



## Combating land encroachment in Egypt

Automated system uses change detection to monitor and protect state-owned agricultural lands

Land encroachment is a national problem in Egypt. The country has taken serious and important steps to address the phenomenon of encroachment on agricultural lands, aiming to preserve these lands for future generations.

The government announced measures to stop various subsidies, including supplies, bread and fertilizers for 485 violators who encroached on agricultural lands with illegal construction across nine governorates. This decision was a continuation of an agreement with governors to form committees at the local and village levels, giving officials the ability to confront violators, enforce restrictions and prevent encroachment.

To address this growing issue, EDGE-Pro, the leading provider of geospatial services in Egypt and the Middle East, cooperated with Hexagon using the latest technology to develop an automated change detection solution that would dramatically speed up the monitoring and inspection processes of protected government lands.



Clustered indications of spotted changes across the country

To detect changes quickly and effectively in the landscape, EDGE-Pro developed an integrated solution that automated change detection and analysis processes. The Change Detection and Monitoring System for State Land Encroachments collects terabytes of satellite imagery covering huge areas across the country. Then, it processes the data and analyzes the imagery using Hexagon’s ERDAS IMAGINE technology, an industry-leading geospatial authoring and remote sensing system.

With the Change Detection and Monitoring System for State Land Encroachments solution, Egyptian officials are able to process satellite imagery 70% faster than before. Land encroachment reports that were once provided quarterly are now refreshed every day.

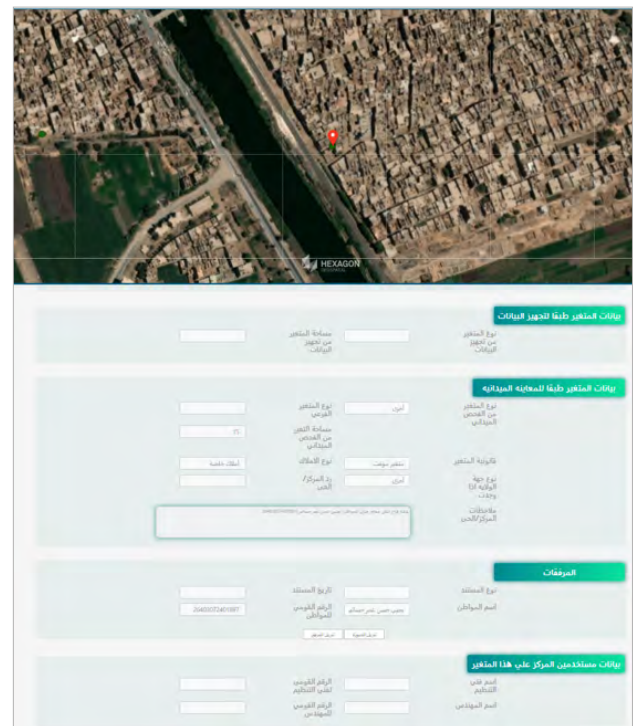
Edge-Pro solutions saves time and money by identifying probable changes through different source of satellite imagery before conducting field visits, allowing you to focus on the parcels with the most changes and efficiently plan field visits, minimizing time spent traveling between on-site locations.

## Making data-driven decisions

“The solution allows users to monitor changes from space in the blink of an eye,” said Mohamed Omar, EVP at EDGE-Pro. “It enables them to monitor, evaluate and maximize their resources by providing the necessary data to guide strategic planning, the design and implementation of projects and the most beneficial allocation of resources.”

Another component of the Change Detection and Monitoring System for State Land Encroachments solution uses applications built with Hexagon’s M.App Enterprise platform, a cloud-based platform for developing geospatial apps. With the applications, inspectors can confirm the data and information they receive by using mobile apps in the field. Their discoveries are then presented in easy-to-understand dashboards and reports so decision-makers can make informed plans to address encroachment activities.

In addition, the centralized platform allows more than 292 regions of Egypt to share information and allocate their resources accordingly. As a result, The Egyptian government in 2021 collected EGP 17 billion in reconciliation fees for building violations. And this system saves time and reduces costs while also protecting valuable agricultural land from illegal construction and other encroachment activities.



Detected change form

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