

“As much as a beggar will not advance in private life, a nation that begs will also not develop. . . . Only a nation which relies on its own efforts will succeed in the long run.”

Finance Minister Ronnie de Mel of Sri Lanka

self-instruction modules, test themselves and advance at their own pace. Those who must drop out can later pick up where they left off. The teachers have become instructional supervisors. The interior walls of the schools have been taken down and most students work outside. The programs began with 1,065 children in the five rural schools in Cebu and 526 in the two villages near Solo. Two new sites in the Philippines, Lapu-lapu and Sapang Palay, were added later. In time, it is hoped, each teacher (or instructional supervisor) will oversee between 70 and 150 pupils.

The first three grades are given structured

with little supervision. They are tutored by high school students. The instructional supervisors move about and give help where it is needed. At some schools, kiosks — thatched roofs over picnic tables — are set up on the school grounds, and there are outposts in private homes where adults can pick up modules. Modules extend the teachers' reach; kiosks and outposts increase the space.

There are difficulties: It is often hard to get parents involved, and upper-grade students may be reluctant to take time to tutor the younger children. In the Philippines the students who speak a local tongue must learn both English and their national language, Pilipino, and it is difficult to raise all students to module-reading levels by grade four. Nevertheless, the programs have measured well in terms of academic results and costs. In Java the fourth and fifth grade students took the Standardized Official Tests, and their aggregate scores were almost 50 per cent higher than those of pupils in traditional schools. The Education Development Office in Jakarta gave tests to fifth and sixth grade Pamong pupils and to pupils in traditional schools, and the Pamong pupils outscored the others in all subjects, though only by a point or two. In the Philippines the Impact pupils outscored comparison pupils by an aggregate of 25 per cent.

Cost comparisons are difficult, but a conservative analysis suggests substantial savings. Replacement of text books and other aids by modules cut operational costs an estimated 15 per cent. In the Cebu project, 12 instructional supervisors and 5 instructional aides replaced 55 teachers, and total salary costs were reduced from 264,000 pesos to 67,740 pesos a year. The Solo team reduced their staff from 40 to 14. Since there is, in both places, a continuing shortage of teachers, those replaced were easily reassigned.



An IDRC exhibit at the Ontario Science Centre included this simple, but sophisticated, plastic pump. It was designed by a University of Waterloo team of fluidics experts, a mechanical and a chemical engineer and a biologist who worked with research teams in Africa and Asia. Its cost is about one tenth of the cost of a standard cast iron model and it has no movable parts that could wear out. A filter purifies the water from unprotected open wells. A Pembroke, Ontario, high school student made this model.

instruction. Students from higher grades monitor some programmed lessons.

Those in grades four through six work with self-instruction booklets, 32 to 100 pages long, that lead them step by step to tests that may be taken

Trees

Trees used as windbreaks can help reclaim the desert, but the wrong ones in the wrong places can disrupt the natural flow of air and change the climate. Some seedlings are eaten by animals, and some species inhibit the growth of crops already in place. Scanty and erratic rainfall may limit the planting season to three weeks a year.

With some help from the IDRC, a number of countries — Tunisia, Nigeria, Egypt, Senegal and Sudan — are searching for the right trees for the semi-arid lands around the Sahara and in East Africa.

Last year Sudan's Ministry of Agriculture began test-planting the *prosopis* tree in the Kerma Basin of