Canadian aerial survey aids development in Nepal

A small white jet with a red maple leaf on its tail was cruising at 25,000 feet, paralleling the Himalayas above the tiny kingdom of Nepal.

"The plane can reach 28,000 feet altitude in six minutes from take-off," *Lear Jet* pilot Terry De Visser of Calgary said proudly.

"We cover the 88 miles from Kathmandu east to Pokhara in 15 minutes and the full 525-mile length of Nepal in 50 minutes."

The sleek, high-performance jet, along with two piston-engine planes – an *Aero Commander* and a *Piper Aztec* – and 12 Canadian pilots and photographers, constitute the first phase of a $4.5-million, land resources mapping project for Nepal's remote Far West Region, sponsored by the Canadian International Development Agency (CIDA).

Two Canadian companies – Capital Air Surveys of Pembroke, Ontario and Photosur Incorporated of Montreal – carried out the first half of the air photography last winter.

Forbidden kingdom

Landlocked Nepal, long called the "forbidden kingdom", was closed to foreigners until 1951. Today, it is scrambling to catch up with the twentieth century. Nepal, which contains eight of the world's ten highest mountains, is one-fifth the size of Alberta and is struggling to meet the needs of its 13 million people. Every square foot of its limited land area, no matter how steep the slope or how thin the soil, is precious.

For generations, the same depleted, rocky soil has been tilled and retilled. Now, the mountainous terrain and unimaginable amounts of monsoon rainfall and deforestation have combined disastrously to create one of the world's worst erosion problems. Among Nepal's many competing development priorities, adequate land-use maps are a vital first step towards sound planning for the country's future.

Installed in the *Lear Jet*'s doorway, a $90,000-Zeiss camera shoots nine-inch-square negatives, each covering 36 square miles on a scale of 1:20,000. Later, a ground survey team will take to the hills on foot to pinpoint four accurate altitude references for each of the hundreds of overlapping photos.

IDA, Capital Air Surveys

A Canadian aerial survey plane over the terraced slopes of Nepal.

Next year, seven Canadian experts – including a forester, an economist, a cartographer and two soil analysts – will arrive for two years' work based on the aerial photos.

Benefits of new maps

The final product, four maps – of land systems, land capability, land use, and climatology – will help Nepal shape its future development efforts in the Far West. Planning of settlements, prevention of soil erosion, identification of potential landslides, and discovery of new, fertile land for agricultural development are a few of the potential benefits.

Additional aerial photographs on a 1:50,000 scale covering other areas of Nepal will be used by the government topographical survey branch, which also will gain expensive mapping and photography lab equipment and six newly-trained Nepalese photo laboratory assistants as a result of the project.

In Nepal, the monsoon rains leave in October and return in February. The Canadians were on the job from November 1 to February 3, working from one runway of the Kathmandu airport.

"The whole operation is dependent on the weather," says air operations manager Paul Smith. "On a previous project, we were able to photograph all of Bangladesh