

## **G-1 Evaluation of Interaction between Desertification and Human Activities**

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The objective of the research is to evaluate the impact of biotic activities on desertification in arid and semi-arid ecosystems as evidenced by changes in vegetation, soil, and socio-cultural aspects in India and China. The research consists of four sub themes.

**(1) Evaluation of Biotic Activities on Desertification in Arid and Semi-arid Area**

Two grazing land sites, one in semi-arid area was selected in Pali and another was in hyper-arid area at Chandan of Thar desert in India. At each experimental site, both herbaceous and woody species were studied as to their composition, cover, density and vigor, dry matter production, seed dynamics, and phenology. Mapping of land use and land degradation were carried out using LANDSAT and NOAA image data of the area. For socio-economic study, a survey of the awareness for desertification was undertaken at a village Khabra Kalan in Osian to understand the causal factors to desertification due to human activities. For the research on the movement of a sand dune, Global Positioning System was used to measure the location of the dune and investigated the change of usage of the dune by agricultural activities.

**(2) Assessment of human effect on desertification and land degradation**

LANDSAT image analysis and field work were carried out in Eastern China to evaluate desertification and land degradation. The result of field work in Naiman agreed well with that of satellite remote sensing data analysis indicating progressive desertification areas, and the extent of desertification in Yuanmou was also confirmed by remote sensing data. Three indices were developed to extract desertification area from LANDSAT image data. 1)Vegetation Index, 2)Man-made Structure Index, and 3)Soil Color Index. These indices will be applied to Lanqi and Yuanmou area.

**(3) Assessment of socio-economic factors affecting desertification and land degradation in China**

The study was conducted in two different areas in Yuanmou County in Yuanmou Province and Lanqi City in Zhejiang Province to understand socio-economic factors affecting desertification and land degradation. The information, especially political measures for land development issued by the local government was collected.

**(4) Comparative Study of Human Activities on Desertification in Arid and Semi-arid Areas of Different Countries**

Four countries, Kenya, India, China, and Thailand were chosen for comparative study on desertification and land degradation in relation to human activities. To compare the causal factors of desertification in these areas, a minimum data set system for information about desertification and land degradation was constructed. In this fiscal year, the research was concentrated on the collection and evaluation of data set of Chinese desert, Thailand, and arid area of north Kenya. The collected information of minimum data set was concerning climate, soil and water, vegetation, land-use, socio-economic variables, and human disease status.