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Easy gains are overlooked

Small public-sector efforts have noticeable effect in promoting "green industry"

Environmentally sound industrial production need not be costly

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In a number of areas, industry can organize production in a more environmentally sound way without incurring considerable extra expenditures. This is the conclusion of a project group working under the auspices of the Danish Board of Technology.

The possibilities are not being sufficiently explored

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However, these "low-hanging fruits" which are so easy to pick are not being harvested. The Board's project group working with "Green Industry", will publish its report in December. It points toward some obvious possibilities for bringing about a more sustainable industrial production.

The federal government, county governments and the municipalities could spur on a retrenchment of up to sixty percent of consumption in the asphalt branch

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One example can be seen in the asphalt industry. With relatively modest means, the federal government and local authorities, which buy up 80 percent of all the asphalt, could spur on a retrenchment of more than half the material and one third of the energy spent.

A project group working with "Green Industry" will be setting forth its report in December

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This issue of "From the Board to the Parliament" builds further on the work accomplished by the Board's "Green Industry" project. The report from the project group will be launched in December

More thoughtfulness and better planning in connection with public sector purchases and invitations for the submission of tenders can certainly stimulate substantial gains for the environment. For almost a year and a half now, a project group operating under the auspices of the Danish Board of Technology has been reviewing the possibilities of bringing about a more environmentally sound or "green" industry. One of the group's conclusions is that there are many "low-hanging" fruits to be picked – gains for the environment which require neither new developments in technology nor expensive conversions of the existing production apparatus. However, the fruits are not being harvested. An estimate from the Danish Technological Institute, dating from the year 1999 (1) tells us that only a little less than 3% percent of the public sector's purchases are "green".

In fact, institutions in the federal government, at the county level and at the municipal level are bound by law or by agreement to have a "green" purchasing policy. However, in this context, the definition of "green" does not require that commodities which are finally purchased actually have to be more environmentally sound than the alternatives. According to the "Circular on environmental and energy considerations with regard to the national purchases of February 7, 1995", what is merely required of all national institutions is that environmental and energy considerations have to be taken into consideration on the same level as other considerations such as price, quality, etc. A voluntary agreement concerning "green" purchases, drawn up in 1998 among the national government, the municipalities and the counties,

makes use of the same definition of "green purchases".

The project group is turning its attention to the asphalt industry as one of several examples of an area where the public sector could push for a more environmentally sound production. However, poor planning, inflexible supply regulations and a lack of thoughtfulness have brought about the situation that here in Denmark, we are still producing asphalt in a way that is more costly and puts more strain on the environment than necessary.

In its report, which is slated for publication this December, the project group arrives at the conclusion that, with known agents, 50-60 percent of the materials and well over a third part of the energy can be saved in the Danish asphalt branch. This presupposes, however, what the project group calls "environmentally advanced demand" on the part of the public sector. In other words, it presupposes that the national, county and municipal buyers will begin to pose qualified environmental demands on the commodities they are purchasing.

A special industry

In so many ways, the asphalt industry is a special industry. Today, three quarters of what once were Danish concerns are owned by foreign-based parent companies. On the other hand, the total output of

A steady job for 175,000 years

On the global level, the production of chemicals has multiplied over the course of the last fifty years by a factor of 300-400. Nobody can say with absolute certainty how much chemical substance we use here in Denmark but it has been estimated that 20,000 chemical substances, 100,000 different chemical products and more than 200,000 commodities/industrial products are now being marketed. And the waste products that come into being as part and parcel of the processes, such as dioxin, are *not even figured* into these quantities. In Danish households alone, estimates indicate we are using 26,000 chemical products.

The society's use of chemical substances is being designated as one of our day's greatest environmental problems. As far as at least 90,000 of the chemical substances are concerned, our knowledge about the effects on our health and our environment is basically nil. In 1993, the European Union initiated the so-called risk-assessment program, which is aimed at examining and assessing the more than 100,000 chemical substances which are being marketed all over the world. As of this writing (May 2000) this program has managed to evaluate *four* of the substances. At this rate, it will take 175,000 years to move through the pile. And at that time, we can presume that work will have to continue on assessing whatever new substances will inevitably have been put into use, in the time to come.

Green industry

Why are we always going on about agriculture's consumption of pesticides when it is the case that agriculture uses only a small fraction of the chemical substances that are used here in Denmark? Industry is using 250 million tons of chemicals every year and the number of new, artificial chemical substances for which we do not know the effects is increasing. The impending questions are how to get a grip on the chemicals and how to reduce the environmental and the health-detrimental effects.

For one and a half years now, a project group operating under the auspices of the Danish Board of Technology has been working on translating objectives pertinent to a sustainable development into specific applications in industry, with the ultimate aim of promoting a "green industry". This is to be accomplished primarily by restricting the use of chemicals. The aim is partly to be able to deliver a weighty contribution to the Parliament's way of dealing with the chemical problematic; as a matter of fact, the EU is currently preparing a "white paper" about a new chemical strategy. And the effort will partly proceed as a contribution to the elaboration of a "green" business policy.

The evaluations and recommendations of the project group are going to be published in December of this year, at which time the group will be updating Parliament's Environmental and Planning Committee and the **Business Committee** about its ongoing work. Moreover, the Danish Board of Technology is planning to hold a conference, which will be taking its mark in the group's work.

somewhere between 2.8 to 3.0 million tons of asphalt per year is put to use almost exclusively in Denmark. This is because the distance from the asphalt factory to the site where the asphalt is going to be used cannot be very great. All in all, there are around fifty asphalt-producing facilities in Denmark.

From the customers' angle, also, the asphalt branch is something extraordinary. The project group working under the auspices of the Danish Board of Technology estimates that 80 percent of all asphalt is purchased by the public road authorities on the national, the county and the municipal levels.

Asphalt and the building of roads put a strain on the environment in many ways: asphalt fumes, exhaust-steam emanating from factories and machines, dust, noise, oil steam and oil slicks are only a few of the unwanted byproducts of the asphalt industry. These can be controlled and kept to a minimum, however, by restructuring the mode of production and by planning the maintenance of the roads in a better way.

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	Current recycling	Augmented recycling	Increase in lifetime of the road	Augmented recycling and increase in lifetime of the road
Consumption, grit/sand	94 %	82%	65%	36%
Consumption, bitumen	96%	89%	65%	47%
Consumption, energy	100%	100%	65%	65%

Source: "Green Industry", report from the Danish Board of Technology. Slated for publication in December 2000

More than a third of Danish asphalt is presently being combined with recycled asphalt. This conserves the materials that are employed in the processes, but it does not conserve any energy.

If an increase in the use of recycled material were to be implemented, so that *all* asphalt will be fabricated with the same content of recycled asphalt as is this third part of the current total production, there would be a further retrenchment in the use of grit and bitumen, which is the substance that binds the asphalt together.

On the average, a Danish road lasts 13 years. Through a combination of better planning, qualified and ongoing maintenance and a more conscious choice of durable materials, the average lifetime for a road can be increased to 20 years, in the opinion of the project group.

The opportunities for retrenchment are laid out in the table below, which appears in the project group's report. The numbers indicate just how much energy and how much material will have to be utilized in different forms of retrenchment in relation to a model where *all* asphalt would be produced without recycling. The column marked "current recycling", then, represents the situation as it is today.

The Board's project group points out that up until now, environmentally sound production has not

been anything that enterprises in the asphalt branch are competing about. But this situation can change, claim the members of the project group, if the public highway authorities *want* it to change.

"It's will be the public highway authorities who are going to have to bring about this demand [for the environmentally sound production of asphalt and roads]", it says in the report.

"One method might be to change the way in which the public tenders for roads has been organized", states Tyge Kjær, MS in sociology, and **senior lecturer** at Roskilde University Center's Institute for Technology, Environment and Society. "Instead of a case where, for example, a county purchases a stretch of road or a quantity of asphalt, they can draw up a contract where the asphalt concern delivers a *function* instead of a commodity. For example, the function that a 25-kilometer stretch of road will have to be in good condition for a period of twenty years", he says. "This will spur the branch on to develop more durable solutions."

Notes

1. "Green Business Policy, analysis assignment, in relation to the beginning of LO's project", DTI Business Analyses, January 1999.

"From the Board to the Parliament" is published by the secretariat of the Danish Board of Technology. This newsletter was written by project manager Morten Jastrup.

The previous five issues of "From the Board to the Parliament" are entitled:

142: Four dictates on data security

141: Xenotransplantation

140: Alternatives to cloning

139: Uncertain gains for net-municipalities

138: The nation would do well to stake its bets on urban ecology

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