

Company specializes in small hydro projects

Canadian Energy Development Systems International (CEDSI) is carrying out nine small hydro projects in three countries and expects to attract additional business in the future.

The consulting firm moved into the small hydro project field about two years ago with financial backing from the Canadian International Development Agency. CEDSI is involved in projects worth \$60 million — four in Jamaica, two in the Dominican Republic and three in Sierra Leone.

Small hydro projects were once vital to development in many areas but faded in the face of electricity produced by diesel-powered generators using cheap fuel. The rise of oil prices has, however, placed an increasingly heavy burden on developing nations and makes small hydro projects attractive once more.

CEDSI president David Henry said the pay-back period in direct oil substitution for the nine projects the company has in operation will be six years creating an annual saving of \$10 million to the three

countries.

In addition, the projects may also assist in food production by providing irrigation systems for small farmers and agricultural processing plants using the electricity generated by small projects.

A typical project can be completed in two to three years for \$10 million to \$20 million compared to the vastly higher costs and longer time required for major hydro projects, said Mr. Henry.

Most small projects involve diverting water through canals to the generating site. A natural difference in height of land provides the "head" of water to drive the generator. The higher the source of water fed through the turbines of the generator, the more power can be developed. In large-scale projects, the "head" is created by building expensive dams to back up vast lakes.

The World Bank intends to spend \$10 billion this decade on engineering studies for \$200-billion worth of small hydro projects to be carried out during the years 1990-2000. Mr. Henry said he expects CEDSI to win a number of contracts for these projects.

Tunisia purchases locomotives from Montreal company

Bombardier Incorporated of Montreal was recently awarded a \$26-million contract for 22 diesel-electric locomotives for the Tunisian National Railways Corporation (SNCFT).

The order is to be financed on a competitive basis mainly by the Export Development Corporation. In addition, the Canadian International Development Agency is contributing some funds within its \$150-million development co-operation program with Tunisia.

The contract consists of 13 *MXS 264* locomotives with a net power output of 2 200 horsepower for metric railway and nine *MXS 620* locomotives of 2 400

horsepower for standard railway.

The locomotives will be produced in the railway products and diesel division of Bombardier's Montreal plant and deliveries are scheduled for the end of 1983.

Other Bombardier locomotive sales include those to Brazil, \$54 million; Mexico, \$100 million; and New Jersey and Portland, Oregon in the United States for \$84.6 million and \$21.6 million (US) respectively. Currently Bombardier is stepping up its marketing, mainly in the United States and overseas, with a target of reaching about 20 per cent of the world market.

Canada-US co-operate on tar sands

Canada and the United States have signed a two-year, \$1.2-million co-operative research agreement on heavy oil and tar sands development.

The agreement falls within the terms of reference of a memorandum of understanding for co-operation in research and development signed by both countries in 1979. Participating in the co-operative program are the federal Department of Energy, Mines and Resources, the Saskatchewan Department of Energy and Mines, the Alberta Oil Sands Technology and Research Authority and the United States Department of Energy.

Recovery of petroleum from tar sands and heavy oil deposits is difficult and expensive. The joint research program will evaluate recovery processes using steam injection into reservoirs enhanced by various additives. Initial experiments will be conducted in the United States on small-scale laboratory equipment; the most promising processes then will be tested in large-scale reservoir simulators at the Alberta Research Council in Edmonton.

Program activities will be managed by a co-ordinating committee with membership from both countries and costs will be shared equally.



One of the locomotives Bombardier sold to Mexico City for use on its subway system.