



COLLAPSIBLE CONTAINER

could transform
cargo trade

By Kathlyn Horibe

Photos: christian42



Ocean carriers spending \$16 BILLION ANNUALLY on repositioning empties

A COLLAPSIBLE CONTAINER designed by two professors from the Indian Institute of Technology in Delhi, India, could revolutionize the marine cargo sector.

In less than four minutes, the container is collapsed hydraulically to one quarter its original size. Kept together with a self-locking mechanism, four vertically stacked containers take up exactly the same space as a regular TEU (20-foot equivalent unit).

More than 52 years ago, Malcom McLean, a North Carolina trucking entrepreneur, originally hatched the idea of using containers to carry cargo. He loaded 58 containers onto his ship, Ideal X, in Newark, N.J., and once the vessel

reached Houston, TX, the uncrated containers were moved directly onto trucks – and reusable rectangular boxes soon became the industry standard.

Anoop Chawla and Sudipto Mukherjee from IIT's mechanical engineering department worked on the collapsible concept for three and a half years. "We made at least two models before coming up with the current proof of concept," Prof. Chawla said. "There were many difficulties we encountered in the entire process – right from conceptualization to ensuring the structural rigidity of the collapsible container. For instance, we had to ensure there were proper sealing and locking conditions." The concept also had to be

Avinder Bindra, principal of Simpri Investment Ltd., flanked by Indian Institute of Technology professors Anoop Chawla (left) and Sudipto Mulherjee.



compatible with existing equipment for intermodal transport.

Speed was another concern. "We wanted to keep the folding and unfolding time to within three to four minutes," he said. The water tight container, which is fabricated from Corten steel like the standard container and equals its strength, opens upward to allow top loading of commodities.

A system to collapse and erect the container also had to be conceptualized.

"We designed a base station or special platform to fold and unfold the container horizontally within the target time of three to four minutes," Prof. Chawla said. "The system, which could be hydraulic-based, helps collapse the container automatically."

It takes a semi-skilled person half a day to one day to be trained on the base station, said Avinder Bindra of Simpri Investments Ltd., who financed the container project. A former banker, Mr. Bindra approached IIT, one of India's best engineering schools, about taking on the challenge. He felt collapsible containers could improve the logistics and decrease the cost of backhauling empty containers.

Moving empty containers

The shipping industry spends a great deal of time and money in repositioning empty containers. If trade was bal-

anced, there would be no empties. But trade imbalance, especially between Europe and North America with Asia, has resulted in approximately 2.5 million TEUs of empty boxes stored in yards around the world with empties comprising 20-23 per cent of the movement of containers around the world. According to research conducted by International Asset Systems, the average container is idle or undergoing repositioning for over 50 per cent of its life-span. It also determined shipping companies spend US\$16 billion in repositioning empties. To compensate for these costs, carriers add surcharges, ranging from US\$100 to US\$1,000 per TEU, to freight rates.

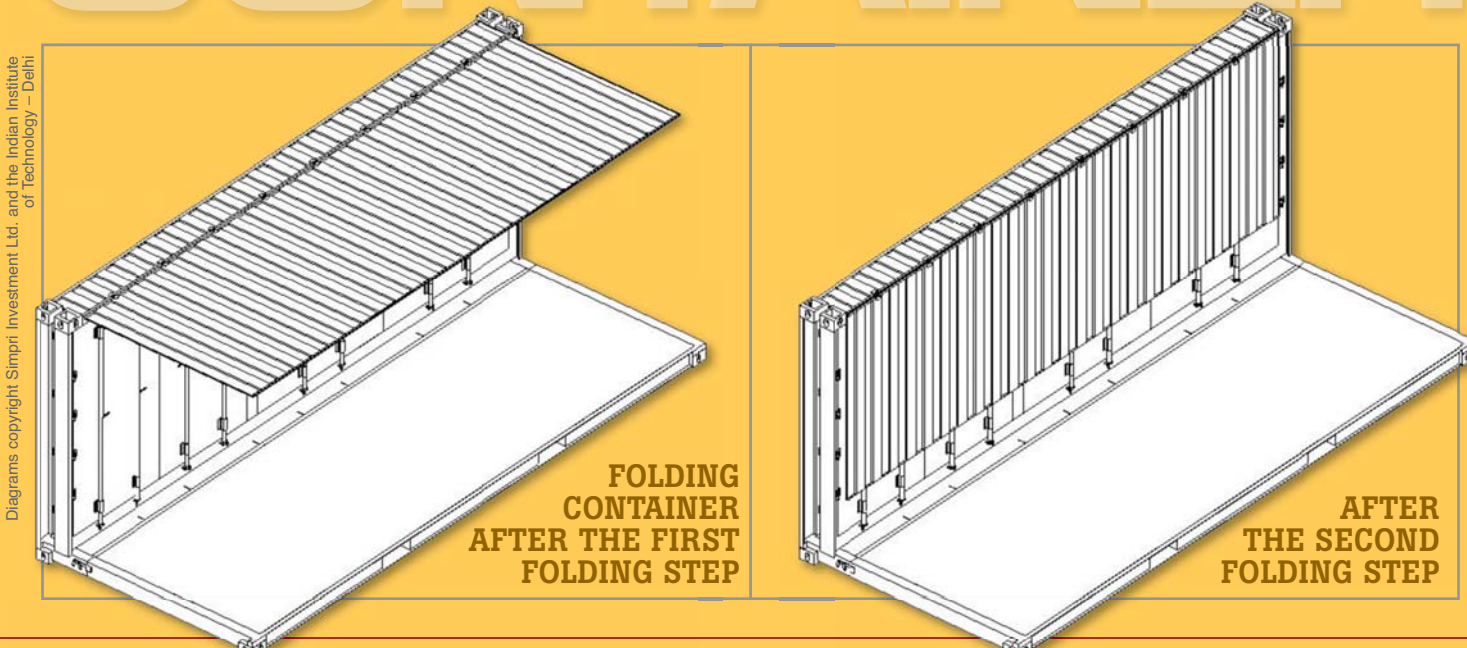
From his office window during his 26 years with Citigroup Inc. and HSBC Holdings, Mr. Bindra saw stack after stack of empty boxes being returned to the Hong Kong and Singapore ports following delivery to big box retailers. After some investigation, he discovered that previous attempts to design collapsible containers had been unsuccessful.

As for the SIMIIT Four Pack Folding Container, patents have been filed both domestically and internationally. IIT holds the intellectual property rights and will share the revenues with Mr. Bindra. The three men intend to license out the manufacturing of the new container.

Undoubtedly, collapsible boxes would relieve congestion

COLLAPSIBLE CONTAINER

For video demonstration please see canadiansailings.ca





INTERNATIONAL TRADE LOGISTICS

at ports. Storing empty containers takes up prime real estate. For example, the storage yards around the Port of Jersey, UK, are cluttered with an estimated 100,000 empty containers belonging to leasing companies and an additional 50,000 belonging to ocean carriers. Collapsible empties would be quicker to load, resulting in faster turnaround time for ships. Energy costs would drop as well as one trailer rather than four would transport empties.

There's also a security feature to the folded container built to ISO standards. Nothing can be smuggled in a collapsed empty. It is estimated that if 75 per cent of empty containers were folded by 2010, the result would be a yearly saving in shipping of 25 million TEUs or 50 per cent of the total volume of empty containers shipped.

"Our goal is to try and get some prototypes built," Mr. Bindra said, "and we hope to receive the necessary certifica-

tion from agencies, such as Lloyds Register or Bureau Veritas, by the end of the first quarter." Their approval is required regarding the seaworthiness of any marine equipment.

"The objective is then to give the containers and base stations to a number of shipping companies and volume users to try out," he added. "It is only after that that we will start the commercialization, which is likely to take place in the second half of next year.

"Once we start producing the containers on a volume basis," Mr. Bindra said, "we estimate it will add 15-20 per cent to the construction cost (of a standard container)." A standard box costs US\$2,000 to manufacture. A base station would cost about one-and-a-half containers.

The container has already received positive feedback from shipping companies, logistic firms and port operators.