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*Supplement of*

## **Vegetation cover change detection and assessment in arid environment using multi-temporal remote sensing images and ecosystem management approach**

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## **Defining fundamental terms used in the text**

**Environment:** it refers only to the natural resources (e.g., water, air, soil, etc.).

**Ecosystem:** is "*the presence of a set of different living organisms interacting with their physical environment*" (Forget and Lebel, 2001). Jenny (1962) stated that the “**ecosystem**” refers to both natural and human resources within a certain geographical boundaries with highlighting on inter-relationships among and between them.

**Agro-ecosystem:** is an ecosystem modified by humans for agriculture production. Peden (2000) defines an agro-ecosystem as "*a geographically and functionally coherent domain of agricultural activity, including all living and non-living components and the interactions among them*".

**Fragile Ecosystems:** is an ecosystem which lacks *resilience* or which is so heavily impacted by an 'un-natural' (human) event that it changes in unexpected and undesirable ways. Fragile ecosystems include deserts, semi-arid lands, mountains, wetlands, small islands and certain coastal areas (Aly, 2007).

**Ecosystem sustainability:** is to meet the needs of the present without compromising the ability of future generations to meet their needs. (WECD, 1987; Woodley et al., 1999).

**Ecosystem management:** is the careful, skillful use of ecological, economic, social, and managerial principles in managing ecosystems to produce, restore, or sustain ecosystem integrity and desired conditions, uses, products, and services over the long term (Grumbine, 1994).

**Ecosystem Degradation:** is destroying the ecological balance of the natural community by an unnatural (human) event. Ecosystem degradation has adverse socio-economic and health impacts on rural communities such as low land productivity, poor health, and finally a downward spiral of poverty (Aly, 2007).

**Ecosystem Approach:** is a method for sustaining or restoring natural systems and their function and values (Bocking, 1994).

**Ecosystem Restoration:** is a process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed (Richardson et al., 2010).