

REPORT OF FIELD TRIP TO SHOBARA, HIROSHIMA, OCTOBER 28-29, 2011

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General Description about the Excursion

The trip to Shobara, Hiroshima prefecture was start from Shimane University at 08:30 am on October 28, 2011 by car. It spent about 3 hours from Matsue to the gathering point at Shobara. At 11:00 am, we joined the excursion that organized by Kansai Branch of Japan Landslide Society around the landslide prone area surrounding Shobara area. There are 4 (four) points of landslide occurrence which were visited. The route of excursion and the landslide occurrence sightseeing is shown at **Figure 1**. There were two stopping point, first at the location 1 and location 3. In this stopping points, we able to explore and examined the post-landslide condition and have detail explanation from the guide. The field trip was end at 15:00, and we continued the travel to Hiroshima city to check in into the hotel.

The next day, October 29, 2011, we attended the Symposium which started at 08:30. The presenters of this symposium were:

1. Dr. Masahiro (Graduate School of Science, Hiroshima University). Topic: Overview of Shobara Landslides, Hiroshima, July 2010
2. Takeshi Tamura (Department Sabo Hiroshima). Topic: Landslides in the Bihoku region due to heavy rainfall in July 1972
3. Kiichiro Ogawa (Asia Air Survey Co., Ltd.). Topic: Laser measuring for profiling post-landslide morphology
4. Hidemasa Ohta (Ohta Geo Research). Topic: Residents post-disaster compensation

The panel discussion was take place at 13:30 pm to 16:00 pm.

The Shobara Landslide

Shobara is the part of Hiroshima prefecture that has mountainous terrain with 35° to 45° degree slope. The geological condition of the region is mainly andesitic and rhyolitic rocks. From the scrapped ground of the flow path, the soil layers are revealed. The base layer is weathered andesitic rock that estimated as the landslide slip base. Above the base layer, there is some pumice layer with 50 cm to 75 cm thick. The top soil consists of andesitic fragment disrupted with decayed material about 30 cm to 1 m in thickness. The exposed soil layer can be seen in **Figure 2**.

Many landslides occurred in Shobara, Hiroshima Prefecture on July 16 2010 during 2-3 hours of heavy rainfall which is considered as triggering factor the landslides events. The type of the landslides is commonly debris flow which has long path from the top to the base of the mountains (**Figure 3**). From the examined landslide source area, the landslide can be regarded to translational shallow landslide which has about 1 m to 2 m depth sliding surface (**Figure 4**). Generally, the landslides flow path have

narrow width and long flow path, in line with the hill valley. The deposit of the landslide consists of stripped trees, rock fragment and black soil.

Some physical mitigation actions are already implemented surrounding the landslide prone area. Based on the purpose, one can concluded that there are two type of physical mitigation, there are: structures to avoid the impact of debris flow and structures to stabilize slopes. The first type of mitigation on the area is represented by sabo dam structure. Sabo dam is the massive structure that commonly using concrete material to retain the debris mass from landslide (**Figure 5**). The sabo dam is usually built by series depends of the potential debris mass that could happen in the future. Another type is represented by bolt anchored slope which is found the area (**Figure 6**).

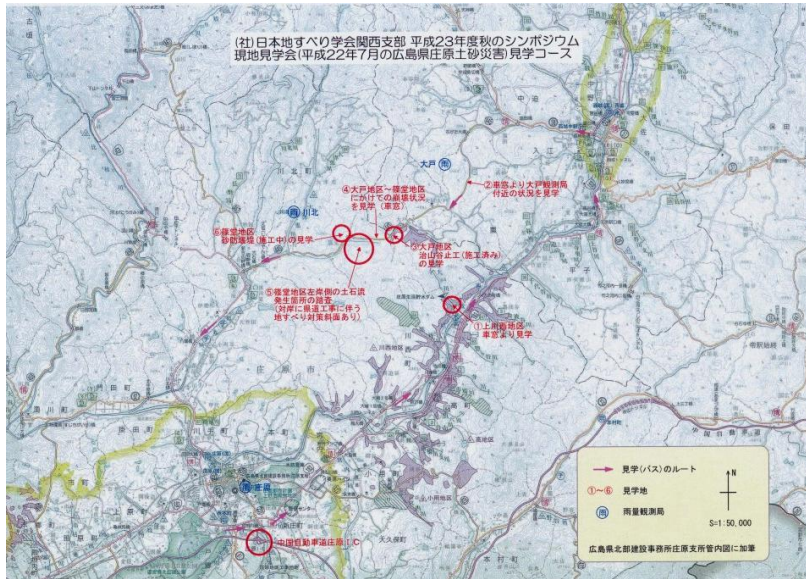


Figure 1 Travel path and landslide location map

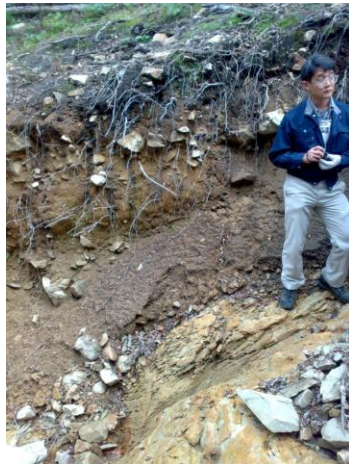


Figure 2 Exposed soil layer



Figure 3 Debris flow travel path



Figure 4 Debris flow source area



Figure 5 Sabo dam structure



Figure 6 Bolted Anchor structure