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## Web-GIS based Outdoor Education Program

Noriyoshi Hosoya<sup>1</sup>, Kayoko Yamamoto<sup>2\*</sup>

<sup>1</sup>Hachioji Nakayama Junior High School, <sup>2</sup>University of Electro-Communications

Urbanization in recent years has reduced opportunities and places for children to play in their daily life while contacting with nature. Three ministries of Ministry of Education, Culture, Sports, Science and Technology, Ministry of Agriculture, Forestry and Fisheries, and Ministry of Internal Affairs and Communications started "Project for Interaction in Farming and Fishing Villages" (2008) where elementary and junior high school students stay for one week or more at farming or fishing villages for outdoor activities. Based on the background mentioned above, this study, focusing on the importance of encouraging outdoor activities for children, aims to propose and implement a Web-GIS based outdoor education program especially for elementary schools, which will then be evaluated by users.

The example taken by the study is the second school for fifth graders (45 students in FY 2009) at Honjuku Elementary School in Musashino-shi, Tokyo that kindly gives cooperation to the study. The elementary school provides seven-night outdoor activities called second school for fifth graders, and two-night activities called pre-second school for fourth graders as preparation for the second school. In 2009, the second school for fifth graders was given mainly in Iiyama-shi, Nagano from September 29 to October 6. A survey conducted on the usage of the Web-GIS found that the computer room was well equipped and available to 40 students a class, while many of teachers in charge had not used the GIS and Web-GIS before.

The study proposes implements and evaluates the outdoor education program in the eight steps. As a part of the study, the authors had participated, as an instructor, in the second and pre-second schools organized by Musashino-shi since 2008, and accompanied fourth graders to the pre-second school in 2009. Based on these experiences, main objectives of the outdoor education program are "conducting a class related to experiences during the second school", "operation of outdoor activities (risk management)" and "briefing for students' parents about outdoor activities", for which the Web-GIS was used. Specifically, the usage of the Web-GIS includes preparation of teaching and briefing materials and description of how to operate, and operation of the outdoor education program was done. Learning and briefing materials, of which example were prepared with chiefly using the Web-GIS.

The outdoor education program proposed was evaluated by its users (teachers, instructors, students and their parents) after its operation. Specifically a face-to-face interview for teachers and questionnaire survey for instructors, students and their parents were conducted between September and November 2009 for the evaluation of the program. The questionnaire surveys of students and their parents were implemented both before and after the second school. Though the program generally received a good evaluation, the results of evaluation by the users (teachers, instructors, students and their parents) provided clearly show issues to be solved from the viewpoint of teachers in particular. These include:

- (1) Establishment of the GIS and Web-GIS that will easily represent teaching materials developed by teachers
  - 1) Establishment of facilities/system that allow quick use at a classroom
  - 2) A written guide for learning about the GIS and Web-GIS, as well as widespread of packaged software providing easy accessibility
- (2) Improved significance of the use of the GIS and Web-GIS for their widespread
  - 1) Increased number of examples of actual use in a class
  - 2) Training session given to instructors-to-be, and technical guidance provided to teachers
  - 3) Development of personnel with capabilities to give a briefing on the purpose of introducing the GIS and Web-GIS to chiefs (principal and chairman of a school board)

Keywords: Outdoor Education Program, School Education, Elementary Schools, Web-GIS