

Paper:

Design Principles for Visualization of Public Information for Effective Disaster Reduction

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[Received September 25, 2009; accepted October 19, 2009]

To raise public awareness of disaster prevention, this article discusses how the design for disaster prevention information should be. Recent development in expression and technology for information transmission allows information to be visualized in various ways in disaster prevention and disaster planning. Based on examples of design for disaster prevention such as hazard maps, we discuss what people perceive from public information to achieve designs using those technologies for visualized information that appeals to them.

Keywords: hazard map, disaster reduction design, pictogram design, safety instruction, notification

1. Introduction

Natural disasters, such as earthquakes, tsunamis, typhoons, hurricanes, floods caused by torrential downpours, gales, and tornadoes, often cause serious damage worldwide. In particular, recent extreme weather trends, such as global warming, may cause frequent typhoons and torrential downpours, which are often unpredictable and result in major flood and sediment disasters. Their rainfalls often exceed the limits of existing facilities, which are not sufficient to prevent disasters.

Although earthquakes are less predictable than floods, some studies have found that Japan is in an active seismic period, currently raising fears of major earthquakes.

However, people in urban areas tend to be less aware of disaster prevention partly because of the increasing number of new comers who have never experienced disasters and partly because the disaster memories of those who have experienced them are fading over time. At the same time, globalization brings about societies with an increasing number of foreign people who have language barriers in their everyday life.

Such a situation requires measures including well-prepared disaster prevention information, communication channels, evacuation guiding systems, and facilitation of awareness of disaster prevention. Among them, the top priority is given to the overcoming of language barriers to ensure safety and security in everyday life. Therefore, disaster prevention information needs to be easily under-

standable and available to everybody. Thus, graphical information is suitable.

2. Design of Visualized Public Information : Graphic Symbols (Pictograms)

Public information, such as traffic signals and signs that guide or prohibit our actions on roads, in buildings, etc. is necessary in our daily life. There are prepared by designing and editing information for the following of social rules, and they are used by the general public in various situations. Therefore, such information should be designed so that a maximum number of people understand its meaning with minimum efforts and without any gaps.

Pictograms are graphic symbols first used as road signs for international roads in European countries. Since the U.S. Department of Transportation waived the copyright of graphic symbols for public transportation, graphic symbols have been widely used in many countries as guiding signs in public facilities, such as train stations, ports, airports, and international convention sites. They are also used in a natural, effective ways in our everyday life, such as the operation displays of automobiles and electrical equipment, labels for product liability, etc. (**Fig. 1**).

In Japan, graphic symbols were re-developed as “Public Information Symbols – Symbol Signs for Public Information” on the occasion of the 2000 FIFA World Cup in Japan, and they have been widely used ever since as standard graphic symbols certified by Japanese Industrial Standards (JIS) (**Fig. 2**).

Those graphic symbols depict physical objects or phenomena in an easy-to-understand way so that as many people as possible comprehend what they mean. “Safety Colors & Symbols” (ISO 3864) is an international standard for graphic symbols, using figures ● (circles), ▲ (triangles), and ■ (squares) and colors (red, yellow, blue, and green) to represent meanings in general information users, safety signs, safety labels, prohibitions, hazards, etc. according to the standard (**Fig. 3**).

Public information utilizes graphical information for intuitive communication. For example, we, the Alliance for Disaster Reduction Designs, have been designing graphical information based on research results

