Hawara — Master Preservation Plan

Introduction

Hawara, in the south-eastern Fayum region 80 km south of Cairo, is one of Egypt's most significant archaeological sites. It contains the pyramid of Amenemhat III, last great ruler of the 12th Dynasty (c. 1855–1808 BC), and the remains of a vast cult complex known in antiquity as the Labyrinth. For over 1,500 years, the pyramid temple was a place of pharaonic worship and in Late Antiquity it was considered among the wonders of the ancient world.

Today, Hawara faces critical deterioration due to sustained irrigation practices and rising groundwater. The water table lies approximately five meters below the surface—seven meters above the lowest corridors of the pyramid. Without intervention, the pyramid and labyrinth remains risk irreversible loss.

This Master Preservation Plan sets out a phased roadmap—Short Term (0–12 months), Mid Term (1–5 years), and Long Term (5–10+ years)—to safeguard Hawara. It combines scientific archaeology, hydrology, conservation, and community development, under Egyptian leadership with international support.

What we present is an integrated, multi-faceted approach, because Hawara faces multi-faceted problems. The primary threat is water infiltration, but there is also low public awareness—Hawara is not yet one of Egypt's most popular sites. It lacks the international profile of sites such as Giza or Luxor, although its reputation is now reviving through recent media attention: satellite-scan claims and the compelling written accounts of ancient authors regarding its past grandeur. The renewed mystery and enigma surrounding Hawara are, in fact, its greatest assets for preservation and research.

Our multi-pronged strategy therefore combines:

- **Planting a grass buffer zone**, whose roots will slow down and partially reduce the inflow of groundwater. (see fig.1)
- **Constructing a drainage line** to block subsurface irrigation water flowing from the north. (see fig.2)
- **Lining the canal crossing the site with concrete** to prevent seepage.

These steps will enable complete dewatering of the site, making it possible to desalinate the pyramid's underground masonry. Looking further ahead, we even envision rerouting the canal to Hawara's western border. (see fig.3)

The mission also has a strong research component: to confirm once and for all the existence of the Labyrinth and end the centuries of doubt about its presence underground. This will be pursued through deep-earth TEM surveys and strategic core drilling. Preservation must be coupled with exact knowledge of what lies beneath Hawara.

Legal & Administrative Framework

All activities at Hawara will be under the authority of the **Ministry of Tourism and Antiquities** (MoTA) and the **Supreme Council of Antiquities** (SCA).

Partners

Academic Partners (full Egyptian expert team)

- University of Leeds (by Egyptian nationalist academics)
- Nottingham Trent University (by Egyptian nationalist academics)
- Cairo University.
- GEM - Grand Egyptian Museum

Scientific Partners

- **NRIAG (National Research Institute of Astronomy and Geophysics):** Prof. Abbas Mohamed Abbas (EG)— geophysical surveys, hydro-monitoring, drainage planning. Field director, Mataha Expedition/Hawara 2008 — UGent/NRIAG; field director, 2018 Labyrinth research project — NTU/UL/NRIAG.

Support Partners

- **Athanatos Foundation (USA):** principal financial seed funder; track record with major universities (Yale, Harvard, Boston University, Arizona State University, and the University of South Carolina), and archaeological missions in the Amazon (Geoglyphs Institute), and Peru (Chincanas Project) - > www.athanatosfoundation.org
- **Mataha Foundation (BE)** Founder Louis De Cordier; funding management, expert coordination, and mediation between engineers, archivists, and funders, as well as coordination of communications, cultural community programmes, and educational materials > www.matahafoundation.org

Intergovernmental Partners

- **UNESCO Cairo**
- **UNESCO Chair(IT)** Prevention and Sustainable Management of Geo-Hydrological Hazard; University of Florence. Prof. Paolo Canuti & Prof. Nicola Casagli: geologists, geo-hazard experts

Local Partners

- **craftspeople and artisans**: Tunis pottery school, palm-reed craftsmen of Al-Ajamiyin, Fayoum Artisans Cooperative, Association for the Protection of the Environment (APE) www.ape-egypt.com
- **Tourism**: Mahmoud Kamel; promotor of the history, archaeology, landscape and culture of the Fayoum region — www.fayoumegypt.com

Tech Partners

- **High-tech companies**: Luxor One; AI drone tech — www.luxor-one.com
- **Leonardo Marchesi Studio**: VR visualizations/concept design - leomchesi.com

Project Management

- A **Mission Hawara Coordination Team (MHCT)** will be formed, including MoTA/SCA representatives, Prof. Hassan, NRIAG experts, funding representatives, and communications/community leadership.
- A **Technical Expert Panel** of hydrologists, geophysicists, engineers, and conservators will review all high-risk interventions such as dewatering.

Funding

- **Seed funder**: Athanatos Foundation — covers startup, surveys and initial seasons, together with the Mataha Foundation (mediation).
- **Proposed management**: MHCT with MoTA/SCA representatives, Academic project, Athanatos liaison; Louis De Cordier.
- **Advisory Board**: Egyptian experts (geophysics, engineers, conservation, hydrology, heritage law,…).
- **Financial vehicle**: *Friends of Hawara* program (by the Mataha Foundation) — a not-for-profit body for multilateral fundraising and long-term endowment of the site and research consortium, under Egyptian legal oversight.
- **Transparency rules**: procurement policies and public reporting to reassure MoTA/SCA and donors.

Conservation Philosophy

The guiding principle is **Stabilisation in Situ**, supported by **Virtual-First Visitor Adaptation**:

- Preserve original features where they are, without large-scale reconstruction.
- Employ reversible protective measures (walkways, shelters).
- Prioritise digital interpretation (VR/AR, 3D models) to provide access while protecting fragile remains.
- Balance preservation with community benefits, avoiding over-commercialisation.

Data Management & the Hawara Archive

Data is the backbone of Mission Hawara.

Short term: Launch ***missionhawara.org*** + **Hawara Research Archive** (Hawara:Data) compiling Petrie's surveys, historic accounts, engravings, old photos, past expedition research data, scientific reports (NRIAG,UCL,UCairo,…), and museum collections.

Mid term: Partner with museums and societies (British Museum, Petrie Museum, GEM Cairo, Kom Oshim Museum, Metropolitan Museum of Art, Egyptian Exploration Society, etc.) to collect & digitise artefacts and archives + integrate Mission fieldlogs, notes, photos, photogrammetry, 3D scans, film, and project reports.

Long term: Create a vast comprehensive digital library and VR experience, supported by AI to cross-reference & research texts, maps, and 3D scans (photogrammetry, LiDAR, panoramic composite photography, Selene photometric stereo system,…).

Phased Program

Short Term (0–12 months)

Objectives: establish **project governance**, secure baseline data, begin mitigation.

- Legal & governance setup: sign MOUs with MoTA/SCA, constitute MHCT and Technical Panel.
- Website & communication: launch *missionhawara.org*; bilingual outreach (Arabic & English), free educational packets, social media presence.
- Survey & mapping:
  - Drone photogrammetry for site-wide mapping.
  - Comparative LiDAR scanning of pyramid exterior.
  - Cleaning pyramid entrance shaft, diver exploration, underwater photogrammetry of pyramid interior.
  - Geophysical survey and fine boreholes, especially across the Labyrinth zone south of the pyramid.
  - Integrate NRIAG 2008 findings (5–8m+ structures) and the 2024 TEM data; extend TEM surveys to –20 to –100m depth.
- Hydro-monitoring: install piezometers and settlement markers, automated data logging.
- Vegetation buffer: plant grass barrier to mitigate inflow from north-east.
- Security basics: night cameras, motion detectors.
- Community involvement: launch opening art & craft project (sculpture, palm-reed structures) with local artisans; feature their work online.
- Digital Archive: launch Hawara Research Archive.

Deliverables: MOUs signed, complete baseline survey (3D + geophysics), hydro-monitoring network, grass buffer, archive beta, first public report.

Mid Term (1–5 years)

Objectives: controlled drainage, conservation, community pilot programs.

- Drainage system:
  - Block agricultural inflow from the north (higher elevation).
  - Line the Bahr Wahbi canal with concrete.
  - Use modular reinforced shafts and pumps, in phased sequence.
- Desalination & conservation: controlled desalination of pyramid masonry after dewatering stabilises; monitor salt efflorescence.
- Site infrastructure: design & build watch tower, offices, sanitary facilities.
- Community involvement: expand participatory projects; workshops with artisans and farmers.
- Guardianship: pilot '*Guardians of Hawara*' program (20–30 local youth trained in monitoring, guiding, conservation).
- Digital Hawara archive expansion: digitisation of museum artefacts and collections; launch open access portal.
- Research survey: subsurface Labyrinth investigations.
- Mission reports: scientific research papers and find reports

Deliverables: functioning drainage system, masonry conservation underway, guardians pilot active, archive expanded, mid-term technical reports.

Long Term (5–10 years)

Objectives: sustainable protection, global digital access, community prosperity.

- Visitor centre: panoramic watch tower, VR/AR interpretation, interactive museum, artisan shop.
- Friends of Hawara: establish long-term fundraising and advisory fellowship.
- Digital legacy: complete digitisation of artefacts and archives; AI-powered digital librarian.
- Agricultural adaptation: gradual introduction of drip irrigation in Fayoum.
- Education & research: continuous archaeological hub at Hawara; community education programs; 150+ youth trained.

Deliverables: visitor centre, full archive, sustained guardianship, UNESCO protection, sustainable community integration.

Very Long Term (10–25+ years)

We envision either:

- Diverting the canal completely to Hawara's western border, reinforced with a strong retention wall, **or**
- Enclosing the canal in a watertight tube and converting it into an underground channel.

At the same time, the elevated agricultural zone north of the pyramid will transition to drip irrigation or be converted into a sustainable tourism eco-resort with advanced water management. Hawara will emerge as a **great cultural marker of the Fayoum oasis**, generating durable tourism and prosperity.

Risk Assessment & Safety

Risks: subsidence from drainage, salt crystallisation, collapse of underground spaces, theft/vandalism, community resistance.

Mitigations:

- Technical oversight and phased dewatering trials.
- Hydro-monitoring instruments (piezometers), settlement markers, automated sensors.
- Comparative LIDAR scans of Pyramid to monitor deformations.
- Worker contracts with insurance and social security.
- Secure equipment stores, night-vision cameras, motion detectors.
- Constant dialogue with local farmers and community leaders.

Conclusion

The preservation of Hawara requires **immediate action**, but also patience and scientific discipline. The phased plan ensures urgent documentation and mitigation, cautious and monitored dewatering, and long-term community and global benefit. The timeline is anchored to the mission start: the planting of grasses (T0) will mark the beginning of water lowering, setting in motion the sequence of drainage, desalination, and conservation. Groundwater will not fully recede until both northern inflows are blocked and the canal is lined, as water was present even in Petrie's time when agriculture was minimal.

This will not be a classic archaeological season-to-season mission. Instead, Mission Hawara will operate continuously in stages and phases without breaks, as each step naturally follows the next.

We are aware of the great scope of this project, and rather than being overwhelmed, we will approach it step by step. With a solid funder committed to the first phases, the mission can begin in strength. From there, we expect international support—including UNESCO—to elevate it toward full completion of the long-term vision. Ultimately, this project aims to **restore Hawara's place among the world's great wonders**, reviving its cultural, historical, and spiritual significance for Egypt and for humanity.

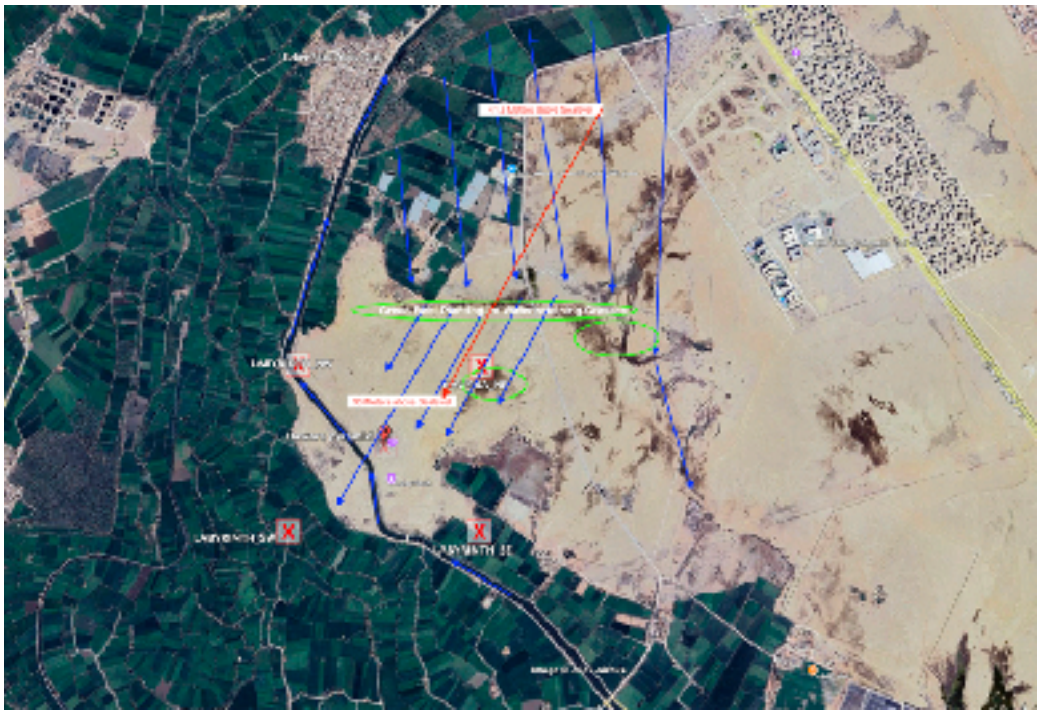

Fig.1 Hawara water recharge and southern discharge area + grass buffer zone

Fig.2 Hawara - drainage line to block subsurface irrigation water

Fig.3 (Very) Long Term Plan of rerouting the canal to Hawara's western border.

Note: This Compact Master Preservation Plan is the executive overview of the Hawara preservation strategy. A longer, detailed version will accompany this, with technical papers and annexes on specific subjects such as drainage engineering, the green buffer zone, hydrology, and community integration.

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Authority Statement: All activities at Hawara will be under the authority of the Ministry of Tourism and Antiquities (MoTA) and the Supreme Council of Antiquities (SCA).