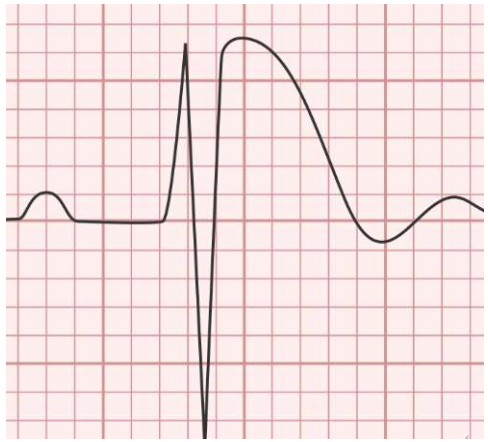
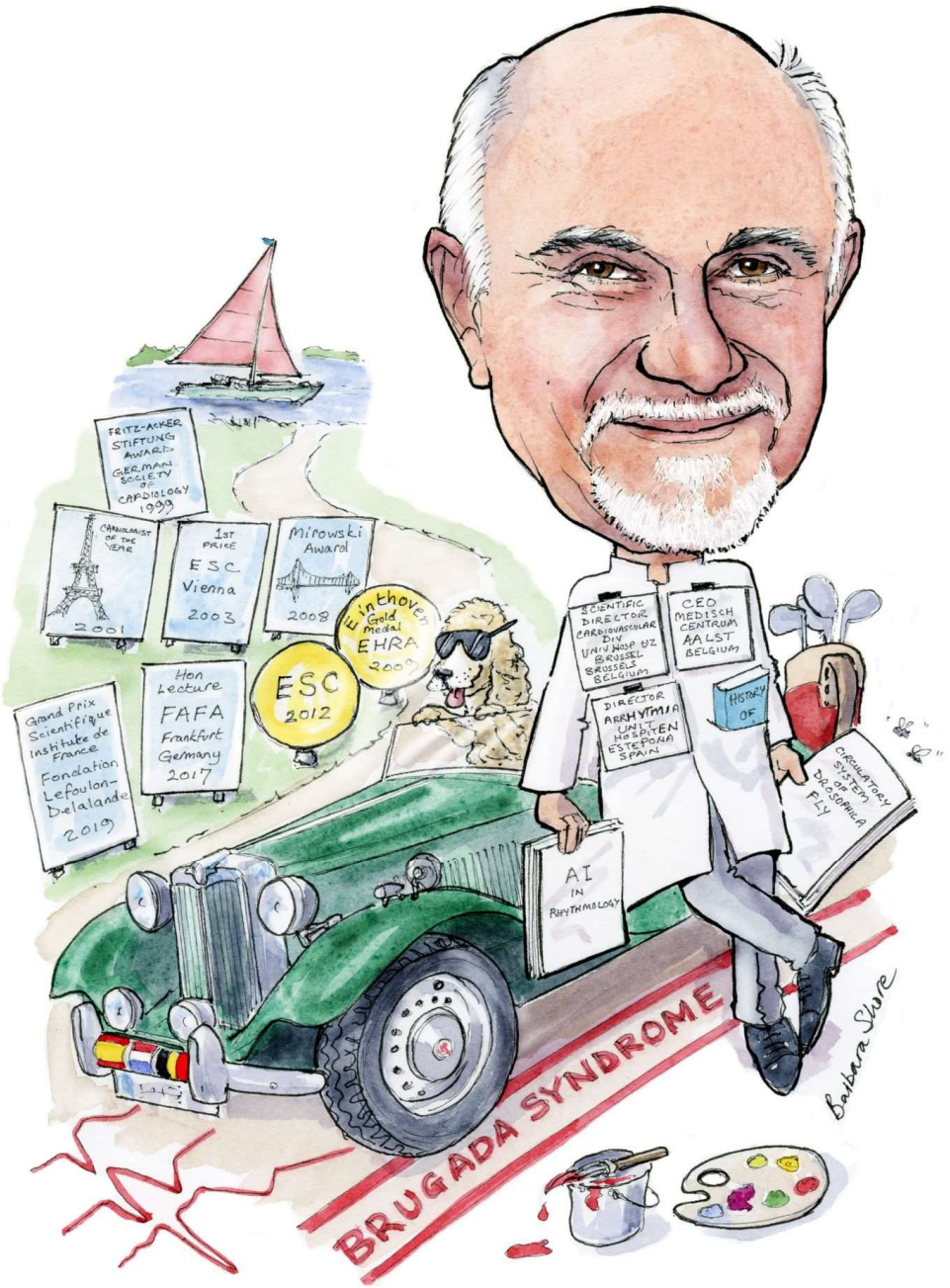
The Brugada of Egyptian Coastal Heritage Cities

Yasmine Sabry Hegazi

What is Brugada Syndrome?

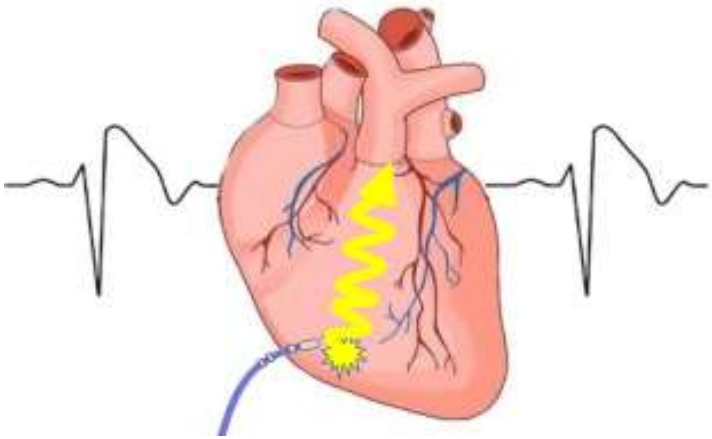


Brugada syndrome is a genetic heart disorder that impairs the heart's electrical circuitry and raises the risk of sudden cardiac death.

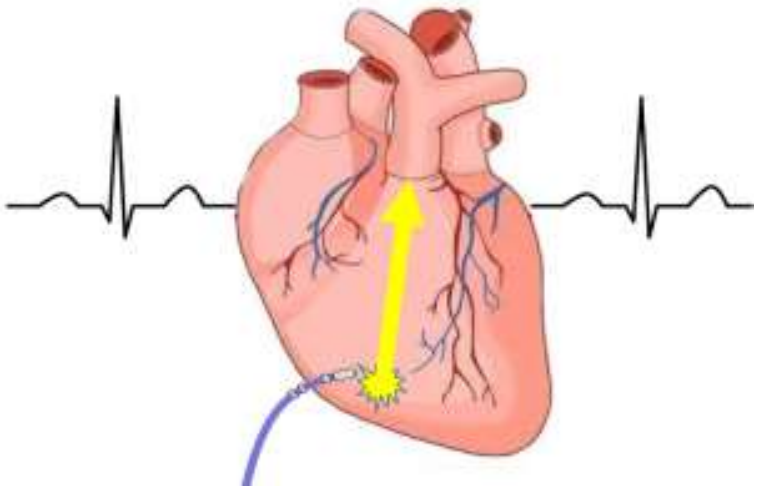


Pedro, Joseph and Roman Brugada

Brugada Syndrome



Normal



Alexandria, Port said, Damietta and Rosetta,

Those cities formulate the most active life of Egyptian cities which located along the Mediterranean coast,

The cities include spacious heritage sites suffer from the climate impacts,

As due to the global warming Mediterranean sea started to get affected so it have high level of water which hits badly those cites


EGYPT LOCATION MAP
EGYPT
ARCTIC OCEAN
ATLANTIC OCEAN
PACIFIC OCEAN
INDIAN OCEAN
SOUTHERN OCEAN
Antarctic Circle
60°N
60°S
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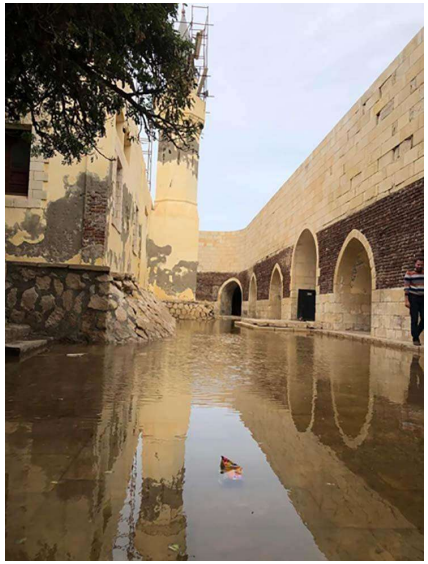
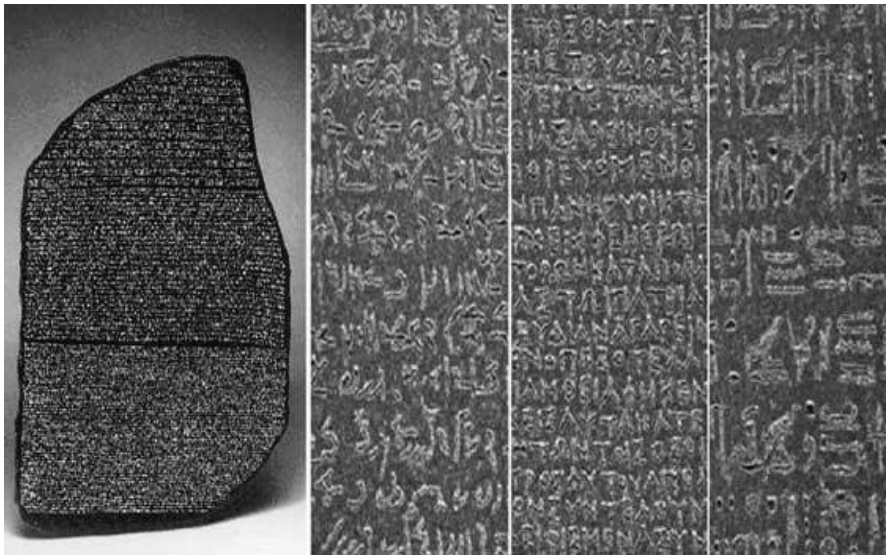
CYPRUS
Mediterranean Sea
Marsa Matruh
Alexandria
Rosetta
Damietta
Port Said
El Alamein
Cairo
Giza
Suez
Sinai
Western Desert
Eastern Desert
White Desert
Sharm el-Sheikh
El Gouna
Hurghada
Safaga
Asyut
Sohag
Luxor
Edfu
Aswan
New Valley
SUDAN
Mediterranean Sea
Burg Borollus
Baltim
Gamasa
New Damietta
New Mansoura
Ras el-Bar
New Rosetta
Rosetta
Lake Borollus
Damietta
Edku
Lake Manzala
Port-Said
Alexandria
Kafr el-Sheikh
Rosetta Branch
Damietta Branch
Damanhur
Mansoura
0
25
50 km

1 Alexandria

2 Rosetta





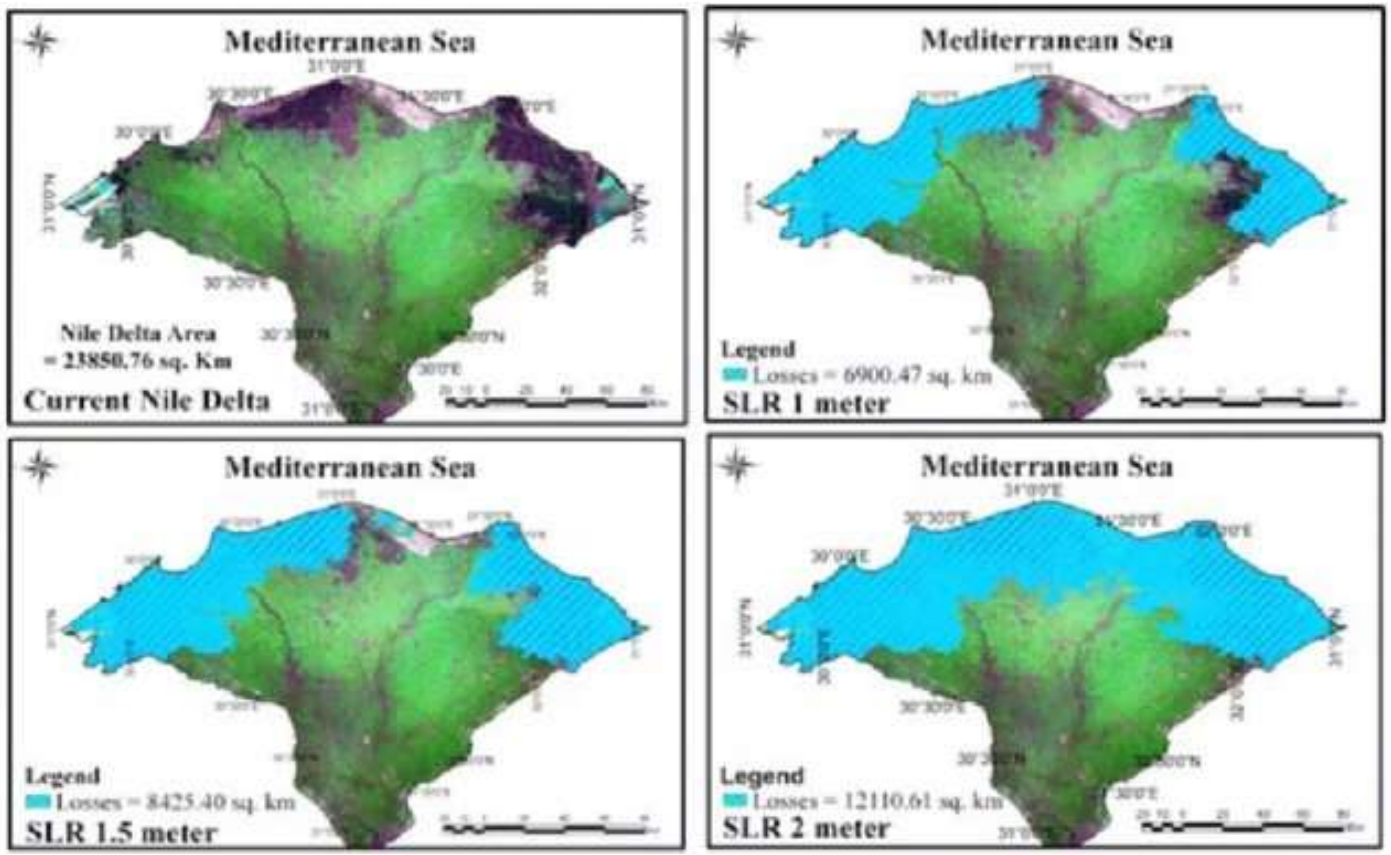
3 Damietta

4 Port-said

SLOW DEATH is expected for those cities if not the climate change impacts solved

as two cities of the four have lower level than the surroundings which make them the Nile inflow,

This why the scenario get worse at Damietta and Rosetta as both have sea and Nile pour into their lands together for their unique locations in between sea and river Nile,

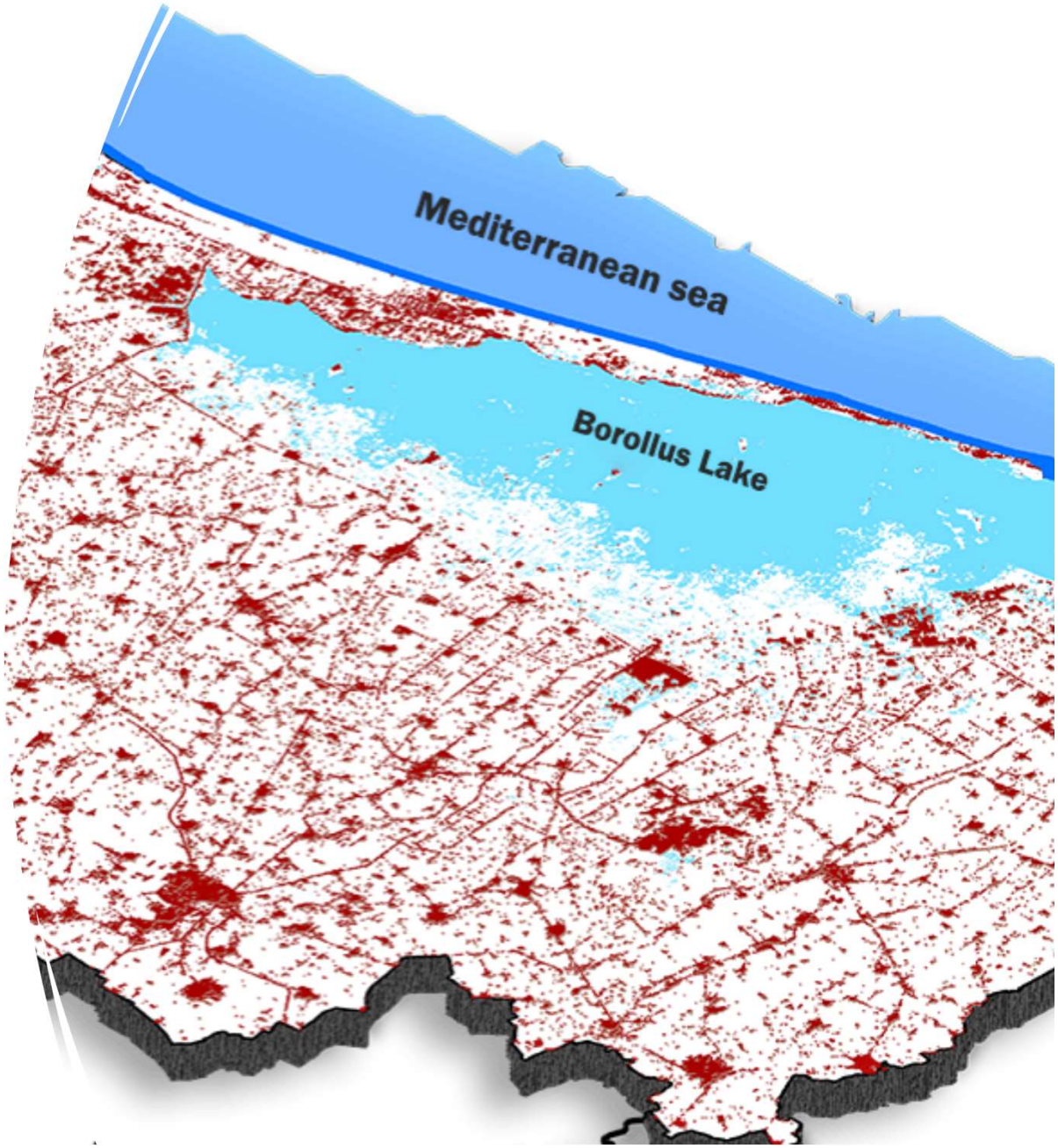


Sea level rise scenarios, until year 2100 (El Nahry, 2010).

Delta Death

Only an active process to adjust Climate change impacts can solve such problems.

This adaptation should be flexible and not strict due to the uniqueness of each heritage site,



but after a certain time, it may not be useful and full relocation may be expected and Delta Cities may die

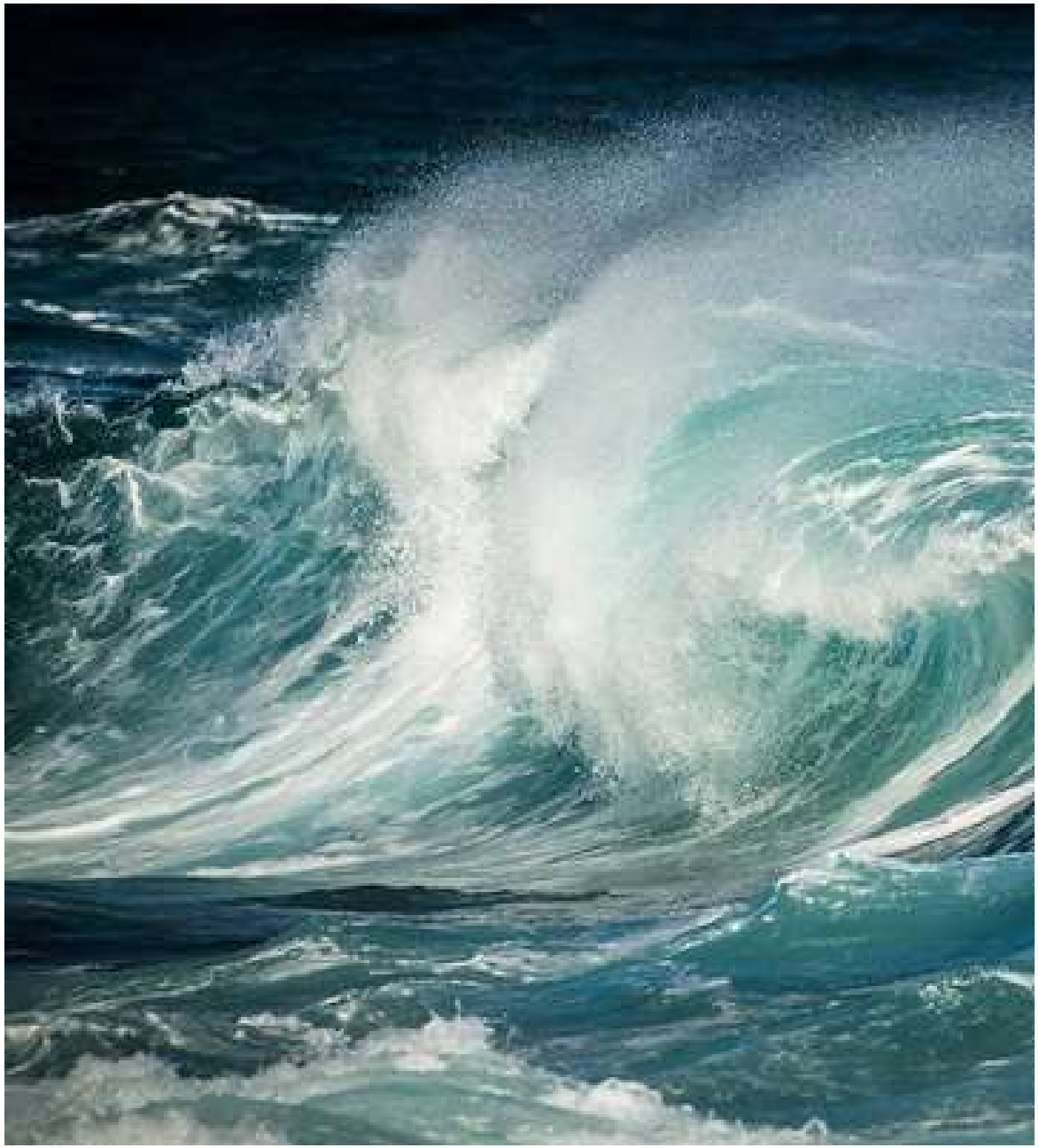
The northern delta subsides 2–2.5 mm annually in Alexandria and Port Said, according to recent assessments. Every year, Aboukir Bay sinks 5–7 millimeters. Between 1974 and 2006, Alexandria's mean sea level rose 8.09 cm, or 2.45 mm per year. Coastal flooding will rise. Thus, urban coastal buildings are weak. City centers like Alexandria, Port Said, and Edku are especially vulnerable to sea-level rise

July 25, 1984 - August 16, 2021

Nasa landsat images of land comparison in 1984 and 2021.

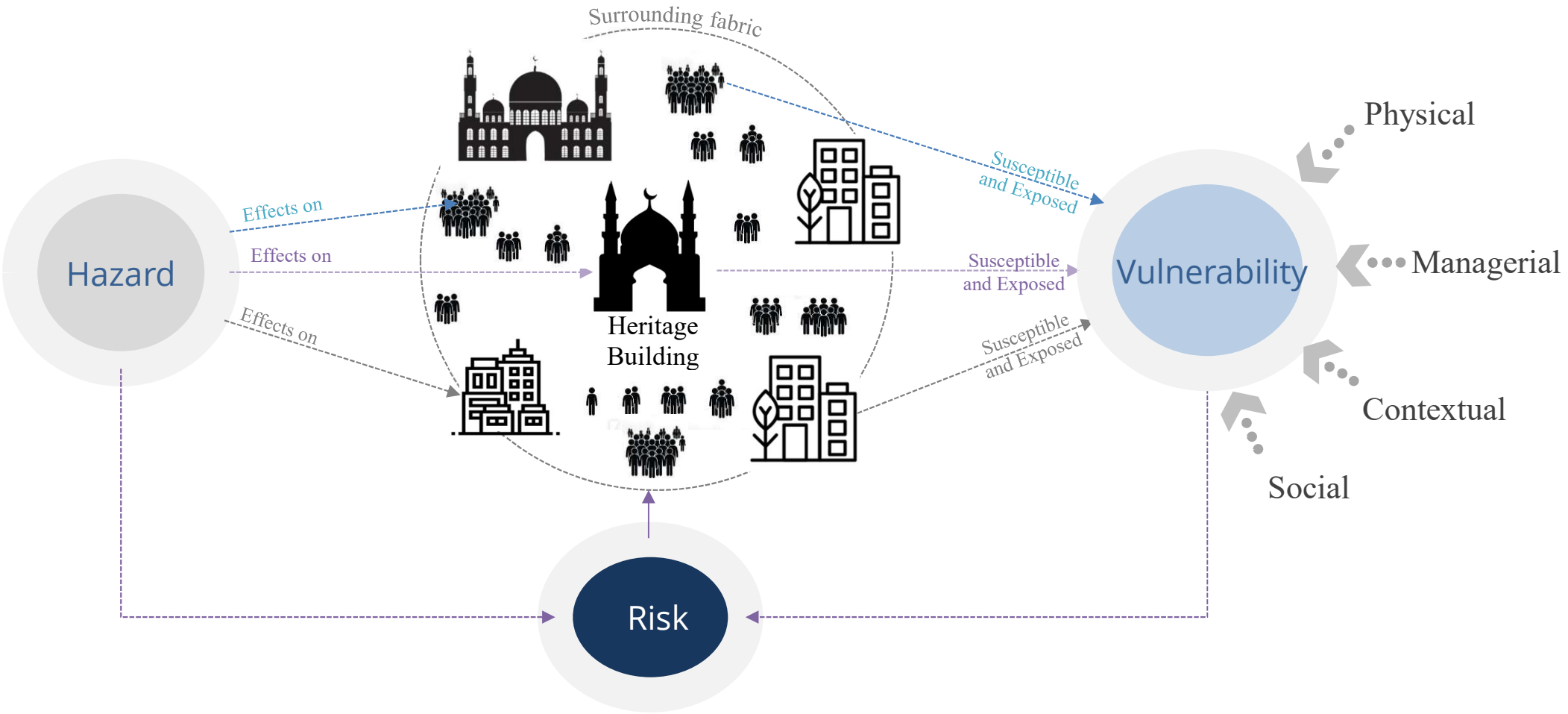
The Patient

The Disease



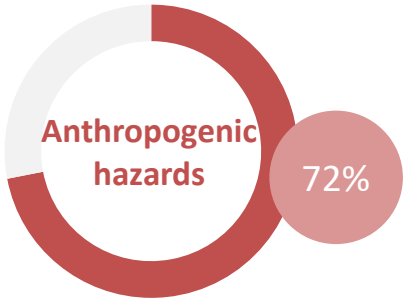
The Solution –short term

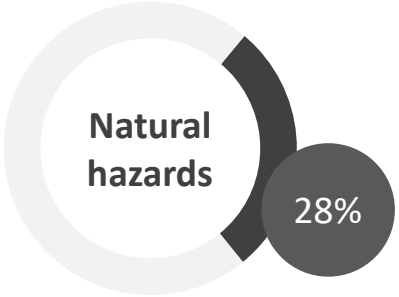
UNESCO defines risk management as the process of the identification, evaluation, and *analysis* of possible and probable hazards to the heritage

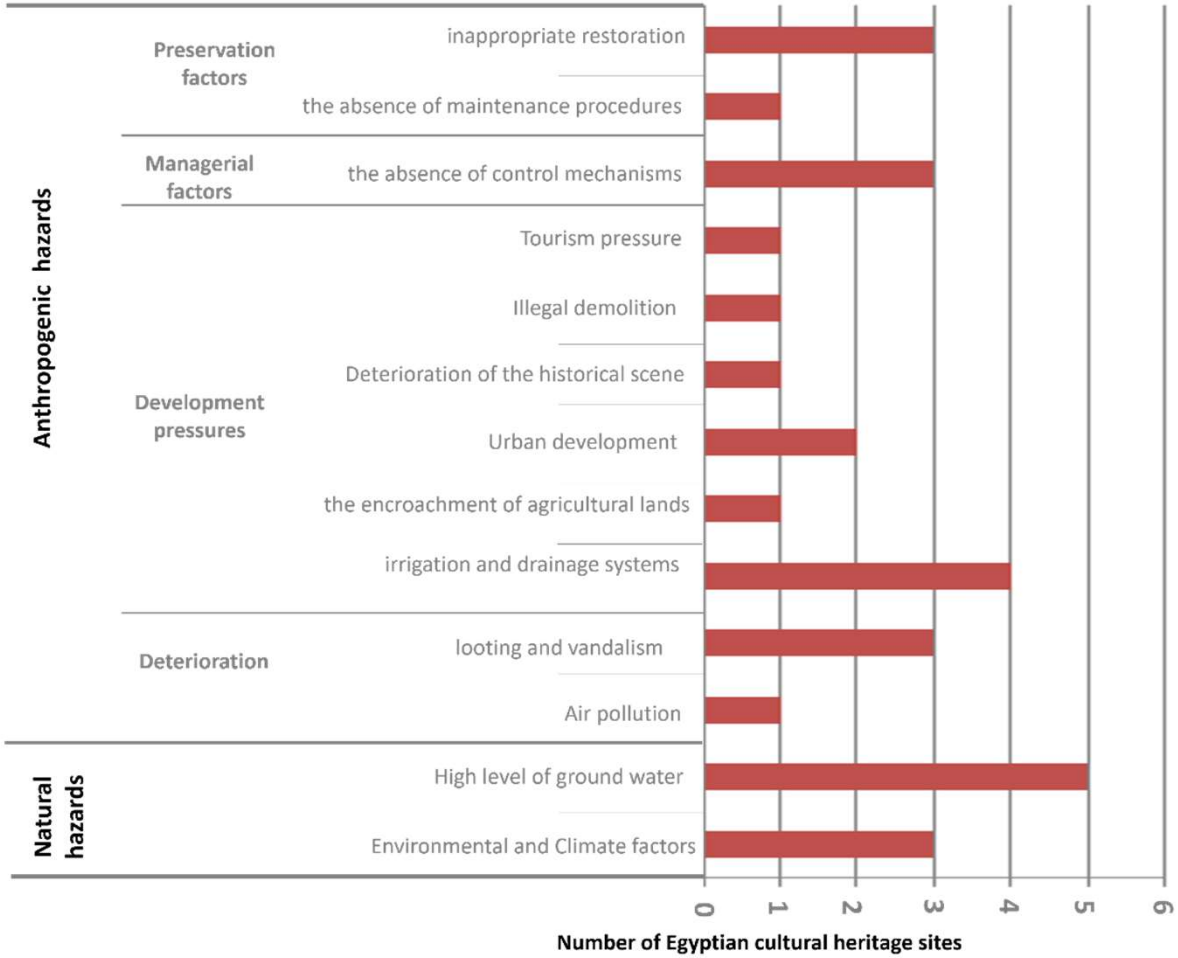


then *addressing* risk strategies, and *prioritizing* intervention in order to remove risks.

Heritage Risks

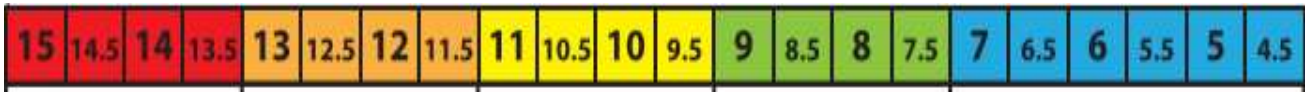




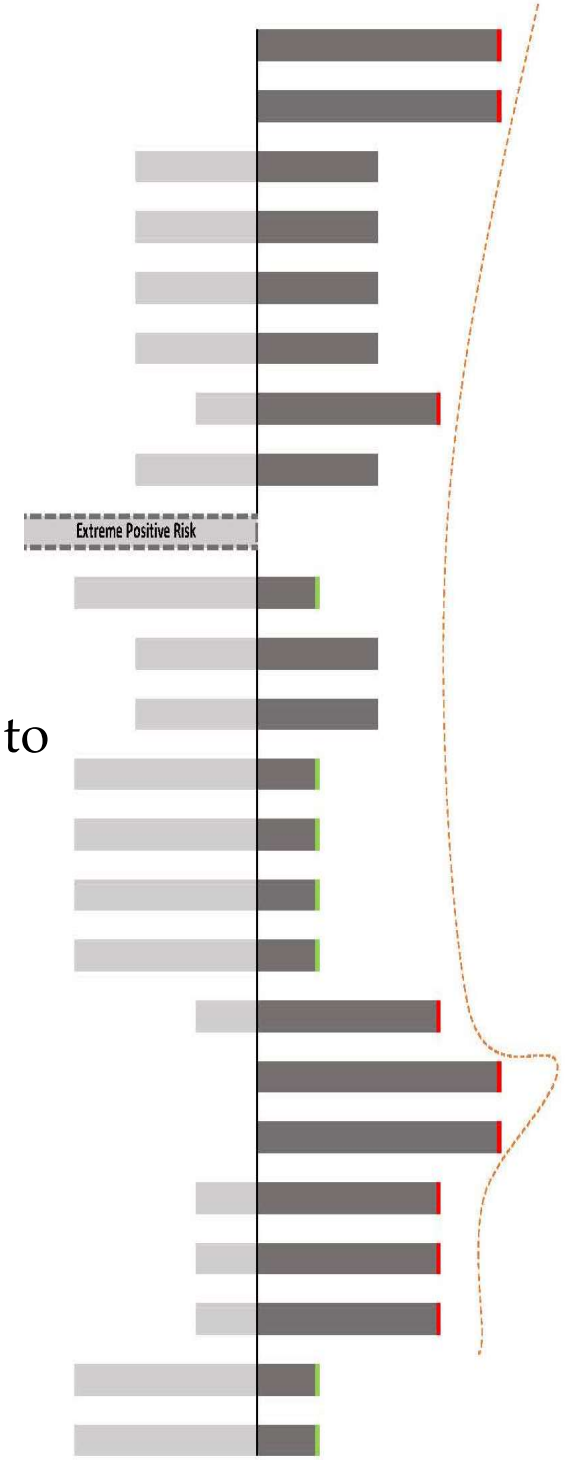


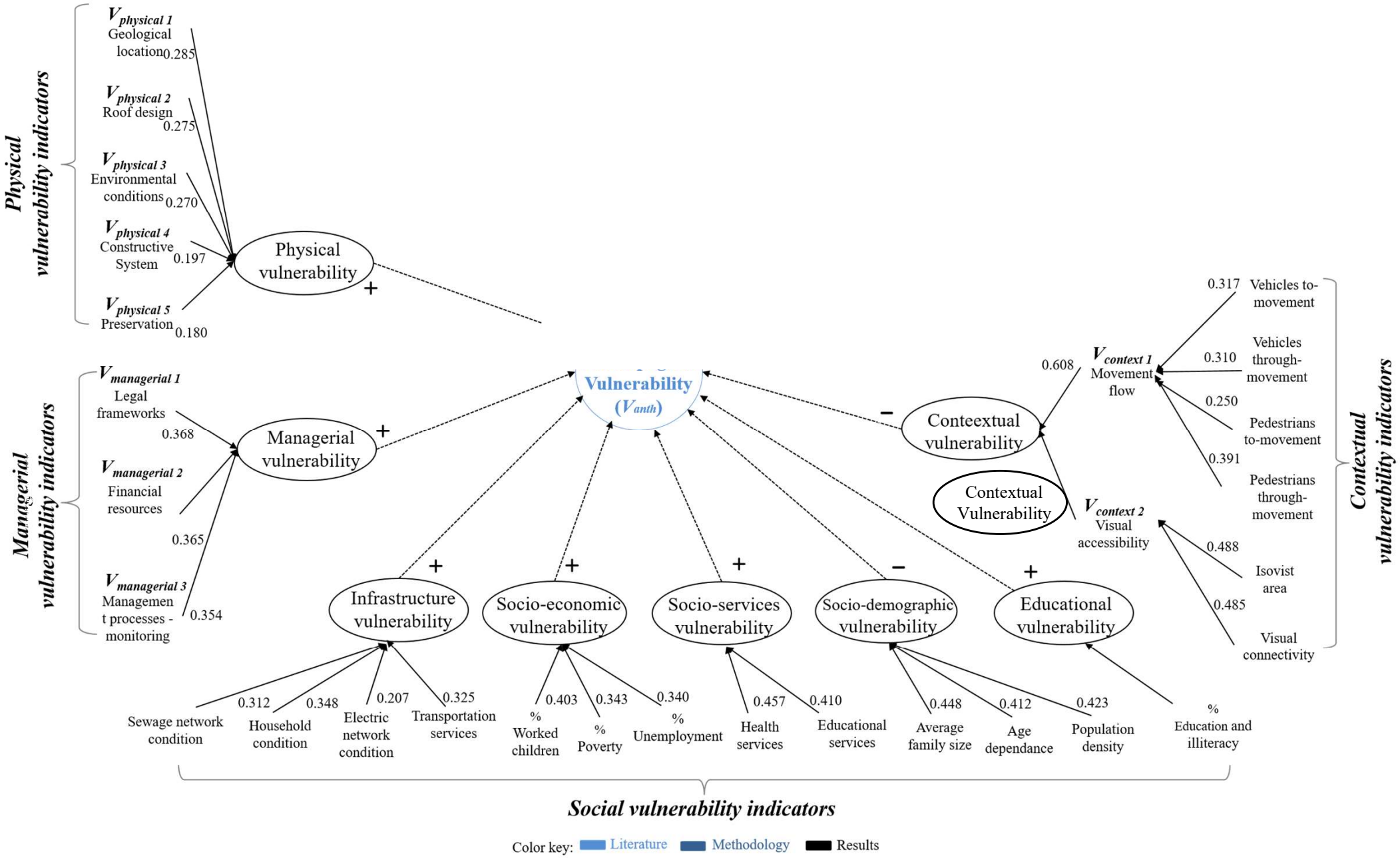
Source: (State of Conservation (SOC) reports by ICOMOS from 2005-2020)

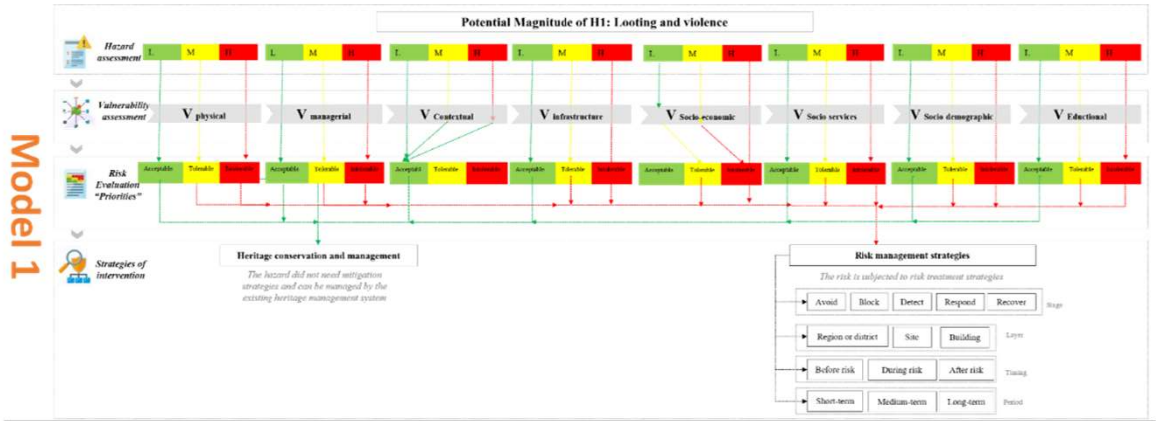
ABC risk assessment quantitative method in addition to experts' multi rounds assessment

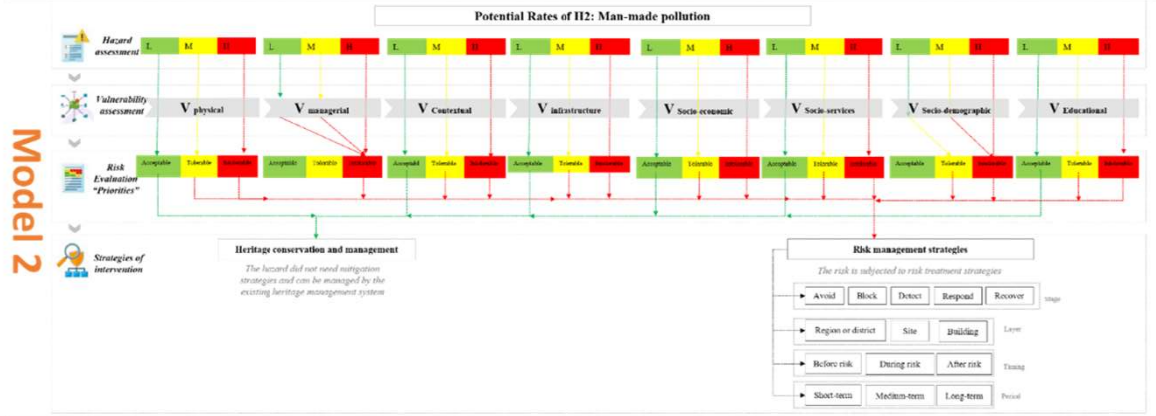


then *tornado diagrams* to analyse the magnitude of risks to present a risk assessment plan




Physical vulnerability indicators
$V_{physical\ 1}$ Geological location
0.285
$V_{physical\ 2}$ Roof design
0.275
$V_{physical\ 3}$ Environmental conditions
0.270
$V_{physical\ 4}$ Constructive System
0.197
$V_{physical\ 5}$ Preservation
0.180
Physical vulnerability
+
Managerial vulnerability indicators
$V_{managerial\ 1}$ Legal frameworks
0.368
$V_{managerial\ 2}$ Financial resources
0.365
$V_{managerial\ 3}$ Managemen t processes - monitoring
0.354
Managerial vulnerability
+
Vulnerability (V_{anth})
Conteextual vulnerability
0.608
$V_{context\ 1}$ Movement flow
0.317
Vehicles to-movement
0.310
Vehicles through-movement
0.250
Pedestrians to-movement
0.391
Pedestrians through-movement
Contextual Vulnerability
$V_{context\ 2}$ Visual accessibility
0.488
Isovist area
0.485
Visual connectivity
Contextual vulnerability indicators
Infrastructure vulnerability
Socio-economic vulnerability
Socio-services vulnerability
Socio-demographic vulnerability
Educational vulnerability
Sewage network condition
0.312
Household condition
0.348
Electric network condition
0.207
Transportation services
0.325
% Worked children
0.403
% Poverty
0.343
% Unemployment
0.340
Health services
0.457
Educational services
0.410
Average family size
0.448
Age dependance
0.412
Population density
0.423
% Education and illiteracy
Social vulnerability indicators
Color key: Literature Methodology Results


Model 1
Potential Magnitude of H1: Looting and violence
Hazard assessment
Vulnerability assessment
V physical
V managerial
V Contextual
V Infrastructure
V Socio-economic
V Socio services
V Socio demographic
V Educational
Risk Evaluation "Priorities"
Strategies of intervention
Heritage conservation and management
The hazard did not need mitigation strategies and can be managed by the existing heritage management system
Risk management strategies
The risk is subjected to risk treatment strategies
Avoid
Block
Detect
Respond
Recover
Stage
Region or district
Site
Building
Layer
Before risk
During risk
After risk
Timing
Short-term
Medium-term
Long-term
Period


Model 2
Potential Rates of H2: Man-made pollution
Hazard assessment
Vulnerability assessment
V physical
V managerial
V Contextual
V infrastructure
V Socio-economic
V Socio-services
V Socio-demographic
V Educational
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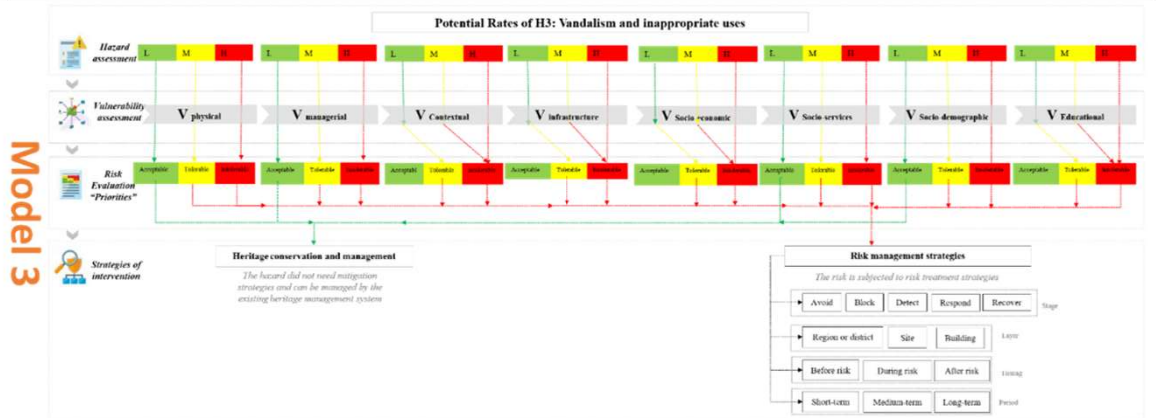
Model 3
Potential Rates of H3: Vandalism and inappropriate uses
Hazard assessment
Vulnerability assessment
V physical
V managerial
V Contextual
V infrastructure
V Socio-economic
V Socio-services
V Socio-demographic
V Educational
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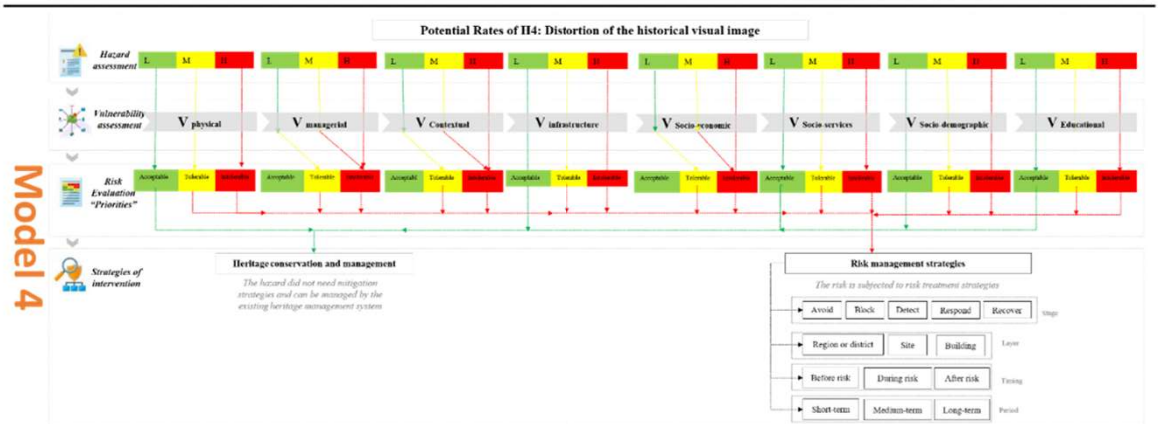
Model 4
Potential Rates of H4: Distortion of the historical visual image
Hazard assessment
Vulnerability assessment
V physical
V managerial
V Contextual
V infrastructure
V Socio-economic
V Socio-services
V Socio-demographic
V Educational
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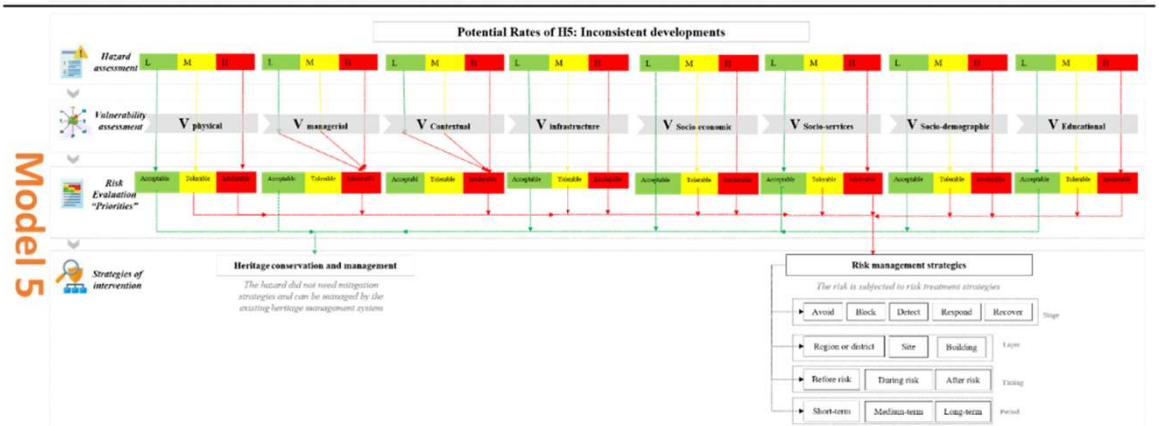
Model 5
Potential Rates of H5: Inconsistent developments
Hazard assessment
Vulnerability assessment
V physical
V managerial
V Contextual
V infrastructure
V Socio-economic
V Socio-services
V Socio-demographic
V Educational
Risk Evaluation "Priorities"
Strategies of intervention
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Risk management strategies
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Period

The authorities solved this problem by placing huge masses of concrete

it was also implemented in a wider circle around the site to control the water level,
in addition to preventing any possible waves

providing double protection.

However, it also created a double negative visual impact.

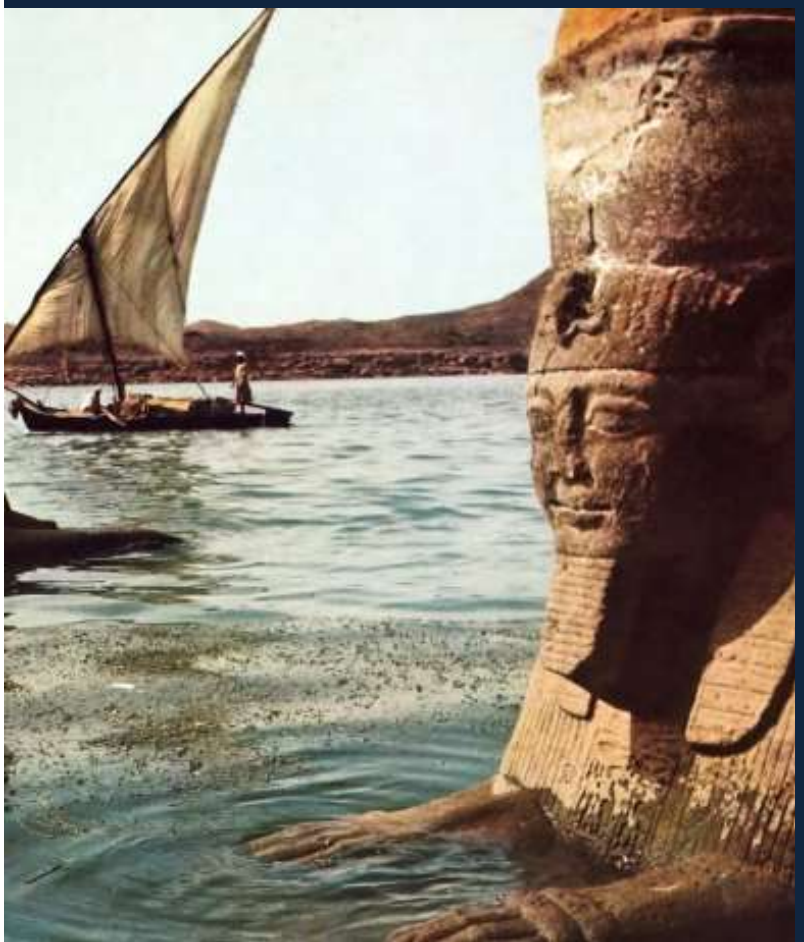
With the ongoing urban activites which declared in the four cities a lot of pressure will be happened, and the water lakes will increase, also the sea level will rise more

the expected solution generated from possible reversing the human action which may cause the Brugada, this can be summarized to formulate major strategic steps as outline of the solution as follows;

- Reduce the gas emission which caused the global warming
- Decrease the urban pressure
- Use the engineering solutions to save the shoreline
- Develop the agricultural activities to the one suit salty soil
- Encourage studies to measure the deterioration range
- Prepare the risk scenario and the time horizon vision
- Document the heritage
- RELOCATE the heritage as Nubia IF NEEDED

THE CLIMATE CHANGE CAN'T BE REVERSED

Do the coastal heritage need to repeat the Nubian monument Scenario

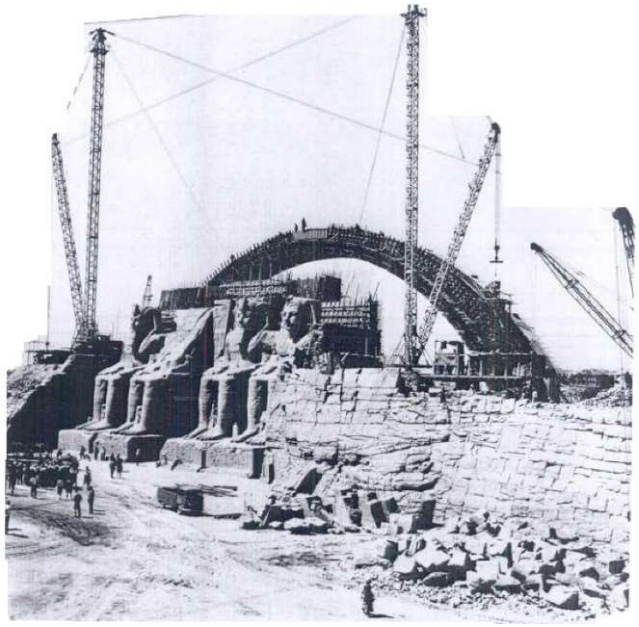


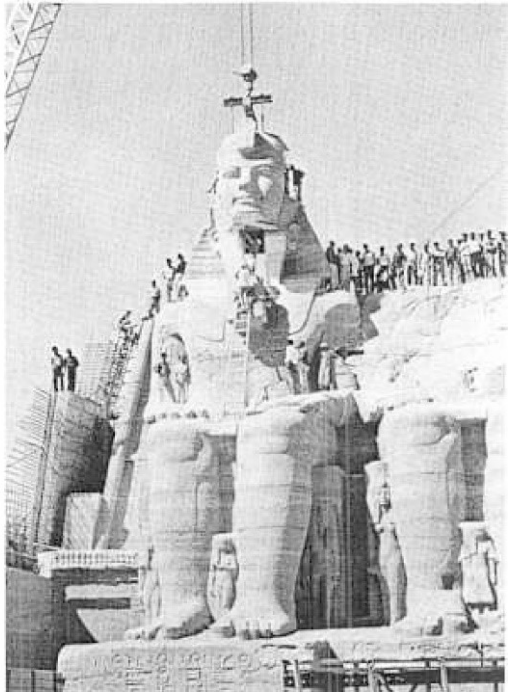
The expected outcome highlight the strategy which might be followed to;

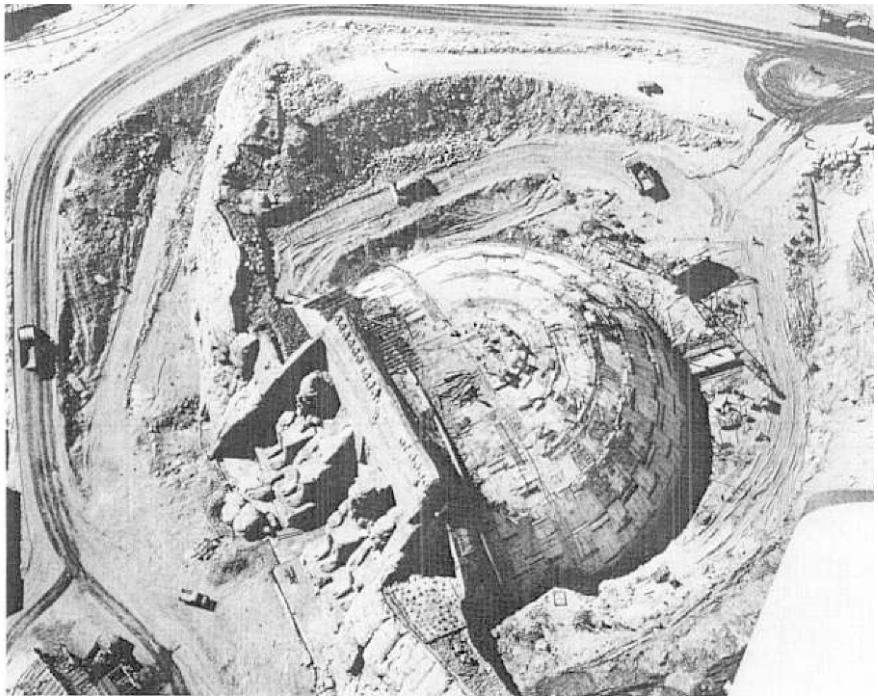
Solve the research problem of Coastal heritage Brugada and its related risk preparedness.


الجمهورية العربية المتحدة
أنقذوا معابد النوبة
UAR
HELP TO PRESERVE NUBIA'S TEMPLES
UNESCO
CAIRO
15 NOV 1961
HELP TO PRESERVE NUBIA'S TEMPLES
ختم أول يوم ١٤ ـ ١١ ـ ٦١
FIRST DAY OF ISSUE 14-11-61

The Solution long term







middle of 1968 AD, that is, before the monuments of Nubia were registered on the World Heritage List

THANKS

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