The Gorkha Earthquake occurred on April 25, 2015. The massive earthquake severely affected the Himalayan countries like Nepal, _China and India. The emergency survey team was jointly set up by the Japan Landslide Society and Nepal Landslide society and the team conducted an aerial survey on landslide disasters in this region.	－25″ Intro (Cover page)
The survey team left Kathmandu Airport and flew north to the upper Trisuli river valley.	video start 0″ KTM airport
Beyond the Trisuli bazar, the valley is surrounded by high mountains of more than 3000 m high. On the rockey vally slopes are shallow landslides from the earthquake.	0'15″ Trisli Valley
The river originate from Tibet and continental up-lifting and river erosion has formed a deep V-shaped valley. Steep slopes surrounding the valley fell and debris accumulated on the riverbed. The geology here consist of metamorphic rocks and sedimentary rocks.	Trisuli Valley 0' 33″
Once covered by pine trees and grass, river bank slopes now suffer severe erosion by rock avalanche. Some houses have also suffered from rockfalls.	0' 52″
There are very few houses along the river. Boulders of debris avalanche and rock falls have increased drastically , comparing the satellite images before and after the earthquake. .	1'13″
On the right bank of the Trisuli River is a massive deep-seated landslide.	1'35"
Now we are circling over the valley to find any symptoms of landslide blocks expanding.	1'55″
Debris from the landslide has formed a temporary river blockage.	2'13"
This massive landslide is approximately 400 meters high.	2'23"
By now, most of the debris blocking the river have washed away. And the possibility of the dam flashing downstream seems to be low.	2'30"
Now we are seeing Gagame village along the river. And the massive landslide is about to reach the village.	2'43"
Most houses in the village have collapsed by the earthquake and we see no residents in sight. Since recovery efforts have yet to reach this remote area and many of the villagers are still unable to return home.	2'55″
Many other remote mountain villages like Gagame have endured earthquake-induced disasters after months from the earthquake.	3'15″
The earthquake-induced landslides still remain as the source of sediment increasing the risk of flood in the lower reach of Trisuli River in the long-run.	3'30″
We are flying into the Langtang valley which is one of the tributaries of Trisuli river.	4'05″
Relative elevation from the valley bottom to the top increases gradually as we fly along the valley.	4'20″
Large mass of deposits from ice and rock avalanche sits under a hanging glacier.	4'35″

The deposit has covered the river channel without blocking the flow for a snow bridge may have formed across the channel. Such bridge possibly allowed the river to flow under the deposits.	4'45″
The debris contains ice, rocks and soils. Stones scattering over the debris are mainly gneiss.	5'00″
Once there was a small village called ″Langtang Village″ existed in the valley's floodplain well known for its scenic beauty. Now, significant part of the village is buried under debris.	5'10″
When the earthquake hit the region, the massive tremor triggered snow avalanche and slope failures along the headwall of the hanging glacier.	5'30″
Across the valley is a huge area of windfall trees. As snow avalanche and slope failure started, falling debris created a destructive wind by compressing air in the confined valley and knocking down tree stands.	5'50″
Trees in the affected area fell in a radial direction from the impact point and outward.	6'20″
Now we are approaching the valley wall. The upper wall is mainly bare rocks covered with snow.	6'40″
Areas without snow cover have been buried by debris from seismically induced slope failure, instead	7'00″
Traces of ice and rocks flowing down are left on the glacier.	7'30″
The ridge line is at 7,000 meters above the sea level. Any debris or materials fell from this height have a significantlly high potential energy.	7'40″
Sun Kosi – Bhote Kosi watershed is situated in the eastern part of the earthquake affe	8:05
Bhote Kosi river incises deep through the Himalayan range forming gorges along its path. The valley wall is very steep ranging from 30 to 60 degrees.	8:12
The valley had been a very important route for transporting goods betwen Nepal and Tibet. The earthquake in April triggered many shallow sheeted landslides along the valley walls where gradient of the slope exceeded 40 degrees. Hydropower stations along the valley were also damaged by rock avalanches at just below the breaks of slope or ridge top.	8:24
Most of the slides were shallow and in small scale with only a few hundred square meters of source area.	8:51
Debris accumulated at the foot of the valley wall indicates slope materials falling off due to the the tremor. Here, landslides seemed to have occurred mostly on the upper wall. And subsequent rock avalanche with its high potential energy became extensive by involving slope materials along its path.	9:24
The rock avalanches occurred at the end of the ridge where it transit to the valley wall.	9:45

The landslides were triggered by both the main shock on April 25th and the aftershock on May 12th. Small branch streams and gulches were buried by debris from the upper slopes. Now, secondary disasters such as debris flow are the long-term issue in this area. Here, in the watershed there are many remnants of old deep seated landslide, but only a few of them indicates any movement triggered by the earthquake. One of the reason for this is that the earthquake hit the region in dry season with precipitation so scarce that ground water level was low enough to reactivate the landslides.	9:56