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A very large engineered slope failure in Malaysia – Bukit Setiawangsa

<https://blogs.agu.org/landslideblog/2012/12/29/a-very-large-engineered-slope-failure-in-malaysia-bukit-setiawangsa/>

Posted by [Dave Petley](https://blogs.agu.org/landslideblog/author/dr-dave/) (<https://blogs.agu.org/landslideblog/author/dr-dave/>).

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Overnight 46 houses have had to be evacuated (http://thestar.com.my/news/story.asp?file=%2F2012%2F12%2F29%2Fnation%2F20121229122738&sec=nation&utm_source=dlvr.it&utm_medium=twitter) at Bukit Setiawangsa, a highly desirable eastern suburb of Kuala Lumpur. This is an engineered wall failure on a very large-scale – the slope is reportedly 43 metres high. This appears to be the wall prior to the failure event ([the blog from which this is source](http://tailim.blogspot.co.uk/2010/05/bicycle-ride-around-taman-setiawangsa.html) (<http://tailim.blogspot.co.uk/2010/05/bicycle-ride-around-taman-setiawangsa.html>), describes this as “a scary vertical slope protection”):





(https://blogs.agu.org/landslideblog/2012/12/29/a-very-large-engineered-slope-failure-in-malaysia-bukit-setiawangsa/12_12-bukit-1/)

<http://tailim.blogspot.co.uk/2010/05/bicycle-ride-around-taman-setiawangsa.html>

At present it is not entirely clear what has happened to the wall. At first sight (from this [Twitter image](https://twitter.com/irsyadist/status/284907987087278081/photo/1) (<https://twitter.com/irsyadist/status/284907987087278081/photo/1>)) it appears that it has undergone a localised failure on one side, but I suspect that such an initial interpretation is misleading:



(https://blogs.agu.org/landslideblog/2012/12/29/a-very-large-engineered-slope-failure-in-malaysia-bukit-setiawangsa/12_12-bukit-2/)

Images from other perspectives suggest to me that a somewhat larger failure of the slope has occurred, although at this stage this is just speculation. This image (from [here](http://buatbest.blogspot.co.uk/2012/12/terkini-kejadian-tanah-runtuh-di-bukit.html) (<http://buatbest.blogspot.co.uk/2012/12/terkini-kejadian-tanah-runtuh-di-bukit.html>)) for example suggests that there is another substantial crack running down the wall:





(https://blogs.agu.org/landslideblog/2012/12/29/a-very-large-engineered-slope-failure-in-malaysia-bukit-setiawangsa/12_12-bukit-3/).

Whilst this one suggests that there is a tension crack at the end of the wall as well:



(https://blogs.agu.org/landslideblog/2012/12/29/a-very-large-engineered-slope-failure-in-malaysia-bukit-setiawangsa/12_12-bukit-4/).

Thus, I would **speculate** (and note that at this stage it is pure speculation) that the left section of the wall has undergone failure and has moved outwards and downwards. This image ([from here](http://instagram.com/p/TzoqVNqt7j/) (<http://instagram.com/p/TzoqVNqt7j/>)) at least hints at that:



(https://blogs.agu.org/landslideblog/2012/12/29/a-very-large-engineered-slope-failure-in-malaysia-bukit-setiawangsa/12_12-bukit-5/).

This would explain why at least one property at the top of the slope has collapsed (<http://gallery.thestar.com.my/default.asp?id=2648>):





(https://blogs.agu.org/landslideblog/2012/12/29/a-very-large-engineered-slope-failure-in-malaysia-bukit-setiawangsa/12_12-bukit-6/).

The two images suggest that the lower part of the wall has moved outwards, whilst the top of the slope has moved downwards, which would suggest a rotational failure (<http://www.uwec.edu/jolhm/EH/Beaver/rotational.htm>) behind the wall.

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ABOUT DAVE



Dave Petley is the Vice-Chancellor of the University of Hull in the United Kingdom. His blog provides commentary and analysis of landslide events occurring worldwide, including the landslides themselves, latest research, and conferences and meetings.

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