

# Updating Knowledge and Skills in Remote Sensing and GIS for Natural Resource Management in Southern and Eastern Africa

1: Large scale mixed commercial farming west of Harare. Sprinkler-irrigated grass and alfalfa is used for feeding dairy cattle.

2: Course participants interviewing a small-scale commercial farmer.

3: A cattle kraal on a small-scale commercial farm in the Mzengezi area. Manure is collected for fertilizing arable land.

4: Land preparation for ox-drawn ploughing in the Zvimba Communal Lands. Note the tree growth on scattered termite hills.

5: Course participants used GIS techniques in the analysis of resource management problems.

6: Landsat Thematic Mapper image of the study area west of Harare (band 4 = red, band 5 = green, band 3 = blue, date 16 September 1992).

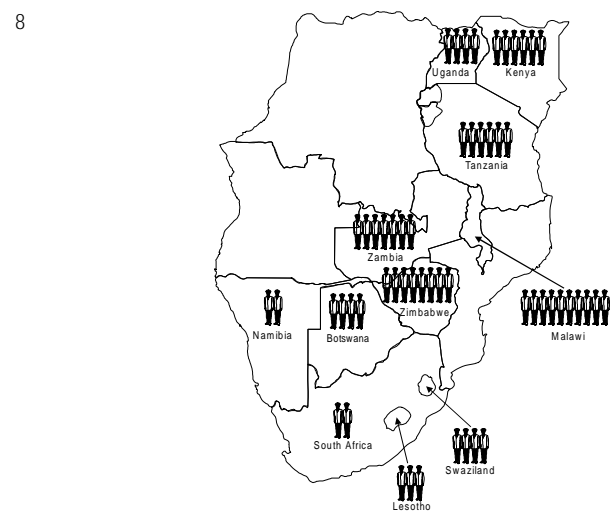
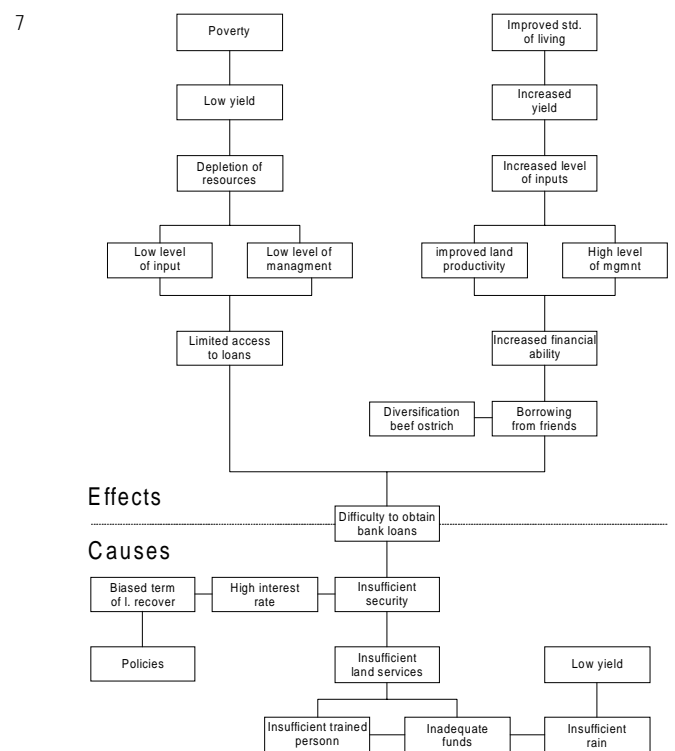
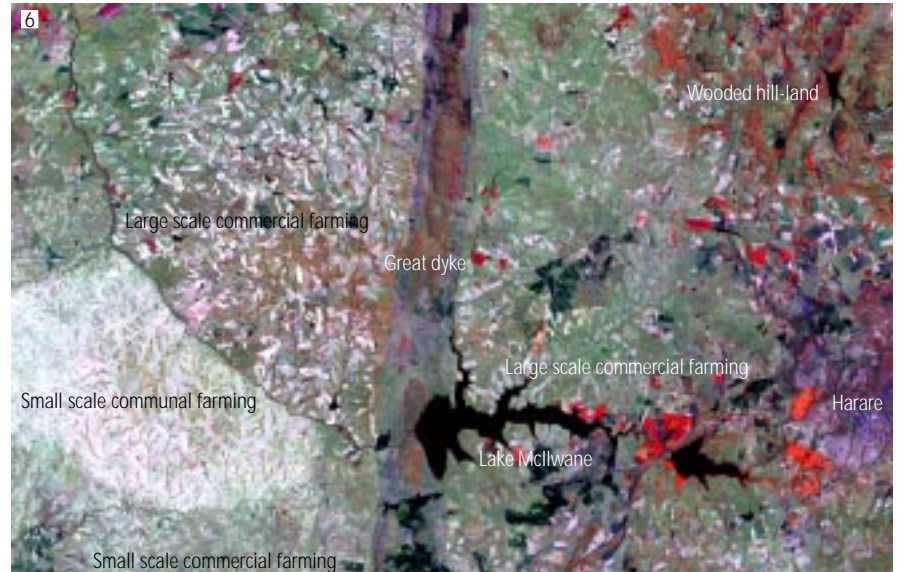
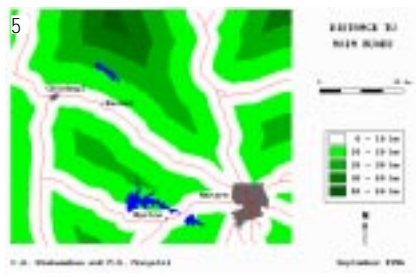
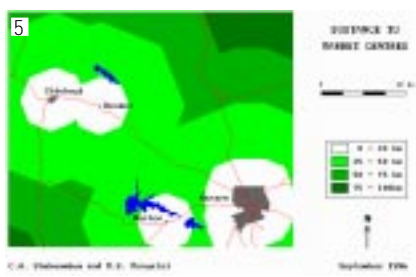
7: A problem tree was constructed as part of the problem analysis with respect to maize cultivation by small-scale farmers in the study area.

8: A total number of 56 participants from 11 southern and eastern African countries attended the refresher courses.

Environmental degradation is a matter of great concern in the countries of southern and eastern Africa. The benefits offered to natural resource management by remote sensing data and GIS technology are generally recognized and reflected in a growing range of training programmes. Remote sensing and GIS are, however, rapidly developing and increasingly sophisticated technologies, and to be effective in the long term, regular updating of acquired knowledge and skills is essential. Since 1951, ITC has trained over 1000 course participants from eastern and southern Africa in the techniques of aerospace surveys and their application in various fields. In 1993-96, the Netherlands government provided funds to ITC's Department of Land Resource and Urban Sciences to develop and run a series of four "Refresher Courses" for ITC alumni from eastern and southern Africa who are presently working in natural resource management or related fields. The aim of the courses was to update the participants' knowledge and skills in new approaches to natural resource management, including the application of remote sensing and GIS. The courses were hosted by the Department of Soil Science & Agricultural Engineering and the Department of Surveying at the University of Zimbabwe, Harare.

The course comprised two main components: 1) natural resource management and 2) remote sensing and geographical information systems (GIS). In addition to theoretical lectures and practical work, an important aspect of the course was a project in which participants in small groups apply remote sensing and spatial analysis techniques to solve specific resource management problems in a study area near Harare. Based on the identification of a problem field, participants identified information requirements and data needs, collected field data, and finally designed and carried out an approach for the analysis of natural resource management systems in the study area.

Evaluations made at the conclusion of each course suggest that this series of refresher courses has generally met with participants' expectations for updating knowledge and skills. Although the teaching materials have a strong African emphasis, the syllabus has been used as a basis for similar courses in other regions of the world.



**For more information:**

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