Supplementary explanation about the policy

Kyoto University's mission states that we will generate world-class knowledge through freedom and autonomy in research that conforms with high ethical standards and, as a university committed to a broad social engagement, disseminate knowledge informed by the ideals of freedom and peaceful coexistence.
Appropriately managing and preserving research data gathered and produced by research activities and sharing such data for further utilization equates to retaining and increasing the value of the data. By doing so, we will be able to achieve the above-mentioned mission and contribute to the development of academic research in a wide range of fields and harmonious coexistence within the human and ecological community on this planet. (1)

Therefore, we have formulated the following policy on Research Data Management and Sharing to contribute to the development of academic research and secure the sustainability of research at Kyoto University. (3) This policy serves as a general guideline in managing, preserving, and sharing research data at Kyoto University, which is home to diverse research activities and complements legal and ethical requirements specific to each research field. (2)

1. In this policy, research data(4) is defined as the recorded information, both digital and non-digital, gathered or produced by the researchers of Kyoto University in the process of their research activities.

2. The researchers(5) of Kyoto University should be aware that Research Data Management(6), defined as managing and preserving research data appropriately, is indispensable in conducting research of a high standard.

3. Kyoto University acknowledges that researchers who have gathered or produced research data in principle have the right and responsibility to implement Research Data Management(7). The researchers of Kyoto University implement Research Data Management in compliance with legal and ethical requirements in each research field for the purpose of retaining the value of research data. (8)

4. Kyoto University will promote the utilization of research data by sharing it to the greatest possible extent unless otherwise specified(10), based on the understanding that research data, along with academic theses, serves as a foundation of knowledge that contributes to the current and future development of scholarship and society. (9)

5. Kyoto University is responsible for providing the environment to support Research Data Management and sharing. (11)

This policy will be reviewed(12) as needed in response to changes in society and academic circumstances.

(1) Researchers must understand that, as a general rule, the ownership of "data" will not be automatically authorized or protected as intellectual property, but must be protected with a contract. As the term "data ownership" is often used, which gives the impression that the ownership of data is automatically recognized. Please note, however, that the rights relating to data are actually limited. (See (8) for more details.)

It is important, therefore, that Kyoto University (hereinafter referred to as "the university") and its researchers appropriately manage, preserve, and share (see (10) for the detailed definition) "data" collected and produced by research activities (hereinafter referred to as "research data," see (4) for the detailed definition). Its means that we will recognize the value of research data and protect proactively research data. By doing so, the researchers themselves can continue to engage in high quality research, and to protect future research undertaken at the university.

Expressed by the metaphor, "standing on the shoulders of giants," scholarship is built on the foundation of knowledge established by our predecessors. Therefore, sharing research data to be utilized as such a foundation of knowledge is essential to the university's mission of the development of academic research and harmonious coexistence within the human and ecological community on this planet. The more refined and important research data becomes, the more it becomes necessary to ensure that we obtain, utilize, maintain, and share appropriately. Research Data Management and sharing are undertaken voluntarily by researchers with a high sense of ethics. Such efforts enable the university to continue its future research activities.

For reference:
Data is intangible, and because it is not the subject of rights under the Civil Code, such as ownership or possession, usufruct, or security interest, it is not possible to prescribe the existence or absence of rights pertaining to data based on concepts of ownership or possession (see Article 206 and Article 85 of the Civil Code). And since the cases where data is subject to legal protection (whether as intellectual property, or as a trade secret under the Unfair Trade Practices Act) are limited, the protection of data is generally sought to be achieved through contracts between the interested parties.

P. 14 of the "Contract Guidelines on the Utilization of AI and Data: Data Section" issued by the Ministry of Economy, Trade and Industry on June 2018
https://www.meti.go.jp/press/2019/04/20190404001/20190404001-1.pdf

(2) Kyoto University is a comprehensive university, at which many researchers engage in diverse fields of research. Instead of following uniform rules, therefore, it is necessary to manage, preserve, and share research data in compliance with specific applicable rules and regulations, such as domestic and international guidelines for research ethics and the contracts concluded when research projects are initiated.

With this in mind, this policy is formulated as a general guideline for the university's researchers, in consideration of the fact that such special provisions are not provided or well established in many

fields of research.

(3) <u>The university must establish a research data policy in order to protect its future research and its researchers.</u>

Currently, research data is widely recognized as the foundation of knowledge, and it is important for researchers and research institutes to protect the value of their research data. For example, there was a case in which a researcher who was engaged at an overseas research institute that had its own research data policy tried to bring research data back to Japan, but was not allowed to do so under the research institute's policy because the researcher's department of affiliation at their home research institute did not have its own research data policy. This example highlights why every research institute is now required to have its own research data policy as a precondition for negotiations over the handling of research data. In addition, there is an increasing need to respond to the international trend of commercializing research data.

Amid these changing social circumstances, appropriate Research Data Management and sharing are required not only to protect future research at the university, but also for the development of academic research in society.

<u>This policy is intended to provide general guidelines regarding the handling of research data at the university. As there are many researchers engaged in diverse fields of research at the university, different situations are assumed in different fields of research and different departments. Therefore, it is preferable that each department implements specific measures to ensure an effective system, including the establishment of a policy or regulations.</u> The university will endeavor to support such departmental efforts, for example, by creating templates for policies and guidelines.

(4) "Research data" includes not only primary data collected or produced for research materials, but also any subsequent processed data and analytical data generated form the primary data. It also includes documentation that describes the data. Any form of data is regarded as research data, including figures, images, and texts. For example, research data includes the following:
- Measurement data
- Photographs
- Audiovisual information including voice recordings and video
- Laboratory and field notebooks
- Questionnaires
- Clinical data

<u>Information collected may contain information protected by copyright or other intellectual property rights (such as theses, books, and creative works) or information protected under the Unfair Competition Prevention Act (such as clinical trial data). As these kinds of information are legally protected, protection of their associated rights in compliance with the applicable laws must be prioritized ahead of this policy.</u>

Research data cannot be produced without the invaluable direct or indirect support of cooperators, in addition to the constant efforts of researchers themselves. <u>Everyone engaged in research at the</u>

university must be aware of the importance of handling research data with respect for the personal information and the intentions of such cooperators, and to acknowledge the value of their cooperation.

The purpose that research cooperators are specified here is that almost no research activity is undertaken at the university without the support of research cooperators. A wide variety of research cooperators are providing direct and indirect support in many fields of research, including those who serve as subjects for experiments or studies in medical, psychological, or social science research, and those who provide materials or cooperate in studies in humanities, history, and archaeological research.

There can be also no research that does not use existing research results and data. Therefore, those who created or provided such data, those who organized or prepared data, and those who engage in its daily management and related work are also regarded as research cooperators. It is important, therefore, to acknowledge the value of their efforts.

(5) "Researchers" refers to executive officers, faculty and staff members, and students who engage in research activities at the university. "Faculty and staff members" refers to persons employed under the Kyoto University Work Rules. "Students" refers to undergraduate students, graduate students, international students, commissioned students, credited auditing students, auditing students, special auditing students, special research students, special exchange students (as defined in Chapter 5 of the Kyoto University General Regulations [Order No.3 of 1953]), research students, research fellows (as defined in the Kyoto University Regulations for Trainings [Order No. 3 of 1949]), and others who are enrolled in or hosted by the university and who are studying or engaged in research at the university.

(6) "Research Data Management" in this policy is defined as a series of activities to handle research data in research activities, which include:
1) Formulating a Data Management Plan and conducting the plan.
2) Appropriately maintaining and utilizing research data collected or produced in the process of research.
3) Organizing research results, and dividing all research data into the categories of "research data to be preserved (and managed even after the completion of research)," "research data to be discarded (in an appropriate way after the completion of research)," and "data not to be managed."
4) Preserving "research data to be preserved" appropriately for a certain period, and processing it appropriately after the preservation period has ended.
5) Deciding whether to share "research data to be preserved", establishing the conditions for sharing and licensing agreements (the terms and conditions), and following the necessary procedures to share.

Reference:
Definition of "Research Data Management in the open science era."
(Source: A material used by the JPCOAR (Japan Consortium for Open Access Repositories) :
URL: http://researchdata.ox.ac.uk/home/introduction-to-rdm/

Research data management is a general term covering how you organize, structure, store, and care for

the information used or generated during a research project. It includes:
- Planning how your data will be looked after – many funders now require data management plans as part of applications
- How you deal with information on a day-to-day basis over the lifetime of a project
- What happens to data in the longer term – what you do with it after the project concludes

(7) "The right to implement Research Data Management" in this policy refers to the authority to use research data (which facilitates the generation of new data) (hereinafter referred to as "research data usage authority") and the authority to preserve research data and control the terms of its use (hereinafter referred to as "research data management authority"). The right is also associated with corresponding responsibilities.

In accordance with the definition of Research Data Management, it is assumed that those who are authorized to use research data shall be responsible for the following activities specifically:
1) Corresponding to (6) 1), at the time of initiating the research, they are responsible for establishing a Data Management Plan that includes specific Research Data Management methods, etc. It is also preferable to specify the terms for the transfer of research data management authority after the completion of research as well. The plan must be revised depending on the ongoing requirements of the research activities.
2) Corresponding to (6) 2), they must endeavor to ensure the quality of research data, including its reliability, integrity, and traceability, and maintain the data in a safe manner for use in research.
3) Corresponding to (6) 3), they must decide the scope of the "research data to be preserved" and its preservation period after the completion of research. If the research data itself is research results, such data must be handled in accordance with the regulations regarding research results. The "research data to be discarded" must be discarded appropriately. In cases in which sharing is restricted for reasons of personal information protection or confidentiality, or if the release of research data may violate the rights of third parties, such data should not be classified as "data not to be managed."
4) Corresponding to (6) 4), they must preserve "research data to be preserved" in a way that enables the data to be findable and reused as needed, while endeavoring to ensure the quality of research data, including its reliability, integrity, and traceability. They must care the research data as needed.
5) Corresponding to (6) 5), when sharing research data, they must follow the appropriate procedures as required based on the classifications for sharing described below in Item (10), including the transfer of research data management authority.

Research data management authority can be transferred to an individual or organization. However, authority should not be transferred if there is a possibility that the transfer will restrict future research at the university. In particular, when concluding a contract regarding the handling of research data, it is necessary to pay careful attention to the handling of such authority.

If the researcher will not engage in any research activities at the university because the research project is completed or you will retire from the university, you must consult with the parties concerned to decide whether the research data management authority should be transferred or maintained, and carry out the appropriate action.

(8) A large number of researchers engage in diverse fields of research at the university. Therefore, instead of managing research data in a uniform way, it is necessary to manage it in compliance with the provisions of all applicable rules and regulations, such as ethical guidelines for domestic and international research, contracts concluded at the initiation of the research, and the university's regulations.

For example, as specified in Matters ruled for the Preservation and Disclosure of Research Data as defined in Article 7- 2 of the Regulations regarding Promoting Research Integrity of Kyoto University (https://www.kyoto-u.ac.jp/en/research/research-compliance-ethics/research-integrity-rules-reporting/documents/research_data_en150730.pdf), the preservation period of research materials which are the grounds of presented research discovery is ten years in principle. In compliance with the regulations, the preservation period of research data that supports research results shall not be stipulated less than 10 years, unless there is some particular reason. The university is currently discussing the regulations on the handling of clinical trial data in medical fields, and a provision stipulating that clinical trial data belongs to the university, not to researchers, will be included in the regulations. These regulations shall be treated as a special provision.

In most cases of research projects supported by external funds, the rules on the handling of research data authorities and other rights are stipulated in contacts concluded when research projects are initiated. In these cases, it is not preferable to conclude a contract which may restrict future research at the university. All researchers must be aware of these matters and ask the university to assist them with legal matters and contract negotiations as needed. The university must respond to their requests and provide appropriate support.

(9) Research data is recognized as a foundation of knowledge that will contribute to the future development of scholarship and society, internationally and domestically, as reflected in the following reports:

International reports:
- G8 Science Ministers Statement (2013)
  https://www.gov.uk/government/news/g8-science-ministers-statement
- Sorbonne declaration on research data rights (2020)
  https://www.leru.org/files/Sorbonne-declaration.pdf

Domestic reports:
- The 5th Science and Technology Basic Plan (2015)
  https://www8.cao.go.jp/cstp/english/basic/5thbasicplan.pdf
- Integrated Innovation Strategy 2019 (2019)
  https://www8.cao.go.jp/cstp /togo2019_honbun.pdf (Japanese)
- Research data base improvement and international development working group report (2019)
  https://www8.cao.go.jp/cstp/tyousakai/kokusaiopen/houkokusho.pdf (Japanese)

Reference: P. 4 of the "Research data base improvement and international development working group report (2019)" (tentative translation)

- Research data is domestically and internationally important intellectual property. Promotion of research data utilization will accelerate the further development and integration of diverse knowledge,

which will produce valuable research results and drive innovation.

- It is necessary to consider an "open and closed" strategy to secure Japan's autonomy while respecting the international trend towards "open science."

(Omitted)

- Research data must be managed and utilized in compliance with the applicable laws and regulations, regardless of whether the data be made publicly available or not. It is also necessary to pay due attention to compliance with international agreements, including treaties on the handling of data and international rules and practices including the FAIR principles.

- In order to increase the value of basic research in particular, it is important to manage and utilize not only direct research outcomes, including theses and patents, but also the systematic series of data produced or collected in the process of research. This enables us to realize the value of research data that has not necessarily produced any direct results, and to accommodate "failure," which will encourage researchers to take on diverse challenges.

(10) "Sharing" in this policy refers to both "publishing," which allows anyone to use research data that is preserved, and "sharing," which allows only a limited amount of persons to use the data. Data which is not "shared" is "closed."

As a general rule, unless otherwise specified by legal and ethical requirements, contracts, or regulations in the respective fields of research, it is preferable to share research data as much as possible in accordance with the FAIR principles. When sharing data, it is necessary to attach a licensing agreement and require users to comply with its terms and conditions.

Unless otherwise specified by applicable rules, such as a contract concluded at the initiation of a research project, researchers are allowed to decide by themselves the method, extent, conditions, licensing, and other conditions regarding the sharing research data, in line with the standards of the research community in each respective field. If sharing research data is limited in order to protect personal information and confidentiality, or if sharing research data may violate the rights of third parties, the data must be closed (must not be shared).

When sharing data, it is recommended that non-digital data is converted to digital data as much as possible (by digitizing the research data itself or by digitalizing metadata that provides information about the research data, such as information about where the data exists).

When sharing digital research data, it is recommended to use a reliable data repository. However, it is possible to use other appropriate methods, in accordance with the standards of the research community in the relevant field. In any case, it is necessary to take care not to restrict future research at the university when sharing data.

Reference: Classifications of Publishing and Sharing
According to the 8th Academic Information Committee Meeting material issued by the Ministry of Education, Culture, Sports, Science and Technology (→Classifications defined by the Working Group for Research Database Improvement and International Development), the following four classifications were defined regarding sharing preserved research data (managed data) . In addition to the four classifications below, there is also the classification of "unmanaged data."

- "Publishing (Open)": Data accessible by anyone without any access restrictions → Open data.
- "Limited publishing (Semi-open)": Data accessible by a limited number of users who have the authority to access it. Access authority will be granted to users whose applications for access (in which the purpose and method of use are clarified) are approved. → Sharing: sharing with relevant external parties.
- "Limited sharing (Semi-closed)": Closed data that can be shared with the users specified in the Data Management Plan at the time when the research project was adopted, and the authorized researchers whose applications for access have been approved. → Sharing: sharing with relevant internal parties.
- "Closed (Closed)": → Other data

This policy is not intended to cover only research projects supported by external funds. Therefore, it is difficult to draw a clear line between "Limited publishing" and "Limited sharing," and between "Limited sharing" and "Closed." For that reason, "Limited publishing" and "Limited sharing" are both classified as "sharing." The three classifications of "publishing" "sharing" and "closed" are to be used for research data that is to be preserved (managed data), and "sharing" in this policy comprises both "publishing" and "sharing." Data other than "research data to be preserved" is categorized as "unmanaged data."

Reference: The FAIR Data Principles
To be Findable:
    F1. (meta)data are assigned a globally unique and externally persistent identifier.
    F2. Data are described with rich metadata.
    F3. (meta)data are registered or indexed in a searchable resource
    F4. Metadata specify the data identifier.
To be Accessible:
    A1. (meta)data are retrievable by their identifier using a standardized communications protocol.
    A1.1 the protocol is open, free, and universally implementable.
    A1.2 the protocol allows for an authentication and authorization procedures, where necessary.
    A2. metadata are accessible, even when the data are no longer available.
To be Interoperable:
    I1. (meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation
    I2. (meta)data use vocabularies that follow FAIR principles
    I3. (meta)data include qualified references to other (meta)data.
To be Re-usable:
    R1. Meta(data) have a plurality of accurate and relevant attributes.
    R1.1 (meta)data are released with a clear and accessible data usage license.
    R1.2 (meta)data are associated with their provenance.
    R1.3 (meta)data meet domain-relevant community standards.

Source:
- FORCE11: THE FAIR DATA PRINCIPLES (2016)
  https://www.force11.org/group/fairgroup/fairprinciples

(11) The following specific types of support will be provided to researchers to facilitate appropriate Research Data Management and sharing.
    (a) Provision of a digital platform for appropriate Research Data Management.
    (b) Provision of a platform for sharing research data, including an institutional repository.
    (c) Provision of the necessary assistance to researchers, including the provision of information

about Research Data Management and sharing, advice regarding legal affairs and contracts, and the provision of education and training.

(d) Taking the necessary action and providing the necessary support to ensure that all of the university's faculty staff, and students comply with this policy.

(e) Assisting faculties and departments to formulate their own implementation of policies and regulations for Research Data Management and sharing in line with the guidelines specified in this policy.

(f) Reviewing this policy in response to changing social and academic circumstances and ethical requirements.

(12) In recent years, social and academic circumstances regarding data management have been changing significantly. Internationally, there has been an increasing trend to promote the availability of research data, as exemplified by the G8 Science Ministers Statement (2013) and the Sorbonne Declaration on Research Data Rights (2020). In Japan, the need to consider an "open and closed strategy" was discussed in the 5th Science and Technology Basic Plan (2015) and the Integrated Innovation Strategy 2019 (2019). It is anticipated that social and academic circumstances regarding data management will continue to change, and so it will be necessary to revise this policy as appropriate based on an accurate understanding of those changing circumstances, while respecting the legal and ethical requirements of each field of research.

(Approved by the Kyoto University Research Information Management Committee on March 19, 2020)
(Modified on October 14, 2020)

The Policy and Supplementary explanation are made in Japanese and translated into English. The Japanese text is the original and the English text is for reference purposes.