



Private potential: Ready-mix concrete

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With the 2004 implementation of Decree 341, China banned all on-site concrete production in 200 cities nationwide. The move was a response both to the enormous inefficiencies and the environmental impact of the process.

For China's rail industry, which supplies most of its own concrete, the emphasis on environmental impact has created a new incentive to pursue "ready-mix" concrete, which can be prepared off-site and shipped to worksites by mixer trucks. Doing so reduces particulate pollution while allowing for more precise quality control.

While the environmental requirements for concrete production have changed, expectations for structural integrity haven't. "If there's some kind of problem in the foundation of the high-speed rail itself ... there's going to be great liability," said Jeremy Goodwin, CFO of China Advanced Construction (CADC, NASDAQ), which has produced construction materials for infrastructure projects including the Beijing-Tianjin railway.

The incentives for China's rail construction companies go well beyond corporate social responsibility: Beijing provides tax benefits to projects that use more than 30% recycled material in their concrete mix in addition to cement and other components known as aggregates.

However, providing such cement goes beyond the capabilities of some producers. "The bonding process between the cement, the aggregate and the recyclables becomes exponentially more complicated when you go above the 30% level," said Goodwin.

Most of China's railway firms make their own prefabricated concrete structures that they then transport to construction sites. But with only so many portable plants available, ready-mix concrete plays an important stopgap role.

Moreover, because of its quality control capabilities, ready-mix concrete can in fact offer higher quality and a longer lifespan than other forms of concrete.

As a result, ready-mix concrete is one of the few intersections of state-owned construction and privately owned innovation in China's infrastructure development. Ordinary cement is readily substitutable and is manufactured by some of China's largest heavy industry firms, but mixing, delivering and pumping concrete is more of a process than a product. That makes it ripe for innovation.

"Cement is a commodity, concrete is a value-added service product," said Goodwin.