

# Mekorot innovates and optimizes project management and execution with construction data analytics



## The project

**Project type:** Construction of water reservoir and pumping station

**Flight frequency:** Monthly

**Duration:** 14 months

**Images/flights:** 562

## Results

- Central management platform for all data and stakeholders
- Accurate tracking of work executed
- Significant increase in accountability and transparency

## Added value

- Data-driven project management and reporting
- Engineering analytics about progress
- Up-to-date digital datasets help Mekorot to easily monitor crucial metrics

## Background

Mekorot, Israel's National Water Company, is known for embracing new technologies to increase efficiency and reduce costs. Recently, they sought a digital construction management solution that would help them improve processes and keep construction projects on time and budget.

Mekorot builds new large-scale water facilities and expands its water supply network with additional water pipelines continually, depending heavily on service providers, such as designers, project management firms, and construction workers, that change with each project. This makes Mekorot construction projects, like other similar development, hard to manage and monitor.

The company lacked a central management platform for all data and stakeholders. Mekorot was seeking a solution that would enable them to monitor project execution progress, digitalize the entire project lifecycle and deliver actionable insights to all stakeholders. In order to enable more effective supervision of sub-contractors and billing, the solution had to allow easy and accurate tracking of work executed and increase accountability and transparency.

"With every construction project, we want to build smarter. To do this, we need smart technologies," said Gil Applebaum, Reservoirs Engineer at Mekorot. "We are a government company and as such, we see it as part of our mandate to strive for constant optimization. Being able to effectively supervise all participating teams and stakeholders is critical for our optimization efforts."





## Data-driven project management and reporting

Mekorot initiated a pilot to assess the suitability of DatuBIM, a construction data analytics platform based on an advanced photogrammetry and drone mapping engine.

DatuBIM turns data captured via drones into a digital twin of the construction site. This as-built digital twin is continuously updated, with each additional drone flight contributing a new dataset and fresh insight for the project manager.

Delivered as non-disruptive, cloud-based SaaS platform, DatuBIM was quick and hassle-free to set up, and integrated seamlessly with Mekorot's existing engineering processes. Once they experienced DatuBIM's ability to track progress through comparisons between the different datasets, Mekorot expanded the pilot into a full project, with DatuBIM monitoring the entire 14-month construction lifecycle for a water reservoir with a pumping station.

## The project: monitoring construction of a water reservoir and pumping station

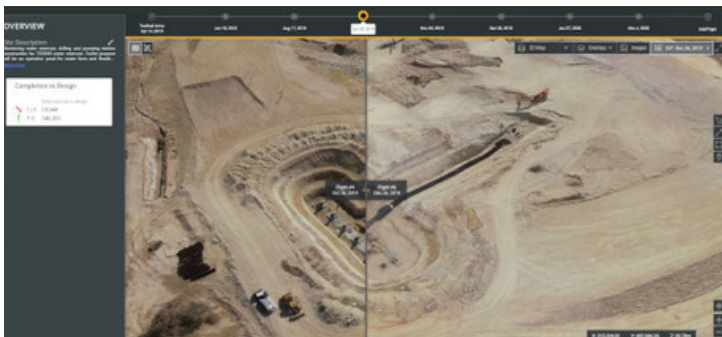
The planned water reservoir is an artificial pond created from local materials with a construction site covering approximately 0.15 km<sup>2</sup>. The operative pond will be fed by a variety of sources, including brackish water, and will have a capacity of up to 200,000m<sup>3</sup> of water for agricultural use.

As this project included a huge amount of earthwork, Mekorot decided to gather new drone survey data once per month. The flight scheduled enabled work progress to be monitored well and enabled datasets to be available in accordance with monthly reporting and billing cycles.

## Remote construction monitoring: automatically generated engineering data and reports

The DatuBIM platform provides engineering analytics about progress and supports Mekorot in tracking quality and supervising the many service providers. Up-to-date digital datasets help Mekorot to easily monitor crucial metrics.

- **Visual inspection.** DatuBIM allows for convenient zoom-in to high-resolution drone images for a visual inspection of the construction site.
- **Volume calculations & tracking of earthworks.** Automated and accurate volumetric measurements over time including quantity & materials report enabled the project manager to validate or refute constructors' claims and assure that work was done according to plan.
- **Progress visualization.** The comparison of as-built digital twins generated at different dates gives Mekorot a quick overview of the work accomplished in a specific time frame.

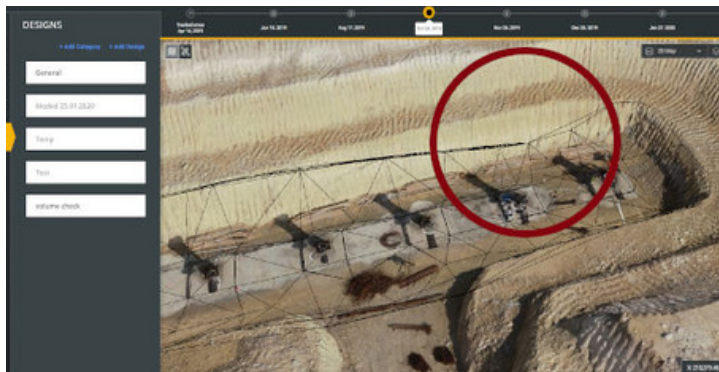


“DatuBIM for us is the power of knowledge. Without sending out teams, we can check issues we otherwise might have neglected. The time savings are significant, since with DatuBIM we easily compare design and engineering to the field. The as-built digital twins and accurate reports generated by DatuBIM clearly help us to optimize processes and cut operational costs. We have entered a new era of transparency and accountability and are getting all teams involved. DatuBIM delivers us the insight we need to better supervise, manage and support our service providers.”

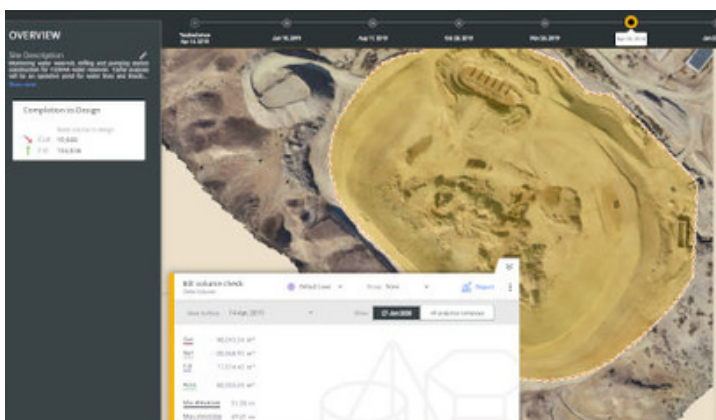
**Yaniv Sharabi**, Project Manager  
at Mekorot



- Improving accountability and supervision.** Anchoring and comparing a surveyor's measurement layer to the model in DatuBIM is a matter of a few mouse clicks. Mekorot was able to double check the delivered measurements and detect a surveyor's mistake without having to send another surveying team into the field. Read more about this on the Datumate blog.



- Prevention of over-excavation.** Since the pond is built of natural material, preventing over-excavation is critical to assure its stability and to keep maintenance low for decades into the future. DatuBIM Managed Services delivered custom reports tracking excavation over time and detected precise areas of over-excavation for immediate intervention.
- Identifying land encroachment.** With construction taking place in a nature reserve, it is essential to identify land encroachment and works executed in prohibited areas. Mekorot depended on DatuBIM to monitor topography changes over time on out-boundaries and forbidden zones to discover unauthorized work.
- Supervision of bill of quantities.** DatuBIM is a construction tech solution that strives to improve its customers' workflows. To meet Mekorot's unique needs, the DatuBIM Managed Services team developed a custom module to create supervision reports directly from the DatuBIM platform. Mekorot can now easily validate the accuracy of invoices received by service providers.



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