Vortex Ecological Technologies Ltd.

Case study

Hydro-Vortex implementation in ReadyMix's concrete plant (Israel)

Introduction:	ReadyMix concrete plant near Tel Aviv, Israel, was established in March 2000 to produce concrete. The plant includes a pre-mix facility for concrete production, supported by a concrete recycling system.
Environmental Restrictions:	The ReadyMix's plant was built in major urban area with strict environmental restrictions on Air and Water pollution for various operation reasons. In addition, the use of sedimentation pools was prohibited. Israel is in a constant situation of industrial and fresh water shortage, therefore – concrete plants cannot clear wastewater to the sewage system and are required to recycle sludge.
Background	Soon after ReadyMix's plant launched its operations and despite the use of a full concrete recycling system (made by Stetter GmbH),a few major problems were recognized: 1. The amount of sediment left in the wastewater was higher than expected. 2. The wastewater treatment system could not handle the actual amount of sediments. 3. The cleaning system was frequently jammed and delayed the production process. 4. The use of fresh water increased – a considerable increase in unexpected costs. 5. Sludge was created at a faster rate then expected.

	6. To clean the sludge, the process was constantly interrupted and halted for hours and days – causing the plant heavy costs and productivity loss. A traditional concrete recycling system could not address all the above problems effectively.				
Solution	Two Hydro-Vortex systems were installed to address the problem. The first handled the large sediments and the second handled the remaining smaller sediments. However, after a successful trial, it was found out that only one Hydro-Vortex system could tackle the problem successfully.				
Benchmark results:		**resources**	**Without Vortex**	**With Vortex**	**Change %**
	Inputs	Fresh Water	300	**250**	**16.6%**
		Energy KW per month	12000	**13000**	**-8.33%**
	Outputs	Products (Cubic Meter Per Month)	6000	**8000**	**33%**
		Sludge (tons)	75	**0**	**N/A**

Additional environmental benefits:

- Considerable savings in industrial and fresh water consumption.
- Reducing sludge production to 0 (zero).
- Decrease in dust pollution.

Operational benefits:

Considerable reduction in water costs.

Enabling true recycling of wastewater in cleaning and production processes.

Increase of 33% in productivity.

Significant decrease in maintenance costs**.**

ROI of less then 6 months without taking into account productivity gains