# 3-3. Construction of the Natural Disaster Database

One of the factors that plays a very important role in preparing effective countermeasures against future natural disasters is the information on previous disasters, including what measures were taken against and what scale of natural disasters, how effective or ineffective they were and what were the lessons learned from the experiences. Compiling a database of natural disasters that have occurred in this century in Asia will be a valuable asset in the next century.

At present, various organizations have their own databases of statistical information on natural disasters that have occurred in this century. Natcat, a re-insurer in Munich, has accumulated information on more than 15,000 disasters dating back as far as 79 A.D., Sigma, a re-insurer in Switzerland, has a database containing information on more than 7,000 disasters which have occurred since 1970, and EM-DAT of CRED (Centre for Research on the Epidemiology of Disasters, Universite Catholique de Louvain) in Belgium has information on more than 12,000 disasters dating back to 1900. In addition, disaster information is provided over the Internet from various organizations, including UN OCHA that provides Situation Reports on major disasters experienced after 1980. At the ADRC International Meeting (annual member counties meeting) in December 1999, ADRC stressed the importance of constructing a comprehensive database of natural disasters in the 20th century by networking and making the best use of the existing databases. To promote information networking, ADRC became a member of GDIN (Global Disaster Information Network) in April 2000, and proposed the use of a global disaster ID system at the GDIN conference in Canberra in March 2001. The disaster IDs proposed by ADRC was launched as a pilot project in 2001. ADRC is also an Inter-Agency Task Force member of ISDR since 2002, and has been encouraging various activities for more effective sharing of disaster information.

## 3-3-1. Current Situation of Disaster Information Sharing

Many organizations collect and analyze disaster information focusing on their own priorities, and provide some of their results over the Internet and through other media. Many of these organizations are sharing information by linking their websites.

Under such a trend, UN OCHA started ReliefWeb to provide highly reliable disaster information, and today disaster information is available on a global scale via ReliefWeb. In particular, ReliefWeb has detailed information concerning disasters experienced after 1980, including Situation Reports, and provides us with document-based information such as the outlines and countermeasures implemented for the disasters that have occurred during the past 20 years.

UN OCHA opened its Kobe Office in August 2001, and has been providing disaster information on a 24/7 basis from three major cities, Kobe, Geneva and New York. CRED in Brussels, Belgium, has statistic data of natural and technological disasters that occurred after 1900, with more than 10 fatalities, and provides the data over the Internet.

In addition, LaRED based in Latin America collects and provides information on small- to medium-scale natural disasters that are not included in ReliefWeb and CRED.

In addition to the organizations above, various universities and institutes have information on disasters that have occurred in their local area and/or relating to the field of interest, and provide some of the information over the Internet.

In cases of disasters in past, however, it is not always easy to determine the exact date of the occurrence of the disaster such as flood or drought. As a result, the registered date of the disaster may vary according to the databases. Lack of standardized terminology for classification and naming of a disaster also makes it difficult to identify, and share, the exact information on the same disaster, especially when the information is old.

Detailed information on disasters that have occurred in Japan is found in the "Chronological Table of Natural Science" and "Meteorological Yearbook". A list of major disasters registered on the "Disaster Prevention White Paper" in Japan is available on the Internet.

The Disaster Reduction and Human Renovation Institution of Hyogo Prefecture launched a disaster database by utilizing GLIDE, which is the global disaster ID system mentioned in Section 3-3-3, for ease of information sharing.
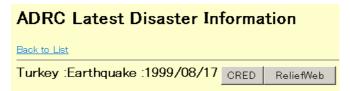
### 3-3-2. Asia Natural Disaster Data Book in the 20<sup>th</sup> Century

Based on the agreement between ADRC and CRED, ADRC has been in charge of the data verification of EM-DAT of CRED. Currently this situation and activity is quite challenging because of the fact that many countries do not have detailed records of disasters that have occurred during the past 100 years.

On the other hand, for many of the member countries, the EM-DAT is the sole data source to investigate past natural disasters in their countries. However, the data accumulated on EM-DAT had never been published as printed data and available for the Asian countries. Aiming at providing this valuable information to a wider range of disaster-related parties in the form of a printed data book, and with the expectation of feedback from readers that contribute to the acceleration of the EM-DAT data verification as well, ADRC published the "Asia Natural Disaster Data book in the 20th Century" in July 2000. This book contains disaster information extracted from EM-DAT for the member countries, including various tables and figures. This data book was revised and updated with latest disaster information statistical data and the results of the analysis in August 2002 as the "Asia Natural Disaster Data book in the 20th Century Vol.2"

### 3-3-3. Proposal by the Asian Disaster Reduction Center (GLIDE Project)

1) Disaster information sharing based on GLobal unique disaster IDEntifier number (GLIDE)



A great many disaster reduction organizations design and develop their own disaster databases and allow access over the Internet. When a disaster occurs in an area, information is distributed over the Internet not only by the organizations in the affected country but also by the organizations and mass media in foreign countries. When a disaster occurs in any area of the world, ADRC also collects information by searching the websites of various organizations, institutes and mass media all over the world as well as by sending email to the contact person in the affected area. The "ADRC Latest Disaster Information" page on the website is the results of ADRC's efforts in information collection.

However, there are problems that prevent prompt and effective information collection as noted below. It is necessary to search the website of each individual organization separately when a disaster occurs. There is no standardized naming protocol for disasters. As a result, different organization gives different names to the same disaster, which makes it difficult to access the exact information even when a leading search engine such as Google or Yahoo is used. A link to a website may be lost if the structure of the information source, database or homepage is changed.

The use of global disaster IDs (GLIDE) will be a solution to these problems. GLIDE will make a significant contribution to the improvement of information searches of disasters, both past and present.

At the GDIN meeting held in Canberra, Australia in March 2001, ADRC's proposal on information management based on allocation of standardized codes was accepted and launched as a pilot project.

Consisting of leading organizations such as ADRC, OCHA, ReliefWeb and CRED, and supported by FAO, World Bank, USAID/OFDA, NOAA, IFRC, UNDP and the ISDR Secretariat, this project began activities such as the discussion of the structure of GLIDE and a promotional strategy.

The structure of GLIDE is shown below.

AA-BBBB-CCCC-DDD

AA: Disaster classification

| | |
|---|---|
| Drought | DR |
| Earthquake | EQ |
| Epidemic | EP |
| Extreme Temperature | ET |
| Insect Infestation | IN |
| Flood | FL |
| Slide | SL |
| Volcano | VO |
| Wave / Surge | WV |
| Wild Fire | WF |
| Wild Storm | ST |
| Complex Emergency | CE |
| Technological | AC |

BBBB: Year the disaster occurred (4-digit numeric figure)

CCCC: Serial number by year

DDD: Country code (ISO code. For example, JPN stands for Japan)

The pilot phase of GLIDE was rolled out in January 2002 and was based on the standardized GLIDE generation protocol and notification procedure described below.

1.  Upon the occurrence of a disaster, ReliefWeb generates a new GLIDE ID and notifies CRED via email.
2.  For disasters other than 1 above, CRED generates a GLIDE ID within 1 week of the occurrence of the disaster.
3.  CRED informs ADRC and other related organizations of the GLIDE IDs generated in 1 and 2 above on a weekly basis via email.
4.  ADRC dispatches the GLIDE IDs to each of the individual organizations under ADRC using the "Highlights" communication channel.

A standardized ID code is assigned in 4 steps.

1.  Add a GLIDE column to database.
2.  Download the data on previous disasters from http://www.cred.be/emdat/disdat1.htm.
3.  Enter the ID assigned by CRED to each disaster into the column created in step 1 above. Then, retrieve data from the database using GLIDE as the key.
4.  Create a program to display data retrieved from the database using GLIDE as the key.
    In the case of a database already open to the public sector, this function can be easily attained by a small modification of the existing program.

Creating a button/link to easily facilitate access to the related links. Create a button that contains the URL and GLIDE of each organization linked. Now the database can share information with other databases all over the world using GLIDE.

In order to enhance the promotion of GLIDE, ADRC is currently developing GLIDENUMBER.net (http://glidenumber.net/). The GLIDENUMBER.net provides services such as explanation of GLIDE, search of the latest disaster information, registration to GLIDE mailing list, registration to GLIDE membership, and generation of new GLIDE code.

ADRC expects the information complied by GLIDE to be proactively utilized by the member countries and disaster-related organizations. The use of the ID codes will provide the following advantages.

☐ When searching for information by parameters, links to related disaster information compiled by various organizations can easily be attained.

☐ By developing a search engine focusing on parameters of particular importance for each organization, all necessary data will be retrieved and displayed on one page without searching the websites of each organization (note the problem described in the section below).

☐ Even when the design of the information sources database is changed, the use of the search engine above will facilitate access to the information, without loss of the links to said information, by utilizing the assigned ID code. It is also easier for the accessing party to modify the search method to meet the design changes of the sources information database.

2) Challenges in developing the system

There are some inherent challenges in developing this system in an effective manner. Ready access to information on previous disasters is available on the condition that the disaster has already been registered with the GLIDE system. For newer disasters, however, one has to wait for a maximum of 1 week until a GLIDE code is assigned, which impedes immediate information sharing. It is necessary to prepare a framework that allows GLIDE to quickly assign an ID for ready access and information sharing.

The member organizations of GLIDE incur additional responsibilities such as integrating GLIDE to databases that are accessible by the public and provide services to database visitors who need to search the GLIDE system.

In cases where a database is restricted due to the server's structure or for security reasons, the database coordinator has to create a more accessible secondary database of meta data utilizing the ID codes.

In the current CRED database (EM-DAT), there is a considerable lack of data, in particular, the older disasters. Based on the inquiries to member countries, the ADRC prepared the corrections to be made to the old disaster records on the EM-DAT and sent it to CRED. The updates to the database, however, have yet to be made.

3) Activities at the United Nations

ISDR working group Ⅲ sessions were held regarding the disaster information and vulnerability assessment in Geneva on March 10th and 11th. The following points were discussed.

1. Comparison of the existing databases to improve the accuracy of the disaster information database.
2. Promotion of GLIDE (GLobal unique disaster IDEntifier number).
3. Appropriate index for the risks and vulnerability assessment.
4. Tools for risks and vulnerability assessment.

ADRC explained the need for GLIDE, which was proposed and promoted by ADRC along with OCHA ReliefWeb and CRED, and provided the current development status of GLIDE Search that enables searches for previous activities and disaster information. In addition, ADRC proposed an Automatic Generator that expedites the process of sharing GLIDE at the time of a disaster and a report system to publicize the information.

GLIDE was highly evaluated at the working group sessions as a tool to share information. Further discussions took place on the need to narrow down the structure and management method of GLIDE, establish GLIDENUMBER.net as the GLIDE information site and implement a pilot project to make national level disaster information databases GLIDE compliant.

4) Further promotion of GLIDE

In order to further promote disaster information sharing, it is necessary to enhance GLIDENUMBER.net for ease of GLIDE registration and information searches, and invites more of the partners to fully deploy the GLIDE system.

Making the best use of the existing framework of the UN ISDR, ADRC will continue to make efforts in promoting GLIDE by holding GLIDE partner meetings to identify challenges and seek the way forward through active discussions.