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DETERMINATION OF POTENTIALLY ARABLE LAND AND MEASUREMENTS OF NON-AGRICULTURAL USES FOR NINE SELECTED AREAS IN AFRICA

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The purpose of this study was to determine the percentage of total potentially arable land currently committed to non-agricultural human settlement uses in selected African agro-climatic zones.

Nine study areas equal in size to Landsat scenes, were selected by climatic zones as specified by the Food and Agriculture Organization, Rome, Italy. Soils information were fundamental to this project and were combined with climatic and crop suitability information for each study area. This information was manually converted to digital form for input to a computer-aided geographic information system, thereby creating nine independent data bases.

Landsat CCT data for these study areas were processed by computer to identify and map the extent of human settlement. These data were automatically input as files into the appropriate data bases using the registration and aggregation program LEVI, developed at the Holcomb Research Institute.

Potentially arable lands were identified within each Landsat scene, using FAO criteria, based upon soil and crop suitability within each climatic zone. Landsat digital data identified the extent and location of human settlement, and file manipulation techniques identified settlements occurring upon these potentially arable lands. The results of this study indicate that the amount of potentially arable land varied dramatically between the nine study areas, ranging from 778 km² in South Africa (.19% committed to human settlements) to 29,017 km² in Nigeria (2.1% committed to human settlement).

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