	606.77	3,941.99	6.5 years
	5	7.50 t guano/year	191.43	40.84	2.5 months
Energy savings	1	8.68 t fuel/year	2,215.31	1,740.76	9 months
	2	18.03 TEP	4,390.20	1,531.46	4 months
	3	12.01 TEP	2,960.83	5,411.17	1.8 years
	4	9.75 TEP	2,348.24	5,405.95	2.3 years
	5	0.75 TEP	1,388.53	1,272.59	11 months
	6	0.45 TEP	377.76	916.26	2.4 years

Conclusions

Thanks to the measures adopted, the company has achieved savings of over 8,000 m^3 of water per year and has managed to optimise its production process with an annual saving of over €1,400, following an investment of less than €6,000. Furthermore, it has recovered a waste product: the guano.

With regard to energy savings, the company has managed to recover almost 9 t of fuel per year and has introduced a series of measures with an average payback period on its investment of less than 2 years.

NOTE: This case study seeks only to illustrate a pollution prevention example and should not be taken as a general recommendation.

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