BACKGROUND:

UNIMAS Animal Ethics Committee (UNIMAS-AEC) is established to oversee and ensure that all aspects of laboratory or field animals (i.e. all living non-human vertebrates) are handled properly and that they do not experience unnecessary pain or distress. The ethical principles outlined here are intended to serve as an information resource and guideline for research members who are about to start a research using laboratory and field animals for experimental purposes. This reference document provides an outline and details explaning UNIMAS-AEC policy, code of practice, researcher responsibilities, choice, supply and maintenance of animals, safety and training of personnel. The researchers are required to adhere to the provisions written in this document and liaise with the UNIMAS-AEC. Principle investigators and researchers are required to apply and obtain permission from UNIMAS-AEC prior to beginning their research. UNIMAS-AEC will evaluate the research to ensure that it has clear benefits and the use of animals is well justified, and the animals will be treated humanely and well cared for.

TABLE OF CONTENT:

POLICY OF UNIVERSITI MALAYSIA SARAWAK ANIMAL ETHICS COMMITTEE (UNIMAS-AEC) REGARDING THE USE OF LIVE ANIMALS IN RESEARCH AND TEACHING

1. Policy Title

The policy is titled as UNIMAS Animal Ethics Committee (UNIMAS-AEC) Policy.

2. Scope

The UNIMAS AEC policy will be applicable to all research and teaching activities that involve animals conducted within UNIMAS facilities or undertaken in the field by UNIMAS researchers.

3. Policy Statement

The main objective of the policy is to ensure that the handling of all animals used for scientific purposes (research and teaching) are humanely cared for and their use are properly justified.

4. Justification

Scientific and teaching activities using animals may be performed only when they are essential:

i. to obtain and establish significant information relevant to the understanding of humans and/or animals
ii. for the maintenance and improvement of human and/or animal health and welfare
iii. for the improvement of animal management or production;
iv. to obtain and establish significant information relevant to the understanding, maintenance or improvement of the natural environment; or
v. for the achievement of educational objectives

5. Responsibilities

i. Investigators and teachers who use animals for scientific purposes have personal responsibility for all matters relating to the welfare of these animals. They have an obligation to treat the animals with respect and to consider their welfare as an essential factor when planning or conducting projects.
ii. Institutions using animals for scientific purposes must ensure, through the AEC that all animal used conform to the guidelines of UNIMAS AEC.
iii. Scientific and teaching activities must not commence until written approval has been obtained from the AEC.
iv. The acquisition, care and use of animals for all scientific purposes in UNIMAS must be in accordance with the guidelines of UNIMAS-AEC.

6. Guidelines and Code of Practice

The guidelines and code of practice that governs UNIMAS-AEC practice is to ensure that the animals used for scientific purposes are treated humanely. The guidelines and code of practice establishes that animal use is justified and that principles of 3R's (replacement, reduction and refinement) are abided to. See attachment.

UNIVERSITI MALAYSIA SARAWAK ANIMAL ETHICS COMMITTEE (UNIMAS-AEC)

1. NAME

The committee is known as the Universiti Malaysia Sarawak Animal Ethics Committee, UNIMAS-AEC.

2. FUNCTIONS OF THE UNIMAS-AEC

The main function of the UNIMAS-AEC is to provide administrative forum that will address matters pertaining to the use of live animals for the purpose of research and teaching at UNIMAS. UNIMAS-AEC will vet all proposals involving the use of live animals and liaise with UNIMAS-AEC. Its other functions are to see that all laboratory animal facility and its animals are properly maintained and cared for and that experiments are humanely carried out.

3. GUIDELINES FOR THE UNIMAS-AEC

The foundation of this document is guided by relevant Rules, Acts and Ordinance. UNIMAS-AEC is applicable in Malaysia as well other international guidelines on animal ethics.

4. DEFINITIONS

The word ANIMAL(S) refers to all living non-human vertebrate(s) use for experiments.

5. UNIMAS-AEC OPERATING PRINCIPLE

i. Projects should be designed so that statistically valid results are achieved with the minimal number of animals and according to guidelines/laws by local government authorities.

ii. The researcher will be notified of the outcome of the application within **TWO** (**2**) weeks after approval by AEC.

iii. Any researcher, who wishes to conduct research using animal, should submit the completed application form to UNIMAS-AEC **at least one month** before the actual work (Appendices 1 & 3).

iv. For teaching purpose, the course coordinator or supervisors of final year students who are about to conduct research or practical class using animals should apply to the program coordinator for approval (Appendix 2). This record should be kept at the Dean's Office.

v. All forms can be downloaded from UNIMAS Publisher website

vi. Vetting of each application will be done in a committee meeting (virtual or in-person mode).

vii. The Committee will then review the protocol for the following items:
   a) The appropriate animal species, strain, age, sex, size and number.
   b) The justification of the animal model.
   c) The competence of the investigator.
   d) The factors those are essential to the design and aims of the proposal.

viii. The Committee will then discuss whether the proposal can be approved, needs to be modified or rejected.

6. UNIMAS-AEC APPROVAL CODE

A reference number (eg. UNIMAS/AEC/R/XX/XXX) will be release upon approval of proposal.

7. INSPECTIONS AND MONITORING

The UNIMAS-AEC can, if required to, inspect laboratory(ies) housing experimental animals during the duration of the approved project. Any non-compliance or violation of ethical conduct will be reported (in writing) by the committee (represented by the Chairperson) to the Dean/Director of the faculty/ institute concerned. The researcher(s) involved must then take the appropriate actions to meet the required conditions and conducts. If the researcher(s) continously fail to take the necessary corrective actions, the ethical approval will be cancelled and the researcher(s) have to stop work on the project. Refer to Section 9 for a detailed explanation of this procedure.

8. REPORTING PROCEDURE

A report or any other written document where necessary must be provided upon request by the UNIMAS-AEC. These may include the progress report (Appendix 4) and/or end report (Appendix 5).

9. SANCTIONS

i. Where the UNIMAS-AEC considers that procedures being used are inconsistent with the approved protocol, the matter will be referred immediately to the project signatory.

ii. If the matter is not resolved after relevant measures to the satisfaction of the UNIMAS-AEC:

a) The Committee may advise the Dean that the project should be ceased and its approval to be revoked.

b) Animals suffering from non-experimental illness, infection, injury or pain that cannot be alleviated may be euthanized by the veterinarian at his discretion and a report will be submitted to the UNIMAS-AEC.

iii. Researcher(s) who do not comply with the guidelines is/are subject to:-

a) A written warning from UNIMAS-AEC which demand explanation of the situation within **SEVEN** (**7**) days.

b) The veterinarian in-charge has the authority to order stopping of experiment immediately until further notice.

c) The UNIMAS-AEC will conduct a thorough investigation and submit its report and findings to the AEC Chairperson.

CODE OF PRACTICE FOR THE CARE OF EXPERIMENTAL ANIMALS

1. INTRODUCTION

This document is designed as a guideline for investigators and institutions in the use of animals in experiments including scientific research, and procedures not primarily of a research nature such as toxicity testing, diagnosis and in teaching.

2. ITS AIMS ARE

i. To encourage the considerate treatment of animals used in experiments.

ii. To emphasize the responsibilities of both investigators and institutions on animal usage in experiments.

iii. To ensure that investigations are not prejudiced by either inefficient experimental techniques or inadequate care of animals.

iv. To encourage the development and use of techniques which replace or complement animal usage and to minimize the numbers of animals utilized while maintaining data's validity.

v. To outline principles regarding the choice, supply and maintenance of animals and the safety and training of personnel associated with animal care.

vi. To provide a bibliography on the care and use of animals in experiments.

vii. The guidelines below aim to establish the principles by which animals are treated with respect and care, and their welfare catered for at all times.

viii. Animals may be used for a range of purposes encompassing a better understanding and knowledge of man and animals and of diseases which cause ill-health in man or animals. The extent of handling, treatment and observation of animals can vary from intensive studies out in the laboratory or in the field to those undertaken in the unfenced habitat of fauna. The subjects may be native, domesticated or imported and specifically bred laboratory animals.

ix. The effect of proposed experimentation on animals should be taken into account in deciding whether their use is warranted.

x. Scientific studies should be performed only to seek knowledge that is new and significant or to achieve educational objective where the use of animals is essential.

GUIDELINES FOR CARE AND USE OF ANIMALS FOR EXPERIMENTAL PURPOSES

1. Proposals for Animal Experimentation should be submitted to:

   SECRETARIAT
   UNIMAS ANIMAL ETHICS COMMITTEE (UNIMAS-AEC)
   UNIVERSITI MALAYSIA SARAWAK
   94300 KOTA SAMARAHAN SARAWAK
   Email: sdzuriaty@unimas.my
   uhsim@unimas.my

   for consideration and approval of the UNIMAS-AEC number prior to commencement of an experiment. **Alternatively, researchers can submit their application forms to the Deputy Dean of Research, Innovation and Enterprise at their faculties.**

2. All researchers are strongly encouraged to attend a short course on laboratory animal techniques and handling by their respective faculties (or by external agencies) where and when available.

3. Projects should be designed so that statistically valid results are achieved using the smallest number of animals possible and according to guidelines/laws by local government authorities.

4. Alternatives to the use of animals should be considered wherever possible.

5. Animals should be housed, fed, watered, cleaned, handled, transported and treated so that duration of discomfort and stress is kept to the minimum.

6. Surgical procedures that may cause pain of more than trivial extent, should not be performed without using an anaesthetic approach which is adequate and appropriate for the species of animal and for the duration of the procedure.

7. Neuromuscular blocking agents may not be used without appropriate anaesthesia unless the experimental procedures can be demonstrated not to cause pain or distress. If such blocking agents are used, the animals should be monitored continuously for signs of pain or distress.

8. Any animal unable to fully recover from anaesthesia should be put to sleep.

9. In the study of toxicological, pathogenetic, behavioural and feeding studies in which anaesthesia or analgesia are neither appropriate nor practical, every care should be taken to minimize the degree of discomfort or stress to which animals are subjected.

10. Repeated surgical procedures of an invasive nature on the same animals will not be allowed.

SECTION 1

1.0. UNIVERSITI MALAYSIA SARAWAK ANIMAL ETHICS COMMITTEE (UNIMAS-AEC)

All staff in programmes/departments within the faculties will have to abide to UNIMAS-AEC policy, and directly responsible to the Dean of each faculty in terms of animal ethics. Staff in research institutes will have to be directly responsible to the Director of each institutes on this matter.

1.1. TERMS OF REFERENCE

1.1.1. Terms of reference for the UNIMAS-AEC

i. To ensure that the standards of this guideline, as they relate to the acquisition, production, housing, care, and use of all animals, are maintained on a continuing basis.

ii. To examine written proposals relevant to the use of animals for experimental purposes and to approve only those projects which conform to the requirements of this guideline.

iii. To ensure that experimentation does not commence before project approval.

iv. To ensure that staff involved in animal care and use have been trained properly prior to carrying out work involving handling and culling of non-human vertebrates.

v. To maintain a register of approved experimental proposals including a description of techniques and the names of those using animals for experimental purposes.

vi. To ensure that all experimenters maintain adequate records of animal usage.

vii. To ensure that the requirements of all relevant policies, legislations and rules are met.

viii. To advice the faculty/institute regarding compliance to animal ethics in research activities.

ix. To assist in the recommendation on the proper ethical protocol in animals to be used in research and teaching.

1.2 GUIDELINES

UNIMAS-AEC will be adopting the following published guidelines:

i. UNIMAS Research Policy version 9.0, 2021.
ii. “Categories of Animal used in Research” by Institute of Medical Research (IMR), Malaysia.
iii. Sarawak Wild Life Protection Ordinace 1998 and Act 647, Animal Act 1953 (revision 2006).
iv. “Guideline to Promote the Wellbeing of Animals Used for Scientific Purposes” by the National Health and Medical Research Council, Australia.

1.3. COMPOSITION AND MODE OF OPERATION

1.3.1. UNIMAS-AEC TERMS OF OFFICE

The UNIMAS-AEC should consist of the following members:

i. The Chairperson, appointed by the Deputy Vice Chancellor (Research and Innovation) [DVC (R&I)], should be a senior member of the faculty/institute in the relevant field.
ii. Deputy Deans (Research) from Faculty of Resource Science and Technology (FRST) and Faculty of Medicine and Health Sciences (FMHS).
iii. Director of the Institute for Biodiversity, Environment and Conservation (IBEC).
iv. At least one member should be a practicing veterinarian.
v. At least one member should have expertise in laboratory animal husbandry and/or handling.
vi. At least one member should have expertise in field animal technique and handling.
vii. At least one member should not be affiliated with the university.

Although some continuity is desirable, the membership of the UNIMAS-AEC should be reviewed every **TWO** (**2**) years, to take account of the changing requirements.

i. A quorum of members must be present before a meeting can proceed. At least 30% of members must be present for the meeting to proceed.
ii. The Committee may invite non-members to take part in discussion and provide advice when necessary.
iii. Decisions of the Committee will be based on consensus.
iv. Committee members will cease to be a member of the Committee if they:
    a) Resign from the committee;
    b) Fail to attend three (3) consecutive meeting without justification to the Chair;
    c) Resign from their employment.

1.3.2 CHAIRPERSON

The chair responsibilities include but not restricted to:

i. Scheduling meetings;
ii. Prepare the agenda;
iii. Guiding the meeting according to the agenda and ethics of meetings;
iv. Ensuring all matters discussed end with a decision, further action or a definite outcome;
v. Review and approve draft of minutes of previous meeting.

1.3.3 SECRETATRIAT

The secretariat is appointed by the DVC (R & I) based on the Chairperson's advice. The role of the secretariat is to:

i. Prepare the agendas and issue notice for meetings, and to ensure that all the necessary documents required for the discussion are attached with the agenda;
ii. To ensure booking of meeting place;
iii. Taking minutes of the meeting and prepare the minutes (and its corrections, when necessary);
iv. To ensure that the minutes are checked by the chairperson and adopted by all committee members before the start of the next meeting;

v. To ensure that all documents/minutes discussed at the meeting are compiled accordingly.

1.4 MODE OF OPERATION

An UNIMAS-AEC should operate under the following guidelines.

i. For every project involving animals, a proposal submitted to UNIMAS-AEC should include:-

a) The project title
b) Investigator(s)
c) Aim(s) of the project
d) Justification for using animals
e) Number and type of animals and justification for their use
f) Details of acquisition, housing and care of animals
g) Procedures to be used
h) Particulars, including dose of anaesthesia, analgesia, neuromuscular blocking agents and euthanasia (if applicable)

ii. Expected commencement date and duration.

iii. The project should not commence until the Chairman of the UNIMAS-AEC, or his delegate, has approved it in writing.

iv. In the event of an unresolved disagreement between an investigator and the Committee, the matter should be referred to the Deputy Vice Chancelor for Research and Innovation, Universiti Malaysia Sarawak for further review.

v. Projects of long duration and the long term continuing use of individual animals should be reviewed annually by the UNIMAS-AEC.

vi. The UNIMAS-AEC should meet at least twice per year and report to the University Research Ethics Comittee annually.

vii. Once operative, the UNIMAS-AEC policy and its procedures should be subject to unbiased *ad hoc* review from time to time whenever deemed necessary.

SECTION 2

2.0. CODE OF CONDUCT

2.1. RESPONSIBILITY OF INVESTIGATORS

i. No animal experimentation should be carried out without the approval by the UNIMAS-AEC.

ii. The investigator has the ultimate responsibility in all matters relating to the welfare of animals under experimentation and should be competent in the procedures to be carried out.

iii. Training programs for investigators and technicians may need to be instituted to improve levels of competence and to acquire new skills.

2.2. DESIGN OF EXPERIMENTS

i. Before embarking on projects which necessarily involve inflicting discomfort or pain on the animal, such as some studies of pain itself or of injury or shock, the investigator should carefully consider the scientific justification for undertaking the project.

ii. To ensure the humane use of animals, the following principles should be adhered:

   a) The adoption of techniques and procedures, including *in vitro* biological system, which permit the use of the least number of animals.

   b) The adoption of techniques and the use of a species which will provide valid scientific data.

   c) The reduction of variation associated with genetic, microbiological and environmental factors by using animals specially bred for experimental purposes.

iii. Some long-term toxicological and biological product testing, cancer research, infectious disease and some field studies, require continuation of the experiment until the death of the animals. In such experiments, consideration should be given to using clinical signs, biochemical or histological changes, rather than the death of the animal, as the end point of the experiment.

iv. Experiments involving the withholding of food and water should be of a short-term nature and produce no continuing detrimental effect on the animal.

2.3. PAIN AND DISTRESS

i. In practical terms, it is difficult to evaluate pain and other unpleasant sensation, such as discomfort and distress. The investigator should be aware of the signs of distress in animals under experiment and should limit distress to minimal levels.

ii. Mammals, and possibly other vertebrates, should be assumed to experience pain in a manner similar to humans, and hence the indications for analgesia and anaesthesia should parallel those accepted in human and veterinary medical practice.

2.4. HANDLING AND RESTRAINING OF LABORATORY ANIMALS

i. When restraint is necessary, it should be for the minimum period required to accomplish the purposes of the experiment. Procedures for which prolonged physical restraint is necessary should be demonstrated to have no adverse effects on the animals.

ii. The use of specific devices to restrain, in animals, is sometimes necessary both for the welfare of the animal and the safety of the handler.

iii. Animals should be handled only by person instructed and competent in methods which minimize distress and injury. Tranquilizers or anaesthetics may be necessary as an aid to restraint, particularly in nervous, wild or large animals.

2.5. ANAESTHESIA AND ANALGESIA

i. Any surgical procedure which causes pain, distress or injury, apart from brief simple procedures which involve trivial pain, should be performed under general or local anaesthesia or analgesia. Investigators need to ensure that the techniques of sedation, anaesthesia and analgesia used are appropriate for the particular species of animal used, and that the techniques are in accordance with current veterinary and human clinical practice. Continuous monitoring is essential for all anaesthetized animals.

ii. Electro-immobilization devices should not be used to produce analgesia as there is no evidence that these devices produce analgesia.

iii. If during an experiment, there is evidence that animals are experiencing severe pain and distress which cannot be alleviated quickly, the animal should be euthanized without delay, even if the objective of the investigation has not been achieved.

(The use of many analgesics and anaesthetics is controlled under the Poisons Act and specific legal requirements are placed upon their purchase, storage and documentation.)

2.6. NEUROMUSCULAR PARALYSIS

i. Neuromuscular blocking agents should not be used without adequate general anaesthesia unless the experimental procedures can be demonstrated not to cause pain or distress.

2.7. SURGERY

i. Surgical procedures should be performed only by trained and experienced personnel.

ii. Surgical procedures should be performed in an area which is maintained in a clean condition and which should contain all the equipment necessary to provide for the health and welfare of the animal during surgery.

2.8. POST-OPERATIVE CARE

i. Animals recovering from anaesthesia should be kept under conditions in which they cannot injure themselves by uncoordinated movements. They should not be placed in a cage with other animals, as some species may annoy, attack, or kill anaesthetized members of the group.

ii. During recovery from surgical procedures, skilled care needs to be provided with attention given to warmth, cleanliness, proper fluid and food intake, and control of infection. The use of analgesics may be desirable to minimize post-operative discomfort.

iii. An animal that is observed to be in a state of severe pain or stress which cannot be alleviated should be euthanized immediately.

2.9. IMPLANTED DEVICES

i. Following an operation in which a monitoring or sampling device has been implanted, or an internal organ fistulated, skilled and specialized attention is required in the care of the animal. Regular observation is essential to determine signs of stress, pain or infection which should be treated immediately.

2.10. FOETAL EXPERIMENTATION

i. Where foetal surgery impairs the ability of the neonate to function independently and without pain or distress, the animal should be euthanized immediately following birth.

ii. When surgical procedures are performed on post-implantation foetuses, such foetuses should be assumed to have the same requirements for anaesthesia and analgesia as adult animals.

2.11. NON-SURGICAL EXPERIMENTS

i. Animals in many projects are not subject to surgical interference but may experience pain or distress. These experiments include toxicological, pathogenetic, behavioral, biological and therapeutic product studies, and feeding and grazing experiments outside accepted farming practices. Adequate arrangements should be made for supervision of experiments at remote locations.

ii. Farm animals should be handled and husbanded in accordance with the Codes of Practice for the welfare of the animal species concerned.

2.12. DURATION OF ANIMAL USAGE AND RE-USE OF ANIMALS

i. No animal used in a procedure entailing pain or distress should be used in a further recovery experiment, unless it has returned to good health and well-being.

ii. The continuing use of individual animals (such as dog, cats, monkeys, rabbits, etc.) in experiments should be reviewed annually, and the decision to continue should be based on the clinical well-being of the animal.

2.13. TERMINATION OF EXPERIMENTS AND EUTHANASIA

i. Once the objectives of the experiment have been achieved, animals should not remain in the experimentation area, but should be returned to normal conditions or euthanized.

ii. Acute experiments involving surgical procedures which do not require recovery of the animal should be terminated while the animal remains fully anaesthetized.

iii. Physical methods of dislocation of the neck, stunning and guillotining are satisfactory for small laboratory animals and birds, although care should be taken that animals do not recover after stunning. Large animals may be killed painlessly by shooting with a captive bolt pistol or by free bullet. A small caliber rifle is sufficient for livestock other than mature bulls or boars provided that the bullet traverses the brain. Animals should be bled out after use of a captive bolt pistol to ensure that consciousness is not regained.

iv. Inhalation anaesthetics should not be used for euthanasia in unventilated animal rooms, and should be handled with care to avoid toxicity to both human beings and animals in the vicinity. The possibility of explosion with flammable agents should be considered. Carbon dioxide, when used correctly, is useful for small animals in that it has a rapid depressant action on the brain prior to death.

2.14. USE OF ANIMALS IN TEACHING

i. The use of animals in teaching should be approved by UNIMAS-AEC and comply with all relevant legislation, with the principles of this Code and with institutional requirements.

ii. If there are legal requirements for registration of persons who use animals for research, diagnosis and teaching such requirements must be complied with and a copy of the registration certificate must be extended to the UNIMAS-AEC.

2.15. TERTIARY INSTITUTIONS

i. In relation to the use of animals for teaching undergraduates, UNIMAS-AEC will advise the faculties on the following principles:

a) Animals should not be used when other techniques such as audio-visual aids will achieve the teaching objective satisfactorily.

b) If animals are used, the number should be kept to an absolute minimum.

c) If animals are handled, manipulated or interfered with in any way by students, there should be close supervision by responsible, adequately trained supervisors.

d) Anaesthesia of animals and / or surgical interference should be carried out by students only if it is absolutely essential for training. Close supervision has to be provided by adequately trained and qualified supervisors.

e) Euthanasia of animals should be carried out only by trained personnel. In the case of surgery carried out under anaesthesia by students, euthanasia by anaesthetic overdose can be performed by students, under close supervision.

f) While students may be permitted to assist in general care of experimental animals, including post-operative care, responsibility for this has to rest with trained personnel.

ii. Postgraduate students undertaking research using animals need training in the care and handling of animals and / or livestock. Formal instruction should be provided for students undertaking Masters and Ph.D. degrees. All these should be the responsibilities of the supervisors.

2.16. KEEPING ANIMALS FOR OBSERVATION

i. Ideally, the care of animals should be in the hands of a trained personnel, and the animals housed under properly controlled conditions.

ii. The following principles should apply:

a) Animals should not be maintained on a long-term basis in a classroom without due consideration of disease and allergy problems that may arise in the students.

b) Shelter should be provided specifically for housing animals.

c) Whatever type of housing is used, the enclosures should have adequate floor space for each animal and large enough to prevent overcrowding, should provide adequate ventilation and lighting and have surface that are easily cleaned. Temperature and humidity should be appropriate to the type of animal kept, and a suitable form of shelter should be provided.

d) Food and water should be available at all times, in adequate amounts for maintenance of good health. Food should be palatable and sufficient in quantity and quality to provide a high standard of nutrition for the species concerned.

e) Students and other animal care staff should be trained to handle the animals appropriately.

2.17. ANIMAL EXPERIMENTS

i. No experimental procedure should be attempted on a vertebrate animal that will subject it to pain or distinct discomfort, or interfere with its health. Experiments involving surgery, infectious disease, administration of drugs or chemicals, ionizing radiation, exercise to exhaustion, electric shock, or other distressing stimuli, should not be demonstrated to or be carried out by students.

ii. Vertebrate animals may be suitable for behavioral studies, provided that the animals are not subjected to undue stress.

iii. High standards of humane care should prevail and all procedures closely supervised by a competent personnel designated with overall responsibility for the animals.

2.18. DISPOSAL OF ANIMALS

Several options are available for disposal of the animals:

a) Return of the animals to the source
Animals obtained from farms, hatcheries, homes, etc., cannot be returned to the source due to the high risk of introduction of infectious disease to the source.

b) Release of the animal(s) into the wild
Animals obtained from nature should be returned there only on the advice of relevant wildlife authorities. Non-native animals, domesticated and cage reared vertebrates of any kind should not be released into the wild.

c) Release of the animal(s) to students
The practice of allowing students to take experimented animals (either alive or dead) home as pets or for any other purpose should not be allowed, due to the possibility of transmission of zoonotic diseases.

d) Euthanasia
If euthanasia has to be carried out, an approved humane method should be used. Animals' carcasses should be disposed off appropriately.

SECTION 3

3.0. CHOICE AND SUPPLY OF ANIMALS

3.1 CHOICE OF ANIMALS

At the outset of a project, the species to be used should be selected carefully from those available, taking into consideration such factors as space requirements, availability of caging in the animal house, cost of breeding or buying the animal, maintenance costs, existence of baseline data in the literature, availability of a range of genetically defined strains, drug susceptibility and organ size.

3.2. COST

i. In calculating costs, account must be taken of the production of breeding stock, unisex orders, restrictive age or weight requirements, canceled orders and so on. Genetically defined animals have great advantages over outbred animals in experimental work but are more expensive to produce.

ii. Expenses of extra handling of animal should be borne by the researcher. This includes additional claims and overtime.

3.3. GENETIC QUALITY

i. In many types of experimental work, the genetic quality of the animals used is of prime importance. This applies particularly in areas such as oncology and immunology, where experiments involve transplanting tissue from one animal to another has to be done. In many other fields it is essential (or at least desirable) to use animals with a uniform genetic background as this removes a major source of variability in biological investigations.

ii. Investigators intending to use genetically defined animals should study the international rules of nomenclature. They should be aware that the background strain of animals on which a mutant gene is maintained may play an important role in the experiment.

iii. Investigators should ensure that the support staff understands the procedures necessary for obtaining the particular strain required, and the precautions needed to maintain it. Breeding records must be accurately compiled, and breeding schedules strictly adhered to.

3. 4. HEALTH STATUS

i. Intensive breeding of animals in a conventional animal house provides conditions, conducive to rapid spread of infection. Outbreaks of infection can interrupt the regular supply of animals to the laboratory with disastrous effects on many types of research.

ii. The routine monitoring of the microbiological and parasitological status of colonies of research animals and the initiation of programs of disease prevention are essential to ensure that result of experimentation are reproducible.

iii. Where animals are obtained for the laboratory from a variety of sources, trouble frequently occurs as apparently healthy animals can carry disease, which may devastate a susceptible colony and disrupt regular research and experiments where immuno-suppression is used, the problem is exacerbated. Animals recently introduced into the animal house should not be used in experiments until they have been properly quarantined and their health status has been evaluated by the veterinarian.

iv. Previous infections or concurrent sub-clinical infections can have a dramatic effect on the results of an experiment. The use of specially bred disease-free animals and in certain circumstances, provision of special animal quarters, can prevent the frustration of failed experiments and save time and money.

3.5. GENOTOBIOTIC ANIMALS

i. Most species of animals have now been produced germ-free, and with some species, continuous breeding within the germ-free environment is possible.

ii. Germ-free animals are very expensive to produce and maintain and are used only in special experimental situations or to provide a nucleus of breeders to stock new breeding units. If germ-free animals are unavailable, Caesarean derived barrier maintained specific pathogen free (SPF) animals, tested and shown to be free from as wide a variety of pathogens as is possible, should be used as breeders.

iii. Where they are available, SPF animals are the animal of choice for most experimental work. Where investigations are of short duration and do not require immuno-suppression, no special requirements are necessary for using SPF animals in the experimental animal quarters, although it is advisable to empty completely the animal units, from time to time, to prevent any build-up of pathogens. In the care of long-term experiments, or where immuno-suppression is used, special precautions need to be taken to obtain most benefit from clean animals. The use of acidified water, sterilized food, and protective filters over cages or barrier maintenance should be considered.

3.6. INTRODUCTION OF INFECTION

Introduced animals are the major potential source of infection to the animal house, but passenger viruses can be carried in tumour cell lines or other biological materials. Where it is necessary to inoculate imported materials or possibly infected biological substances into animals, quarantine precautions should be observed.

3.7. SPECIAL REQUIREMENTS FOR SUPPLY OF ANIMALS

A permit must be obtained from the relevant authorities (Forest Department Sarawak, Sarawak Forestry Corporation Sdn. Bhd., Department of Veterinary Services etc.) prior to purchase possession or use of certain protected animals for experiments.

3.8. IMPORTING / EXPORTING LABORATORY ANIMALS AND BIOLOGICAL PRODUCTS

The import or export of laboratory animals or biological products is subject to certain requirements for health, quarantine and certification. These requirements are provided in the Sarawak Wild Life Protection Ordinance 1998, Sarawak Biodiversity Ordinance 1997, CITES 1973-75, Department of Customs, etc.

3.9. MOVING ANIMALS INTER-STATE

Under the Malaysian Quarantine Law, the Veterinary Division (Ministry of Agriculture) can restrict the inter-state entry or movement of animals. Advice should be sought from the local State Veterinary Department or the Veterinary Division (Ministry of Agriculture) before animals are ordered from other States. In some circumstances, it is necessary for a Certificate of Health to accompany animals travelling interstate. Under the Malaysian Quarantine Law there are strict regulations regarding the entry into the country of biological materials.

SECTION 4

4.0. MAINTENANCE OF ANIMALS

4.1. ASSESSMENT OF FACILITIES

i. Investigations involving the use of animals should not be commenced before the total experimental requirements have been reviewed and the investigators satisfied that adequate and suitable facilities are available for undertaking the work.

ii. The facilities include the buildings which the animals will be housed and associated services such as caging, animal care equipment, environmental controls (temperature, humidity, ventilation and lighting), and facilities for maintaining hygiene.

iii. If pathogens, radioactive substances or other materials which represent a human, animal or environmental hazard are to be used, proper facilities for containment have to be available at the premises (e.g. biosafety facilities).

iv. The assessment of facilities includes the availability of suitably defined animals, supplies of food and water, and access to staff, trained in and conversant with both animal care and the experimental procedures to be carried out.

4.2. HOUSING

i. The building in which the animals are to be housed should be constructed in such a manner that it can be maintained in a sanitary condition, i.e., of sound construction, in good repair, and vermin proof. Walls and floors should be constructed of durable, impervious materials. The building should be fitted with an adequately reticulate water supply and have proper facilities for drainage of effluents. Appropriate steps should be taken to minimize and control noise levels when designing and constructing facilities.

ii. Every room used for housing animals should have a lighting system which provides light sufficient for proper observation of the animals, distributed evenly throughout the room and with as little glare as possible. Animals should be provided with at least eight hours of continuous light each day.

iii. Each room should be ventilated at all times by a system which distributes fresh or recirculated air uniformly throughout the room, without draughts. The atmosphere should be maintained at a stable temperature and relative humidity suitable for the health and comfort of the animals housed in the room.

4.3 BARRIER MAINTENANCE

i. Many animal houses are now designed to provide barrier conditions for maintaining animals. The purpose of the barrier is to minimize the risk of entry of extraneous or pathogenic micro-organisms or conversely, to contain an infectious agent within a defined area.

ii. Conventional animal houses have no physical barriers to entry of staff or foodstuffs but are usually designed so that there is a “clean” to “dirty” work flow pattern within the building, to ensure that good levels of hygiene are maintained.

iii. The ventilation system should supply only filtered fresh air. If clean animals are to be maintained behind the barrier, the unit has to be held at positive pressure, whereas, if the intention is to contain infectious agents within the barrier, it should be held at a pressure negative to the outside atmosphere.

iv. An absolute barrier between the animal and the environment can be produced by containing the animal in a germ-free isolator. With this type of equipment, all food, water and air are introduced in a sterile manner through entry ports. Operators handle the animals using gloves sealed into the surrounding plastic film or rigid air-tight container. Refuse is removed without jeopardizing the germ-free status of the interior.

v. As with the barrier-type building, germ-free isolators may also be used to quarantine infected or potentially infected animals. In this case also the interior of the isolator is maintained at a pressure below that of the surrounding atmosphere.

4.4 CAGING AND EQUIPMENT

i. Caging and equipment should be of suitable design and adequate proportions for the health, welfare and comfort of the animals maintained in them.

ii. The design of cages should be such that animals can be observed easily while the transport of pathogenic organisms from animal to animal is minimized. The cage should be soundly constructed to ensure that the animals cannot escape and to enable the cages to be properly sanitized.

iii. The standards for buildings, cages and equipment, and the space requirements for various species of animal should follow specification given by Animal Act 1953.

iv. Where required, bedding or litter should be absorbent and free of substances which could injure animals or personnel. Bedding should be of a type nor readily eaten by animals and which is easily sterilized.

v. Sufficient bedding should be provided so that it remains dry between changes. It should be changed frequently so that the level of noxious gases remains within desirable limits for animal and human health.

4.5. FOOD AND WATER

i. Supplies of food should be wholesome, palatable and nutritionally adequate. Standardized commercial diets are available and are preferred generally to those formulated on site from basic ingredients. Under some circumstances, sterilization of food may be required. This is generally carried out by irradiation, autoclaving or exposure to germicidal gas. High temperatures are reached for a short time during the process of pelleting, so that pelleted foods generally have low levels of contaminating organisms, they cannot be regarded, however, as sterile. Such processing may reduce the levels of some essential nutrients, e.g. vitamins and similar supplementation may be required.

ii. The water supply should be potable and drinking vessels and equipment maintained in a sanitary condition. If required, water may be sterilized by heating, chlorinating or acidification, or may be rendered free from bacteria by filtration.

4.6 STAFF

i. While the maintenance of experimental animals is the ultimate responsibility of the investigator, the work is usually undertaken by other staff.

ii. Staff suitably trained and experienced in animal care can assist with the selection of the most appropriate types of animal, and advise on their availability and supply, special requirements for their care and welfare, the implementation of experimental techniques, and other day-to-day concerns of a research program. Close liaison between the investigator and animal technicians is crucial to the effectiveness of research.

iii. Duties of animal care personnel:

a) Supply of food and water

b) Maintenance of cages, equipment and surroundings in clean and sanitary condition

c) Regular observation of animals for signs of illness or disturbance at intervals depending on the nature of the project

d) Checking environmental conditions

iv. All factors which contribute to the general comfort and welfare of the animals are the responsibility of the investigators. Sufficient numbers are required to cover weekend and holiday duty and provide continuity of service in the event of illness among the staff.

v. UNIMAS-AEC should establish satisfactory standards for:

a. Mental and physical health of laboratory animals
b. Prevention of zoonoses
c. Ensuring that proper precautions are implemented in the running of specialized colonies that may present particular hazards to other animals and personnel working with them.

4.7. EXPERIMENTAL PLAN

i. At the premises of a research project, the investigator should define all experimental procedures and requirements so that the staff involved will understand fully what is required in respect of total animal care and special conditions.

ii. Relevant procedures could include restriction of staff movement into or out of the area, specification of the disease status or genetic composition of the animals to be used, type of diet, any special precautions needed to prevent the entry or escape of pathogens from the area or cross contamination of animals within the experimental group(s), and precautions to be taken to minimize risks to personnel.

4.8 CARE OF ANIMALS

i. Investigators should be familiar with the details of the daily care of the animals in their charge, such as how to accommodate them in suitable cages, the type and quantity of food required, cleaning routines, procedures for breeding animals, etc.

ii. The investigator should ensure that particular emphasis is placed on the following:

a) The animals should not be overcrowded and signs of stress should be investigated immediately. Guidelines as to the space requirements of various animals are available in the literature.

b) Stress due to space restriction depends largely on the type of animal involved. For instance, some species will fight if grouped in one cage, particularly if males are placed together.

c) If an animal is removed from a group for a period, care is required to re-introduce it among its former cage-mates as it may be attacked as an intruder. Monkeys will become disturbed if not within sight of others, sometimes within touching distance of another monkey. Dogs are frequently less noisy if caged together in compatible pairs or small groups than when they are caged singly but not more than 10-12 dogs should be housed together, even if space is available for more.

d) Animals originating from different breeding colonies should not be mixed in a room unless each group is known to be free from infectious micro-organisms. Apparently healthy animals may be carriers of infectious agents and when placed in contact with animals from a colony which is free from the particular infection could cause an outbreak of disease in the susceptible group.

e) Similarly, if disease-free animals are placed in a contaminated environment, even temporarily, they should not be returned to a disease-free group, in case infection is introduced.

f) Animals should never be placed in a cage before it has been thoroughly cleaned and sterilized since a dirty cage is a potential source of cross-infection.

iii. In the event of an outbreak of disease in the experimental animals, the investigator should inform UNIMAS-AEC immediately so that appropriate action can be taken to prevent the spread of the disease to other animals and take all practicable steps to diagnose and treat the disease.

iv. Clinical examination of an ill animal should be undertaken by trained personnel. Such an examination might include but not limited to the following observations;

a) Temperature
b) Pulse
c) Respiration rate
d) Color of membranes and neurological signs
e) Examination of urine and faeces.

v. If any animal dies unexpectedly a post-mortem should be performed by an experienced person such as a veterinarian or a senior animal technician. Post mortem reports should be maintained of all dead animals for future reference. Appropriate laboratory tests may also be needed to establish a diagnosis.

vi. Special care needs to be taken of animals which are deliberately infected as part of an experimental procedure. First the investigator has to be aware of the clinical or pathological effect of the infectious agent. The mode of transmission of the infectious agent has to be known so that precautions can be taken against cross-infection and an effective method of decontamination of the area carried out at the conclusion of the experiment.

vii. If large animals (horses, cattle or sheep) are to be used, facilities suitable for maintaining and handling the particular species have to be available. These include stock yards or loose boxes and a crush in which the animal can be restrained. There is considerable risk of personal injury if such livestock are handled by inexperienced people or without proper facilities.

SECTION 5

5.0. SAFETY AND TRAINING OF PERSONNEL

5.1. GENERAL PRECAUTIONS

i. All personnel involved in the care and maintenance of animals and in carrying out procedures on animals should be properly trained and / or supervised, so as to minimize the risk of accidental injury or infection.

ii. Members of staff are exposed to the risk of contracting infectious disease; diagnostic surveillance should be maintained and programs of immunization should be carried out in accordance with medical advice for those diseases for which vaccines are available (e.g. anti-rabies, influenza, tetanus, etc.). It is the responsibility of the researchers involved to ensure adequate compliance to proper immunization.

iii. Certain precautions should be practiced at all times, to minimize risk to the health of personnel:

   a. Use of appropriate protective clothing, including gloves, overshoes, overalls, masks. They should not be worn outside the animal area.

   b. Maintenance of high standards of personal hygiene e.g. regular hand washing, showers when entering and / or leaving the animal area.

   c. Prohibition of eating, smoking and drinking in the animal area.

   d. Proper collection and disposal of carcasses and refuse.

5.2. QUARANTINE

Federal and State Quarantine legislations should be followed to limit the danger to the community or to other animal populations of introducing non-endemic diseases to Malaysia. Personnel should familiarize themselves with the disease risks that imported animals may present.

i. Injuries can arise from poorly designed equipment or can be inflicted by animals. The risk of bites or scratches from animals can be minimized by :-

   a. Handling animals in the correct manner
   b. Providing and using properly designed equipment to restrain animals
   c. Using sedative drugs where appropriate.

ii. All personnel should be safety conscious with regard to physical hazards, such as electricity, toxic or corrosive chemicals and heat. They should also ensure they are fully aware of safety requirements in relation to radiation.

5.3 INFECTIOUS AND ZOONOTIC DISEASES

i. Special hazards exist with certain species of animals which are known to harbour disease causing organisms which can be transmitted to man (zoonoses). The following precautions may be necessary:

a) Pregnant women should not be permitted to work with cats or to clean out litter trays, because cats can be carriers of *Toxoplasma gondii*. Sporulating oocysts are passed in the faeces of cats. Infections of the pregnant mother can cause serious illness or death of the unborn child.

b) Personnel working with primates should be screened regularly for tuberculosis at least once yearly. They should take adequate precaution against being bitten by following recommended procedures such as wearing gloves, protection for the eyes and prior sedation before handling due to the possibility of contracting Herpes Simian B encephalitis which is incurable and fatal to humans.

c) Psittacosis (ornithosis) may be transmitted by a wide variety of psittacines (parrots etc.) and other species of birds, domestic poultry and pigeons. The disease is spread mainly by inhalation and therefore dead or sick birds should be handled with care.

d) Ectoparasites and fungal infections of the skin are common in laboratory and farm animals and may be transferred to animal handlers directly or indirectly e.g. cats may harbour ringworm fungi on their coat without discernible lesions. Sarcoptes mites are found on a wide range of mammals especially dogs and pigs and some species of Malaysian wildlife may carry ticks.

e) Use of protective clothing, including gloves will prevent transmission of many of these and similar agents to animal handlers.

f) Infection with enteric organisms, e.g. Shigella from laboratory primates, and Salmonella from other species, can be prevented by the high standards of personal, animal and equipment hygiene. Such precautions will prevent ingestion of Echniococcus or Toxocara eggs passed in dog faeces. These can cause hydatids or visceral larva migrans in humans.

g) Several diseases can be spread by contact with infected urine or placental material from farm livestock, including Brucellosis (aborted foetuses, particularly placenta, vaginal discharges of cattle and pigs) Vibriosis (ingestion of infected water, food, milk and meat); Q fever infected placenta) and leptospirosis (infected urine with infection through abraded skin and moist membranes).

ii. Experiments using necropsy procedures on animals infected with highly contagious organisms should be carried out in ventilated safety cabinets in a designated biohazard are using protective clothing including gloves.

iii. Necropsy or waste material for disposal should be sealed in plastic bags, properly labeled and disposed accordingly. The necropsy room should be properly equipped to provide adequate refrigeration, washing and disinfecting facilities.

iv. Where laboratory animals are being inoculated with material from other diseased animals the inoculated animals should be held and handled under conditions and using procedures that will minimize any change of transmission of infection to humans.

5.4 ALLERGENS

Laboratory staff may develop allergies to the dander, serum, urine and other tissue products of laboratory animals. In order to minimize risk and problems associated with animal induced allergy, it is advisable to:

a. Require the routine use of protective clothing in animal facilities. They should not be worn outside the facilities.

b. Use protective gloves when handling tissues.

c. Carry out prolonged procedures on laboratory animals in a ventilated safety cabinet.

d. Personnel should declare their allergies and should avoid or minimize contact to the allergens.

5.5 TUMOURS

Tumours and other biological material, especially which of human origin which may contain potentially infective agents should be regarded as pathogenic and handled accordingly.

5.6 RADIOACTIVITY AND ULTRA-VIOLET LIGHT

i. Animals inoculated with radioactive materials including radioactive isotopes or which have been implanted with devices emitting radiation have to be housed so that they do not present a danger to either personnel or the environment.

ii. Carcasses and bedding need to be disposed of and cages decontaminated in compliance with regulations governing the handling and release of radioactive materials into the environment.

iii. The eye and skin are critical areas for ultraviolet (UV) exposures. If UV lights are used staff should be warned of the hazards and provided with “wrap-around” safety glasses. The source of illumination should be suitably marked.

5.7 ADMINISTRATION OF RECOMBINANT DNA MATERIAL TO ANIMALS

Experiments involving *in vitro* preparation and subsequent administration of recombinant DNA molecules to experimental animals should not be performed without prior consultation with UNIMAS-AEC. Special handling of experimental animals used for this purpose may be necessary.

REFERENCES

This document has been compiled from various sources which include reports on ethics of animal experimentation, maintenance procedures etc., obtained from manuals, journals, Acts, textbooks and personal communications. Some of the important references are quoted below:

1. Code of Practice for the Care of Animals used for Experimental Purposes. Australian Atomic Energy Commission. 1990.

2. Provision of Laboratory Animals for Research - A Practical Guide. William Lane Petter. Elsevier Publishing Company. 1961.

3. UFAW Handbook on the Care and Management of Laboratory Animals, Edited by Trevor Poole, 6th Ed. 1987.

4. Policy of the Institute of Medical Research regarding the use of Laboratory Animals in Research. 1990.

5. UKCCCR Guidelines for the Welfare of Animals in Experimental Neoplasia. Laboratory Animals (1988) 22: 195-201.

6. Animals (Scientific Procedures) Act (1986). HM Stationary Office. United Kingdom.

7. British Council Guidelines on the Use of Living Animals in Scientific Investigations. 1984.

8. Royal Society / UFAW - 1987 Guidelines on the Care of laboratory Animals and their Use for Scientific Purposes Part I - Housing and Care. Royal Society and UFAW.

9. Care of Experimental Animals - A Guide for Canada. Canadian Council on Animal Care.

10. The Use of Animals in Toxicological Studies. UFAW 1969.

11. Humane killing of Animals. UFAW 1967.

12. Transport of Animals. UFAW 1970.

13. Rodents. National Academy of Sciences. Washington DC. 1969.

14. Principles of Animal Technology I - 1988. Edited by P.J.Kelly, K.G.Millican and P.J. Organ.

15. Laboratory Animals Information Service. Bulletins. Indian Cancer Research Centre, Bombay 12, India. Indian Council of Medical Research.

16. Laboratory Animals Handbook. 1968. No.1. The Design of Animal Houses.

17. Animals Act 1953 (revision 2006).

18. Sarawak Wild Life Protection Ordinance 1998.

19. Sarawak Biodiversity Ordinance 1997.

INTERNATIONAL GUIDING PRINCIPLES FOR ANIMAL RESEARCH

1. The advancement of biological knowledge and the development of improved means for the protection of the health and well-being both of man and animals require recourse to experimentation on intact live animals of a wide variety of species.

2. Methods such as mathematical models, computer simulation and *in vitro* biological systems should be used wherever appropriate.

3. Animal experiments should be undertaken only after due consideration of their relevance for human or animal health and the advancement of biological knowledge.

4. The animals selected for an experiment should be of an appropriate species and quality, and the minimum number required, to obtain scientifically valid results.

5. Investigators and other personnel should never fail to treat animals as sentient, and should regard their proper care and use and the avoidance or minimization of discomfort, distress, or pain as ethical imperatives.

6. Investigators should assume that procedures that would cause pain in human beings cause pain in other vertebrates although more needs to be known about the perception of pain in animals.

7. Procedures with animals that may cause more than momentary or minimal pain or distress should be performed with appropriate sedation, analgesia, or anaesthesia in accordance with accepted veterinary practice. Surgical or other painful procedures should not be performed on unanaesthetized animals paralyzed by chemical agents.

8. At the end of, or when appropriate during an experiment, animals that would otherwise suffer severe or chronic pain, distress, discomfort, or disablement that cannot be relieved should be painlessly killed.

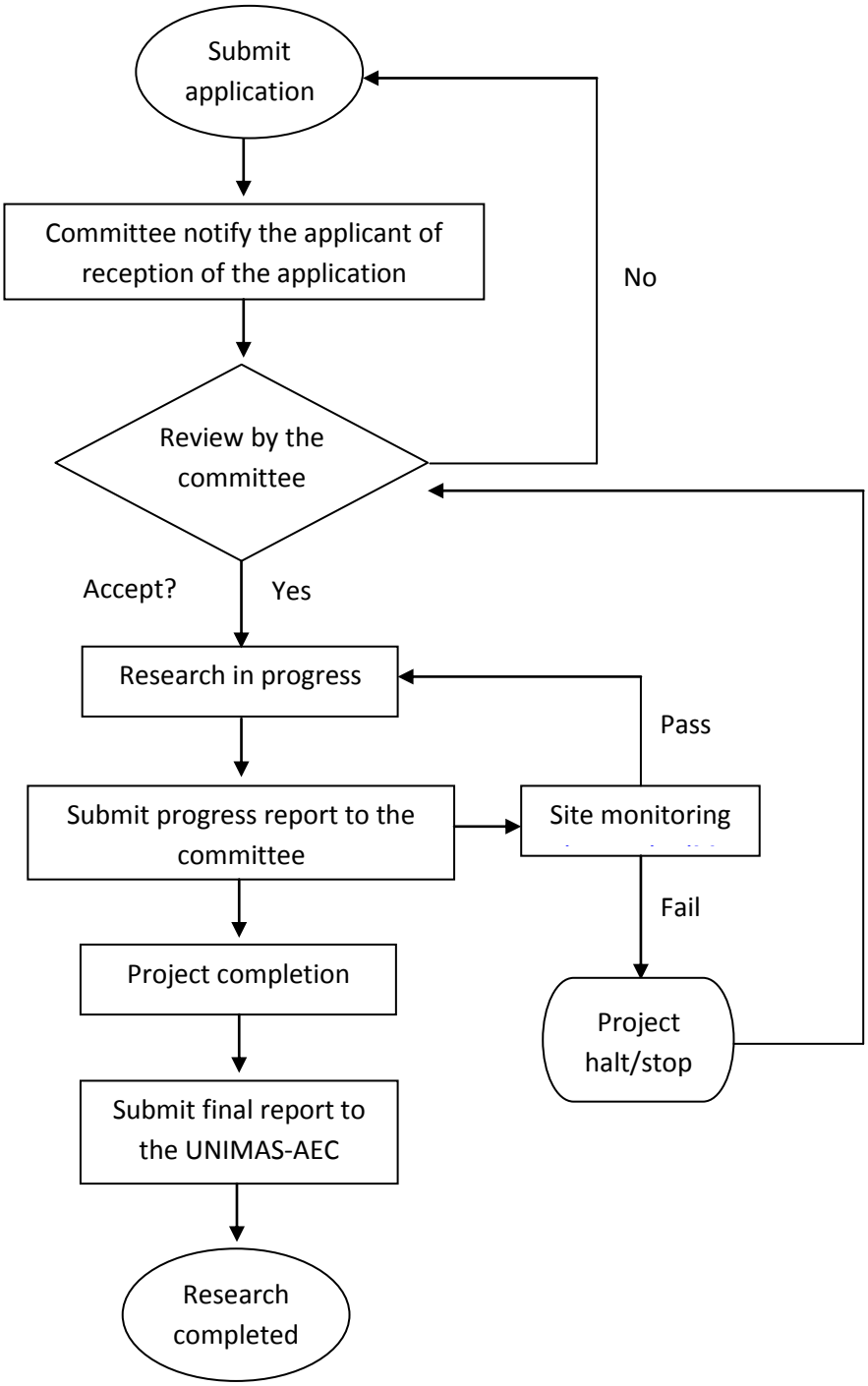
9. The best possible living conditions should be maintained for animals kept for biomedical purposes. Normally the care of animals should be under the supervision of veterinarians having experience in laboratory animal science. In any case, veterinary care should be available as required.

10. It is the responsibility of the director of a department using animals to ensure that investigators and personnel have appropriate qualifications or experience for conducting procedures on animals. Adequate opportunities shall be provided for in service training, including the proper and humane concern for the animals under their care.

Adapted from **WHO CHRONICLE, 39 (2): 51-56 (1985)**
A CIOMS Ethical Code for Animal Experimentation
Norman Howard-Jones

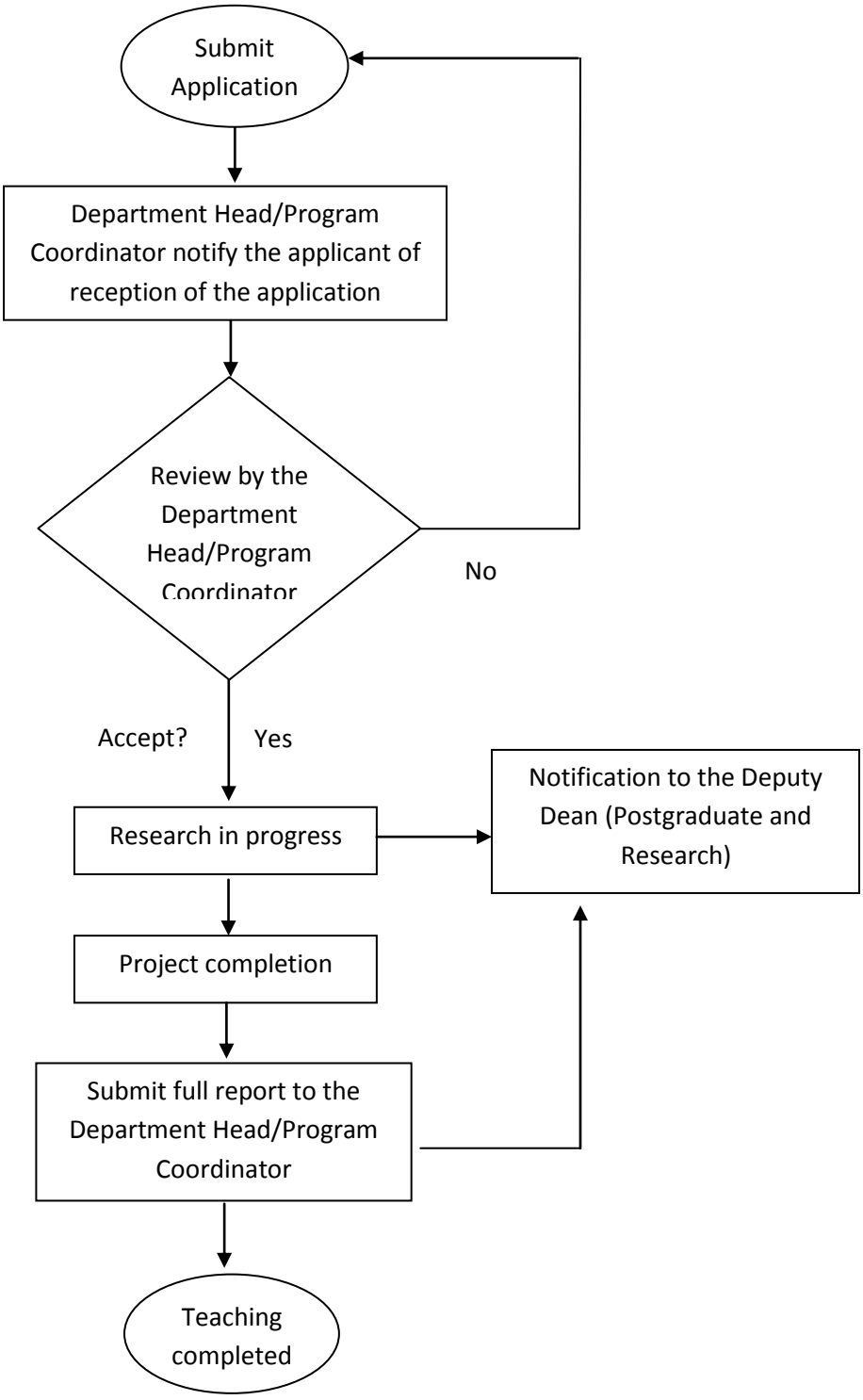
Appendix 1: UNIMAS-AEC Research Workflow

UNIVERSITI MALAYSIA SARAWAK ANIMAL ETHICS COMMITTEE (UNIMAS-AEC) WORKFLOW FOR RESEARCH



Appendix 2: UNIMAS-AEC Teaching Workflow

UNIVERSITI MALAYSIA SARAWAK ANIMAL ETHICS COMMITTEE (UNIMAS-AEC) WORKFLOW FOR TEACHING



Appendix 3: UNIMAS-AEC Application Form

APPLICATION FORM FOR THE USE OF ANIMALS FOR RESEARCH PURPOSES

UNIVERSITI MALAYSIA SARAWAK ANIMAL ETHICS COMMITTEE (UNIMAS-AEC)

Project Title	
Grant Number	
Proposed Start Date	
Proposed Finish Date	

	Title & Full Name	**Qualifications & Position**	**Department / Institution**
Chief Investigator			

Aim(s) of the research:

Justification for using animals:
Number and type of animals to be used:
Details of acquisition, housing and care of animals:
Procedures to be used:
Particulars, including dose of anaesthesia, analgesia, neuromuscular blocking agents and euthanasia (if applicable):

DECLARATION OF ALL PERSONNEL INVOLVED IN ANIMAL USE

- I hereby declare that I have the appropriate qualifications and experience or will be trained by the person specified to perform the procedures as described in this application.
- I agree to abide to all provisions of Federal and State related legislation (e.g. Sarawak Wild Life Protection Ordinance 1998 and Act 647, Animals Act 1953 (revision 2006), and etc).
- I have read and understood the FRST-AEC Guideline/Policy.
- I agree to abide to all decisions by the Chairman of FRST-AEC.
- I agree that this information may be used in reports made to UNIMAS or any government department with legal authority to access this information.

....

Signature of Chief Investigator Date

.....

Print Name

Name of associate investigator(s)	**Affiliation**	**Position**	**Signature**

DECLARATION BY CHAIRPERSON OF UNIMAS-AEC

I certify that the procedures/ personnel/ location in this project has been considered and approved by the Animal Ethics Committee **for the period of ...../...../..... to ...../...../.....**

....

Signature Date

.....

Print Name

Appendix 4: UNIMAS-AEC Progress Report

JAWATANKUASA PENYELIDIKAN DAN KHIDMAT

ANIMAL ETHICS COMMITTEE

RINGKASAN LAPORAN KEMAJUAN PROJEK PENYELIDIKAN

SUMMARY OF RESEARCH PROGRESS REPORT

UNTUK KEGUNAAN PEJABAT
FOR OFFICIAL USE

Tarikh Terima *Date of Receipt*			
Tarikh Semak *Date of Verification*			
Disemak oleh *Verified by*			

A.	**Kod Rujukan Projek** ***Project Reference Code***	**:**	
	Tajuk Projek ***Project Title***	**:**	
	Ketua Penyelidik ***Project Leader***	**:**	
	Fakulti ***Faculty***	**:**	
	Ahli Kumpulan Penyelidik ***Research Team Members***	**:**	
B.	**Tarikh Projek Bermula** ***Start of project***	**:**	
	Tempoh ***Project Duration***	**:**	
	Animal used ***Jenis Haiwan yang digunakan***	**:**	
	Kaedah diguna ***Method used***	**:**	

C.	**Laporan kepatuhan kepada prosedur yang dipersetujui** ***Report on adherence to method prescribed by committee***

.....

Tandatangan
Signature

.....

Tarikh
Date

D.	**Catatan Dekan/Pengarah** ***Remarks by Dean/Director*** …… ……. **Tandatangan (Dekan/Pengarah)** **Tarikh** ***Signature (Dean/Director)*** ***Date***
E.	**Catatan Pengerusi JK Etika Haiwan** ***Remarks by Animal Ethics Commitee Chairperson*** …… ……. **Tandatangan (Pengerusi)** **Tarikh** ***Signature (Chairperson)*** ***Date***

Appendix 5: UNIMAS-AEC End Report

JAWATANKUASA PENYELIDIKAN DAN KHIDMAT
COMMITTEE FOR ANIMAL ETHICS

RINGKASAN LAPORAN AKHIR PENYELIDIKAN
END OF REPORT SUMMARY

UNTUK KEGUNAAN PEJABAT
FOR OFFICIAL USE

Tarikh Terima *Date of Receipt*			
Tarikh Semak *Date of Verification*			
Disemak oleh *Verified by*			

A.	**Kod Rujukan Projek** ***Project Reference Code***	
	Tajuk Projek ***Project Title***	**:**
	Ketua Penyelidik ***Project Leader***	**:**
	Fakulti/Institut ***Faculty/Institute***	**:**
	Ahli Kumpulan Penyelidik ***Research Team Members***	**:**
B.	**Tarikh Projek Mula** ***Project Start Date***	**:**
	Tempoh Projek ***Project Duration***	**:**
	Haiwan yang digunapakai ***Animal used***	**:**
	Kaedah yang digunapakai ***Method used***	**:**

C.	**Ulasan Keseluruhan kepatuhan kepada kaedah yang dipersetujui** ***Overall Comment on adherence to prescribed method*** Huraikan kepatuhan dan permasalahan semasa pelaksanaan projek, dan langkah-langkah yang di ambil untuk mengatasi. *Describe the adherence and problems faced during project implementation, and steps taken to overcome it.*
D.	**Pencapaian Utama** ***Key Findings***

E.	**Komen Dekan/Pengarah** ***Comments by the Dean/Director*** …….. ……. **Tandatangan (Dekan/Pengarah)** **Tarikh** ***Signature (Dean/Director)*** ***Date***
I.	**Catatan Pengerusi JK Etika Haiwan** ***Remarks by the Chairperson of AEC*** …… …… **Tandatangan (Pengerusi)** **Tarikh** ***Signature (Chairperson)*** ***Date***