



## Remote sensing technology for wildfire detection and monitoring in Tanzania

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**ABSTRACT** – Tanzania has benefited through Monitoring for Environment and Security in Africa program by having a Satellite receiving station installed at the Ministry of Natural Resources and Tourism for the purpose of early warning and immediate response to wild fire occurrences. The remote sensing generated information helps the decision makers to plan and make appropriate decision based on reliable information for fire prevention and control. Geographical Information System (GIS) and Remote Sensing are commonly used tools for monitoring of environmental disasters and risk assessment. This assist in three phases of early warning systems that includes forecasting, communication and onset of anticipated responses. Damage assessment including burnt area analysis and land cover change are key information that are reported from wildfire disasters. Common evidenced disasters include storms, droughts, floods and wild fires. The wildfire detection and monitoring commonly undertaken in three phases namely; early detection and monitoring of active fire and burnt area, development of fire danger index and assessment of wildfire damage. This being done by using fire service station and sentinel data, QGIS and goggle earth engine, the ILWIS\_ GEONETCast Toolbox, AMESD SADC Toolbox, sentinel toolbox. The wildfire-monitoring manager uses these tools to forecast and map burnt area, active fires, vegetation cover change, fire danger index and daily, weekly, monthly and annual reports. The commonly reports sources of the wildfire are land preparation mainly for agriculture and ranch management, unattended charcoal making and bee and wildlife hunters. The generated statistics and reports are used for informed decision making including review of national policies and plans. National and local platforms including exhibitions used to communicate the effect of wildfire to the protected areas and remind stakeholders and public on appropriate season to use or not to use and require them to start fire prevention campaigns. Regular capacity building to conservation managers on the use of appropriate tools and equipment required for early warning and quick response to active fires is paramount. Multi-stakeholders and use of integrated fire management are adopted to ensure sustainable conservation of protected areas.

**Keywords:** Remote sensing, wildfire detection, integrated fire management, monitoring

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