

Dirk Lechtenberg MVW Lechtenberg

## Rebuilding Beirut with alternative fuels

MVW Lechtenberg supervises the first secondary fuel processing plant in the Middle East.

Secondary fuels have gained substantial recognition in Europe and are now used as part of the standard fuel mix in the cement industry. What is interesting and new, however, is that secondary fuels are also popular in countries where fuel costs are relatively low. Frequently, decisive factors contributing to the use of secondary fuels in these countries are not only growing cost pressures but, most importantly, the fact that the use of waste products is environmentally friendly.

Solidere (the Lebanese Company for the Development and Reconstruction of Beirut Central District s.a.l), located in Beirut, Lebanon, promotes the idea of environmentally friendly utilisation of waste products that are a significant part of its work in clearance and re-building. Environmental friendliness is also an essential requirement for MVW Lechtenberg to meet and fulfil an order. Solidere was incorporated as a Lebanese joint-stock company on 5 May 1994. Its business is the reconstruction and development of Beirut city centre.

During the civil war all sorts of waste products were disposed of in a disorderly way on the Beirut harbour

site. As part of the city's development and clearance of the new waterfront site, Solidere took over waste treatment activities and environmentally friendly use of waste products, a function previously conducted by the former waste dump.

MVW Lechtenberg specialises in the processing of secondary fuels. For the last 15 years Dirk Lechtenberg, Director of MVW Lechtenberg, has been actively and successfully involved in the processing and implementation of secondary fuels for the cement industry worldwide.

Now, MVW's considerable experience undoubtedly benefits the city of Beirut. It is planned that by the end of 2007/early 2008 previously pre-sorted waste products rich in calorific values will have been processed into secondary fuels and properly used.

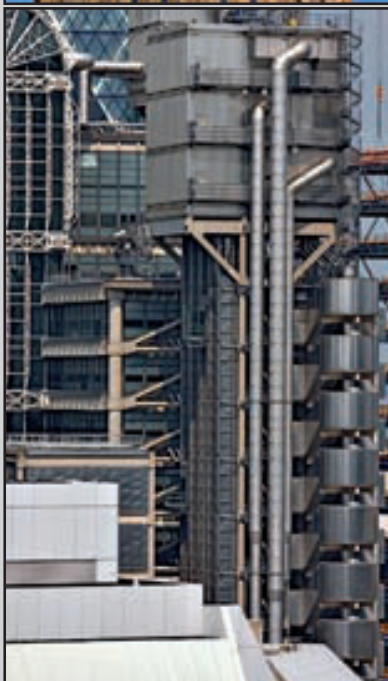
"Certainly, it would be most favourable (in terms of price) to dispose of waste in the usual, simple way, i.e. landfilling. However, environmentally friendly use of resources is the decisive factor," says Lechtenberg and continues, "Having modernised Beirut city centre with



Figure 1: Pre-sorted waste products and a view over the new centre of Beirut.

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**Figure 2, right:** View over the area.

**Figure 3, below:** The processing plant site; at bottom right of the photo is a mixture of waste.

due attention to both historic buildings' structures and the environment, Solidere undoubtedly sets an instructive example."

The mixture of wood, household textiles, foam and plastics, used tyres and other materials is sorted mechanically and manually. Inert components (i.e. sand) are separated with the use of drum screens and a variety of other screening and separating devices and then used on road building sites.

Magnetic separators separate ferrous metals which are also utilised. The separated combustible wastes are reduced to seed-size pieces by using three shredders from Lindner Recyclingtech GmbH. Two sizes are produced. Pieces less than 30mm are used as main burner fuel, while those under 70mm become precalciner fuel.

The two companies, Lindner and MVW Lechtenberg cooperate in the field of secondary fuels processing and jointly offer technical turn-key-solutions for the cement industry. Special attention is paid to prior separation, sorting and continuous quality supervision of particular waste fractions. Only by doing this can the companies produce secondary fuels that comply with the stringent requirements of the cement industry and do not produce

harmful emissions when burnt.

Due to the fact that no permits for the use of secondary fuels have been granted so far to cement plants in Lebanon, the opportunity to use secondary fuels has been offered initially to neighbouring countries. This step has been taken for time reasons.

"It is only a matter of time before Lebanese plants also receive proper permission. It is for safety reasons that we have thought it appropriate to consider exporting," claims Lechtenberg. The amount of secondary fuels is so large that even if a considerable proportion is exported, it will still be possible for other customers to take advantage of particular secondary fuels.

**Logistic capacity**

Currently there are more than 50,000 tyres to shred and turn into secondary fuel bales. Export activities are naturally carried out in compliance with the regulations of the Basel Convention. Worldwide trade in secondary fuels is still not widespread but MVW



Lechtenberg has been exporting secondary fuels produced in Germany to neighbouring countries for a long time now.

The plan is to transport secondary fuels produced in Beirut by sea, in loads of up to 5000 bales per vessel. Shipment is to be carried out at competitive prices and with regard to environmental safety measures. As the recycling site is located in the harbour, MVW Lechtenberg plans to take advantage of this and minimise any congestion that might be caused by truck transport.

About 120,000m<sup>3</sup> of materials are to be processed and around 60ha of land will undergo the site clearance process. Among the materials already dumped on the area there are several million tons of excavated soil. The plan is to use this as part of the ground reinforcement process. The modern quay wall, which meets all the latest coastal protection requirements and which has been created by Solidere to reinforce and fortify the harbour, stretches along the edge of the area for almost 2km. The quay wall is naturally concrete-built.

Depending on weather conditions, Solidere is planning to clear the area by the beginning of 2008. The area may then be used as a plot for city development or as a site for a park.



**Figure 4, right:** Loading baled secondary fuels on to a vessel.

