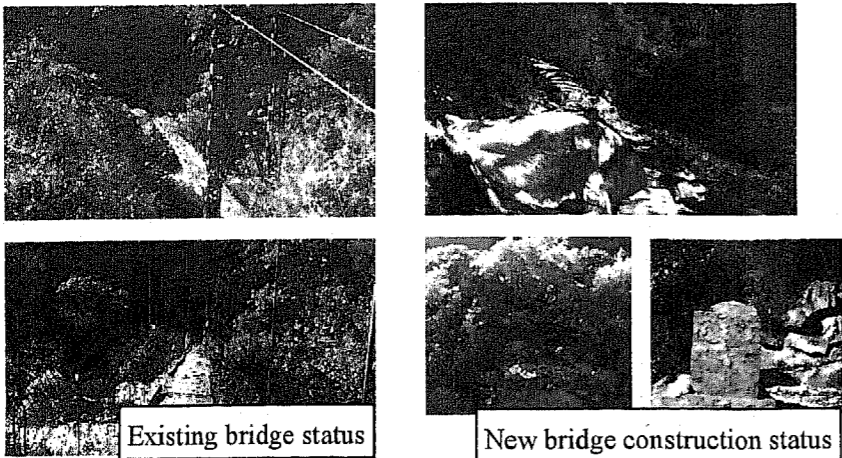
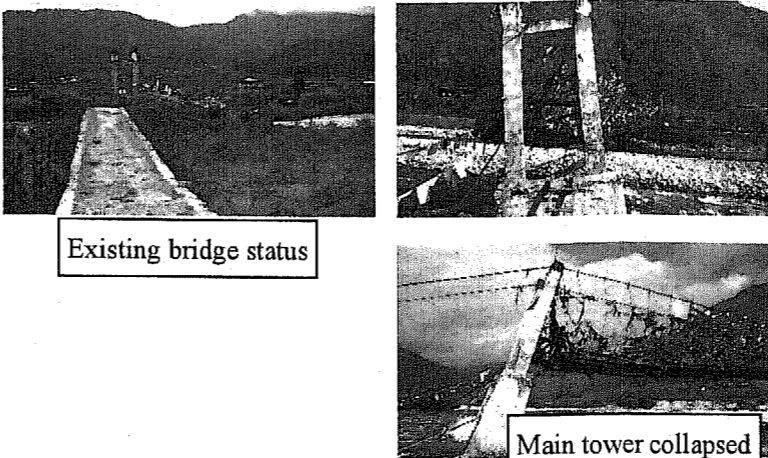
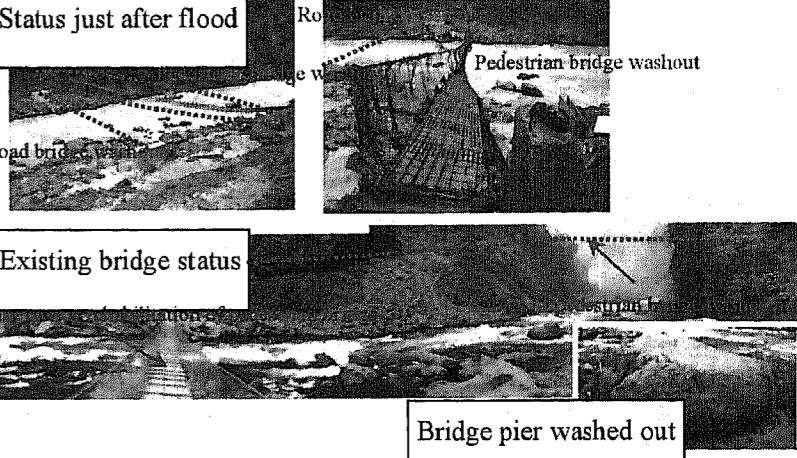
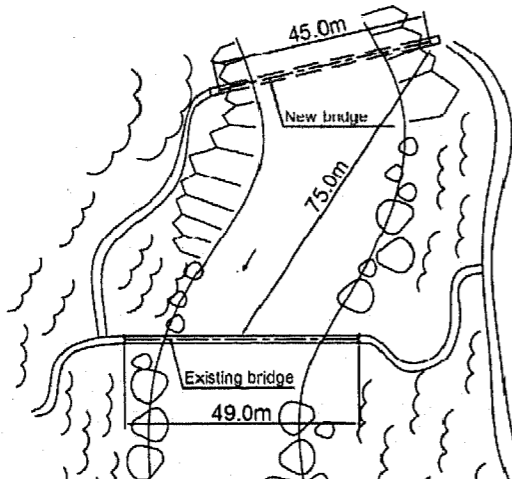
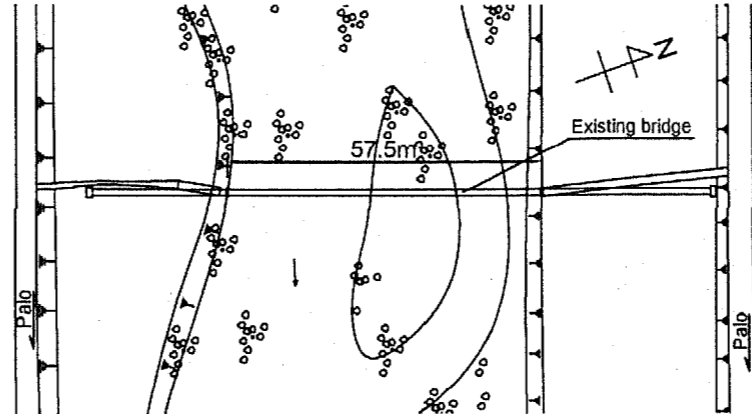
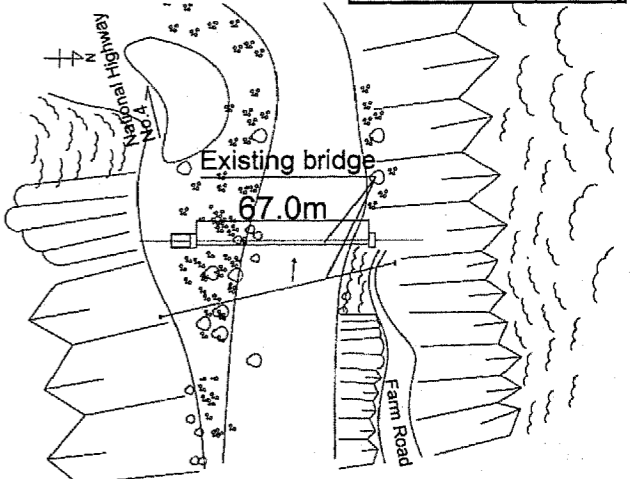
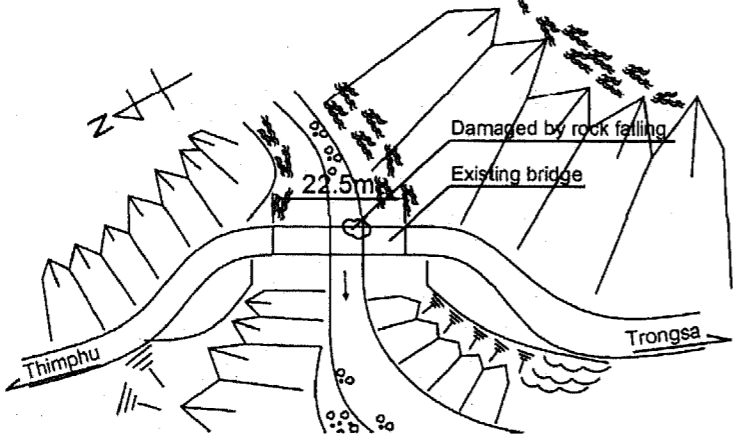
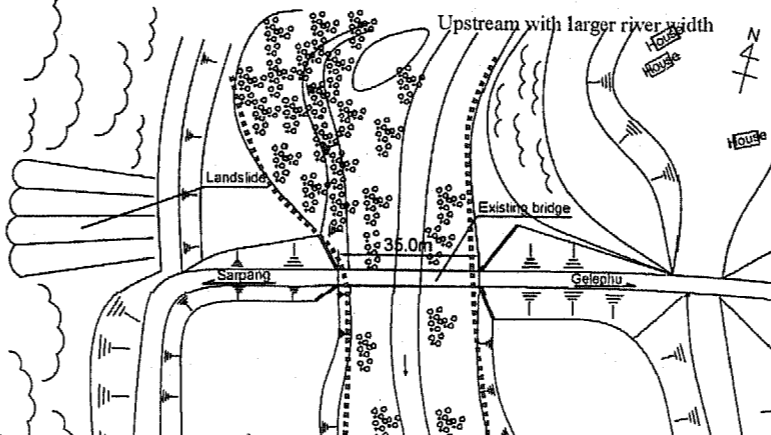
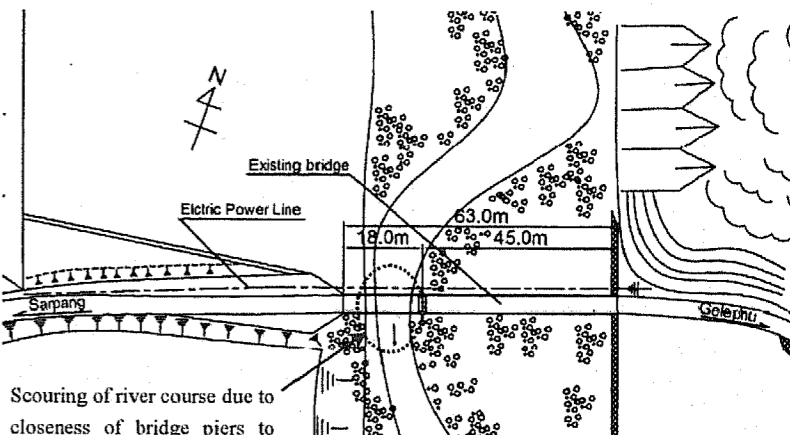


List of Field Survey Results (1/3)

	No.3 Naja/Geling Haa Chhu Suspension Bridge	No.5 Tshendona Bridge	No.9 Mandechhu (Reotala) Bridge
Field photograph	 <p>Existing bridge status</p> <p>New bridge construction status</p>	 <p>Existing bridge status</p> <p>Main tower collapsed</p>	 <p>Status just after flood</p> <p>Road bridge</p> <p>Pedestrian bridge washout</p> <p>Existing bridge status</p> <p>Bridge pier washed out</p>
Schematic plan view			
Road classification (Jurisdiction)	Farm Road (DoA)	Farm Road (DoA)	Farm Road (DoA)
Existing bridge type	Pedestrian suspension bridge (L=49.0m)	Pedestrian suspension bridge (L=57.5m)	Pedestrian suspension bridge (L=67.0m) (Bailey bridge before washout)
Topography and geology	Steep terrain with bedrock outcrops	Flatland consisting of bed sediment	Steep terrain with bedrock outcrops
River status	Large river discharge and high flow velocity	Slightly large river discharge and relatively low flow velocity	Large river discharge and high flow velocity
Use status	Few users (No pedestrians passed in 30 minutes.)	About one pedestrian every 30 minutes	About 10 pedestrians every 30 minutes On the opposite shore of the bridge, there is a settlement consisting of 210 households and about 3,000 persons.
Bridge status quo	Although the existing bridge is significantly superannuated, the construction of a new bridge has started at a location 75 m upstream.	The narrow width of the main tower foundation and insufficient embedding has resulted in riverbed scouring, which is causing the main tower to slant. The significant damage poses a danger to passing pedestrians.	Cyclone Aila damaged the slab of the existing pedestrian suspension bridge and washed out the Bailey bridge that had been constructed in a lower position. The piers of the Bailey bridge were also washed out because the construction joints were weak. As for the bridge piers, insufficient joint treatment and low quality concrete casting such as honeycombs have been confirmed. At present, a makeshift pedestrian suspension bridge has been constructed using the substructure of the Bailey bridge.
Access road status	There is a path for pedestrians from the main road (about one hour's walk to the bridge). There is no farm road suitable for vehicles.	There are feeder roads on both banks of the river.	There is a plan to construct a farm road that will connect with National Highway No.4 on the starting point side (A geological survey is scheduled to start in February 2011).
Importance of route	There is no plan to construct a farm road. The route has low importance.	There is a road bridge 3.5 km downstream constructed by Japanese ODA (1995) and a pedestrian suspension bridge 1.5 km upstream. Therefore, reconstruction of this bridge as a road bridge has low importance.	This is one of the important farm roads covered in the 10th Five-Year Plan.
Possibility of damage from similar floods	There is a low possibility of damage because the new bridge has been constructed at a position higher than HWL during flooding and higher than the existing bridge.	This bridge has already collapsed and is unusable.	The current suspension bridge was constructed as a makeshift bridge at a position lower than HWL observed when Cyclone Aila hit, and it has insufficient vertical clearance. Therefore, there is a high possibility of damage if an abnormal flood occurs.

List of Field Survey Results (2/3)

Field photograph	No.16 Dzongkhachulum Bridge	No.17 Dolkhola Bridge	No.18 Jigmiling Bridge
Schematic plan view			
Road classification (Jurisdiction)	National Highway No.4 (DoR)	National Highway No.5 (DoR)	National Highway No.5 (DoR)
Existing bridge type	Truss bridge (L=22.5m)	Bailey bridge (L=35.0m)	Bailey bridge (L=63.0m)
Topography and geology	Steep terrain with bedrock outcrops	Flatland consisting of bed sediment	Flatland consisting of bed sediment
River status	Large river discharge and high flow velocity	Small river discharge and low flow velocity The bridge has reduced the river cross section.	Small river discharge and low flow velocity Scouring tends to occur on the front of the bridge abutments due to the closeness of the bridge piers to the abutments.
Use status	One vehicle every five minutes This is a national highway extending over three dzongkhags.	One vehicle every five minutes This is a national highway extending over five dzongkhags.	One vehicle every five minutes This is a national highway extending over five dzongkhags.
Bridge status quo	Damage to the truss main structure and the steel slab of the existing bridge due to fallen rocks have been confirmed.	Signs of scouring have been confirmed on the bridge abutment protections.	Distortion has been confirmed in the long span length. Signs of scouring have been confirmed on the bridge abutment protections.
Access road status	This is a bridge on National Highway No.4, and the access roads on both ends are open to traffic.	This is a bridge on National Highway No.5, and the access roads on both ends are open to traffic.	This is a bridge on National Highway No.5, and the access roads on both ends are open to traffic.
Importance of route	This national highway connecting Gelephu and Trongsa is relatively important.	This route connecting Gelephu, Wangdi, and Thimphu (capital) is exceedingly important as it is the route for transporting supplies to the Punatshangchu hydropower project and is related to the second east-west highway in southern Bhutan.	This route connecting Gelephu, Wangdi, and Thimphu (capital) is exceedingly important as it is the route for transporting supplies to the Punatshangchu hydropower project and is related to the second east-west highway in southern Bhutan.
Possibility of damage from similar floods	There is sufficient vertical clearance, and there is a low possibility of damage if an abnormal flood occurs.	The existing bridge has blocked the river section, and signs of washout of a bridge with an equivalent span have been confirmed. Therefore, there is a high possibility of damage if an abnormal flood occurs.	The distance between the bridge abutments and piers (span length) is short. Therefore, there is a high possibility of damage if an abnormal flood occurs.