



## **Change Analysis of Wetlands for the Year 1971-2008 of Kallar Kahar, Punjab, Pakistan: Case Study**

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**Abstract:** Wetlands are vital natural habitat, support and sustain invaluable resources for biodiversity, improve water quality, assist ground water recharge, prevent provide flood control and mitigate climate change but due to dual pressure of economic development and population growth they are greatly deteriorated. It is necessary for the wetlands conservation to map them, determine whether or not they have changed over a specified period and quantify the changes if any. In the present analysis; the object based approach of 'ENVI' is presented to drive the change detection inventory information for Kallar Kahar Wetland using Quick bird imagery and corona imagery. For this purpose land use map of study area was developed by using topographic maps, satellite imageries and ground truth survey. Methodology starts with land cover mapping using object based analysis, which is followed by image enhancement, post classification processing (recording) accuracy assessment for change detection have been utilized for the whole study. Six major classes were delineated using satellite data viz., shrubs, soil/uncultivated area, water body, built up area, agricultural are and orchids. Accuracy assessments of classification results yield 90.61% and 91.99% over all accuracies of the final land use/land cover maps. The results showed that the shrub and agriculture area decrease by 49 % and 43 % respectively. While orchid, water-body, built-up and uncultivated/soil area increased by 79 %, 40 %, 38 % and 53% respectively. Extensive rate of population growth, urban extension, industrialization, pollution, and natural hazards were the leading causes of rapid land use / land cover changes in Kalar Khar wetland. Appropriate steps should be taken before the wetland undergo a complete change from which reversal might be problematic.

**Key Words:** *Wetland; Land use/Land cover Changes; Satellite Images; Object Based Analysis; Kallar Kahar Lake; Pakistan.*

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