We strive to pass on our library materials to future generations.

The National Diet Library is the sole legal deposit library in Japan and preserves a wealth of materials acquired through the years as national cultural properties. It is an important mission to hand down those precious materials to be used in the future, for hundreds of years.

Library materials deteriorate for various reasons. We are constantly thinking about how we can pass on materials to the future and what we must do to preserve our collections.
Deterioration of materials stems from a variety of causes.

**Damage and deterioration by use**

We cannot avoid damage and deterioration of library materials arising from daily use. Recently, in particular, damage from photocopying is increasing rapidly and is becoming a major problem. Materials are also damaged by misuse such as cutting pieces off and writing on the pages. Turning a page violently, tossing or dropping materials, or reading while eating or drinking also poses risks.

**Disasters**

Disasters such as fire, windstorm, flood and earthquakes can threaten the loss of an entire library collection.

**Environmental threats**

Inappropriate storage environments such as high temperature and humidity, inadequate cleaning, and exposing materials to sunlight for a long time, can cause damage to materials from insects, mold, and discoloration.

**Acid paper**

After the mid-nineteenth century, the spread of printing technology increased demand for paper and brought in mass production of paper. To increase productivity, various chemicals were added to paper in the process of manufacture and consequently a large amount of acidic paper was produced. This so called “acid paper” becomes brittle in time, as cellulose loses its stability.

**Deterioration of non-paper materials**

Microfilms have been used as media to preserve the contents of paper materials for a long time. The cellulose acetate-based films which were produced in the past deteriorate rapidly if they are stored in high temperatures or humidity, or in a hermetically sealed container. However, the polyester-based films which are currently available are much more stable. Magnetic tapes such as audio tapes and video tapes also deteriorate rapidly.

Inappropriate storage environments can cause physical and chemical damage to magnetic disks and CD-ROMs as well as causing loss of data. There is another problem: it may become impossible to play them because the equipment and formats required for replay soon become obsolete.
We strive to maintain a good environment and take measures to prevent damage to materials. With a limited budget and manpower, we cannot treat all damaged materials. So we sort them into groups by damage level, frequency of use and other factors, then assess their preservation needs, set priorities and seek the best means of treating them.

**Environmental management**

The NDL employs a closed stack system. Most of the collections are stored in the stacks with limited access. To maintain a suitable environment, the temperature in the general stack space is kept around 22°C and the relative humidity around 55%. The stack space is kept dark to reduce damage by light. Against possible fires, the stack space is divided by fire doors, and fire extinguishing systems that do not use water are installed. For Integrated Pest Management, we set out sticky traps and monitor them regularly. Rare materials and microfilms are kept in their own separate storages in the general stack space.

**Preventive measures**

**Phase box**

Some materials are put in phase boxes made from chemically stable materials. Some sheet materials are kept sealed between two sheets of polyester film.

Phase box made from acid-free board paper

Encapsulating with polyester film

**Reinforcement and removal of deterioration factors**

We bind some frequently-used materials to improve durability and prevent loss. As metals may damage paper, stapled materials are rebound with thread. We remove clips, rubber bands, cellulose tapes and mending tapes because they can also cause deterioration. Dirt and dust on materials are also removed.

**Conservation treatment**

Our policy for repairing damaged materials is: (1) save as much as possible of the item's original character, including its function, structure type, etc, (2) choose a reversible process for treatment, which allows the item to be its pre-treatment condition, (3) choose safe and chemically stable materials for repair, and (4) record all the details of treatment applied to the item. The following treatments are carried out by conservation staff members: “Tsukuroi,” mending with various kinds of Japanese paper and starch pastes, “Chūson naoshi,” filling in worm-eaten parts, and rebinding leather bound books.
Reformatting

The NDL converts the content of materials into other media and provides them to users so as to preserve the originals. We have microfilmed old and damaged material groups. After the Japanese books published in the Meiji and Taisho eras, we are now microfilming rare materials, Japanese books published in the early Showa era and Japanese magazines.

Japanese books in and after the Meiji era and rare materials are also digitized and made public via the “Digital Library from the Meiji Era” and the “Rare Books Image Database” on the NDL website.

Preservation Research

The NDL promotes research on preservation.

Since 1986, we have been conducting surveys on the use rate of acid-free paper in domestic publications in coping with acid paper issues. Now the results show clearly that more than 90% of newly-acquired materials are printed on acid-free paper, which has a longer life than acid paper.

As the increase in the number of damaged materials required us to produce preventive measures for the collection, we did a condition survey on materials issued from the 1950s to the 1990s by published period in 2005 and 2006. We have also been conducting a condition survey on microfilm.

We did a workshop on the salvage of water-damaged library materials.

We have been researching on the preservation of digital objects on physical carriers and conducted data migration experiments in 2004.

Preservation cooperation activities

The National Diet Library conducts preservation cooperation activities including the translation and issuance of publications on preservation, organization of symposiums and training programs for librarians, and dissemination of research reports and manuals via the NDL web site to provide information and education on preservation widely.

We hold a workshop on basic conservation treatment annually for domestic librarians.

The NDL also carries out international cooperation as the IFLA* Core Activity on Preservation and Conservation Regional Centre for Asia.

(*IFLA: International Federation of Library Associations and Institutions)

For details of the above-cited researches, symposiums and publications please see the NDL website.

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