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## National Diet Library's efforts to build the Great East Japan Earthquake Archive and its current status

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### 1. Abstract:

*The Great East Japan Earthquake, which struck Japan on March 11, 2011, caused extensive damage in several parts of Japan and has affected Japanese society, culture and economy in various ways. Since immediately after the earthquake, the importance of passing on this historical experience to future generations has been pointed out in Japan and overseas. The Japanese government announced its basic policy towards the recovery from the earthquake. This policy pointed out the need to develop a system to collect, preserve and give access to records and lessons of the earthquake, tsunami and nuclear disaster. Based on such a national policy, the National Diet Library (NDL) has been working on the development of "The Great East Japan Earthquake Archive Project" to collect, preserve and give access to the information related to the earthquake for Japan as a whole.*

*In order to promote this project, the NDL drew up "The Great East Japan Earthquake Archive Action Plan" on July 2012. The NDL needs to deal with diversified digital contents such as moving images, sound recordings, SNSs, e-books, e-magazines, fact data, broadcasts etc. in the archive. There are many challenges to overcome, because librarians in general do not have the experience and expertise to collect, organize and preserve these contents. The challenges are not only for the NDL but also for the archive institutions in the world.*

*In this paper, I will introduce the efforts towards the collection and preservation of the records of the Great East Japan Earthquake and discuss challenges and prospects for the future.*

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## 2. Purpose of building the Great East Japan Earthquake Archive (HINAGIKU)

The Great East Japan Earthquake, which struck Japan on March 11, 2011, caused extensive damage to several parts of Japan and is still affecting Japanese society, culture and economy in various ways. Since immediately after the earthquake, the importance of passing on this historical experience to future generations has been pointed out in Japan and overseas.

The Japanese government announced its basic policy for recovery from the earthquake, “Basic Guidelines for Reconstruction in response to the Great East Japan Earthquake” in August 2011. This policy pointed out the need to develop a system to collect, preserve and provide records and lessons of the earthquake, tsunami and nuclear disaster, to preserve official documents of the affected areas, to share the lessons of the past earthquakes and tsunami that occurred in Japan and overseas, to promote the digitization of not only these records and lessons but also documents and books related to the affected areas, to build a portal site which people around the world can access, and to transmit the information all over the world.

Based on such a national policy, the NDL has been working on the development of “The Great East Japan Earthquake Archive Project” to collect, preserve and provide information related to the earthquake for Japan as a whole with many organizations. The project aims to contribute to building a nation which is based on the lessons of the Great East Japan Earthquake, to entrench the awareness of the importance of preserving records, and to expand preservation activities through making good use of records.

We nicknamed the Great East Japan Earthquake Archive Project HINAGIKU (daisy in English). It was made up of the initial characters of “Hybrid Infrastructure for National Archive of the Great East Japan Earthquake and Innovative Knowledge Utlization.” We put the meaning of the flower language of hinagiku, “future,” “hope” and “I feel the same as you,” in our project to support the earthquake recovery. From now on I will call the Great East Japan Earthquake Archive Project HINAGIKU in this paper.

There are three basic concepts in HINAGIKU as follows:

- (1) To fulfill the responsibility of national institutions to collect, preserve and provide the records related to the Great East Japan Earthquake
- (2) To share the roles of public and private organizations in collecting and preserving the records related to the Great East Japan Earthquake
- (3) To transmit the records domestically and internationally and pass them on to future generations

First of all, to collect, preserve and provide the records related to the Great East Japan Earthquake is a project not only of the NDL but also by the whole nation based on the above “Basic Guideline for Reconstruction in Response to the Great East Japan Earthquake.” Various public and private organizations related to the earthquake share the task of collecting and preserving the records: In short, the NDL itself will not collect and preserve all the records kept by various organizations in Japan. HINAGIKU takes the role of a portal site which shows who holds the different records of the earthquake. Therefore, a cooperative relationship with related organizations is very important, which I will explain in detail later.

There were multiple disasters caused not only by the earthquake itself but also the tsunami, the Fukushima nuclear accident and others. To avoid such disasters happening again, we think that it is very important to transmit the information leading to disaster prevention in the future and the records showing the process of restoration to all over the world. Therefore, we provide HINAGIKU in English, Chinese, and Korean, as well as Japanese.

Furthermore, we think that this information about the Great East Japan Earthquake should continue to be transmitted to future generations permanently. Though nobody knows when and where an earthquake will occur, memories and experiences passed down by us must be useful for people in the future to prepare for a possible earthquake. In addition, we hope to transmit the history and culture of people before the earthquake in the affected areas. Accordingly we decided to collect in HINAGIKU the records of scenery and traditional events before the earthquake in the areas.



**Figure 1** Top page of the Great East Japan Earthquake Archive (HINAGIKU) (English version)

### 3. Records collected in HINAGIKU

The target records to be collected in HINAGIKU are as follows:

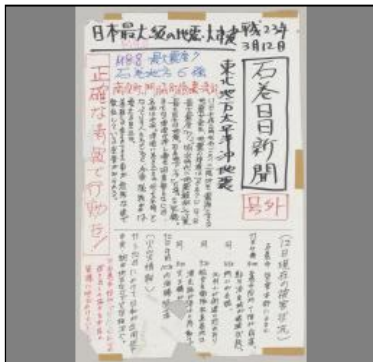
Subject	Records of the Great East Japan Earthquake and its damage, records of the affected areas before the earthquake, records of the restoration and reconstruction after the earthquake
	Records of aid activities by public organizations such as the national government and local governments, records of aid activities by private organizations such as non-profit organizations (NPOs) and volunteer groups
	Records of the disaster prevention planning and academic research before and after the Earthquake, records contributing to disaster prevention in the future
	Records of the nuclear hazard caused by the earthquake
	Records of earthquakes and tsunami etc. that occurred in the past
	Records of the domestic and overseas trend of politics, economy and society etc. after the earthquake
Format	Books, journals, newspapers and other publications and the digitized data
	Reports, research papers, news
	Websites of public and private organizations
	Pictures
	Videos
	Sound (Interviews etc.)
	Fact data (observed data, geodetic data etc.)

The NDL drew up “The Great East Japan Earthquake Archive Action Plan” in July 2012 to set our policy of collection, preservation and provision. Three main activities by the NDL are defined as follows:

- (1) Collecting documents – physical materials including paper documents and digital contents – by the NDL
- (2) Facilitating and aiding the collection and preservation of the contents related to the earthquake by various organizations
- (3) To cooperate with each institution and organization for cross-searching the contents related to the earthquake as much as possible

### 3-1. Records acquisition by the NDL

The legal deposit system mandates that copies of all new publications published in Japan must be sent to the NDL in accordance with the National Diet Library Law (Law No.5, February 9, 1948). Therefore, publications can be collected by this system. In regard to other records which are not published, we collect them by donation from the organizations, institutions and individuals that made or hold the records. For instance, there are many records of aid activities by private organizations such as NGOs, NPOs, volunteer groups, and also handwritten wall newspapers which were posted in evacuation shelters. We visited holders of the various records to explain our HINAGIKU project, gained an understanding toward our policy from them, and received donations of their records. There were digital contents as well as paper documents in the donations, and many videos are also available in HINAGIKU.



**Figure 2** Handwritten wall newspaper posted in a shelter  
(Extra edition of “Ishinomaki hibi shinbun”)



**Figure 3** Record of aid activities by private organizations such as NGOs, NPOs, and volunteer groups (Video)  
 (“The Great East Japan Earthquake and Japanese NGOs : From emergency relief to reconstruction? A turning point for the future” produced by an authorized nonprofit organization, the Japan NGO Center for International Cooperation, financed and cooperated by the Global Citizen Foundation)

The target records to which we give priority are as follows:

Records of the Great East Japan Earthquake made or held by public organizations, records of aid activities by public organizations in the affected areas
Basic data of the Great East Japan Earthquake made or held by public organizations
Records of aid activities by private organizations such as NGOs and NPOs (especially the nationwide organizations) and the situation of the affected areas reported by the organizations
Research results of the Great East Japan Earthquake and the basic data by academic organizations such as academic societies
Records of aid activities of the Great East Japan Earthquake by companies engaged in key industries
Video and sound sources of aid activities of the Great East Japan Earthquake by private organizations such as NGOs, and NPOs
Records of the nuclear accident caused by the Great East Japan Earthquake
Video and sound sources on damage by the Great East Japan Earthquake, which include information of academic and historical value

The NDL set the order of priority in collecting documents according to the creators, recorded organizations and contents of the records, regardless of their form. For instance, the order of priority of NPOs and NGOs is set next to public agencies, since they have been significantly aiding the affected areas. In addition, documents of the National Diet of Japan Fukushima Nuclear Accident Independent Investigation Commission (NAIIC) and other records related to the nuclear power plant accident and its damage have been actively collected.

The process of collecting these records starts with getting information about which organization holds what kind of records. To do that most effectively, we approached organizations having a lot of information about these records and asked for cooperation, in addition to searching the aid activities of various organizations on the Internet and contacting them individually. We standardized the text and procedures and have been broadly asking for cooperation to collect records through organizations with nationwide networks. For instance, we approached the KEIDANREN (Japan Business Federation), and thanks to its help, some private companies donated their records to us. In regard to NPOs and NGOs, we approached the Nippon Foundation and the Japan NGO Center for International Cooperation (JANIC) and some organizations also donated their records to us. The request to each organization is for the donation of their records and for the permission for the NDL to collect and preserve websites of private companies and various organizations. Records of the Great East Japan Earthquake are very important for the affected areas as local documents, so libraries in those areas are collecting them diligently. We also asked the organizations holding such records of the Great

East Japan Earthquake to donate them to libraries of the affected areas (Iwate Prefectural Library, Miyagi Prefectural Library, Fukushima Prefectural Library).

Furthermore, in cases where it is difficult for the NDL itself to collect records, we manage to collect the metadata or cooperate on integrated search with other archive systems. If it is difficult for another archive system to preserve records, we will collect them diligently regardless of our priority and format to avoid their being lost or scattered.

### 3-2. Promotion and support of records preservation by other organizations

There are many organizations which have the records of the Great East Japan Earthquake: Administrative agencies, local governments, libraries, universities, research institutions, media, press, volunteer groups such as NPOs and NGOs, private companies etc. We ask them to supply the location information of their records. We also ask them to preserve their records permanently themselves, and in case it is difficult for them to do so, we recommend them to donate their records to archive systems of the Great East Japan Earthquake including HINAGIKU.

Especially the local governments of the affected areas are very busy with the restoration and reconstruction activities after the earthquake and the situation will continue for some time. So they have no time to make, collect and preserve the records of the earthquake. Though the top priority is to support the life of the people who survived and to promote the reconstruction of infrastructure and economy, the staff of local governments of the affected areas have a strong will to minimize the loss of the records which are likely to disappear as time goes on and instead to transmit them to future generations. In some areas which have an archive office, official documents of the local governments will be transferred to the office and preserved permanently. However, the archive office does not collect and preserve staff member's notes which are highly likely to include a lot of urgent, concrete and important information and will disappear as time goes on. The NDL thinks it important to build a system in which the scattered records including such notes written by the staff will be not disposed of but preserved and organized gradually, so that the records will be left to future generations. Therefore, we decided to visit local governments of the affected areas and ask the staff to compile their records into a book and supply them to the NDL and prefectural libraries. We think this activity enables them to understand the importance of making records and preserving them, and will continue it with enlarging the range of local governments.

The NPOs and NGOs which engaged in aid activities for the people in the affected areas immediately after the earthquake hold a lot of precious records of their activities. The majority of organizations like them is on a small scale and work with limited staff and funding. They have no time and money to compile records, place low priority on records because they are busy

with restoration and reconstruction activities, and lack the funding and know-how. Furthermore, there are lots of organizations which decided to work for only three years after the earthquake due to the limited staff and funding. There must be many organizations which will stop their activities and disband this year. This is our last chance to save the buried experience and information in these organizations and individuals. Various records are included such as handwritten notes, documents in PCs, proceedings of meetings, journals, e-mail text, bulletin boards, blogs, etc. We are now consulting with a core volunteer group which is taking the central role in networking between NPOs including overseas ones and talking on how to arrange and compile into book form the precious records held by each group, and transmit them to future generations. As a measure for it, we will provide the opportunity to these groups to learn the know-how of archiving: Concretely, we are planning to invite a specialist in archiving and hold a workshop for NPOs and NGOs which worked for the affected areas on how to organize and preserve various unarranged records.

In addition, in case it is difficult for a related organization to keep the archive system and there is no organization which can take it over, the NDL will accept the records collected by the organization. Not only public organizations but also private organizations build the digital archive of the Great East Japan Earthquake and there may be some organizations which cannot keep it because of the maintenance cost. We are afraid that the precious records collected with much effort will disappear as a result. The NDL will be their successor if this is the case. Each organization can build their digital archives without worries, knowing about the backup activity by the NDL. We think that such backup is one of our important activities to prevent these precious records from being lost.

### 3-3. Cooperation with other archive organizations

It is necessary for the Great East Japan Earthquake Archive Project to cooperate with other digital archives of the earthquake, as it is the nationwide project. HINAGIKU is cooperating with 15 organizations and the total number of data is approximately 2.4 million as of May 2013. Of course, it contains bibliographic data of materials held by the NDL and records donated to the NDL, but the majority is the data of other archives cooperating with HINAGIKU.



The cooperating organization with HINAGIKU is as follows:

	Database	Organization	Number
Public organization	CiNii Articles	National Institute of Informatics	200,000
	JAIRO	National Institute of Informatics	35,000
	J-STAGE	Japan Science and Technology Agency	6,000
	JAEA OPAC	Japan Atomic Energy Agency's Library	1,160,000
University, research institution	Great Hanshin-Awaji Earthquake Disaster Materials Collection	Kobe University Library	270,000
	Michinoku shinrokuden system	Tohoku University	100,000
	Research Center for Cooperative Civil Societies Rikkyo University	Research Center for Cooperative Civil Societies Rikkyo University	2,000
	Digital Archive of Japan's 2011 Disasters	Edwin O. Reischauer Institute of Japanese Studies at Harvard University	9,000
Private organization	East Japan Earthquake Picture Project	Yahoo!JAPAN	40,000
	Memories for the Future	Google	15,000
	KAHOKU SHIMPO DISASTERS ARCHIVE	Kahoku Shimpo Publishing Co.	80,000
	The East Japan Great Earthquake Archives	NHK	800
	FNN Remembering 3/11	FNN	70
	Rikuzentakata Earthquake Archive NAVI	Toppan Printing Co.	11,000
	Aomori Digital Archive System	Aomori Digital Archive Consortium	12,000
	The Great East Japan Earthquake Archives Fukushima	The Great East Japan Earthquake Archive Fukushima	18,000

(May 2013)

In cooperating with other archives, we first searched digital archives of the Great East Japan Earthquake on the Internet. We began to search half a year after the earthquake, and at that point, we found about 50 digital archives, large and small. Among them, we contacted some archives which held particularly heavy and important records, explained the purpose of our project, and consulted with them to cooperate with our system. All the archives agreed to our suggestion and we could cooperate without a big problem, because they were positive about adding the search channel and had a common thought to make their archives used by people as much as possible. The major difference of our project from before is that we cooperate with not only public organizations like administrative agencies, local governments, and universities etc. but also private organizations like NGOs, NPOs, volunteer groups, public service corporations, private companies etc. It makes no difference whether the aiding people and organizations are public or private. We think that it was a very significant achievement to build the portal system through which all people can see public and private records of the earthquake all together.

#### 4. Records preservation in HINAGIKU

The records of the Great East Japan Earthquake are in paper form and digital form. In regard to paper form records, the holder including the NDL should carefully preserve them depending on their nature. The handwritten record is one of the records which each organization is anxious about handling. People of the affected areas handwrote various guides on paper including the backing paper of a poster etc. because of the absence of electricity immediately after the earthquake.



**Figure 4** The shelter in Rikuzentakata city  
Daiichi Junior High School  
(East Japan Earthquake Picture Project by Yahoo!  
JAPAN)

Many organizations put such paper records into cardboard boxes together. Since they cannot keep them as they are forever, we are often asked about how to handle them. The ideal way is to digitize and preserve them, but most organizations do not have a digitization budget and these records may be disposed of some day. Guides written in shelters and records showing the situation will be very precious information for managing a shelter in future earthquakes, so it is better to avoid doing away with them. Securing the digitization cost is one of challenges to preserve these records for the long term.

Among digital records, there are not only the data digitized from paper records but also

documents in PCs, e-mail text, bulletin boards, blogs, pictures and videos taken by digital cameras, sound sources in recorders etc. Unarranged records contained in individual PCs and mobile phones should be organized. As I mentioned in the preceding paragraph, we would like to preserve the precious records for future generations without being lost by providing the opportunity for a specialist in archiving to teach the know-how to the organizations holding the records. The records arranged in this way should be registered in a digital archive and have backups made. The backup should be preserved not only in each archive's place but also in a remote location. In the Great East Japan Earthquake, a lot of digital data including the backup data disappeared, because they were all kept together within the Tohoku area. We recognized the necessity to preserve the backup data not in the neighboring area but in a remote location. In this sense also, the records of the Great East Japan Earthquake should be registered in our HINAGIKU and the local data should be preserved in Tokyo, too, to avoid the data loss at the time of disaster.

In regard to long-term preservation, there are other problems about the recording media and electronic equipment for playing: There is a limit on the longevity of recording media, and there is the possibility that the electronic equipment for playing will disappear in the future even if we keep the recording media appropriately. Being the legal deposit library, the NDL receives all publications regardless of their media. CDs and DVDs are also the target of the legal deposit system and we are paying attention not to shorten their lives because of environmental factors such as light, high temperature and high humidity. A digital record cannot be read without the right electronic equipment for playing. Though we need to think about the life and availability of the electronic equipment for playing in addition to the recording media, no recording method is guaranteed to assure the data reading for a long term without fail because of the life duration of recording media and equipment for recording and playing. The NDL regards it as a serious problem, examines migration and emulation techniques and makes a survey of long term preservation; but the definitive solution has not been found yet. The NDL holds a lot of electronic records and there are already unreadable CDs and DVDs for which we are forced to take prompt measures. There are various file formats in HINAGIKU. We convert to the typical file format which can be used as long as possible, but it is still necessary for us to examine the measures for long term preservation to deal with the future impossibility.

##### 5. Data supply by HINAGIKU

The records of the Great East Japan Earthquake contain a lot of personal information such as the names and pictures of the missing people displayed at shelters, the information of the dead, injured and missing, and the contact addresses of tenants of temporary housing held by local governments and administrative agencies. There are a lot of pictures and videos which hold the

portrait rights, and tragic pictures and videos which are not good for opening to the public as well. These records are difficult to be released now, but they are very precious records which should be left to future generations. We are planning to register them to HINAGIKU for a time to avoid the loss, and may open them to the public after some years or even decades if the rights are cleared. There are a lot of records difficult for us to judge when we should release them or whether we should open them to the public at all. Now such records are not contained in HINAGIKU, but there is a possibility to hold them there in the future.

When the NDL receives the donation of records, we make a license agreement and confirm the various conditions. By request from the donors, we often set restrictions on the use and period of opening to the public. There are three patterns in the restrictions on use now: Use on the NDL premises, transmission to libraries approved by the NDL, and provision on the Internet. We think it necessary to consider about how to provide records to limited researchers before too long, since the study result of the damage situation and management of shelters by the researchers may contribute to disaster prevention in the future.

## 6. Utilization of HINAGIKU

The NDL released HINAGIKU on March 2013 and we need to think how it will be used effectively by more people from now on. Of course, it is important to collect records, and we will continue to appeal for the precious records not being lost. However, just the collection and preservation of records will not contribute to disaster prevention in the future: Our project will be a meaningful one if it is used by many people. Building a user-friendly interface is the first step for it. The map display and the timeline display etc. are available in HINAGIKU. The map display enables the users to search digital records like pictures, videos and documents on the map screen, and see the records of a particular region. The timeline display enables the users to search digital records on the timeline. They can confirm the progress of reconstruction by changing the time base and track the passage of time. The next step is showing users how to use HINAGIKU. It is difficult for them to find the records which they are looking for by displaying the search results from huge amounts of records. The more the amount of records increases, the more difficult they find the records they are looking for. We are thinking to introduce the contents suit for each purpose by showing the samples of use. For instance, it may be convenient for a local government to make a new disaster prevention plan based on the past plans and damage of the Great East Japan Earthquake if they can see the compiled page of the information which helps in making it. It may be also convenient for a teacher and parents to give children education on disaster prevention if there are some compiled pages of pictures of the affected areas, interviews of the affected people and reports on evacuation. We made these compiled pages in HINAGIKU so that the users can get image of using HINAGIKU concretely.

In the future, we may visit the libraries and schools in the affected areas to hold a workshop on HINAGIKU for publicity. We aim for the users to know and use the records in HINAGIKU, and discuss the necessary records and functions for them to make HINAGIKU more useful. We have the image that we will cultivate our archive HINAGIKU together with the users.

## 7. Future perspective

In addition to the above-mentioned problems, the secondary use of the contents is the biggest challenge for HINAGIKU. Now, we entrust the judgment of secondary use to the donor by informing the contact address of the donor to users when requested, which is stipulated in the license agreement with the donor. The same applies to the records of the archives of cooperating organizations. To enable more people to use the records of the Great East Japan Earthquake, it is ideal that all people can use them as they like. However, users have to contact the record holder and copyright holder directly, as there is not a coordinated system yet. We hope the records of HINAGIKU will be utilized in publications and websites about the Great East Japan Earthquake, introduced in broadcast programs, and used for making disaster education materials; but we cannot promote the use of HINAGIKU now because of the complicated procedures. Our task is to organize the system of secondary use and enable people to use the records conveniently.

Another challenge is to continue collecting records for HINAGIKU and increase the number of the cooperating archives. There are a lot of records related to the Great East Japan Earthquake in all over the country. Most of them are assumed to be in the affected areas, but there are also records made by the aiding people who rushed in to support the earthquake recovery from all over the country. Most of such records may disappear without being preserved after they return to their homes. Therefore, it is necessary to collect and preserve them in HINAGIKU or other archives through the library network before they are being lost. As I mentioned in the preceding paragraph, it is necessary to collect and preserve records held by NPOs, and especially volunteer groups which have been supporting the earthquake recovery and may disband in the near future. The NDL will begin to support them in organizing the records, which is a problem we should manage quickly.

The NDL will promote collecting the records related to the Great East Japan Earthquake continuously as a national commitment, and thinks that if people widely use the records, the significance will increase and the necessity of permanent preservation will be widely acknowledged. We aim to transmit the records related to the earthquake to all over the world and contribute to the disaster prevention in the future by promoting their use.