Donor country Canada	
Project/programme title Magnesium Front End Research and Development Project	
Purpose The objective of this five-year, three-nation undertaking is to develop a magnesium-intensive front end for an automobile. Lightweight materials technologies play a crucial role in efforts worldwide to increase energy efficiency and reduce emissions from automobiles.	

Recipient country	Sector	Total funding	Years in operation
Canada, People's Republic of China, United States of America	Minerals and Metals Sector	US$22 million	2007-2012

Description

The Magnesium Front End Research and Development project, or MFERD, is a multi-task research effort involving Natural Resources Canada (NRCan), China's Ministry of Science and Technology, and the United States Department of Energy. NRCan's CANMET Materials Technology Laboratory (CANMET-MTL) is the Canadian coordinating organization for the MFERD project, which involves three Canadian companies, the National Research Council of Canada, and five universities.

Indicate factors that led to project's success

Collaboration among government, academic, and private-sector partners is the principal reason for the ongoing success of the MFERD project. During Phase I of the project, a magnesium-intensive front end was designed that is 38 kilograms lighter (45 percent) than a typical front-end steel structure. A demonstration front end will be built and validated during Phase II, which begins in 2010

Technology transferred

High-vacuum die casting, sheet forming, and technologies for joining dissimilar metals. The mechanism of transfer is through workshops held on an annual basis for researchers and engineers from the three countries.

Impact on greenhouse gas emissions/sinks