REGIONAL ENGINEERING GEOLOGICAL MAPPING USING REMOTELY SENSED DATA

UTILISATION DE LA TÉLÉDÉTECTION POUR LA RÉALISATION D'UNE CARTOGRAPHIE GÉOTECHNIQUE À L'ÉCHELLE RÉGIONALE

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Abstract

Landsat MSS 7 and False Colour composite were interpreted in the delineation of regional geomorphology, geology, structural and vegetational cover. Mass and material characteristics of the rocks were incorporated in the preparation of an engineering geological map. A net work of road alignments has been proposed based on the Geotechnical Feasibility Index.

Résumé

Des cliches Landsat MSS 7 et fausses couleurs ont servi à l'interprétation des caractéristiques géomorphologiques, géologiques et à l'étude de la végétation. Les caractéristiques des roches rencontrées ont également été prises en compte pour la cartographie géotechnique. Des tracés routiers ont été proposés en tenant compte de l'ensemble des données géotechniques.

Introduction

New mapping techniques and the availability of data have enhanced the accuracy and the reliability of regional maps. Satellite and air-borne data collection systems portray the Earth's surface characteristics on a regional scale. Scanners sensitive to the object of interest can be mounted on aircraft or space craft to obtain thematic maps. In recent times, geological, geomorphological, landuse and land cover maps have been prepared using Landsat satellite Multispectral Scanner (MSS) data products. They have comparatively low ground resolution compared to that of aerial photographs (High resolution). Nowadays, both satellite and aerial photographs are being used for geological purposes.

Beaumont (1979) has located indigenous engineering material for the construction of road, over the Kalahari deserts of Iran, with the help of Landsat MSS imagery. Soeter and Renger (1981) have analysed the utility of various remotely sensed data products at various stages of engineering geological projects. Jha (1982) has delineated geomorphological and lithological units using aerial photographs and based on this information, he has proposed alignments over the arduous terrain of Okhaldanger Nepal.

Geology, geomorphology and structural information derived from the interpretation of Landsat imagery and aerial photographs over an arduous terrain have been

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Fig. 2. Lithological and land-use map of the study area (Based on Landsat data).