

Industry Efficiency

Thus far, this section has briefly outlined the way in which technological innovation has contributed to a reduction in the emission of a number of pollutants. However, emission reduction has also been achieved, in part, by increasing the efficiency of industry in general. Japan has found that by improving industrial efficiency it is possible to enhance sustainable development programs since increased efficiency reduces the amount of waste produced. It is estimated, for example, that approximately 20% of emission reductions described thus far can be directly attributed to oil conservation.

The Tokyo Electric Power Company (TEPCO) uses fan jets, developed by Mitsubishi heavy industry, in their turbines to increase their intake temperature. This has allowed them to achieve a fuel efficiency level of 43% while the industry average in Japan is 40%. However, while this does lower the consumption of oil, higher temperatures may result in increased NO_x emissions which must be countered by scrubbing.

Perhaps the most graphic illustration of this principle comes from the example of the Honda auto company. In 1976 they realized that manufacturers of smaller, more efficient engines could greatly

benefit from using technology to produce fuel efficient cars, which also produced low NO_x exhaust levels. Since it is impossible to argue with the financial success of Honda, it is apparent that through increased efficiency it is possible to develop environmentally sound technology without sacrificing economic growth.

Carbon steel production in Japan provides another example of this principle in action. A comparison of the process utilized to produce carbon steel in Japan with that of other countries reveals that the former produces significantly lower pollution levels. This has been accomplished through the rationalization of the production process, the use of blast furnace gases to run turbines which generate electricity, the use of inert gases for cooling, and finally, by making the production process continuous.

The case of Carbon Steel production emphasises the change in focus from saving the environment to saving energy, which is part of the trend towards increased efficiency. The chart on the next page illustrates this trend.

It is impossible to overestimate the importance of the relationship between efficient industrial processes and a healthier environment. If applied globally in the steel, chemical, cement, electrical