

traffic, the establishment of private networks and the introduction of several new products and services.

The MSS consists of two geosynchronous satellites, Morelos I and II, launched in June and November 1985 respectively. Both satellites are identical. They each have 22 transponders, and use two frequency bands (C or 6/4 GHZ and KU or 14/12 GHZ). In the C-band, each satellite has 12 transponders with a 36 MHZ width and six with 72 MHZ; in the KU-band each has 4 transponders of 108 MHZ. A 36 MHZ transponder has the capacity for up to 900 telephone channels, two TV channels, or data transmissions of up to 60 million bits per second.

Morelos I is presently operating with six international earth stations and 237 local earth stations. Morelos II began operating in 1989, and will operate in conjunction with Morelos I for six years and alone for another five years, expanding the system's service life to 1999. The major function of Morelos II will be to insure continuing TV, radio, telephone and data transmission services in case of a failure of Morelos I, until it eventually replaces Morelos I. In order to control the position and orientation of each satellite, SCT constructed the Contel Ixtapalapa, a tracking, telemetry and command station.

Satellite communications are channeled through the Ixtapalapa, Hermosillo, Parque Industrial and three Tulancingo earth stations and 237 local earth stations for public service; 32 of these stations are reserved for the exclusive use of SCT. Within the C band, 211 earth stations operate throughout the country, of which 189 are for TV reception, 16 for both TV transmission and reception and telephone and six are mobile earth stations for the transmission of TV and telephone signals. On the KU band, 18 earth stations are installed in rural areas and nine in urban areas for rural telephony; five stations are installed at the SENEAM for voice and data transmission. There is at present an installed capacity for 361 telephone circuits, 230 telex circuits and two video channels; 43 countries are telephonically linked and 24 linked through telex to Mexico through satellite communications.

There are also 490 private earth stations, of which 270 are transmitter-receivers for voice and data transmission on the KU band, used mainly for private networks; 150 for radio; 50 for one-directional data transmission and 20 for TV broadcasting. The number of public and private earth stations in Mexico is always growing. The Secretariat of Public Education alone plans to install 500 earth stations in rural areas for use in providing secondary school education classes through television broadcasting.

The MSS now operates at approximately 60% of its capacity, as follows: Television, 21%; telephone, 15%; special TV programs, 13%; voice and data, 8%; and teleaudition, 3%. The goal set by SCT for 1989 is to expand the utilization rate to 75% or 80% of occupancy. By 1994, Morelos I should be operating at capacity (80%-90%) and Morelos II at 50%-60% of capacity. Nine C-band transponders of the Morelos Satellite System are presently being used for countrywide transmission of TV channels 2, 4, 5, 7 and 13, as well as cable TV, and educational and cultural TV programs in conjunction with various government agencies. Six transponders are presently used by TELMEX to provide services in Mexico's largest cities; this number will be expanded to 15 by 1994.

The rural telephony program of SCT operates with a network of 27 earth stations. Voice and data transmission services are given through SCT earth stations as well as through private stations authorized by SCT. Additionally, the INFOSAT service transmits data to various cities in Mexico using 55 earth stations. Radio broadcasting is also done through the MSS.