Ethical Principles and Guidelines for the Use of Animals for Scientific Purposes

The National Research Council of Thailand

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for the Use of Animals for Scientific purposes.

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Preface

The National Research Council of Thailand (NRCT) has issued the Ethics for Animals Experimentation since 1999. It was first published in Thai version, and has since been revised to keep up with new information. This revised edition is published in Thai and English under the heading of the Ethical Principles and Guidelines for the Use of Animals for scientific purposes.

The purpose of this ethics is to remind both scientists and research institutes that they are responsible for the care and use of animals for scientific purposes. The animals should be humanely treated and used only in searching for new knowledge and for the well being of mankind. The 3Rs principles i.e. replacement, refinement and reduction are to be seriously applied.

The NRCT really hope that this ethics will lead scientists in Thailand who use animals for scientific purposes, to ultimately achieve accurate, precise and competitive results which are acceptable and internationally recognized.

(Professor Ahnond Bunyaratvej)
Secretary General

Acknowledgements

The *Ethical Principles and Guidelines for the Use of Animals for scientific purposes* would not be accomplished without the contributions of many concerns.

The National Research Council of Thailand would like to express appreciation to the members of the ad hoc committee for drafting the ethics for animal experimentation who had spend their valuable time and effort for the original edition. Appreciation is also extended to the members of the committee for supervising and promoting ethics for animal experimentation who are responsible for this revised edition, and to Venerable Dr Mettanando Bhikkhu for translation into English.

Ethical Principles and Guidelines for the Use of Animals for Scientific Purposes

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Introduction

Numerous species of animals, millions in numbers, have been used in research, drug testing, biological product and education in the field of medical science, for the improvement of the quality of life of man and animals. Certainly and undeniably, there is still an ongoing need for the use of animals for these purposes. The fact is that there is no better or equivalent alternatives.

However, quite a few animal users have neglected the ethical principles. They pay no attentions to the loss of animals' life, nor to the torture, pain, stress and the extinction of wildlife. Sadly, lives of animals, being sacrificed in experiments, are forgotten; and there is no concern whether the methods employed in the experiments have caused harm and pain to the animals; or whether the animals, being caged and deprived of their freedom, have been living under pressure and abused; or whether the animals which have been taken out of their natural habitats are being deprived of their opportunity to multiply. These conditions have prompted organizations for the protection of the right of animals, organizations that campaign against cruelty to animals, and organizations for the preservation of wildlife, to launch series of public campaigns. Many times the demonstrations broke out in violence and vandalism; on quite a few occasions that they turned into bloodshed and lost of human lives.

Realizing the weight of the problems, a number of animal users and law keepers worked together to establish protocols and guidelines, including laws to enforce the appropriate conducts of man towards experimental animals. For instance, in 1876 (B.E.2419) the United Kingdom was the first country which outlawed any form of animal torturing. In 1986 the law has been amended and it is now known that the UK has a very stringent law for the use of animals for scientific purposes.

Extensive international and interdisciplinary consultations spanning the three year period (1982-1984) with a large and representative sample of the international biomedical community including experts of the World Health Organization and of consultations with responsible animal welfare groups, the Council for International Organizations of Medical Science or CIOMS has distributed a publication - The International Guiding Principles for Biomedical Research Involving Animals - in 1985.

The principles strongly emphasize that there should not be such restriction as would unduly hamper the advance of biomedical science or the performance of necessity biological science or the performance of necessity biological test but that, at the same time biological scientists should not lose sight of their moral obligation to have a humane regard for their animal subjects, to prevent as far as possible pain and discomfort and to be constantly alert to any possible of achieving the same result without resort to animals.

The ethical guidelines have facilitated the accuracy of results and many developments in various aspects of laboratory animal science, for examples, the development of various animal models for human diseases, the development of the genetic engineering for the production of transgenic animals fo tackling various human diseases which no animal models have ever been successfully used. Moreover, the ethical guidelines have facilitated better care and management of animals, decreasing degree of animal suffering, reduction in number of animal used and refinement of techniques used in animal experimentation. The guideline has also stimulated the search for alternatives to replace or to reduce the number of animals. Computer simulation, mathematical application and in vitro biological systems have proved successful to a certain extend but cannot yet be generalized.

Animal users have to be aware of the significance of the specification of the animal used, the environmental factors in animal care and the techniques used in animal experimentation. All these factors directly affect the experimental outcomes. The International Council for Laboratory Animal science (ICLAS) has recommended investigators to include in details these factors involving animal experimentation in their proposal for funding and for publication and has also requested scientific journals and funding resources to seriously consider the matters. The request has now been the standard practice internationally.

As for Thailand, while the body of scientific knowledge and the demands for better quality of life are progressively expanding, increasing uses of animals in biomedical researches, drug testing and vaccine production are forecast. In order to maintain the international standard in the uses of animals for such purposes, the National Research Council of Thailand has issued this " Ethical Principles and Guidelines for the Use of Animals for Scientific Purposes" for animal users in Thailand to use animals only for acquiring new knowledge in biomedical sciences and for the well-being both of man and animals without offending the public by carefully selecting only quality animals, providing standard animal care and management for animal health and using refine techniques to reduce stress and pain on animals.

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Definition

(1) "**ethics**" means the principles of the right conducts with express the virtue and morality of professional practices of which the groups of various professions have agreed upon as their standard ways of professional practices, which enhance their goodwill and credit of their professions.

(2) "**an animal**" means a vertebrate being, i.e., a laboratory animal or a wildlife.

(3) "**laboratory animals**" means the animals that are procreated and nurtured in confinement, and are used by humans for the benefit of any branch of science and technology.

(4) "**wild animals**" means every kind of animals that are born in their natural habitats.

(5) "**animal users**" means individuals in any branches of science and technology who use animals in researches, testing, teaching and in producing biological products.

(6) "**institute**" means educational institutions of all levels, state enterprises, governmental and private sector.

(7) "**Ethical Principles and Guidelines for the Use of Animals for Scientific Purposes**" means the protocols by which animal users and animal breeders are to abide, so that the processes are based on ethics, virtue, humanity, and appropriate academic principles, as well as the universal standard of methodology.

1. Animal users are to be aware of the value of life of animals.
Animals are to be used only for specific purposes, which have been carefully considered as beneficial and most necessary for the development of the quality of life of both humans and animals and/or the progress of science, which is well considered that there is no other available equivalent or option.

2. Animal users are to be aware of the accuracy of the research outcome using the minimal number of animals.
Animal users are to be aware that the objective and goal of the project can be achieved accurately with the least number of animals depending on the genetics and health quality of the animals and the appropriate planning and techniques used in the experimental design.

3. The Use of wild animals must not violate laws or policies for wildlife conservation.
The use of wildlife is to be restricted to scientific research that cannot be replaced by any other kind of animals, and it is to abide by the laws and policies for wildlife conservation.

4. Animal users need to be aware that animals are living beings just as humans are living beings.
Animal users have to be aware that animals experience a sense of pain and respond to their surroundings in the same way that humans do. Animals are to be treated with caution to avoid stress, pain and suffering by providing optimum conditions for transportation, animal husbandry, environmental enrichment, prevention of diseases and appropriate experimental techniques.

5. Animal users must keep detailed data and records of animal experiments.
Animal users must strictly follow the protocol described in their proposal, and all the details of the experiments are to be recorded in full and made available for public release or investigation at all times.

1. Animal users are to be aware of the value of life of animals.
Animals are to be used only for specific purposes, which have been carefully considered as beneficial and most necessary for the development of the quality of life of both humans and animals and/or the progress of science, which is well considered that there is no other available equivalent or option.

Practical guidelines

1.1 Animal users should reserve the use of animals for situations of their unavoidable necessity or when there is no other available option. The use of animals should not be taken for granted as a routine process or for pleasure. In this regard, animal users have to be aware of the value of the life of an animal based on religious morality.

1.2 Before using animals, the users should carefully study all information and related documents related to their research, and they should utilize all the information to make the most out of the use of the animals in their research

1.3 Before using animals, the users should submit their protocol in detail illustrating steps and plans with reasonable cause and expected benefit to uplift the quality of life of humans or animals and/or the progress of science and the accumulation of academic information. The person should support the need to use animals with evidence and reasons that there is no other alternative.

1.4 At the end of each experiment, the users are responsible to euthanise all animals. In case the animals are to survive, the users must provide the reasons for such necessity in their proposals and must be responsible for rearing the animals under conditions appropriate for the species. The animals should neither be released to nature, nor should they be abandoned at the animal unit without care.

2. Animal users are to be aware of the accuracy of the research outcome using the minimal number of animals

Animal users are to be aware that the objective and goal of the project can be achieved accurately with the least number of animals depending on the genetics and health quality of the animals and the appropriate planning and techniques used in the experimental design.

Practical guidelines

2.1 Animal users should review all the genetic information of the animals to be used, the standard of animal care, and the management at the breeding facilities before use.

2.2 Animal users should select the species and the breed of animal that fits in with the objectives and goals of the research. A statistical method should be employed for estimating the least number of animals required while ensuring the most accurate and acceptable results.

2.3 Animal users should select animals from breeders, which have a well-recorded history of the breed, the breeding program and the genetic monitoring data. Moreover, the resource should be able to guarantee its continuation of services in all aspects, i.e., species, breed, sex, age, weight and quantity of animals.

2.4 Animal users should select the animal breeders that provides either of the following animal care and management:

- 2.4.1 Strict Hygienic Conventional
- 2.4.2 Specified Pathogen Free
- 2.4.3 Germ Free

2.5 Animal users should select animals which have no genetic background for uses only to accommodate the goal or objectives of their research, that is, in research which requires no genetic intervention.

2.6 Animal users should employ only the most appropriate techniques, technology and statistical methods in planning and evaluating the project.

3. The Use of wild animals must not violate laws or policies for wildlife conservation.

The use of wildlife is to be restricted to scientific research that cannot be replaced by any other kind of animals, and it is to abide by the laws and policies for wildlife conservation.

Practical guidelines

3.1 Animal users should use wild animals only in cases of extreme necessity when no other methods or animals can be substituted.

3.2 The use of wild animals for research has to abide by the laws and policies for wildlife conservation in full and complete detail.

4. Animal users need to be aware that animals are living beings just as humans are living beings.

Animal users have to be aware that animals experience a sense of pain and respond to their surroundings in the same way that humans do. Animals are to be treated with caution to avoid stress, pain and suffering by providing optimum conditions for transportation, animal husbandry, environmental enrichment, prevention of diseases and appropriate experimental techniques.

Practical guidelines

4.1 **Animal transportation:**
The means of transportation should provide safety for the animals and should have the least impact on the well-being of the animals. The animals should not be exposed to extreme environments. Adequate spaces and appropriate temperature and ventilation should be provided to avoid stress. Delivery boxes should be strong and well secured to avoid escape.

4.2 **Environment at the animal facility:**
To avoid infection and stress, the animal facility must be equipped with systems that can control: infection, temperature, humidity, ventilation, lighting and sound, to suit the needs of each species.

4.3 Animal care:

4.3.1 Animal cages must be strong enough to prevent the animals from escaping. The types and sizes depend upon the standard required for species, weight, and number of animals in the cage. The cages must be free from sharp edges or projections that could cause injury to the animals. They should be made of durable material that can withstand the chemical substances and the heat employed for disinfection or sterilization.

4.3.2 The bedding must be absorptive, and not disintegrate when wet. It must be free from sharp edges and contain no toxic substances and germs.

4.3.3 The animals must be fed daily with food and water, which are free from pathogens, toxic and carcinogenic substances. Their food has to be nutritionally adequate comprised of protein, fat, starch, vitamins, minerals and fibers, in the proportions that are suitable for the requirements of the species.

4.4 Management:

4.4.1 Animal units are to employ environments conducive to health by one of the following systems, namely: Strict Hygienic Conventional, Specific Pathogen Free, or Germ Free. The system must be effectively run and have strict control of infection.

4.4.2 Animal units must be staffed with a veterinarian or a well-trained academic who has sufficient knowledge and experience in laboratory animal science, and a well-trained team of animal caretakers.

4.4.3 Animal units must have all the information of the equipment used in animal care and management in order to assure a continuous flow of supplies and replacement. Backup equipment and functioning maintenance units must be available. The animal units must be provided with sufficient and continuous funding.

4.4.4 To protect the environment and prevent health hazard, animal remains and waste products must be appropriately treated depending on the source of contamination (i.e. isotopes, infectious agents).

4.5 Techniques in animal experimentation:

4.5.1 Animal users should include in the protocol, the set up of the experiment, the techniques and the materials to be used, and the care and management of the animals before, during and after experimentation.

4.5.2 Animal users and animal caretakers should treat animals with kindness and should avoid any procedure or process that causes pain and stress to the animals. In case the situation is unavoidable, they have to explicitly state their excuses that are entirely based on academic grounds. The experiment should be concluded before the animals die of extreme pain.

4.5.3 Animal users should acquire the following basic skills regarding the animals before performing experiments:

1) Handling and restraining
2) Identification
3) Sexing
4) Drug and substance administration
5) Samplings of blood, stool, urine and tissues from living animals
6) Anesthesia and Anesthetizing Procedures
7) Euthanasia
8) Autopsy

5. Animal users must keep detailed data and records of animal experiments. Animal users must strictly follow the protocol described in their proposal, and all the details of the experiments are to be recorded in full and made available for public release or investigation at all times.

Practical guidelines

5.1 Animal users are to abide by the proposed protocol of their projects.

5.2 Animal users should keep records of the source of the animals, methods used for animal care and management and all available data from genetic, health and environmental monitoring.

5.3 Animal users are to record in detail every intervention on the animals.

Monitoring of the Ethical Principles and Guidelines for the Use of Animals for Scientific Purposes.

1. Institutional level

1.1 Every institution that uses animals in research, testing, production of biological materials and teaching is advised to have at least one committee to manage and be accountable for the use of animals, so that the ethical guidelines are followed.

1.2 The committee should be pluralistic and its membership should be diversified and comprised members of the executives of the institution, researchers and lay people.

1.3 The responsibilities of the committee are as follows:

1.3.1 To set up the details of the institutional standard operational procedure that corresponds with the Ethical Principles and Guidelines for the Use of Animals for Scientific Purposes of the National Research Council of Thailand.

1.3.2 To review every project that involves the use of animals in research, testing, the production of biological materials, and teaching, proposed for experimentation at or outside the institutional animal unit or at other institute, and forward it to the executive board of the institute for approval. Only projects that follow the Ethical Principles and Guidelines for the Use of Animals for Scientific Purposes should be authorized to proceed or continue.

1.3.3 To monitor the use of animals so that experimentation follows the Ethical Principles and Guidelines for the Use of Animals for Scientific Purposes.

1.3.4 To manage the animal unit of the institute so that it complies with the standards set forth in the Ethical Principles and Guidelines for the Use of Animals for Scientific Purposes.

1.3.5 To support and ensure that the animal unit of the institute is sufficiently funded for facilitating the standard set up in the Ethical Principles and Guidelines for the Use of Animals for Scientific Purposes.

1.3.6 To provide continuing education, training and conferences for the increase of knowledge in laboratory animal science to students, teachers, researchers, scientists and animal caretakers, so that they are able to follow in full the Ethical Principles and Guidelines for the Use of Animals for Scientific Purposes.

2. *National level*

2.1 The National Research Council of Thailand should appoint a committee to be responsible for monitoring and promoting the ethical use of animals in research, testing, production of biological materials, and teaching, through the Ethical Principles and Guidelines for the Use of Animals for Scientific Purposes. The Committee is to have the following authorities:

2.1.1 To have authority and responsibility to investigate the internal affairs of an institute which is subject to public complaints or accusation by the people, public media, published documents, academic publications and research funding organizations, for its violation of the Ethical Principles and Guidelines for the Use of Animals for Scientific Purposes.

2.1.2 To promote and reinforce users of animals, governmental and private organizations that use animals to strictly follow the Ethical Principles and Guidelines for the Use of Animals for Scientific Purposes.

2.1.3 To support and supervise governmental and private institutes that use animals to set up details of standard operational procedures that follow the Ethical Principles and Guidelines for the Use of Animals for Scientific Purposes.

2.1.4 To amend the Ethical Principles and Guidelines for the Use of Animals for Scientific Purposes so that it is always updated with the progress of science and technology, the change of society and the culture of the nation.

2.1.5 To facilitate organizations that use animals to host conferences and training for animal care and management that accommodates the Ethical Principles and Guidelines for the Use of Animals for Scientific Purposes.

2.1.6 To cultivate an awareness in the Budget Bureau and the institutional budgeting units as to the necessity of the Ethical Principles and Guidelines for the Use of Animals for Scientific Purposes, and to endorse requests from institutions for sufficient funding.

2.1.7 To co-ordinate with research funding organizations to render their support to the projects endorsed by the institutional ethical committee.

2.2 Editorial Boards of academic journals should request the author(s) of the submitted research paper to provide detailed information concerning the genetic background and the number of animals used, animal care, and experimental protocols including the certificate of approval for the research project issued by the author's institutional review committee. The manuscript should be rejected unless all the above requirements are fulfilled.

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