[EE] Evening Poster | H (Human Geosciences) | H-DS Disaster geosciences

[H-DS08]Natural hazards impacts on the society, economics and technological systems

convener:ELENA PETROVA(Lomonosov Moscow State University, Faculty of Geography), Hajime Matsushima(Research Faculty of Agriculture, Hokkaido University), Vivek Shandas
Wed. May 23, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)
The decade between 2007 and 2017 set a record for the number and scale of natural disasters and demonstrates high vulnerability of human society. The most serious consequences have the so-called natural-technological disasters in which natural hazards trigger accidents at technology and infrastructure such as nuclear power and chemical plants, oil refineries and pipelines, buildings and roads. A distinctive feature of natural-technological events, such as of the 2011 Tohoku earthquake, is their multi-hazard and synergistic nature, which creates cascading impacts, resulting in simultaneous occurrences of myriad catastrophes. The main goal of this multidisciplinary session is to summarize case studies of relationships between natural hazards and technological disasters, their social and economic consequences; and to encourage a discussion about tools and methods to prevent disasters and to minimize their consequences, disaster reconstruction, tourism for reconstruction, Eco-DRR, and green infrastructure.

[HDS08-P04]Recognition of tsunami disaster prevention from the viewpoint of green infrastructure in the coastal area of Kyushu-Pacific region.

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Considering the possibility of Nankai Trough large-scale earthquake predicted to occur in the nearest future, the issue of the tsunami in the coastal area of Kyushu-Pacific region is becoming extremely important. Efforts to utilize the various functions of the ecosystem internationally for the society creation are expanding in recent years, and even in the situation of toughening of the land in Japan, the initiative to incorporate Green Infrastructure (GI) which utilizes the disaster prevention and reduction functions of the natural ecosystem are being observed. Also, during the process of self-help/mutual assistance action and disaster reconstruction at the time of disaster, attention is paid as regional ties are affected, which are being considered as Social capital (SC).

The purpose of this study is to clarify the actual situation of tsunami disaster prevention of Nankai Trough earthquake based on the viewpoint of GI. We conducted a questionnaire survey on tsunami disaster prevention and GI at local governments and local communities. After analyzing the questionnaire, we analyzed the needs of the self-governing president's disaster prevention measures, the problems of the area, and the deviation of the improved situation of municipalities' disaster prevention measures. A correlation analysis was conducted to grasp the relationship between the consciousness concerning GI utilization, the strength of regional linkage SC and the recognition of evacuation.

1. Misalignment between demand and maintenance situation desired by the region

Policy regarding the issue of disaster helpers was extracted as a gap between needs and maintenance situation. Regarding the needs of the soft pattern in disaster prevention, a lot of measures were taken by disaster support supporters, however as it comes from the municipality questionnaire results, the measures related to the introduction of the barrier-free system and evacuation action supporters were introduced only partially. Further improvement is necessary for welfare evacuation sites, measures against supporters requiring evacuation actions, barrier-free formation.

2. SC regarded from the viewpoint of the relationship between intentions to utilize GI and recognition on disaster.

Especially, the correlation coefficient was 0.701 between No.7 and No.6. This shows that those who responded that disaster can happen among residents can respond that regional ties are stronger. For items with a high correlation coefficient between No.3 and No.8, the correlation became 0.437. This means the respondents who answered that evacuation is possible for all area inhabitants including elderly people in case of disaster (flooding, earthquakes, and tsunami) are able to use local well water and spring water in the event of a disaster.

Between No.2 and No.4, the correlation coefficient became 3.380. This is because those who respond that they think they can fully utilize the resources of the area (resources such as firewood, foods that can be harvested in mountains) even in the event of disasters will escape by utilizing the nearby natural landforms such as plateaus and mountains for tsunami evacuation. Between No.2 and No.8, the correlation coefficient became 0.351. This is because it shows those who responded that they thought that they could escape by utilizing nearby plateau and mountains such as mountains during the tsunami evacuation, even if disasters (flood, earthquake, tsunami) occurred, everyone including the elderly in the area evacuated. Between No.2 and No.6, the correlation coefficient became 0.343. This indicates that those who responded that they believe that they can escape by utilizing nearby plateaus and mountains when evacuating the tsunami think that the connection of the community people is strong. Between No.3 and No.6, the correlation coefficient became 0.287. This indicates that those who responded as they thought they could use local well water and spring water at the time of a disaster replied that they think that the regional connection is stronger.

Based on the above, we clarified the SC from the viewpoint of the gap between the request and the maintenance situation the region desires and the relationship between the intention to utilize GI and the perception of disaster. The fact that utilization of natural resources such as well water and spring water and understanding that natural topography can be utilized for evacuation leads to a positive feeling making people believe it is possible for everyone to evacuate even if the tsunami comes, can be suggested from this study.