

STEP 1.4 CASE STUDY

Experience with introducing MFCA in 50 companies in the Southern Mediterranean region

Within the framework of the MED TEST II project, about 50 MFCA assessments were performed in Morocco, Tunisia, Jordan and Lebanon, mostly in the food sector. The distribution of NPO costs in these companies is presented in table 3. On average, total costs for materials and energy constituted 60-70% of all expenses in the profit and loss accounts. Labour costs were typically lower in these countries compared to Europe, while costs for environmental protection hardly existed.

At the beginning of the TEST project, most companies had no records on their environmental costs, not even their energy costs, and were not familiar with the concept of NPOs. For the most part, the MFCA assessments were based on preliminary estimates using data from financial accounting, stock management and production to the degree available.

After the MFCA assessments, the companies realized that their total NPO costs ranged between 8 and 16 % of their total expenses. Based on results of the TEST projects in the companies, on average NPO costs can be reduced by at least 10%. Thus, a resource efficiency programme can help companies to cut down by at least 1-2% their expenses.

Only a few companies had a high ratio of total raw material input ending up in the final product output (up to 94%), showing good material efficiency ratio. On average, companies only converted 65-75% of their physical raw material inputs into product outputs, with the rest being “lost” as waste and emissions.

	LOWEST DATA	AVERAGE DATA	HIGHEST DATA
Costs of Material and Energy Input as % of total Expenditures (Profit & Loss Accounts)	37%	60-70%	79%
Total Raw Material in the Product in % of Total Raw Materials Input	40%	65-75%	94%
Total NPO Costs in % of Total Expenditures	3%	8-16%	21%
Total NPO Costs (in EUR)	160,000	1-2 M	16 M

TABLE 1 Distribution of NPO costs in 50 companies

The range of distribution of NPO costs across the different cost categories was widespread, depending on the specific industry sector, production processes and the status of monitoring of material and energy flows, as illustrated in the table 2.

Nearly all companies participating in Med TEST II initially wanted to focus only on energy, as they considered this to be their main priority. Yet after the MFCA assessment

companies realized that raw material losses also constituted a significant loss in monetary value, corresponding to 40-80% of NPOs.

Table 2 gives typical examples of the breakdown of NPOs costs by cost category for selected companies. The results illustrate the significant variance that can be found even within companies of the same industrial branch. Only a few companies paid some costs for external services for waste management,

while a few others were also able to sell some of their waste for recycling as shown in the column EoP costs and earnings. These costs are normally the only ones related to environmental management that are visible in the accounting system of a company. Yet these costs are extremely small compared to all the other NPO costs, showing that the companies' accounting systems are failing to show the true costs of resource and energy inefficiency.

KPIs and related baselines were identified for all flows with significant NPO costs. Benchmarking and estimation of potential for savings showed that there was reasonable potential for improvement. Based on high NPO costs and potentials for savings and improvements in most companies, energy consumption and raw materials were defined as priority flows selected for detailed analysis. In some cases, operating materials were also chosen as priority flows. The companies implemented a monitoring system consisting of several weighing scales in the incoming store and the production lines.

The NPO losses of raw materials and energy consumption were subsequently broken down by production steps and gradually measured. For further details on the MFCA case studies, please see Appendix A and the MFCA manual.

NPO Raw materials	NPO Packaging	NPO Operating materials	NPO Water	NPO Energy	EoP costs and earnings	Total NPO %
10%	4%	30%	5%	50%	1%	100%
26%	4%	14%	1%	55%	0%	100%
47%	12%	22%	2%	15%	4%	100%
72%	6%	6%	0%	16%	0%	100%
80%	2%	3%	1%	12%	2%	100%

TABLE 2: Typical ranges of NPO costs distribution by input categories