

# *Land Subsidence at Atchuweli, Jaffna; A Case Study from Sri Lanka*

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# *What is land subsidence ?*

*Subsidence is the motion of a surface (usually, the Earth's surface) as it shifts downward relative to a datum such as sea-level.*

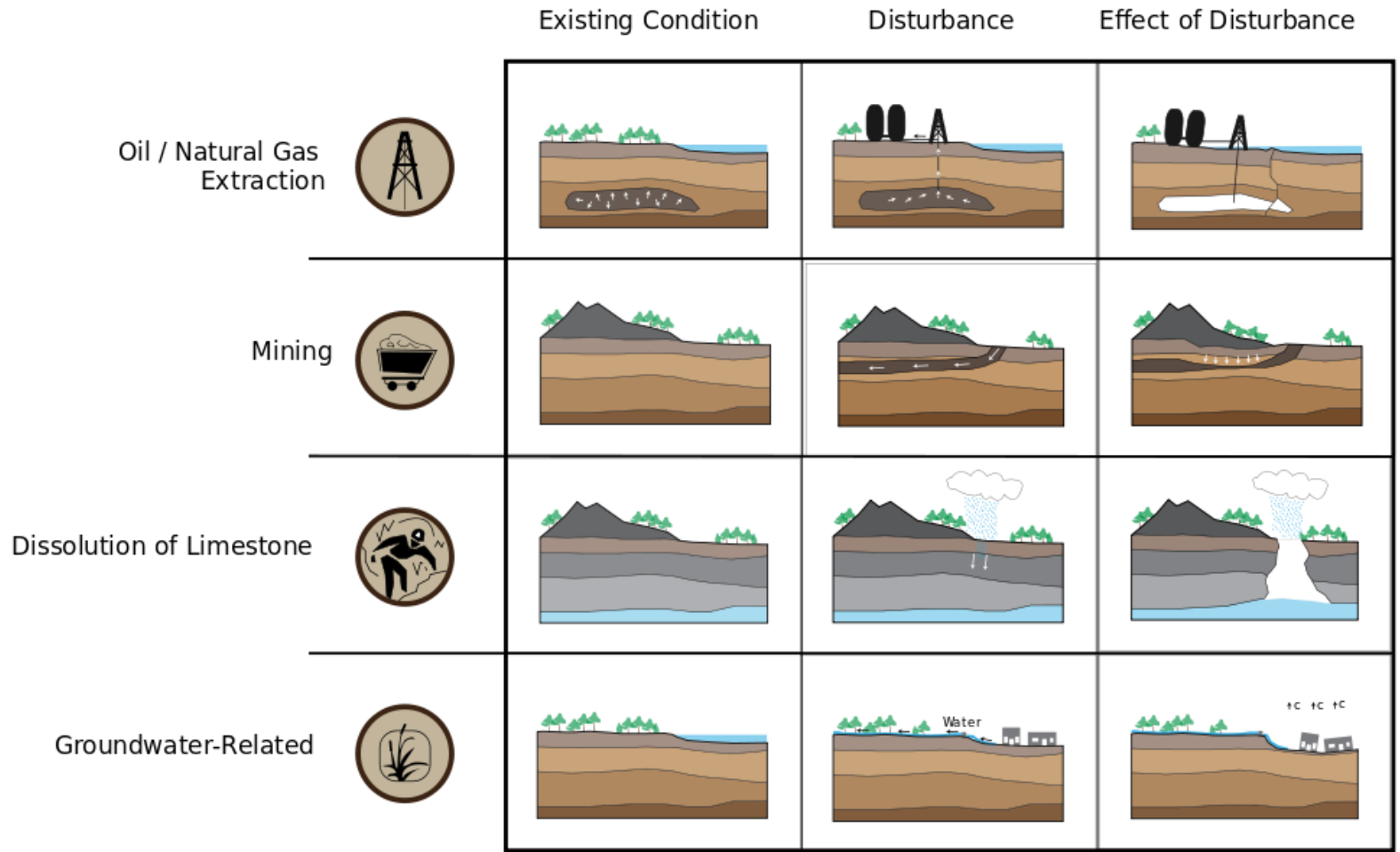


*Sudden or  
Slow movement*



# How does it happen?

Many Reasons .....



# *Land subsidence in Sri Lanka?*

*Yes .....! We are experiencing....!!*

*Matale*

*Digana*

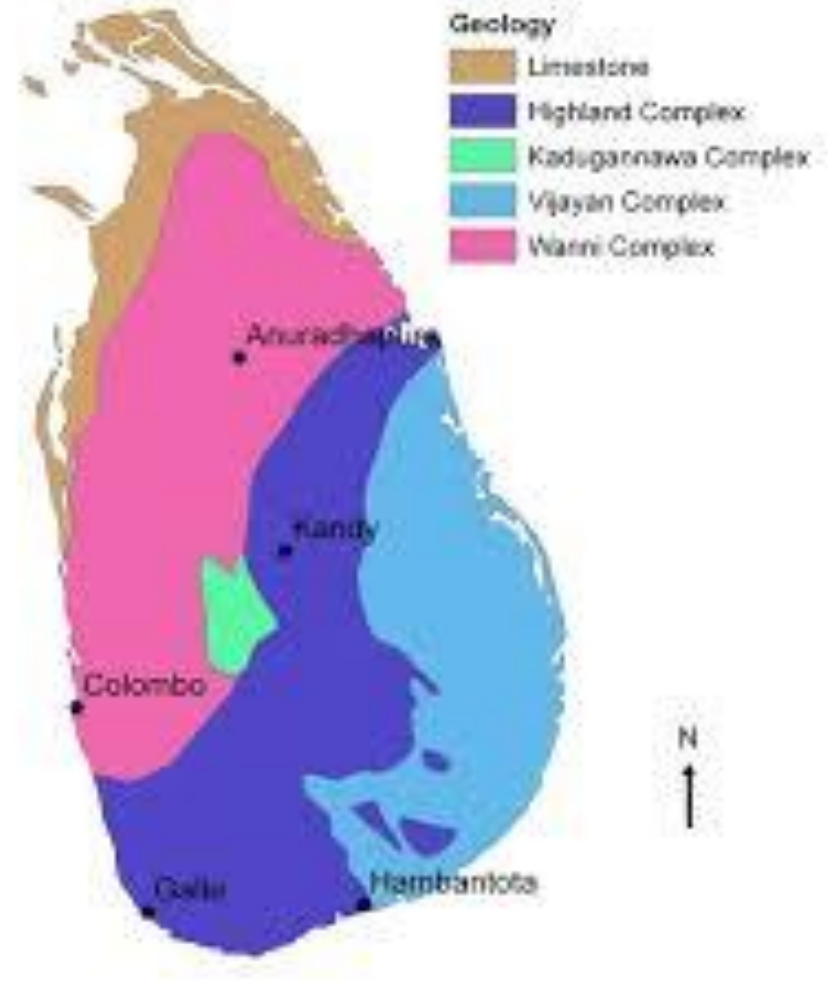
*Ella*

*Recently Jaffna..!*



# *Cause of Subsidence ...?*

- *Dissolution of Carbonate rocks*



# *Atchuweli, Jaffna*

*A land subsidence incidence at Atchuweli, Jaffna was reported to Landslide Research and Risk Management Division (LRRMD), NBRO*

*The incidence has been occurred in the morning of 23<sup>rd</sup> January, 2016.*

*Interestingly the local papers have quoted this incidence as a tremor but it was reported later that no sound of tremor was noted by the people of the affected place.*

# *What NBRO did is...!*

*A team of Geologists visited the affected place at Atchuweli.*

*Geology, Geomorphology and Geophysical studies including a social geological survey and mapping were carried out*

*What we found is .....*







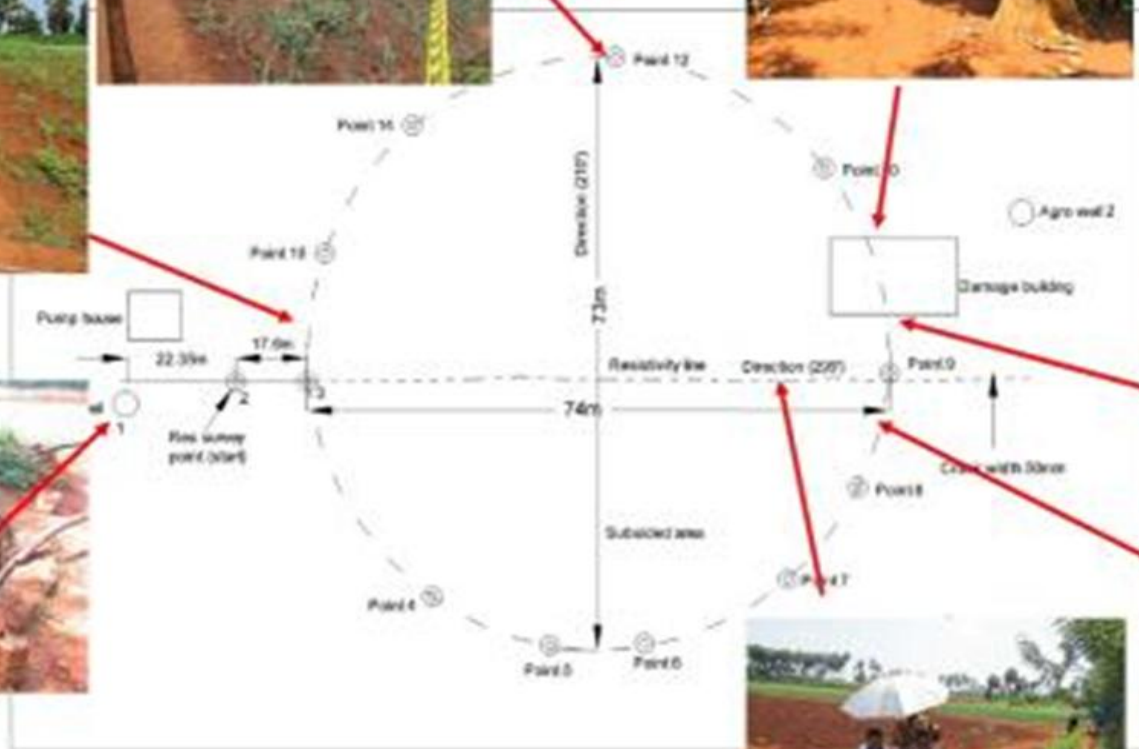
Cracks on the ground



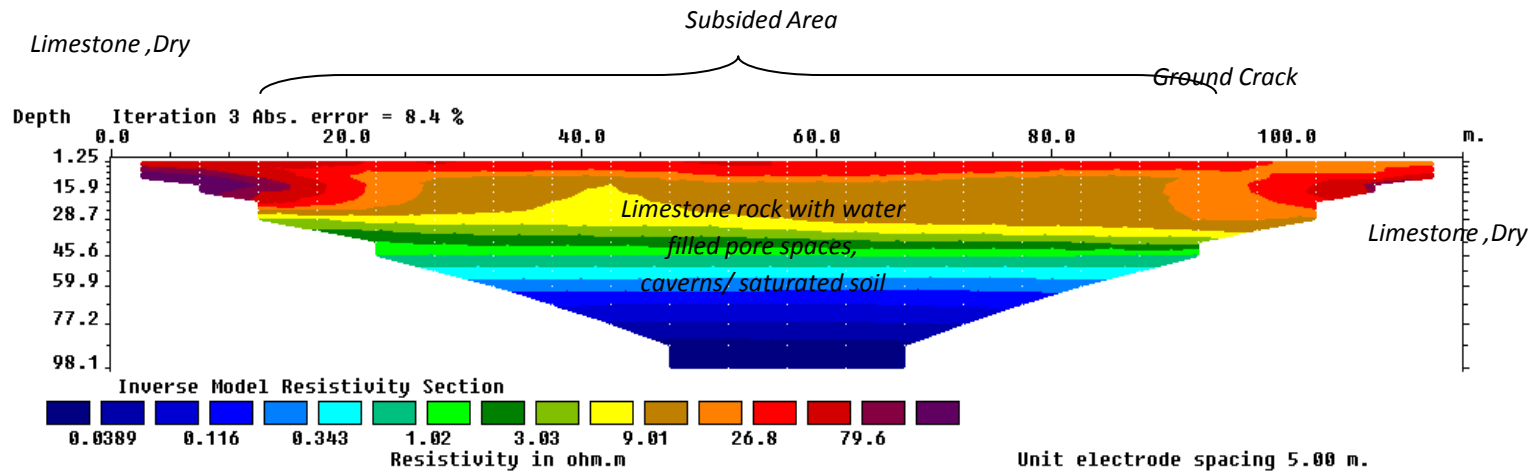
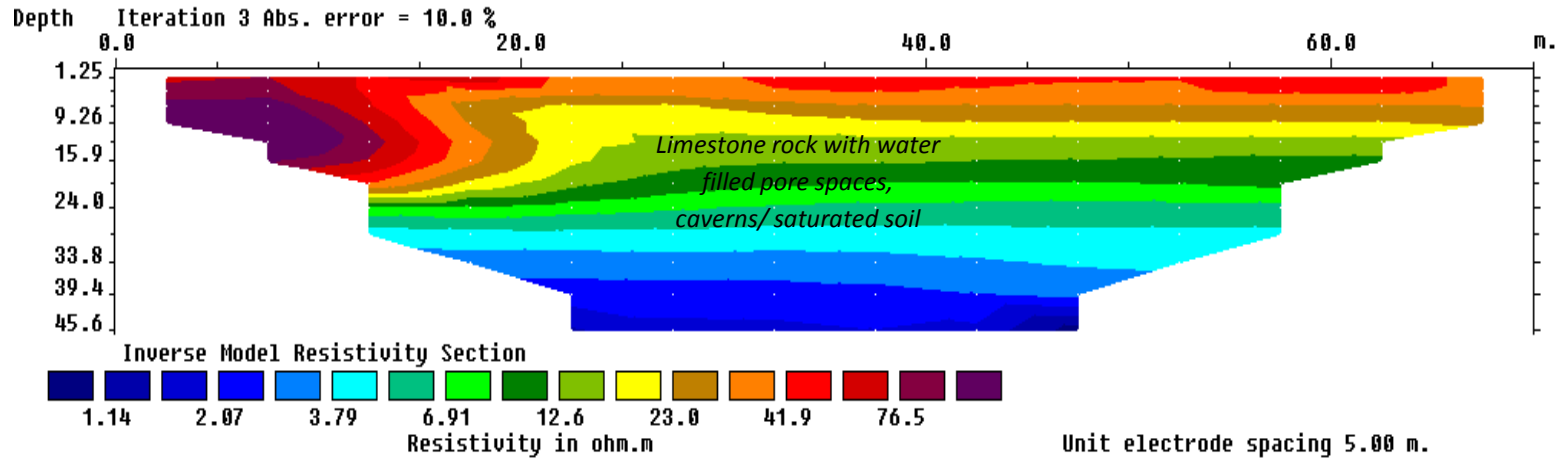


**Cracks Developed on the Walls & Floor**



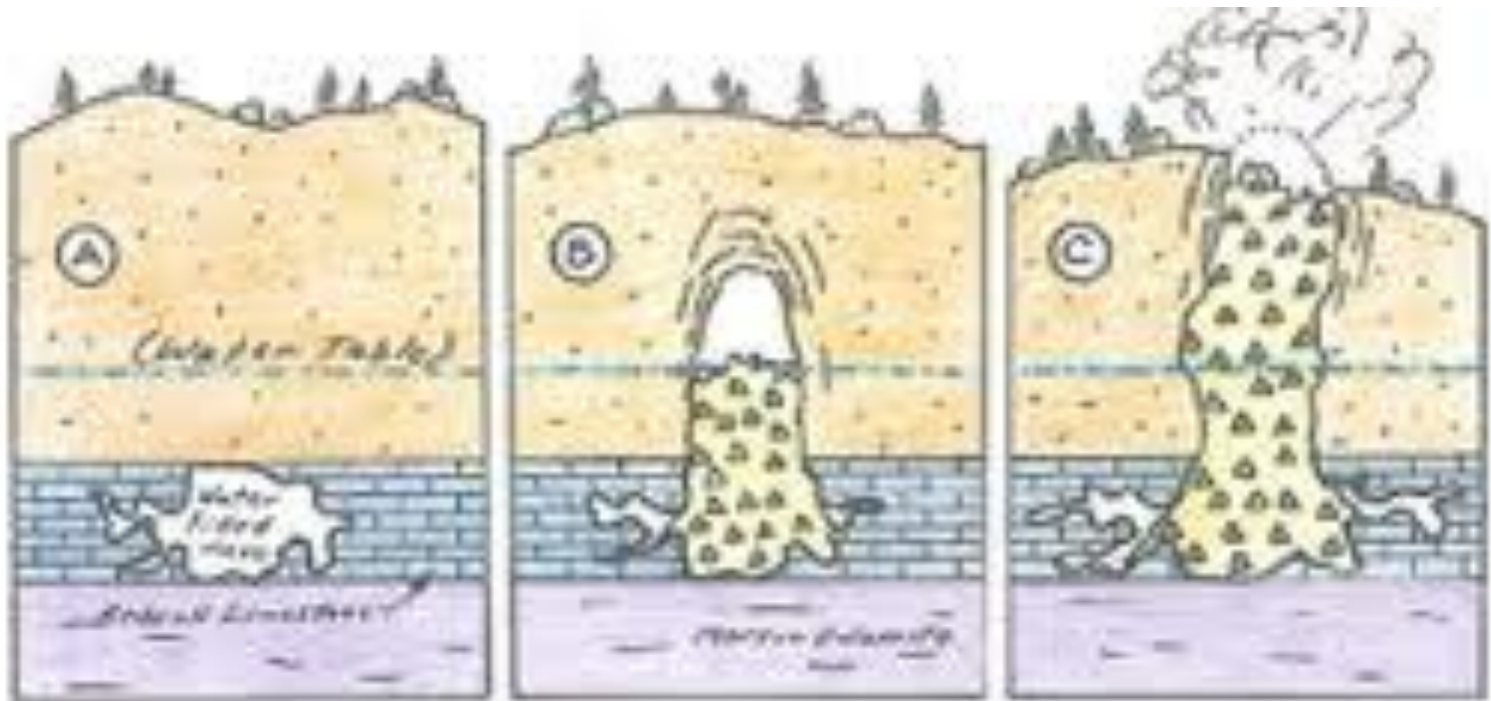


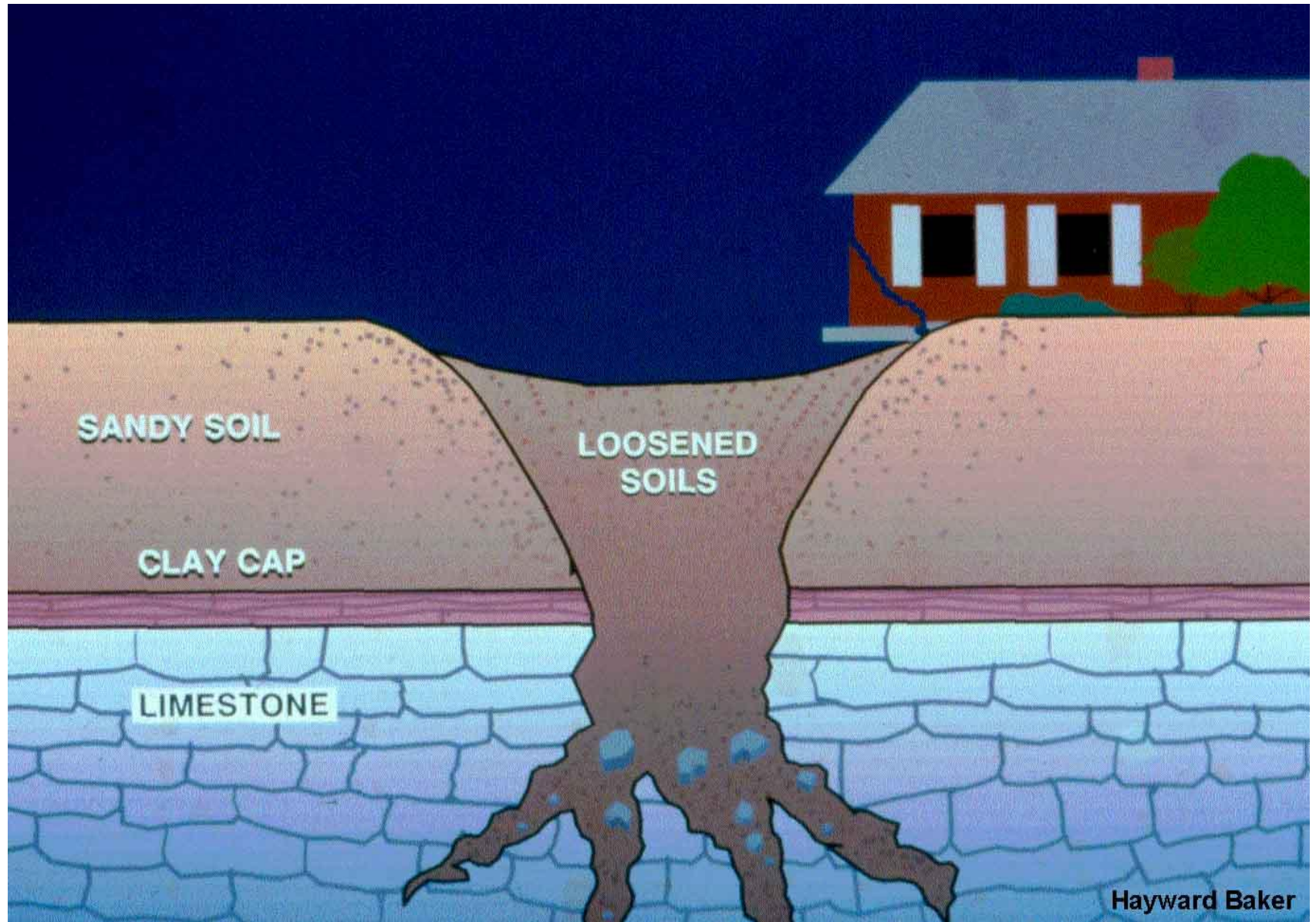
# Resistivity Survey



# Cause .....???

- It seems mainly due to dissolution of carbonate parts of the limestone*





SANDY SOIL

CLAY CAP

LIMESTONE

LOOSENED  
SOILS

Hayward Baker



**Limestone formation and the cavities filled with soil**



# *Mandapaayi Cave/Sink Hole*









# *Future work.....!*

## *Field work*

- *Detail geological investigations*
- *Detail hydrogeological investigations*
- *Detail hydrogeochemical investigations*
- *Detail geotechnical investigations on the materials such as soil and rocks, borehole drilling, piezometer and rain gauge installation*
- *Detail geophysical investigations including resistivity and GPR techniques*

# *THANK YOU*

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**To promote and sustain research & development and provide technical services for disaster risk reduction and safer built environment**

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