2-3. ADRC's Network of Information on Natural Disasters and Disaster Management

2-3-1. Configuration and Hardware

Figure 2-3-1-1 shows the configuration and information hardware of ADRC. The ADRC Network is wired to the Internet via a “B Flet’s” Business Type access line provided by NTT West at a best effort speed of 100 Mbps. Despite the rapid spread of ADSL services, ADRC does not use ADSL connections because the asymmetry in the uploading and downloading rates is not appropriate for ADRC to transmit information via servers.

ADRC will seek better networking solutions and switch to most rapid and cost-effective options at their earliest availability, in order to construct an easy-to-access information platform for providing rich and diverse contents including still images and videos.

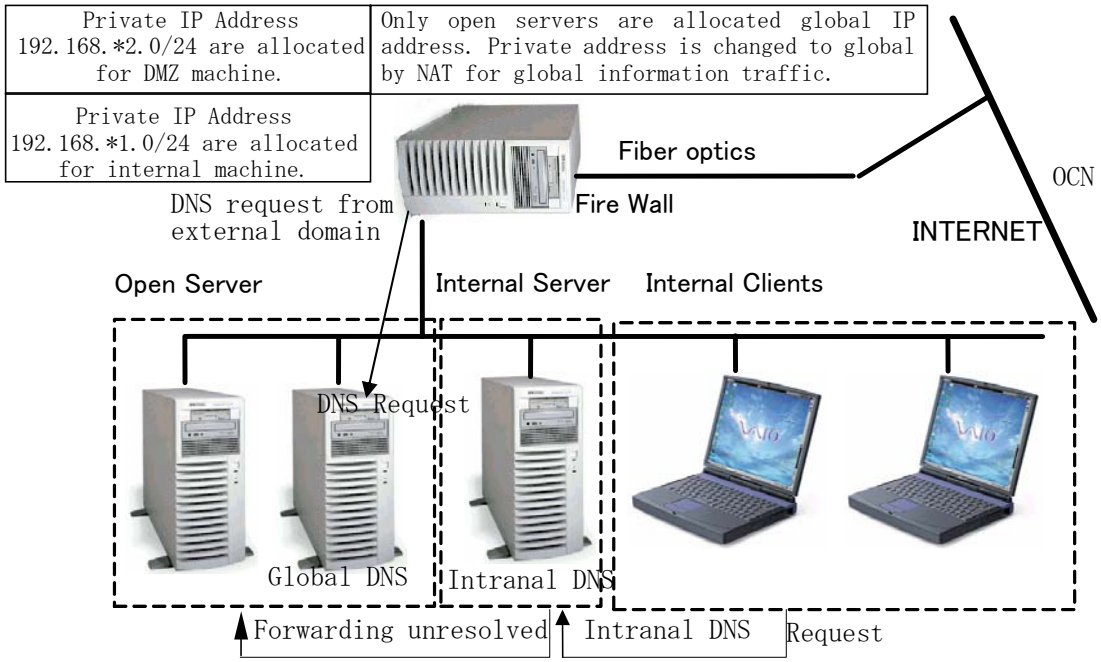

Fig. 2-3-1-1 ADRC Network Configuration and Information Hardware

Out of security considerations, ADRC has a firewall installed as a partition between the internal and external networks. The firewall is under 24-hour monitoring to check unauthorized access and unusually large volumes of access. The internal network is further divided into DMZ (DeMilitarized Zone) and LAN networks. The DMZ network consists of web, mail, and DNS servers, while the LAN network consists of client machines for individual researchers and different types of servers for internal use. All the machines connected to the DMZ and LAN are assigned private IP addresses valid only inside the Center. When an attempt is made to access a server in the DMZ from outside, the address conversion function built in the firewall converts the global IP address to the private address of the server to accept the access request. In addition to the conversion of the global IP address to a private IP address, the firewall routes packets according to rules that take into account the protocols and the source and destination of the packets. Thus, the firewall screens all the inbound and outbound traffic, minutely restricting access to internal servers as well as monitoring unauthorized access attempts.

In addition to the security against unauthorized access, host-controlled anti-virus software resides on every server and client machine to protect them from electronic viruses and worms, which are increasingly causing serious problems around the world. Furthermore, to block viruses that spread via the Internet and may pass through the firewall into the intranet, a

server dedicated to real-time virus detection and destruction is installed on the Internet gateway to block viruses attached to mail, access to virus-infected websites, and the risk of spreading viruses.

Moreover, to cope with the recent increase in unauthorized access and worm viruses, the Infiltration Detection System (IDS) has been installed along with the ongoing replacement of the Windows-based server operating system with Unix-based one.

Peripheral equipment installed includes backup storage devices such as CD-R, MO, DVD-R and DAT drives, printing devices such as black-and-white and color laser printers, raster image-scanning units such as flat-head and film scanners.

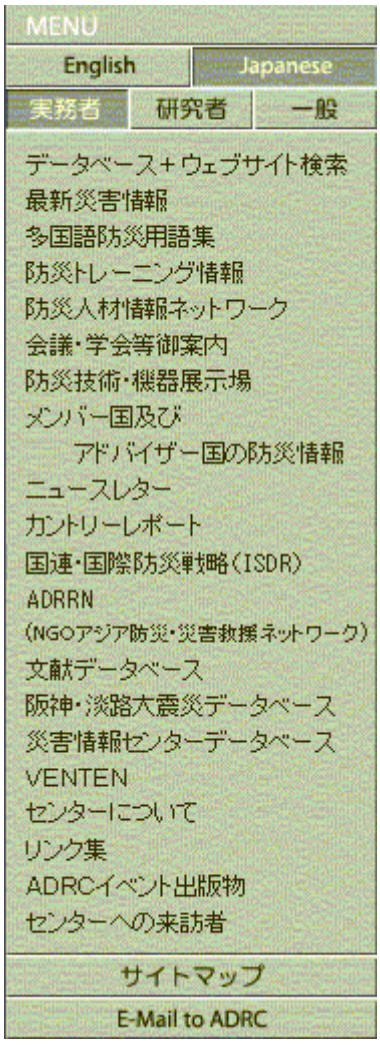

Fig. 2-3-2-1 ADRC HP Menu

2-3-2. ADRC's Website

As shown in Fig. 2-3-2-1, ADRC's website (URL http://www.adrc.or.jp/) consists of the following 13 databases plus access to VENTEN, ADRC's internet-based GIS (URL http://venten.www.adrc.or.jp/): Latest Disaster Information, Multi-lingual Glossary on Natural Disasters, Training Information Database, ADRC E-Net (ADRC Expert Network), Conference and Disaster Studies, Internet Exhibition, Disaster Information from Member Countries,
ADRC Highlights, Disaster Reports from Member Countries, ADRRN (Asian Disaster Reduction and Response Network), Archives, The Great Hanshin-Awaji Earthquake Database, and Center Information.

There are also pages introducing U.N. International Strategies for Disaster Reduction. In addition, GLIDEnumber.net (URL http://glidenumber.net/) – a disaster information generation and search site using GLIDE (GLobal unique disaster IDEntifier number) - and Suffered Area Image Information systems are now in the pilot rollout phase.

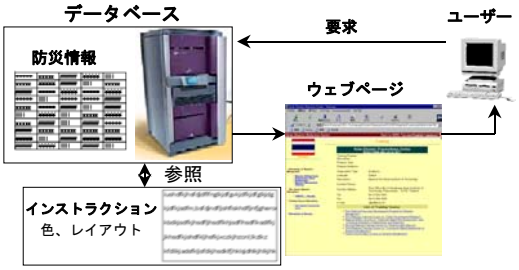

Fig. 2-3-2-2 Linked Database-driven Website

As shown by Fig. 2-3-2-2, these disaster reduction-related data are stored in their corresponding databases. When there is an access request from the Internet, the information is retrieved from the corresponding database and sent to the user in a hypertext format based on instructions for determining display coloring and layouts. Separate storage of the content data in the database from the layout instruction data frees administrators of complicated layout settings and allows easy layout change in batch to keep pace with user needs and technological innovation. This way of databases management makes it possible to provide users with two ways of information access (by content or by country) as well as a directory that further facilitates access.

To help understand how to access the information stored in the databases, let us take a look at ADRC's Latest Disaster Information database. This particular database collects and disseminates information on ongoing natural disasters as rapidly as possible. It collects web

reports from relevant organizations such as the UN and the media, summarizes their contents, and provides links to the original sources. As shown in Fig. 2-3-2-3, these data are managed in two tables classified respectively by disaster event and by report. When there is a request from a user (for a report), these tables are referred to to extract the relevant data from the database and create a report according to the layout instructions.

Remote updating is possible over the Internet as shown in Fig. 2-3-2-2. This fiscal year, it has become possible to update information via the Web pages except for some functions. This allows delivery of more accurate information and faster updating of information.

Latest disaster information is collected and recorded by full-time and part-time ADRC staff to minimize the lag time from when a disaster occurs until the relevant information is made available. On December 26, 2003, when an earthquake hit the Bam region in Iran, this ADRC site had 5,000 -10,000 access requests per hour through the direct link on Yahoo News Portal.

To make the ADRC website more convenient, the following features have been incorporated:

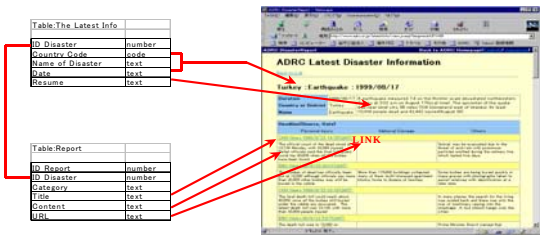

Fig. 2-3-2-3 Latest Disaster Information and Window Layout

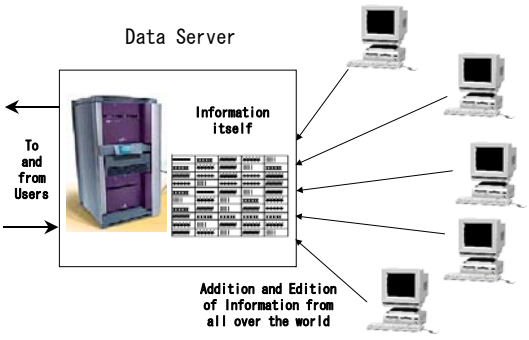

Fig. 2-3-2-4 Remote Updating over the Internet

① an easy-to-use menu for three types of users (Professional, Academic and General),
② a dual structure consisting of image-embedded pages and text-only pages, either of which can be selected according to the connection type of the user,
③ a dual structure consisting of English and Japanese pages, and
④ a platform that allows the user to select the options given in features ①-③.

An entry page is provided to guide the user through these features (See Fig. 2-3-2-5).

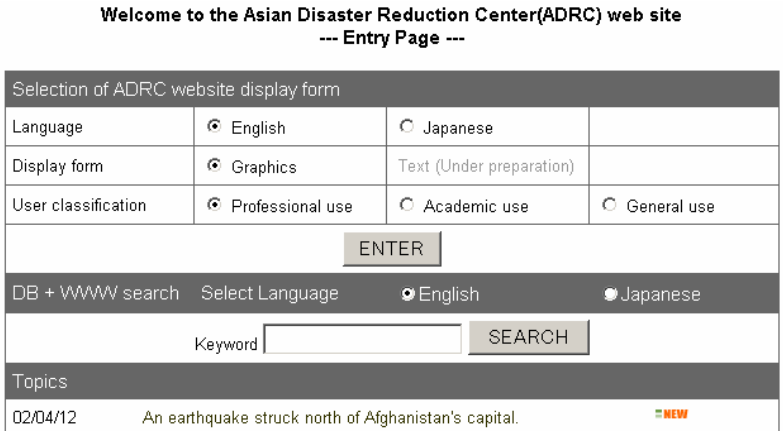

Fig. 2-3-2-5 Entry Pag

The top page of the ADRC website uses a clickable image map[1] to facilitate easy viewing of the latest disaster information. Due to the significant increase of data volume of the website, a powerful search engine is equipped to allow faster access to information in the ADRC website and other linked sites (see Fig. 2-3-2-6).

Following the system updating in last October, the ADRC webpage extension was changed from asp. to php., causing the existing users to fail to access it. In last December, the notification of the new URL was circulated, and a measure was taken to forward access requests via the old URL to the new top page. Since then, the access traffic has been increasing (See Fig. 2-3-2-7).

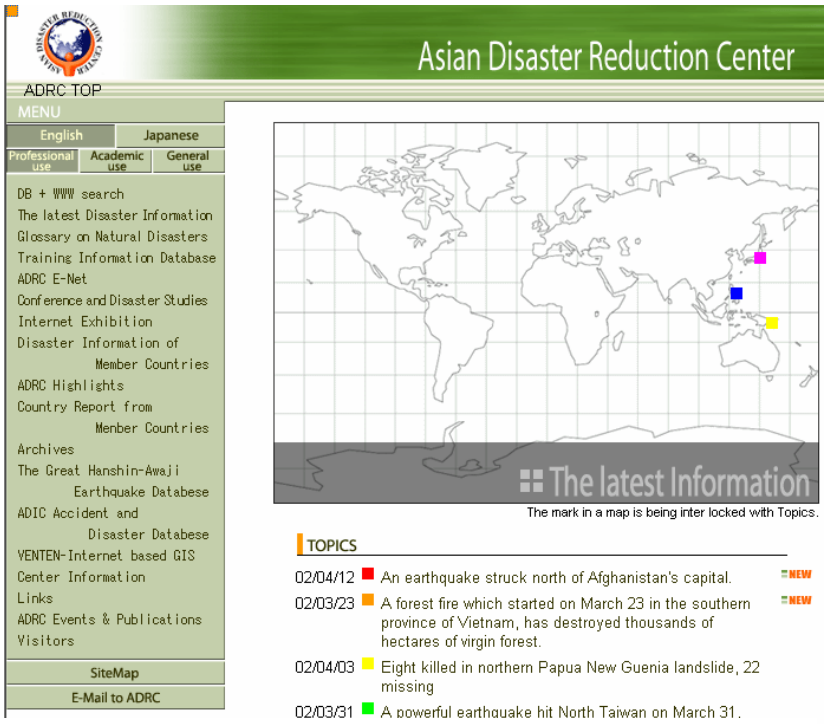

Fig. 2-3-2-6 ADRC top page

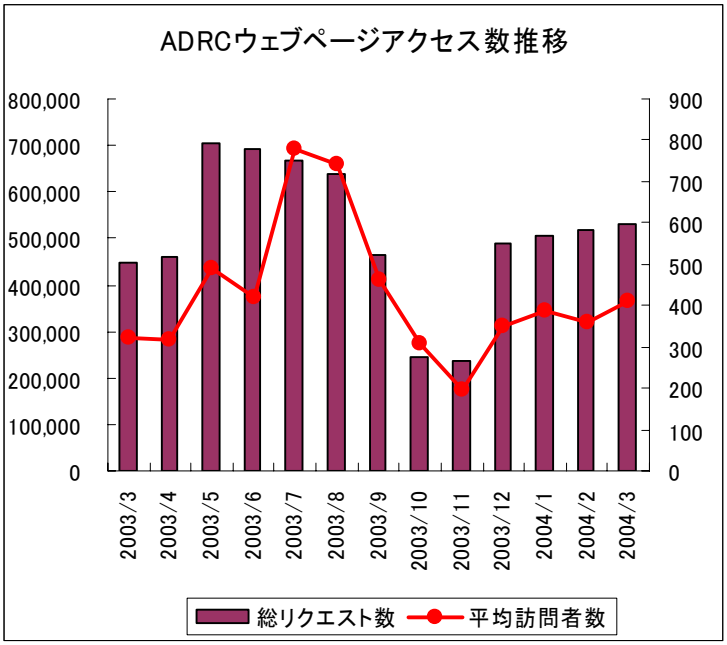

Fig. 2-3-2-7 Access Traffic

According to Google, an Internet search engine operator, the search results by keyword “Asian Disaster Reduction Center” in the Japanese and English languages have increased approx. by 13% to 1,810 hits, and by 82% to 57,300 hits, respectively.

[1] Clickable map: a function supported by Web browsers. It allows the user to jump to destinations specified by links embedded in images. The term also refers to images with such functions. Since it is possible to bundle multiple links in a single image, clickable maps are frequently used for map image-embedded websites or menus placed on the top or left of web pages.