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**SUST Research Ethics Guidelines**

Shahjalal University of Science and Technology, Sylhet 3114, Bangladesh

***Introduction***

Shahjalal University of Science and Technology (SUST) is well known for its high quality of research and education. Ethical issues are always treated as the heart of academic research. These issues are treated as an assurance of the respectability and the credibility of an institution and its researchers. Ethical issues of research proposals have to be reviewed thoroughly before the commencement of any research activities. It ensures that the dignity, fundamental rights, safety, and well-being of research participants are duly respected and protected.

The objectives of the guidelines for research ethics are:

* Respect and protection for human dignity, rights and welfare should be confirmed.
* Research risk should be reasonable in relations to expected benefits.
* Research design should be sound and realistic and the investigator should be complement enough to conduct the study within the available resources.
* Investigators have to ensure the health-related safety of the research subjects during and after their participation.
* The investigators have to ensure that there are no social, legal and economic risks for the study participants.
* The researchers have to ensure that there is no or minimal environmental risks with the proposed study.

***Responsibilities of a researcher to ensure ethical standards***

For ensuring research ethics, four principles should be strictly followed.

1. The principle of reliability in ensuring the quality of research, reflected in the design, the methodology, the analysis and the use of resources.
2. The principle of honesty in developing, undertaking, reviewing, reporting and communicating research in a transparent, fair, full and unbiased way.
3. The principle of respect for colleagues, research participants, society, ecosystems, cultural heritage and the environment.
4. And the principle of accountability for the research from idea to publication, for its management and organization, for training, supervision and mentoring, and for its wider impacts.

In addition, the investigators have to follow other ethical issues indicated in their respective areas under the school.

***When do researchers need research ethics approval?***

In the following situations, ethical assessment can be requested:

-If a funding agency requires ethical assessment, either before a proposal may be submitted, or after an application for funding has been granted;

-If a journal or publisher requires ethical assessment of research before a scientific paper may be submitted or published;

-If an institutional policy prescribes that ethical assessment is required;

-If a researcher has another reason to think that ethical assessment of intended research is necessary.

In any case, ethical assessment only takes place before the research starts.

***Research Ethics Committees: Nature and Functions***

* Research Ethics Committees evaluate the ethical acceptability of research before participants can be enrolled in a study. Research ethics committees harmonize public and professional opinion in reaching decisions about proposed research.
* Members of Research Ethics Committees must be independent from sponsors, funders, investigators, and from undue influence. This ensures that the interest of research participants is paramount.
* Since all the research works of different academic departments of Shahjalal University of Science and technology are performed under six schools, there will be different sub-committees, **School Ethics Review Committee (SERC)**, at school level to deal with ethical issues of respective school at the initial period.
* Respective School Ethics Review Committees (School of Physical Sciences, Life Sciences, Applied Sciences and Technology, Agriculture and mineral Sciences, Social Sciences, Management and Business administration) will assist the **SUST Research Ethics Board (SREB)** for the final authorization of ethical clearance.

**SUST Research Ethics Board (SREB**)**:**

*Structure of SREB:*

Vice Chancellor is the chief patron of SREB. The board will be composed of seven members-

* A senior faculty who has excellent record in research and publication should be nominated by the Academic Council as Director.
* One senior faculty from each school who has excellent record in research and publication should be nominated by the Academic Council as member.

All the members of the SREB will be appointed for three years and any member cannot be appointed for more than two terms consecutively in the committee.

*Responsibility of SREB:*

* SREB will evaluate the submitted research proposal forwarded by research ethics sub-committee of different schools and has to give decision within seven working days.
* With the recommendation of respective ethical subcommittee, SREB will finally approve/reject the research proposal.
* Upon approval, the board will provide ethical clearance with a reference number.

SREB may:

-Approve unconditionally a project for which the ethical acceptability is considered satisfactory;

- Approve conditionally a project for which the ethical acceptability is deemed insufficient;

-Refuse a project that is not ethically acceptable;

-Terminate a current research project, if it no longer meets fundamental ethical principles.

***School Ethics Review Committee (SERC):***

*Structure of SERC:*

SERC will typically be composed of five members consisting of-

* Dean of respective school,
* Four faculty members of respective school who have excellent records in research and publication.
* The dean of each school will be the Chairman of the committee.
* Members of the committee from the school should be proposed through faculty meeting and will be selected finally by the Academic council.
* All the members of SERC will be appointed for three years and any member cannot be appointed for more than two terms consecutively in the committee.
* The membership at SERC should be designed to minimize the potential impact of conflicts of interest on the decision-making process. In addition, members who have a conflict of interest with respect to a particular study should not participate in the review of that study.

*Responsibility of SREC:*

* The committee will hold meeting after getting application for ethical clearance certificate. For getting the ethical approval, all researchers have to follow the ethical guidelines as stated under the relevant school. It is expected that the researchers will submit the ethical approval application (using respective application form) to respective SERC before the research project implementation/commencement.
* SERC will then evaluate the submitted documents according to the guidelines set before and upon fulfilling all criteria, will forward it within 15 working days to SREB for final approval.
* SERC have the rights to monitor the approved research any time during its implementation. SERC can also recommend modification or termination of the proposed study if they confirmed that the ethical issues are not maintained after getting its approval.

Any amendments regarding ethical guidelines, if needed, should be forwarded through SERC and SREB to Academic Council.

***School of Physical Sciences***

**Ethical Guidelines for Research in the fields of School of Physical Sciences**

**Preamble**

Ethical guidelines are essential to guide a researcher to accomplish his/her research work without violating any ethical issues, which ultimately help the researcher to publish the research findings comfortably.Ethical issues in research involve with scientific integrity, institutional integrity, social responsibility, environmental Protection and dealing with human and animal subjects. Through maintaining a standard ethical guideline, the researchers have scope to enhance social responsibility, uphold the integrity of human values, and protect the welfare of the research subjects and animals in compliance with the international law and safety standards.

**Requirement and Considered Issues for Ethical Clearance**

There are many ethical issues associated with a research. The ethical clearance is not mandatory for any research works. However, if anybody wants to get ethical clearance certificate from the university, he/she has to submit the brief research protocol and filled-up forms along with mitigation plan of the stated issues before start of the research works. Broadly, following issues needs to be addressed while conducting a research:

**Human consent**: It is prime ethical concern to get permission from the subjects (respondents) before conducting experiments and collecting data.

**Environment risks**: These are ethical concerns needs to be justified regarding the impacts of a research/technology on environment.

**Use of chemical and its disposal**: These are the ethical concern about which chemical will be used and what will be the impact of its by-products on the perspective of safety for human and environment.

**Use of animals/species:** These are the ethical concern about which animals will be used, how they will be utilized, and how they will be replaced in case of rare events.

**Health**: These are ethical concerns with the impact of technologies on physical and mental health.

**Safety**: These are ethical concerns about the safety of research personnel as well as safety of the infrastructure/equipments.

**Dissemination of research outcomes:** These are ethical concerns about how the researcher will disseminate the research outcomes.

**Application for Ethical Clearance**

### PART A

1. Principal Investigator:

2. Co-investigator(s) (if any):

3. Department/Institute where the research will be conducted:

4. Title of the study:

5. Type of research involved (Pure/Applied):

6. Duration of the study with possible initiation date:

7. Funding agency (if any):

8. Outline of the study (max. 150words):

9. Objectives of the study (max. 100 wards):

10. Methodology (max. 150 wards):

11. Expected Outcomes:

12. Additional Information (If any):

### PART B

Please state the mitigation plan in each of the following issues related to your research. If any issues is not related to the research, please mark it as ‘Not Applicable’.

|  |  |  |
| --- | --- | --- |
| **Issues** | **Necessity/Essentiality** | **Mitigation Plan** |
| Is the study involved with opinion from human regarding households or any other attributes?  | Consent/permission from the subject is mandatory. |  |
| Are there any environment risksin conducting the study? | Ethical concerns needs to be justified regarding the impacts of theresearch on environment. |  |
| Are there any chance generating hazardous situation due to use of chemical and the disposal of wastage? | Ethical concern regarding impact of chemical use needs to be described on the perspective of safety for human and environment |  |
| Is there any use of animals or species in the research? | Ethical concern needs to be elaborated regarding which animals will be used, how they will be utilized, and how they will be replaced in case of rare events. |  |
| Are there any health issues involved with the research? | Ethical concerns with the impact of technologies on physical and mental health needs to be addressed.  |  |
| Are there any safety concern involved with this research?  | Ethical concerns about the safety of research personnel as well as safety of the infrastructure/equipments needs to be justified. |  |
| Whether the research will follow the international norms and practices regarding dissemination of research outcomes. | Ethical concerns about acknowledgement, authorship, plagiarism needs to be described in disseminating the research outcomes.  |  |

### Investigator’s Declaration

1. I certify that the research proposal herein is not duplicative of previously reported research.

2. I am qualified and have experience in the experimentation on animals/ human subjects.

3. Standard procedure will be followed for sample collection and in experiments.

4. I will obtain approval from the Ethical Committee before initiating any significant changes in this study.

5. I will not initiate the study unless received approval from the Ethical Committee and I will follow the recommendations of the Ethical committee.

(Signature and Official Seal with Name and Designation)

Date:

***School of Life Sciences***

**Research Ethics guidelines of School of Life Sciences**

**Committee name: Institutional Ethical Committee for Experimentations on Human, Animal, Microbes, Environment and Living Natural Sources**

**Ethical guidelines for research under the school have been divided into four sections:**

**A. Guidelines for Epidemiological including Public Health Studies**

**General ethical principles**

All research involving human subjects should be conducted in accordance with three basic ethical principles, namely respect for persons, beneficence and justice. The following guidelines should be followed for conducting research under this area.

**1. Ethical justification and scientific validity of epidemiological research involving human subjects**

The ethical justification of epidemiological research involving human subjects is the prospect of discovering new ways of improving the health of individuals, groups and populations. Such research can be ethically justifiable only if it is carried out in ways that respect and protect, and are fair to, research subjects and that are morally acceptable within the communities in which the research is carried out. Moreover, because scientifically invalid research is unethical in that it exposes research subjects to risks without possible benefit, investigators and sponsors must ensure that proposed studies involving human subjects conform to generally accept scientific principles and are based on adequate knowledge of the pertinent scientific literature.

**2. Ethical review committees**

All proposals to conduct epidemiological research involving human subjects must be submitted for review of their scientific merit and ethical acceptability to one or more scientific review and ethical review committees. The review committees must be independent of the research team, and any direct financial or other material benefit they may derive from the research should not be contingent on the outcome of their review. The investigator must obtain their approval or clearance before undertaking the research. The ethical review committee should conduct further reviews as necessary in the course of the research, including monitoring the progress of the study.

**3. Ethical review of externally sponsored research**

An external sponsoring organization and individual investigators should submit the research protocol for ethical and scientific review in the country of the sponsoring organization, and the ethical standards applied should be no less stringent than they would be for research carried out in that country. The health authorities of the host country, as well as a national or local ethical review committee, should ensure that the proposed research is responsive to the health needs and priorities of the host country and meets the requisite ethical standards.

**4. Individual informed consent**

For all epidemiological research involving humans the investigator must obtain the voluntary informed consent of the prospective subject or, in the case of an individual who is not capable of giving informed consent, the permission of a legally authorized representative in accordance with applicable law. Waiver of individual informed consent is to be regarded as exceptional, and must in all cases be approved by an ethical review committee unless otherwise permitted under national legislation that conforms to the ethical principles in these Guidelines.

**5. Obtaining informed consent: Essential information for prospective research subjects**

Before requesting an individual's consent to participate in research, the investigator must provide the following information, in language or another form of communication that the individual can understand:

i) that the individual is invited to participate in research, the reasons for considering the individual suitable for the research, and that participation is voluntary;

ii) that the individual is free to refuse to participate and will be free to withdraw from the research at any time without penalty or loss of benefits to which he or she would otherwise be entitled;

iii) the purpose of the research, the procedures to be carried out by 1081 the investigator and the subject, and an explanation of how the research differs from routine medical care;

iv) that, after the completion of the study, subjects will be informed of the findings of the research in general, and individual subjects will be informed of any finding that relates to their particular health status;

v) the expected benefits of the research to the community or to society at large, or contributions to scientific knowledge;

vi) whether it is planned that biological specimens collected in the research will be destroyed at its conclusion, and, if not, details about their storage (where, how, for how long, and final disposition) and possible future use, and that subjects have the right to decide about such future use, to refuse storage, and to have the material destroyed

vii) that an ethical review committee has approved or cleared the research protocol.

**6. Obtaining informed consent: Obligations of investigators and sponsors**

Investigators have a duty to:

-seek consent only after ascertaining that the prospective subject has adequate understanding of the relevant facts and of the consequences of participation and has had sufficient opportunity to consider whether to participate;

-when individual consent is required, obtain from each prospective subject a signed form as evidence of informed consent–

-The principal investigator has a non-delegable duty to ensure that all personnel working on the study comply with this Guideline.

 **7. Compensation for participation**

Subjects may be reimbursed for lost earnings, travel costs and other expenses incurred in taking part in a study; they may also receive free medical services. Subjects, particularly those who receive no direct benefit from research, may also be paid or otherwise compensated for inconvenience and time spent. The payments should not be so large, however, or the medical services so extensive as to induce prospective subjects to consent to participate in the research against their better judgment ("undue inducement"). All payments, 1383 reimbursements and medical services provided to research subjects must have been approved by an ethical review committee.

**8. Benefits, harms and risks of study participation**

For all epidemiological research involving human subjects, the investigator must ensure that potential benefits and harms are reasonably balanced and risks are minimized.

**9. Special limitations on risk when research involves individuals who are not capable of giving informed consent**

When there is ethical and scientific justification to conduct research with individuals incapable of giving informed consent, the potential harm from any research intervention that does not hold out the prospect of direct benefit for the individual subject should not be more than minimal.

**10. Research in populations and communities with limited resources**

Before undertaking research in a population or community with limited resources, the sponsor and the investigator must make every effort to ensure that:

- the research is responsive to the health needs and the priorities of the population or community in which it is to be carried out; and

-any intervention or product developed, or knowledge generated, will be 1583 made reasonably available for the benefit of that population or community.

**11. Choice of control in clinical trials**

As a general rule, research subjects in the control group of a trial of a diagnostic, therapeutic, or preventive intervention should receive an established effective intervention. In some circumstances it may be ethically acceptable to use an alternative comparator, such as placebo or "no treatment".

**12. Equitable distribution of burdens and benefits in the selection of groups of subjects in research**

Groups or communities to be invited to be subjects of research should be selected in such a way that the burdens and benefits of the research will be equitably distributed. The exclusion of groups or communities that might benefit from study participation must be justified.

**13. Research involving vulnerable persons**

Special justification is required for inviting vulnerable individuals to serve as research subjects and, if they are selected, the means of protecting their rights and welfare must be strictly applied.

**14. Research involving children**

Before undertaking research involving children, the investigator must ensure that:

– the research might not equally well be carried out with adults;

– the purpose of the research is to obtain knowledge relevant to the health needs of children;

– a parent or legal representative of each child has given permission;

– the agreement (assent) of each child has been obtained to the extent of the child's capabilities;

– a child's refusal to participate or continue in the research will be respected.

**15. Research involving individuals who by reason of mental or behavioral disorders are not capable of giving adequately informed consent**

Before undertaking research involving individuals who by reason of mental or behavioral disorders are not capable of giving adequately informed consent, the investigator must ensure that: – such persons will not be subjects of research.

**16. Women as research participants**

Investigators, sponsors or ethical review committees should not exclude women of reproductive age from epidemiological research. The potential for becoming pregnant during a study should not, in itself, be used as a reason for precluding or limiting participation. However, a thorough discussion of risks to the pregnant woman and to her fetus is a prerequisite for the woman’s ability to make a rational decision to enroll in an interventional study. In this discussion, if participation in the research might be hazardous to a fetus or a woman if she becomes pregnant, the sponsors/investigators should guarantee the prospective subject a pregnancy test and access to effective contraceptive methods before the research commences. Where such access is not possible, for legal or religious reasons, investigators should not recruit for such possibly hazardous research women who might become pregnant.

 **17. Pregnant women as research participants**

Pregnant women should be presumed to be eligible for participation in epidemiological research. Investigators and ethical review committees should ensure that prospective subjects who are pregnant are adequately informed about the risks and benefits to themselves, their pregnancies, the fetus and their subsequent offspring, and to their fertility. Interventional studies should be performed in this population only if it is relevant to the particular health needs of a pregnant woman or her fetus, or to the health needs of pregnant women in general, and, when appropriate, if it is supported by reliable evidence from animal experiments, particularly as to risks of teratogenicity and mutagenicity.

**18. Safeguarding confidentiality**

A healthcare provider should not submit any identifiable data about a patient to an investigator or to a database unless the patient permits such submission of data or it is authorized or mandated by law. The custodian of a database, and an investigator who receives data for research, must establish secure safeguards for the confidentiality of the data. Subjects should be told the limits, legal or other, to the investigators' ability to safeguard confidentiality and the possible consequences of breaches of confidentiality”.

**19. Right of injured subjects to treatment and compensation**

Investigators should ensure that research subjects who suffer injury as a result of their participation are entitled to free medical treatment for such injury and to such financial or other assistance as would compensate them equitably for any resultant impairment, disability or handicap. In the case of death as a result of their participation, their dependants are entitled to compensation. Subjects must not be asked to waive the right to compensation.

 **20. Strengthening capacity for ethical and scientific review and biomedical research**

Many countries lack the capacity to assess or ensure the scientific quality or ethical acceptability of epidemiological research proposed or carried out in their jurisdictions. In externally sponsored collaborative studies, sponsors and investigators have an ethical obligation to ensure that the research projects for which they are responsible in such countries contribute effectively to national or local capacity to design and conduct epidemiological research, and to provide scientific and ethical review and monitoring of such research.

**21. Ethical obligation of external sponsors to provide health-care services**

External sponsors are ethically obliged to ensure the availability of:

-Health-care services that is essential to the safe conduct of the research;

− Treatment for subjects who suffer injury as a consequence of research

−Interventions; and, services that are a necessary part of the commitment of a sponsor to make

−A beneficial intervention or product developed as a result of the research reasonably available to the population or community concerned.

**22. Disclosure and review of potential conflicts of interest**

The investigator is responsible for ensuring that the materials submitted to an ethical review committee include a declaration of any potential conflicts of interest affecting the study. Ethical review committees should develop forms that facilitate the reporting of such potential conflicts and materials explaining their use for investigators. Ethical review committees should evaluate each study in the light of any declared conflicts and ensure that appropriate means 2626 of mitigation are provided. If a potentially serious conflict of interest cannot be adequately mitigated, the committee should not approve the project.

**23. Use of the Internet in epidemiological studies**

If the Internet is used as a tool to identify respondents or to collect data in epidemiological research, the investigator must ensure that an appropriate informed consent procedure is applied and that data confidentiality is maintained.

**24. Use of stored biological samples and related data**

When collecting and storing human biological samples (and related data, such as health or employment records) for future epidemiological research, the investigator must obtain the voluntary informed consent of the individual donor or, in the case of an individual who is not capable of giving informed consent, the permission of a legally authorized representative in accordance with applicable law.

**Reference:** Prepared by the Council for International Organizations of Medical Sciences (CIOMS) in collaboration with the World Health Organization (WHO).

<https://www.ufrgs.br/bioetica/cioms2008.pdf>

**B. Guidelines for animals care and use in research**

**Background:**

Animal As a field of study, Biological and Biochemical Experiments are a broad range of research and applied areas. Important parts of such work are teaching and research on the biopharmaceuticals, biomedicines and biotechnological products of nonhuman animals, which contribute to the understanding of basic principles to advancing the welfare of both human and nonhuman animals. While teachers and researchers must conduct their teaching and research in a manner consonant with relevant laws and regulations, ethical concerns further mandate that biological consider the costs and benefits of procedures involving animals before proceeding with these activities.

**Animals Care and Use Committee:**

The mechanism used to strike the balance between benefits and costs of the use of animals for experimentation is the Animal Care and Use Committee (ACUC). An ACUC assesses applications to use animals for scientific purposes and teaching by weighing the scientific or educational value of that use against the potential effects on the welfare of the animals. The primary responsibility of ACUC is to ensure that all care and use of animals is conducted in compliance with the “International Code”. ACUC apply a set of principles that govern the ethical conduct of work involving the use of animals for scientific purposes.

**The role of the ACUC:**

a) Ensure that the use of animals is justified

b) Provide for the welfare of those animals and

c) Incorporate the principles of Replacement, Reduction and Refinement.

**The ACUC fulfill their mandate:**

a) Considering the ethical implications of a project

b) Assessing approved projects for compliance with the legislation and the codes of practice

c)Approving Standard Operating Procedures utilized for projects involving the use of animals

d) Monitoring animal housing and animal care

e) Inspecting animal housing and care facilities

In Shahjalal University of Science and Technology, the Disciplines involved in the use of animals for research and/or teaching purposes must gate approval from ACUC,Shahjalal University of Science and Technology. The Discipline that gate approval any project investigators are legally responsible for maintaining the welfare of animals in use or in their care.

**Committee Member:**

In accordance of Practice for the Care and Use of Animals for Scientific Purposes, an ACUC must comprise at least three (03) persons, one from each of the following categories:

**Category 1:** Biologist with experience relevant to the research activities of the Disciplines

**Category 2:** Scientist or teacher with substantial recent experience in animal based research or teaching

**Category 3:** a person with demonstrable commitment and established experience in the welfare of animals and is involved in the care and use of animals for scientific purposes

It is recommended and mandatory, that a senior member (Not bellow Professor Level) of the animal care staff be a member of the ACUC.

**ACUC member’s responsibilities:**

**a)** Consider and discuss the purpose and likely benefits of the proposed research

b) Consider the need for the use of animals, the number requested and evidence of animal use

c) Discuss the invasiveness of procedures, repetitive procedures, analgesia, anaesthesia, endpoints, euthanasia, and other matters which affect the day-to-day existence of the animals and consider refinements wherever possible

d) Consider meeting procedures, executive power, decision-making procedures and dispute resolution procedures

e) Ensure that scientific details are presented and explained in a manner which is understandable to lay members of the ACUC

f) Regularly inspect the animal holding and laboratory areas, and examine and advise on caging/housing, feeding rosters, monitoring rosters and records, bedding, lighting, environmental enrichment and other aspects of animal care

**Project/Researcher Justification:**

a) Research should be undertaken with a clear scientific purpose. There should be a reasonable expectation that the research will a) increase knowledge of the process underlying the evolution, development, maintenance, alteration, control, or biological significance of behavior; b) determine the replicable and generality of prior research; c) increase understanding of the species under study and d) provide results that benefit the health or welfare of humans or other animals.

b) The scientific purpose of the research should be of sufficient potential significance to justify the use of nonhuman animals. In general, biologists should act on the assumption that procedures that are likely to produce pain in humans may also do so in other animals, unless there is species-specific evidence of pain or stress to the contrary.

c) In proposing a research project, the researchers should be familiar with the appropriate literature, consider the possibility of non-animal alternatives, and use procedures that minimize the number of nonhuman animals in research. If nonhuman animals are to be used, the species chosen for the study should be the best suited to answer the question(s) posed.

d) Research on nonhuman animals may not be conducted until the protocol has been reviewed by an appropriate animal care committee; typically, an Institutional Animal Care and Use Committee (IACUC), to ensure that the procedures are appropriate and humane.

e) The Researchers should monitor the research and the subjects’ welfare throughout the course of an investigation to ensure continued justification for the research.

**Research Personnel:**

a) Biologists should ensure that personnel involved in their research with nonhuman animals be familiar with these guidelines.

b) Research procedures with nonhuman animals should conform to the Bangladesh Animal Welfare Act and applicable institutional regulations, policies, and guidelines, regarding personnel, supervision, record keeping, and care.

c) Biologists should assume it their responsibility that all individuals who work with nonhuman animals under their supervision receive explicit instruction in experimental methods and in the care, maintenance, and handling of the species being studied. The activities that any individuals are allowed to engage in must not exceed their respective competencies, training, and experience in either the laboratory or the field setting.

**Laboratory Animals Care and Housing:**

As a scientific and professional organization, APA recognizes the complexities of defining biological well-being for both human and non-human animals. APA does not provide specific guidelines for the maintenance of biological well-being of research animals, as procedures that are appropriate for a particular species may not be for others. Researchers who are familiar with the species, relevant literature, guidelines, and their institution’s research facility context should consider the appropriateness of measures such as enrichment to maintain or improve biological well-being of those species.

a) The facilities housing laboratory animals should meet or exceed standard regulations and guidelines and are required to be inspected twice a year

b) All procedures carried out on nonhuman animals are to be reviewed by an institutional animal care and use committee (IACUC) to ensure that the procedures are appropriate and humane. The committee must have representation from within the institution and from the local community. In event that it is not possible to constitute an appropriate IACUC in the researchers own institution, researchers should seek advice and obtain review from a corresponding committee of a cooperative institution.

c) Laboratory animals are to be provided with humane care and healthful conditions during their stay in any facilities of the institution. Responsibilities for the conditions under which animals are kept, both within and outside of the context of active experimentation or teaching, rests with the researcher under the supervision of the IACUC (where required regulations) and with individuals appointed by the institution to oversee laboratory animal care.

**Laboratory Animals Acquisition:**

a) Laboratory animals would be bred in the researcher’s facility are to be acquired lawfully.

b) Researchers should make every effort to ensure that those responsible for breeding and transporting the nonhuman animals to the facility provide adequate food, water, ventilation, space, and impose no unnecessary stress on the animals.

c) Nonhuman animals taken from the wild should be trapped in a humane manner and in accordance with applicable state and local regulations.

d) Use of endangered, threatened or imported nonhuman animals must only be conducted with full attention to required permits and ethical concerns.

**Experimental Design and Procedures:**

Consideration for the humane treatment and well-being of the laboratory animal should be incorporated into the design and conduct of all procedures involving such animals, while keeping in mind the primary goal of undertaking the specific procedures of the research project—the acquisition of sound, replicable data. The conduct of all procedures is governed by Guideline.

a) Observational and other noninvasive forms of behavioral studies that involve no aversive stimulation to, or elicit no sign of distress from the nonhuman animal are acceptable.

b) Whenever possible behavioral procedures should be used that minimize discomfort to the nonhuman animal. Researchers should adjust the parameters of aversive stimulation to the minimal levels compatible with the aims of the research. Consideration should be given to providing the research animals control over the potential aversive stimulation whenever it is consistent with the goals of the research. Whenever reasonable, researchers are encouraged to first test the painful stimuli to be used on nonhuman animal subjects on themselves.

c) Procedures in which the research animal is anesthetized and insensitive to pain throughout the procedure, and is euthanized before regaining consciousness are generally acceptable.

d) Procedures involving more than momentary or slight aversive stimulation, which is not relieved by medication or other acceptable methods, should be undertaken only when the objectives of the research cannot be achieved by other methods.

e) Experimental procedures that require prolonged aversive conditions or produce tissue damage or metabolic disturbances require greater justification and surveillance by the researchers and IACUC. A research animal observed to be in a state of severe distress or chronic pain that cannot be alleviated and is not essential to the purposes of the research should be euthanized immediately.

f) Procedures that employ restraint must conform to guidelines.

g) Procedures involving the use of paralytic agents without reduction in pain sensation require particular prudence and humane concern. Use of muscle relaxants or paralytics alone during surgery, without anesthesia, is unacceptable.

h) Surgical procedures, because of their invasive nature, require close supervision and attention to humane considerations by the researchers. Aseptic (methods that minimize risks of infection) techniques must be used on laboratory animals whenever possible.

i) To minimize the number of nonhuman animals used, multiple research uses of individual animals should be considered. Such uses must be compatible with the goals of the research, sound scientific practice, and the welfare of the animal.

j) To ensure their humane treatment and well-being, laboratory animals generally may not be released from institutional facilities. Nonhuman animals reared in the laboratory must not be released into the wild because, in most cases, they cannot survive or they may survive by disrupting the natural ecology. Return of any wild-caught animal to the field also carries risks, both to the formerly captive animals and to the ecosystem.

k) When euthanasia is appropriate, either as a requirement of the research or because it constitutes the most humane form of disposition of a nonhuman animal at the conclusion of the research: (i) Euthanasia must be accomplished in a humane manner, appropriate for the species and age, and in such a way as to ensure immediate death. (ii) Disposal of euthanized laboratory animals must be conducted in accord with all relevant legislation, consistent with health, environmental, and aesthetic concerns, and as approved by the IACUC. No animal shall be discarded until its death is verified.

**Field Research:**

Field research that carries a risk of materially altering the behavior of nonhuman animals and/or producing damage to sensitive ecosystems is subject to IACUC approval. Field research, if strictly observational, may not require animal care committee approval.

a) Researchers conducting field research should disturb their populations as little as possible, while acting consistent with the goals of the research. Every effort should be made to minimize potential harmful effects of the study on the population and on other plant and animal species in the area.

b) Research conducted in populated areas must be done with respect for the property and privacy of the inhabitants of the area.

c) Such research on endangered species should not be conducted unless IACUC approval has been obtained and all requisite permits.

**Teaching and Demonstration Use of Laboratory Animals:**

Laboratory exercises as well as classroom demonstrations involving live animals are of great value as instructional aids. Teachers and researchers are encouraged to include instruction and discussion of the ethics and values of nonhuman animal research in all relevant courses.

a) Nonhuman animals may be used for educational purposes only after review by an IACUC or committee appropriate to the institution.

b) Consideration should be given to the possibility of using non-animal alternatives. Some procedures that can be justified for research purposes may not be justified for educational purposes. It is important to recognize that this document constitutes “guidelines,” which serve a different purpose than “standards.” Standards, unlike guidelines, require mandatory compliance, and may be accompanied by an enforcement mechanism. This document is meant to be aspirational in intent, and to provide recommendations for the professional conduct of specified activities. These guidelines are not intended to be mandatory, exhaustive, or definitive and should not take precedence over the judgment of individuals who have competence in the subject addressed.

**C. Guidelines in the Discipline of Microbial Research**

Ethics are of vital importance in microbiology. Moral and ethical concerns are of considerable importance in influencing public attitudes towards microbiology. In addition to the biosafety and biosecurity in microbiological research, it is necessary to emphasize the prevention of the techniques and published knowledge from being misused. The ethical issues of microbiological characterization techniques in controlling the infectious diseases and avoiding the spreading include both individuals and public at large. **Therefore, in addition to guidelines for epidemiological and public health studies (guidelines 1-24), microbial research should follow the following guidelines.**

1. **Culture Collection and Biosecurity**

The microbial culture isolation, identification and maintenance to conserve microbial gene pool need to be realized internationally or globally for future study. The culture collection center requires having highly standardized processes for biosafety and biosecurity because of holding the pathogenic strains. Biosecurity is governed by the non-proliferation approach of the Biological and Toxin Weapons Convention (BTWC). For culture collection, it is necessary to follow the fundamental biosecurity guidelines of the World Health Organization (WHO) Laboratory Biosecurity Guidance of 2006 (WHO/CDS/EPR/2006.6) (WHO, 2006), the International Union of Microbiological Societies (IUMS) and Code of Ethics (IUMS, 2006) and Organization for Economic Co-operation and Development (OECD) in 2001. These guidelines includes-

* Assessing biosecurity risks of biological material.
* Biosecurity risk management practices.
* Security management of personnel & visitors.
* Incident response plan.
* Staff training and developing a biosecurity-conscious culture.
* Material control and accountability.
* Supply of material.
* Transport security
* Security of information.
1. **Laboratory standard for handling microorganisms**

To conduct research and testing with microbes, the entity must have established laboratory that is equipped well. The laboratory must have the facilities for handling, processing and disposing facilities for microbial samples with the supervision of trained personnel(s). The laboratory should have SOP for these purposes. The ethical committee should include a member with microbiology expertise to monitor these processes.

Working with microorganisms that are known pathogens is straightforward in the sense that their pathogenicity may already be well understood, and hence the precautions required to contain the risk can be established rationally and effectively. Depending on the level of risk posed by different pathogens, different biosafety levels are implemented that guide the steps required in handling the microorganism.



1. **Ethical / moral obligation to avoid disease spreading**

The molecular techniques can provide very clear information regarding different microbial relational patterns in an outbreak. Molecular microbial typing methods can help to elucidate potential transmission pathways, yet additional conditions are required before moral responsibility can be attributed to individuals for the spread of infection. Most advanced molecular technology (in combination with epidemiological information) may be able to visualize certain transmission patterns in an outbreak, but does not necessarily lead to valid conclusions or outcome on the disease cause. Therefore, ethical guidelines are very important in sample collection, transportation and laboratory procedures as little contamination can give false results.

1. **Ethics in Clinical Microbiology Laboratory**

The medical laboratory professionals are an integral part in diagnosing the infectious disease, susceptibility to treatment, monitoring surveillance programmers and research response. The personnel of laboratories working in clinical and /or research are bound by the ethical codes of their respective profession. Laboratories must comply with the ethical code of conduct prescribed by international and national statutory bodies and address the ethical, social and legal aspects in biomedical science. Laboratories shall not involve in practices restricted by law and should uphold their profession reputation.

Ethical practice can be considered as an excellent practice accompanied by proper technical behavioral attitudes. The laboratories have answerability to others include patients, colleagues, profession and the society. Laboratories must assemble ample information to analyze specimens and patients. The clinical information must be sufficient to enable the test to be performed and interpreted correctly. All the tests results are private or confidential unless disclosure is authorized.

The laboratory must assure that data is stored. There must be reasonable security against loss, illegal approach, and tampering or other data misuse. The microbiology laboratories performing research or testing of HIV, Hepatitis viruses, SARS, MERS and Corona must have to follow National AIDS Control Organization (NACO) or International (WHO) guidelines, which include pre-test and posttest counseling. All the laboratory tasks must be carried out with the high level of expertise and proficiency expected of the scientific, medical and allied health fields.

1. **Re-emerging diseases, resistance and antibiotic restriction**

The entity should have facilities and documentations for disposal of microbial samples, antibiotics and other drugs used in research or test purposes. Currently, reemerging of infectious diseases and antibiotic resistance is a great global challenge. The world is facing the new emerging diseases as Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MERS) or avian influenza apart from AIDS or re-emerging disease such as Ebola or Methicillin Resistant *Staphylococcus aureus* (MRSA) or drug resistant tuberculosis. Tuberculosis, a disease that was once treatable but is now considered a re-emerging threat due to development of drug resistant strains. Therefore, the personnel involved microbiological research and tests must constantly be evaluated.

**Ethical issues in molecular techniques in epidemics**

The use of characterization techniques in infectious disease control raises ethical issues, in which individual interests and needs must be weighed against those of the public at large. Due to recent scientific and technological advances in molecular microbial characterization, the need for ethical guidance has now gained a new sense of urgency. The ethical difficulties related to the use of microbial characterization techniques in public health also need to be addressed.

1. **Microbial bioweapons**

Microorganisms may be used as bioweapons. Therefore, research with such microbes needs special national and international guidelines. This is necessary to adopt an active role in stopping bioterrorism. Microbes intrinsically carry a ‘dual-use’ potential and therefore most microbiologists are more or less affected by dual-use issues. Responsibilities in microbiology require on the one hand scientific openness to widen knowledge and improve public health and on the other a demand for security to avoid antisocial attacks or heinous actions. Both are prerequisites for scientific work.

**D. Guidelines in the area of Agriculture, Plant and Environmental Sciences**

**Transgenic Plant/GMO and Tissue Culture:**

• Prevent interbreeding with native species

• Transgenic plant waste must be decontaminated or inactivated prior to disposal

• Contain species that could detrimentally impact local and agriculturally important species

• Control insect vectors

• Contain seeds and pollen. All researchers working with transgenic plants must ensure appropriate biosafety level for their work, and have standard operating procedures in place for:

• Storage, transport, and handling of transgenic seeds and plant materials

• Labeling and segregation of transgenic and non-transgenic plant materials

• Preventing release of transgenic seed to the environment

• Preventing dissemination of genetic material to the environment

**Storage, transport, and handling of transgenic seeds and plant materials**

Transgenic seed should be stored in a locked cabinet located preferably in or near the greenhouse or growth chamber. When stored or handled outside of a confined space, such as on a lab bench or potting bench, seed should be in a spill-proof container. White paper can be utilized on lab benches in conjunction with a tray to allow for easy identification and containment of stray seeds.

**Labeling and segregation of transgenic and non-transgenic plant materials**

All transgenic seeds and plants should be clearly identified and labeled to distinguish them from other stored seeds, plants, or materials. If transgenic and non-transgenic plants must be grown in the same location, such as an open lab or mixed use greenhouse, all work must be completed at the biosafety level approved for the transgenic plant work

**Preventing release of transgenic seed**

Seed is easily tracked out of facilities on shoes. This inadvertent dissemination can be easily prevented through the use of shoe covers and/or sticky mats. Seed is also easily carried out of facilities onclothing and this can be prevented with the use of disposable lab gowns that are dedicated for use in the plant growth chamber or greenhouse. Good housekeeping practices can help prevent release of transgenic seed by keeping loose seed off the floor. Daily use of a disposable cloth covered sweeper can be an easy way to remove loose seed from floors.

**Venting dissemination of genetic material**

Growing plants need to be contained to prevent the dissemination of genetic material. This can be achieved by covering or removing flower and seed heads to prevent seed dispersal, harvesting plant material prior to sexual maturity, or utilizing male sterile lines. Various commercial containment systems are available or inexpensive systems can be constructed with disposable plastic sheeting. These systems contain seeds, soil, plant parts resulting in less housekeeping and less contamination between shelves. These systems also provide better humidity control resulting in less watering of plants.

**Ecology and wildlife research** (According to IUCN)

1. All research must have the necessary national to local approvals and permits, pay any fees required, and strictly follow laws, regulations and social norms and protocols relating to research within protected areas, including with respect Access and Benefit Sharing (ABS) under the Convention on Biological Diversity.

2. All research should obtain necessary ethics approval from research organizations, funding agencies, and protected areas with respect to both animal research and social research.

3. Field researchers must adopt the highest precautionary standards to avoid the accidental introduction and distribution of invasive and pathogenic organisms

4. Field research should minimize disturbance both to the organisms being studied and to other species and ecosystems

 5. Data collection involving the killing of an organism should only take place when this is absolutely essential to the research and has been agreed by managers and follows national rules.

6. Research involving significant alteration to ecosystems including through killing of organisms should normally not be undertaken in IUCN category I-IV protected areas unless there is no feasible alternative research location, or unless research is likely to be of significant importance to the conservation goals of the protected area. In all such cases, a detailed impact assessment and cost-benefit analysis should be undertaken before permission is granted, and research should focus on less strictly protected zones of the protected area. Particular attention should be given to whether the areas or species are considered sacred or culturally important to indigenous peoples or local communities and to the degree of threat faced by the species (drawing on Red List categories).

7. Where research involves fieldwork in areas occupied by people, or affects species or ecosystems to which people have de facto or de jure tenure rights or cultural connections, it must have free prior and informed consent (FPIC) from right-holders in relation to the rights that may be affected and be carried out in a way that respects local beliefs, economic and cultural interests, and rights.

8. Managers of protected areas should seek to partner with research organizations to develop collaborative research that will both inform management and meet the needs of the research community for cutting-edge science. In turn, researchers should seek collaborative relationships with managers where the results of their research are likely to inform park or conservation management and build capacity.

9. Researchers should consider the aesthetic values of protected areas and impact on visitor experience when selecting methods of data collection, radio collaring, constructing research plots, field bases, etc, and remove all equipment and other materials at the end of the research.

10. Researchers employed by protected area organizations or associated government departments should abide by the same rules and code of conduct, where applicable, as external researchers.

11. Protected area managers should welcome research as an important value of protected areas. They should create clear conditions for permitting research and seek to encourage suitable research in protected areas ideally through a process (e.g. a research working group) which identifies research priorities.

12. Local partners should be rewarded appropriately for their contributions, for example through recognition in publications and presentations.

15. Where appropriate, the approvals process should include opportunity for concerned stakeholders, such as local communities, to comment on applications where the research will significantly impinge on their interests, such as when it would take place on their traditional land or near sacred natural sites.

16. Use of traditional ecological knowledge should be appropriately recognized, with free, prior and informed consent for any information used. If the research process or intended uses change, the rights holders must be re-engaged as part of a continual process of free, prior and informed consent, particularly if traditional knowledge or associated genetic resources could be placed in the public domain.

17. Research involving people and their beliefs, attitudes and behaviors should respect the privacy of an individual’s information and responses, All personal data should be stored and kept in a confidential manner.

18. Researchers should be mindful of the need to avoid general sharing of photographic or other information (e.g. through websites, social media or group emails) which could damage the protected area (e.g.be used by poachers and illegal wildlife traders).

19. Intellectual property rights on data and results must be recognized and research should not infringe local rights in intellectual property (e.g. customary laws and community protocols and procedures of the indigenous peoples and local communities concerned); if research is carried out in a host country that has few legal requirements, researchers should follow the standards of their country of origin, relevant international standards

20. Where protected area staff, field assistants and others have contributed significantly to the research, through data collection and analysis, they should be offered co-authorship of resulting papers, or for lesser inputs included appropriately in acknowledgements.

21. Samples collected should, where appropriate and agreed in the research design, eventually be deposited in public collections such as museums or botanical gardens and/or returned to Indigenous peoples or local communities from whom they were collected; ensuring that local rules and CITES export rules are followed.

22. General ethical considerations and wildlife surveys: The Code advances three fundamental concepts for improving the welfare of animals used for scientific research. These are known as the Three Rs and include:

* the replacement of animals with other methods;
* the reduction of the number of animals used; and
* the refinement of the techniques used to reduce the impact on animals.

#### 23. Care should be taken during research data collection in the forest to minimize the disturbances to the wildlife, leaving any trap should be avoided.

**Institutional Ethical Committee for Experimentations on Human, Animal, Microbes, Environment and Living Natural Sources**

**School of Life Sciences, Shahjalal University of Science & Technology, Sylhet 3114, Bangladesh**

**Application for Ethical Clearance**

### PART A

1. Principal Investigator(s) name and address:

2. Co-investigator(s) name and address (if any):

3. Place of the study/Institute(s):

4. Title of the study:

5. Type of research involved:

6. Duration of the study with possible initiation date:

7. Research budget and Funding agency (if available):

Signature

Name and Designation of Investigator

Date:

Place:

\*The filled in Part A, B and C having required information (2 copies) should be sent to:- Head of the Institutional Ethical Committee at the School of Life Sciences and School of Agriculture and Mineral Sciences, Shahjalal University of Science and Technology, Sylhet 3114

### PART B

1. Study Title:

2. A brief study plan including aims, background and methodology (max 400 words):

3. Animal/human subjects required (for animal specify the species name):

4. Rationale for animal/human subjects usage for this study (max 100 words):

5. For animal studies, please mention (briefly) where they will be kept, specify the dose for certain experiments and scarifying process:

6. For microbial studies, please mention the sources of microbes:

7. For pathogenic microbes and hazardous component, please specify how they will be handled and maintained (max 200 words):

8. For natural/environmental toxins, please mention the sources and specify how they will be handled and maintained (max 200 words):

9. For transgenic plant/GMO and Tissue culture, please mention the sources and specify how they will be handled and maintained (max 200 words):

10. How hazards and post experiments residues will be disposed? (max 100 words):

11. Additional information (if any):

**PART C**

Please mark the appropriate answer to each of the following (if not applicable write NA)

1. Source of population:

a) Healthy subjects b) Ill subjects c) Others (specify):

2. Are subjects clearly informed about purpose of the study?

a) Yes b) No

3. Are the consent (signed/verbal) obtained from the study subjects before inclusion them in the study?

a) Yes b) No

4. Does the study involve?

a) Physical risk of the subjects b) Social risk of the subjects c) Psychological risk of the subjects d) Discomfort of the subjects e) Disclosure of the privacy

5. Does the study involve?

 a) Use or body fluids (e.g. blood/urine) or organs b) Use of fetal tissue of abortus

 c) Medical reports/records

6. Does the study maintain standard procedure for sample (biological) collection?

a) Yes b) No

7. Does the study data is confidential and will be used only for research purpose?

a) Yes b) No

### Investigator’s Declaration

1. I certify that I have determined that the research proposal herein is not unnecessarily duplicative of previously reported research.

2. I certify that, I am qualified and have experience in the experimentation on animals/ human subjects.

3. Standard procedure will be followed for sample collection and in experiments.

4. I will obtain approval from the Ethical Committee before initiating any significant changes in this study.

5. I certify that, I will not initiate the study unless received approval from the Ethical authority in writing. Further, I certify that I will follow the recommendations of the Ethical Committee

Signature

Name of Investigator

Date:

***School of Agriculture and Mineral Sciences***

**Research Ethics guidelines of School of Agriculture and Mineral Sciences**

**Committee name: Institutional Ethical Committee for Experimentations on Animal, Microbes, Environment and Living Natural Sources**

**Introduction**

Research ethics is a codification of scientific morality in practice. Guidelines for research ethics specify the basic norms and values of the research community. They are based on general ethics of science, just as general ethics is based on the morality of society at large.

The purpose of the ethical guidelines is to provide researchers and the research community with information about recognized norms of research ethics providing guidance and advice. The intention is to help develop ethical discretion and reflection, to clarify ethical dilemmas, to promote good scientific practice and to prevent scientific misconduct. The guidelines may be used as tools in the assessment of individual cases, in the planning of a research projects, or when reporting and publishing findings and results.

All research involving human subjects should be conducted in accordance with three basic ethical principles, namely respect for persons, beneficence and justice. The following guidelines should be followed for conducting research under this area.

**Ethical review committees**

All proposals to conduct research must be submitted for review of their scientific merit and ethical acceptability to one or more scientific review and ethical review committees. The review committees must be independent of the research team, and any direct financial or other material benefit they may derive from the research should not be contingent on the outcome of their review. The investigator must obtain their approval or clearance before undertaking the research. The ethical review committee should conduct further reviews as necessary in the course of the research, including monitoring the progress of the study.

**Ethical guidelines for research under these schools have been divided into five sections:**

#### A. Guidelines for research in Social Forestry/Community Forestry/Co-management:

B. Guidelines for Ecology and wildlife research

C. Guidelines in the field of Microbial Research

D. Guidelines in the area of Plant biotechnology/plant propagation

E. Guidelines for some common ethical issues

#### A. Guidelines for research in Social Forestry/Community Forestry/Co-management:

#### Major ethical issues are-

**Research, society and ethics**

1. **Norms and values of research**

Researchers are obliged to comply with recognized norms of research ethics**.**The most fundamental obligation of science is the pursuit for truth. At the same time, research can never fully achieve this goal. Most conclusions are contingent and limited. Nevertheless, the norms of science have a value in themselves as guidelines and regulatory principles for the research community's collective pursuit for truth. Integrity in documentation, consistency in argumentation, impartiality in assessment and openness regarding uncertainty are common obligations in research ethics, irrespective of the values, positions or perspectives of the researchers.

1. **Responsibility of research**

Responsible research requires freedom from control and constraints, while trust in research requires the exercise of responsibility by both researchers and research institutions.Research has a social responsibility, whether it be instrumental as a foundation for societal decisions, critical as a source of correctives and alternative choices of action, or deliberative as a supplier of research-based knowledge to the public discourse.Good and responsible research also includes assessing unintended and undesirable consequences. Researchers must make sure that the research does not violate laws and regulations, or represent a risk to people, society and nature.

1. **Responsibility of institutions**

Research institutions must guarantee that research is good and responsible by preventing misconduct and promoting the guidelines for research ethics.

The institutions must facilitate the development and maintenance of good scientific practice. They should communicate the guidelines for research ethics to their employees and students, and also provide training in research ethics and the relevant rules of law that govern research. This would facilitate individual reflection on research ethics and good discussions in the research communities about norms and dilemmas related to research ethics.

**Respect for individuals**

1. **Human dignity**

Researchers must base their work on a fundamental respect for human dignity. Respect for human dignity and personal integrity is formalized and laid down in a series of international laws and conventions on human rights. Researchers must protect personal integrity, preserve individual freedom and self-determination, respect privacy and family life, and safeguard against harm and unreasonable strain. While research may help promote human dignity, it can also threaten it. Researchers must therefore show respect for human dignity in their choice of topic, in relation to the research subjects, and when reporting and publishing research results.

1. **Privacy**

Researchers must respect the participants' autonomy, integrity, freedom and right of co-determination.

From a legal perspective, the protection of privacy is linked to the processing of personal data. Thus, research must be conducted in accordance with basic considerations for data protection, such as personal integrity, privacy and responsible use and storage of personal data. However, privacy also has a wider scope in research ethics, and researchers must exercise due caution and responsibility

1. **Duty to inform**

Researchers must provide participants with adequate information about the field of research, the purpose of the research, who has funded the project, who will receive access to the information, the intended use of the results, and the consequences of participation in the research project.

1. **Consent and obligation to notify**

When a research project deals with personal data, researchers are obliged to inform the participants or subjects of research and to obtain their consent. The consent must be freely given, informed, and in an explicit form. Although a free and informed consent is the general rule, exceptions can be made in situations in which the research does not imply direct contact with the participants, where the data being processed is not particularly sensitive, and where the utility value of the research clearly exceeds any disadvantages for the individuals involved.

1. **Beneficence- Do not harm**

Ethical standards also require that researchers not put participants in a situation where they might be at *risk of harm* as a result of their participation. Harm can be defined as both physical and psychological.

1. **Confidentiality**

Generally, researchers must process data acquired about personal matters confidentially. Personal data must normally be de-identified, while publication and dissemination of the research material must normally be anonymised. In certain situations, researchers must nonetheless balance confidentiality and the obligation to notify.

1. **Limited re-use**

Identiﬁable personal data collected for a specific research purpose cannot automatically be used for other research.

1. **Storage of personal data**

Data related to identifiable individuals must be stored responsibly. Such data must not be stored any longer than what is necessary to achieve the objective for which it was collected.

**Respect for third parties**

Researchers should consider and anticipate effects on third parties that are not directly included in the research. The research may have an impact on the privacy and close relationships of individuals who are not included in the research, but who are drawn in as parties closely related to the participants. In some cases, for example when a researcher observes groups and communities, it can be difficult to protect the privacy of individuals who have not given consent directly, or who have actively declined, but who nevertheless remain in the situation. Researchers have a responsibility nonetheless to protect the privacy of those individuals who are directly or indirectly affected by the research project.

1. **Respect for privacy and family life**

Researchers must respect individuals' privacy and family life. Participants are entitled to check whether confidential information about them is made available to others. This applies not only to emotional issues, but also to questions that involve sickness and health, political and religious opinions.

1. **Respect for the values and motives of others**

Researchers must not ascribe irrational or unworthy motives to participants without providing convincing documentation and justification. Researchers must show respect for the values and views of research participants, not least when they differ from those generally accepted by society at large. Research is often concerned with the behavior and values of minorities, e.g. religious groups, ethnic minorities, youth groups, or political subcultures. Some persons may find this research to be intrusive or offensive. Researchers must take seriously the participants' understanding of themselves and avoid representations that diminish their legitimate rights.

1. **Defining roles and responsibilities**

Researchers are responsible for explaining to the participants the limitations, expectations and requirements associated with their role as researchers.

1. **Respect for vulnerable groups**

Researchers have a special responsibility to respect the interests of vulnerable groups throughout the entire research process.

Vulnerable and disadvantaged individuals and groups are not always equipped to defend their interests when dealing with researchers. Accordingly, researchers cannot take for granted that ordinary procedures for eliciting information and consent will ensure individuals' self-determination or protect them from unreasonable strain.

1. **Preservation of cultural monuments and remains**

Researchers must respect the need to preserve all types of cultural monuments and remains.

1. **Limits on cultural recognition**

Researchers must strike a balance between recognizing cultural differences and recognizing other fundamental values and general human rights.

1. **Use of the Internet in research**

If the Internet is used as a tool to identify respondents or to collect data in research, the investigator must ensure that an appropriate informed consent procedure is applied and that data confidentiality is maintained.

**B. Guidelines for Ecology and wildlife research** (According to IUCN)

**Field Research:**

Field research that carries a risk of materially altering the behavior of nonhuman animals and/or producing damage to sensitive ecosystems is subject to IACUC approval. Field research, if strictly observational, may not require animal care committee approval.

a) Researchers conducting field research should disturb their populations as little as possible, while acting consistent with the goals of the research. Every effort should be made to minimize potential harmful effects of the study on the population and on other plant and animal species in the area.

b) Research conducted in populated areas must be done with respect for the property and privacy of the inhabitants of the area.

c) Such research on endangered species should not be conducted unless IACUC approval has been obtained and all requisite permits.

**The followings are the important directions to comply the ethical guidelines**

1. All research must have the necessary national to local approvals and permits, pay any fees required, and strictly follow laws, regulations and social norms and protocols relating to research within protected areas, including with respect Access and Benefit Sharing (ABS) under the Convention on Biological Diversity.

2. All research should obtain necessary ethics approval from research organizations, funding agencies, and protected areas with respect to both animal research and social research.

3. Field researchers must adopt the highest precautionary standards to avoid the accidental introduction and distribution of invasive and pathogenic organisms

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 5. Data collection involving the killing of an organism should only take place when this is absolutely essential to the research and has been agreed by managers and follows national rules.

6. Research involving significant alteration to ecosystems including through killing of organisms should normally not be undertaken in IUCN category I-IV protected areas unless there is no feasible alternative research location, or unless research is likely to be of significant importance to the conservation goals of the protected area. In all such cases, a detailed impact assessment and cost-benefit analysis should be undertaken before permission is granted, and research should focus on less strictly protected zones of the protected area. Particular attention should be given to whether the areas or species are considered sacred or culturally important to indigenous peoples or local communities and to the degree of threat faced by the species (drawing on Red List categories).

7. Where research involves fieldwork in areas occupied by people, or affects species or ecosystems to which people have de facto or de jure tenure rights or cultural connections, it must have free prior and informed consent (FPIC) from right-holders in relation to the rights that may be affected and be carried out in a way that respects local beliefs, economic and cultural interests, and rights.

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12. Local partners should be rewarded appropriately for their contributions, for example through recognition in publications and presentations.

15. Where appropriate, the approvals process should include opportunity for concerned stakeholders, such as local communities, to comment on applications where the research will significantly impinge on their interests, such as when it would take place on their traditional land or near sacred natural sites.

16. Use of traditional ecological knowledge should be appropriately recognized, with free, prior and informed consent for any information used. If the research process or intended uses change, the rights holders must be re-engaged as part of a continual process of free, prior and informed consent, particularly if traditional knowledge or associated genetic resources could be placed in the public domain.

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22. General ethical considerations and wildlife surveys: The Code advances three fundamental concepts for improving the welfare of animals used for scientific research. These are known as the Three Rs and include:

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* the reduction of the number of animals used; and
* the refinement of the techniques used to reduce the impact on animals.

#### 23. Care should be taken during research data collection in the forest to minimize the disturbances to the wildlife, leaving any trap should be avoided.

**Guidelines for animals care and use in wildlife research**

**Background:**

Animal as a field of study, Biological and Biochemical Experiments are a broad range of research and applied areas. Important parts of such work are teaching and research on the biopharmaceuticals, biomedicines and biotechnological products of nonhuman animals, which contribute to the understanding of basic principles to advancing the welfare of both human and nonhuman animals. While teachers and researchers must conduct their teaching and research in a manner consonant with relevant laws and regulations, ethical concerns further mandate that biological consider the costs and benefits of procedures involving animals before proceeding with these activities.

**Animals Care and Use Committee:**

The mechanism used to strike the balance between benefits and costs of the use of animals for experimentation is the Animal Care and Use Committee (ACUC). An ACUC assesses applications to use animals for scientific purposes and teaching by weighing the scientific or educational value of that use against the potential effects on the welfare of the animals. The primary responsibility of ACUC is to ensure that all care and use of animals is conducted in compliance with the “International Code”. ACUC apply a set of principles that govern the ethical conduct of work involving the use of animals for scientific purposes.

**The role of the ACUC:**

a) Ensure that the use of animals is justified

b) Provide for the welfare of those animals and

c) Incorporate the principles of Replacement, Reduction and Refinement.

**The ACUC fulfill their mandate:**

a) Considering the ethical implications of a project

b) Assessing approved projects for compliance with the legislation and the codes of practice

c) Approving Standard Operating Procedures utilized for projects involving the use of animals

d) Monitoring animal housing and animal care

e) Inspecting animal housing and care facilities

In Shahjalal University of Science and Technology, the Disciplines involved in the use of animals for research and/or teaching purposes must gate approval from ACUC,Shahjalal University of Science and Technology. The Discipline that gate approval any project investigators are legally responsible for maintaining the welfare of animals in use or in their care.

**Committee Member:**

In accordance of Practice for the Care and Use of Animals for Scientific Purposes, an ACUC must comprise at least three (03) persons, one from each of the following categories:

**Category 1:** Biologist with experience relevant to the research activities of the Disciplines

**Category 2:** Scientist or teacher with substantial recent experience in animal based research or teaching

**Category 3:** a person with demonstrable commitment and established experience in the welfare of animals and is involved in the care and use of animals for scientific purposes

It is recommended and mandatory, that a senior member (Not bellow Professor Level) of the animal care staff be a member of the ACUC.

**ACUC member’s responsibilities:**

**a)** Consider and discuss the purpose and likely benefits of the proposed research

b) Consider the need for the use of animals, the number requested and evidence of animal use

c) Discuss the invasiveness of procedures, repetitive procedures, analgesia, anaesthesia, endpoints, euthanasia, and other matters which affect the day-to-day existence of the animals and consider refinements wherever possible

d) Consider meeting procedures, executive power, decision-making procedures and dispute resolution procedures

e) Ensure that scientific details are presented and explained in a manner which is understandable to lay members of the ACUC

f) Regularly inspect the animal holding and laboratory areas, and examine and advise on caging/housing, feeding rosters, monitoring rosters and records, bedding, lighting, environmental enrichment and other aspects of animal care

**Project/Researcher Justification:**

a) Research should be undertaken with a clear scientific purpose. There should be a reasonable expectation that the research will a) increase knowledge of the process underlying the evolution, development, maintenance, alteration, control, or biological significance of behavior; b) determine the replicable and generality of prior research; c) increase understanding of the species under study and d) provide results that benefit the health or welfare of humans or other animals.

b) The scientific purpose of the research should be of sufficient potential significance to justify the use of nonhuman animals. In general, biologists should act on the assumption that procedures that are likely to produce pain in humans may also do so in other animals, unless there is species-specific evidence of pain or stress to the contrary.

c) In proposing a research project, the researchers should be familiar with the appropriate literature, consider the possibility of non-animal alternatives, and use procedures that minimize the number of nonhuman animals in research. If nonhuman animals are to be used, the species chosen for the study should be the best suited to answer the question(s) posed.

d) Research on nonhuman animals may not be conducted until the protocol has been reviewed by an appropriate animal care committee; typically, an Institutional Animal Care and Use Committee (IACUC), to ensure that the procedures are appropriate and humane.

e) The Researchers should monitor the research and the subjects’ welfare throughout the course of an investigation to ensure continued justification for the research.

**Research Personnel:**

a) Biologists should ensure that personnel involved in their research with nonhuman animals be familiar with these guidelines.

b) Research procedures with nonhuman animals should conform to the Bangladesh Animal Welfare Act and applicable institutional regulations, policies, and guidelines, regarding personnel, supervision, record keeping, and care.

c) Biologists should assume it their responsibility that all individuals who work with nonhuman animals under their supervision receive explicit instruction in experimental methods and in the care, maintenance, and handling of the species being studied. The activities that any individuals are allowed to engage in must not exceed their respective competencies, training, and experience in either the laboratory or the field setting.

**Laboratory Animals Care and Housing:**

As a scientific and professional organization, APA recognizes the complexities of defining biological well-being for both human and non-human animals. APA does not provide specific guidelines for the maintenance of biological well-being of research animals, as procedures that are appropriate for a particular species may not be for others. Researchers who are familiar with the species, relevant literature, guidelines, and their institution’s research facility context should consider the appropriateness of measures such as enrichment to maintain or improve biological well-being of those species.

a) The facilities housing laboratory animals should meet or exceed standard regulations and guidelines and are required to be inspected twice a year

b) All procedures carried out on nonhuman animals are to be reviewed by an institutional animal care and use committee (IACUC) to ensure that the procedures are appropriate and humane. The committee must have representation from within the institution and from the local community. In event that it is not possible to constitute an appropriate IACUC in the researchers own institution, researchers should seek advice and obtain review from a corresponding committee of a cooperative institution.

c) Laboratory animals are to be provided with humane care and healthful conditions during their stay in any facilities of the institution. Responsibilities for the conditions under which animals are kept, both within and outside of the context of active experimentation or teaching, rests with the researcher under the supervision of the IACUC (where required regulations) and with individuals appointed by the institution to oversee laboratory animal care.

**Laboratory Animals Acquisition:**

a) Laboratory animals would be bred in the researcher’s facility are to be acquired lawfully.

b) Researchers should make every effort to ensure that those responsible for breeding and transporting the nonhuman animals to the facility provide adequate food, water, ventilation, space, and impose no unnecessary stress on the animals.

c) Nonhuman animals taken from the wild should be trapped in a humane manner and in accordance with applicable state and local regulations.

d) Use of endangered, threatened or imported nonhuman animals must only be conducted with full attention to required permits and ethical concerns.

**Experimental Design and Procedures:**

Consideration for the humane treatment and well-being of the laboratory animal should be incorporated into the design and conduct of all procedures involving such animals, while keeping in mind the primary goal of undertaking the specific procedures of the research project—the acquisition of sound, replicable data. The conduct of all procedures is governed by Guideline.

a) Observational and other noninvasive forms of behavioral studies that involve no aversive stimulation to, or elicit no sign of distress from the nonhuman animal are acceptable.

b) Whenever possible behavioral procedures should be used that minimize discomfort to the nonhuman animal. Researchers should adjust the parameters of aversive stimulation to the minimal levels compatible with the aims of the research. Consideration should be given to providing the research animals control over the potential aversive stimulation whenever it is consistent with the goals of the research. Whenever reasonable, researchers are encouraged to first test the painful stimuli to be used on nonhuman animal subjects on themselves.

c) Procedures in which the research animal is anesthetized and insensitive to pain throughout the procedure, and is euthanized before regaining consciousness are generally acceptable.

d) Procedures involving more than momentary or slight aversive stimulation, which is not relieved by medication or other acceptable methods, should be undertaken only when the objectives of the research cannot be achieved by other methods.

e) Experimental procedures that require prolonged aversive conditions or produce tissue damage or metabolic disturbances require greater justification and surveillance by the researchers and IACUC. A research animal observed to be in a state of severe distress or chronic pain that cannot be alleviated and is not essential to the purposes of the research should be euthanized immediately.

f) Procedures that employ restraint must conform to guidelines.

g) Procedures involving the use of paralytic agents without reduction in pain sensation require particular prudence and humane concern. Use of muscle relaxants or paralytics alone during surgery, without anesthesia, is unacceptable.

h) Surgical procedures, because of their invasive nature, require close supervision and attention to humane considerations by the researchers. Aseptic (methods that minimize risks of infection) techniques must be used on laboratory animals whenever possible.

i) To minimize the number of nonhuman animals used, multiple research uses of individual animals should be considered. Such uses must be compatible with the goals of the research, sound scientific practice, and the welfare of the animal.

j) To ensure their humane treatment and well-being, laboratory animals generally may not be released from institutional facilities. Nonhuman animals reared in the laboratory must not be released into the wild because, in most cases, they cannot survive or they may survive by disrupting the natural ecology. Return of any wild-caught animal to the field also carries risks, both to the formerly captive animals and to the ecosystem.

k) When euthanasia is appropriate, either as a requirement of the research or because it constitutes the most humane form of disposition of a nonhuman animal at the conclusion of the research: (i) Euthanasia must be accomplished in a humane manner, appropriate for the species and age, and in such a way as to ensure immediate death. (ii) Disposal of euthanized laboratory animals must be conducted in accord with all relevant legislation, consistent with health, environmental, and aesthetic concerns, and as approved by the IACUC. No animal shall be discarded until its death is verified.

**Teaching and Demonstration Use of Laboratory Animals:**

Laboratory exercises as well as classroom demonstrations involving live animals are of great value as instructional aids. Teachers and researchers are encouraged to include instruction and discussion of the ethics and values of nonhuman animal research in all relevant courses.

a) Nonhuman animals may be used for educational purposes only after review by an IACUC or committee appropriate to the institution.

b) Consideration should be given to the possibility of using non-animal alternatives. Some procedures that can be justified for research purposes may not be justified for educational purposes. It is important to recognize that this document constitutes “guidelines,” which serve a different purpose than “standards.” Standards, unlike guidelines, require mandatory compliance, and may be accompanied by an enforcement mechanism. This document is meant to be aspirational in intent, and to provide recommendations for the professional conduct of specified activities. These guidelines are not intended to be mandatory, exhaustive, or definitive and should not take precedence over the judgment of individuals who have competence in the subject addressed.

**C. Guidelines in the field of Microbial Research**

Ethics are of vital importance in microbiology. Moral and ethical concerns are of considerable importance in influencing public attitudes towards microbiology. In addition to the biosafety and biosecurity in microbiological research, it is necessary to emphasize the prevention of the techniques and published knowledge from being misused. The ethical issues of microbiological characterization techniques in controlling the infectious diseases and avoiding the spreading include both individuals and public at large. **Therefore, in addition to guidelines for epidemiological and public health studies (guidelines 1-24), microbial research should follow the following guidelines.**

1. **Culture Collection and Biosecurity**

The microbial culture isolation, identification and maintenance to conserve microbial gene pool need to be realized internationally or globally for future study. The culture collection center requires having highly standardized processes for biosafety and biosecurity because of holding the pathogenic strains. Biosecurity is governed by the non-proliferation approach of the Biological and Toxin Weapons Convention (BTWC). For culture collection, it is necessary to follow the fundamental biosecurity guidelines of the World Health Organization (WHO) Laboratory Biosecurity Guidance of 2006 (WHO/CDS/EPR/2006.6) (WHO, 2006), the International Union of Microbiological Societies (IUMS) and Code of Ethics (IUMS, 2006) and Organization for Economic Co-operation and Development (OECD) in 2001. These guidelines includes-

* Assessing biosecurity risks of biological material.
* Biosecurity risk management practices.
* Security management of personnel & visitors.
* Incident response plan.
* Staff training and developing a biosecurity-conscious culture.
* Material control and accountability.
* Supply of material.
* Transport security
* Security of information.
1. **Laboratory standard for handling microorganisms**

To conduct research and testing with microbes, the entity must have established laboratory that is equipped well. The laboratory must have the facilities for handling, processing and disposing facilities for microbial samples with the supervision of trained personnel(s). The laboratory should have SOP for these purposes. The ethical committee should include a member with microbiology expertise to monitor these processes.

Working with microorganisms that are known pathogens is straightforward in the sense that their pathogenicity may already be well understood, and hence the precautions required to contain the risk can be established rationally and effectively. Depending on the level of risk posed by different pathogens, different biosafety levels are implemented that guide the steps required in handling the microorganism.



1. **Ethical / moral obligation to avoid disease spreading**

The molecular techniques can provide very clear information regarding different microbial relational patterns in an outbreak. Molecular microbial typing methods can help to elucidate potential transmission pathways, yet additional conditions are required before moral responsibility can be attributed to individuals for the spread of infection. Most advanced molecular technology (in combination with epidemiological information) may be able to visualize certain transmission patterns in an outbreak, but does not necessarily lead to valid conclusions or outcome on the disease cause. Therefore, ethical guidelines are very important in sample collection, transportation and laboratory procedures as little contamination can give false results.

1. **Ethics in Clinical Microbiology Laboratory**

The medical laboratory professionals are an integral part in diagnosing the infectious disease, susceptibility to treatment, monitoring surveillance programmers and research response. The personnel of laboratories working in clinical and /or research are bound by the ethical codes of their respective profession. Laboratories must comply with the ethical code of conduct prescribed by international and national statutory bodies and address the ethical, social and legal aspects in biomedical science. Laboratories shall not involve in practices restricted by law and should uphold their profession reputation.

Ethical practice can be considered as an excellent practice accompanied by proper technical behavioral attitudes. The laboratories have answerability to others include patients, colleagues, profession and the society. Laboratories must assemble ample information to analyze specimens and patients. The clinical information must be sufficient to enable the test to be performed and interpreted correctly. All the tests results are private or confidential unless disclosure is authorized.

The laboratory must assure that data is stored. There must be reasonable security against loss, illegal approach, and tampering or other data misuse. The microbiology laboratories performing research or testing of HIV, Hepatitis viruses, SARS, MERS and Corona must have to follow National AIDS Control Organization (NACO) or International (WHO) guidelines, which include pre-test and posttest counseling. All the laboratory tasks must be carried out with the high level of expertise and proficiency expected of the scientific, medical and allied health fields.

1. **Re-emerging diseases, resistance and antibiotic restriction**

The entity should have facilities and documentations for disposal of microbial samples, antibiotics and other drugs used in research or test purposes. Currently, reemerging of infectious diseases and antibiotic resistance is a great global challenge. The world is facing the new emerging diseases as Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MERS) or avian influenza apart from AIDS or re-emerging disease such as Ebola or Methicillin Resistant *Staphylococcus aureus* (MRSA) or drug resistant tuberculosis. Tuberculosis, a disease that was once treatable but is now considered a re-emerging threat due to development of drug resistant strains. Therefore, the personnel involved microbiological research and tests must constantly be evaluated.

**Ethical issues in molecular techniques in epidemics**

The use of characterization techniques in infectious disease control raises ethical issues, in which individual interests and needs must be weighed against those of the public at large. Due to recent scientific and technological advances in molecular microbial characterization, the need for ethical guidance has now gained a new sense of urgency. The ethical difficulties related to the use of microbial characterization techniques in public health also need to be addressed.

1. **Microbial bioweapons**

Microorganisms may be used as bioweapons. Therefore, research with such microbes needs special national and international guidelines. This is necessary to adopt an active role in stopping bioterrorism. Microbes intrinsically carry a ‘dual-use’ potential and therefore most microbiologists are more or less affected by dual-use issues. Responsibilities in microbiology require on the one hand scientific openness to widen knowledge and improve public health and on the other a demand for security to avoid antisocial attacks or heinous actions. Both are prerequisites for scientific work.

**D. Guidelines in the area of Plant biotechnology/plant propagation**

**Transgenic Plant/GMO and Tissue Culture:**

• Prevent interbreeding with native species

• Transgenic plant waste must be decontaminated or inactivated prior to disposal

• Contain species that could detrimentally impact local and agriculturally important species

• Control insect vectors

• Contain seeds and pollen. All researchers working with transgenic plants must ensure appropriate biosafety level for their work, and have standard operating procedures in place for:

• Storage, transport, and handling of transgenic seeds and plant materials

• Labeling and segregation of transgenic and non-transgenic plant materials

• Preventing release of transgenic seed to the environment

• Preventing dissemination of genetic material to the environment

**Storage, transport, and handling of transgenic seeds and plant materials**

Transgenic seed should be stored in a locked cabinet located preferably in or near the greenhouse or growth chamber. When stored or handled outside of a confined space, such as on a lab bench or potting bench, seed should be in a spill-proof container. White paper can be utilized on lab benches in conjunction with a tray to allow for easy identification and containment of stray seeds.

**Labeling and segregation of transgenic and non-transgenic plant materials**

All transgenic seeds and plants should be clearly identified and labeled to distinguish them from other stored seeds, plants, or materials. If transgenic and non-transgenic plants must be grown in the same location, such as an open lab or mixed use greenhouse, all work must be completed at the biosafety level approved for the transgenic plant work

**Preventing release of transgenic seed**

Seed is easily tracked out of facilities on shoes. This inadvertent dissemination can be easily prevented through the use of shoe covers and/or sticky mats. Seed is also easily carried out of facilities on clothing and this can be prevented with the use of disposable lab gowns that are dedicated for use in the plant growth chamber or greenhouse. Good housekeeping practices can help prevent release of transgenic seed by keeping loose seed off the floor. Daily use of a disposable cloth covered sweeper can be an easy way to remove loose seed from floors.

**Venting dissemination of genetic material**

Growing plants need to be contained to prevent the dissemination of genetic material. This can be achieved by covering or removing flower and seed heads to prevent seed dispersal, harvesting plant material prior to sexual maturity, or utilizing male sterile lines. Various commercial containment systems are available or inexpensive systems can be constructed with disposable plastic sheeting. These systems contain seeds, soil, plant parts resulting in less housekeeping and less contamination between shelves. These systems also provide better humidity control resulting in less watering of plants.

**Disposal of transgenic/GMO/microbes**

All the experimental materials of transgenic/GMO/microbes should be disposed of after autoclaving.

**E. Guidelines for some common ethical issues**

**Co-authorship**

Researchers must observe good publication practice, respect the contributions of other researchers, and observe recognized standards of authorship and cooperation.

**Good citation practice**

All researchers and students are obliged to follow good citation practice. This is a prerequisite for critical examination and important for enabling further research.

**Plagiarism**

Plagiarism is unacceptable and constitutes a serious breach of recognized norms of research ethics. A plagiarist undermines not only his or her own reputation as a researcher, but also the credibility of the research. Plagiarism violates the duty of truthfulness in science, and the requirement of originality, humility and collegiality. Researchers who build on the work of others must cite their sources in accordance with good practice.

**Scientific integrity**

Both researchers and research institutions must promote norms for good scientific practice. Misconduct is serious breach of good scientific practice associated with the collective commitment to the pursuit for truth. Researchers have an obligation to truthfulness, and scientific misconduct implies misleading others through lying, concealment or distortion. The most serious examples of misconduct are fabrication and falsification of data and plagiarism.

**Data sharing**

Research material should be made available to other researchers for secondary analysis and further use.

**Impartiality**

Both researchers and research institutions are obliged to report and consider possible conflicts of interest and of roles.

**Relations with colleagues**

Research should be conducted in compliance with norms of research ethics, for example with regard to openness, fairness and (self-criticism, thereby contributing to research cultures that promote good research.

**The student-supervisor relationship**

Supervisors are obliged to act in the students' best interests and not to take advantage of their dependence. This applies to academic results and personal matters.

**Presentation and use of results**

Both researchers and commissioners have a responsibility to prevent research results from being presented in a misleading manner. It is unethical to delimit the subject of the research with a view to producing particularly desirable results, or to present research results in an intentionally skewed manner.

**Dissemination as an academic responsibility**

Researchers and research institutions are obliged to disseminate scientific knowledge to a broader audience outside the research community.

**Disclosure and review of potential conflicts of interest**

The investigator is responsible for ensuring that the materials submitted to an ethical review committee include a declaration of any potential conflicts of interest affecting the study. Ethical review committees should develop forms that facilitate the reporting of such potential conflicts and materials explaining their use for investigators. Ethical review committees should evaluate each study in the light of any declared conflicts and ensure that appropriate means of mitigation are provided. If a potentially serious conflict of interest cannot be adequately mitigated, the committee should not approve the project.

**Institutional Ethical Committee for Experimentations on Human, Animal, Microbes, Environment and Living Natural Sources**

**Agriculture and Mineral Sciences, Shahjalal University of Science & Technology, Sylhet 3114, Bangladesh**

**Application for Ethical Clearance**

### PART A

1. Principal Investigator(s) name and address:

2. Co-investigator(s) name and address (if any):

3. Place of the study/Institute(s):

4. Title of the study:

5. Type of research involved:

6. Duration of the study with possible initiation date:

7. Research budget and Funding agency (if available):

Signature

Name and Designation of Investigator

Date:

Place:

\*The filled in Part A, B and C having required information (2 copies) should be sent to:- Head of the Institutional Ethical Committee at the School of Life Sciences and School of Agriculture and Mineral Sciences, Shahjalal University of Science and Technology, Sylhet 3114

### PART B

1. Study Title:

2. A brief study plan including aims, background and methodology (max 400 words):

3. Animal/human subjects required (for animal specify the species name):

4. Rationale for animal/human subjects usage for this study (max 100 words):

5. For animal studies, please mention (briefly) where they will be kept, specify the dose for certain experiments and scarifying process:

6. For microbial studies, please mention the sources of microbes:

7. For pathogenic microbes and hazardous component, please specify how they will be handled and maintained (max 200 words):

8. For natural/environmental toxins, please mention the sources and specify how they will be handled and maintained (max 200 words):

9. For transgenic plant/GMO and Tissue culture, please mention the sources and specify how they will be handled and maintained (max 200 words):

10. How hazards and post experiments residues will be disposed? (max 100 words):

11. Additional information (if any):

**PART C**

Please mark the appropriate answer to each of the following (if not applicable write NA)

1. Source of population:

a) Healthy subjects b) Ill subjects c) Others (specify):

2. Are subjects clearly informed about purpose of the study?

a) Yes b) No

3. Are the consent (signed/verbal) obtained from the study subjects before inclusion them in the study?

a) Yes b) No

4. Does the study involve?

a) Physical risk of the subjects b) Social risk of the subjects c) Psychological risk of the subjects d) Discomfort of the subjects e) Disclosure of the privacy

5. Does the study involve?

 a) Use or body fluids (e.g. blood/urine) or organs b) Use of fetal tissue of abortus

 c) Medical reports/records

6. Does the study maintain standard procedure for sample (biological) collection?

a) Yes b) No

7. Does the study data is confidential and will be used only for research purpose?

a) Yes b) No

### Investigator’s Declaration

1. I certify that I have determined that the research proposal herein is not unnecessarily duplicative of previously reported research.

2. I certify that, I am qualified and have experience in the experimentation on animals/ human subjects.

3. Standard procedure will be followed for sample collection and in experiments.

4. I will obtain approval from the Ethical Committee before initiating any significant changes in this study.

5. I certify that, I will not initiate the study unless received approval from the Ethical authority in writing. Further, I certify that I will follow the recommendations of the Ethical Committee

Signature

Name of Investigator

Date:

***School of Applied Sciences and Technology***

***Guidelines of Research Ethics in Engineering and Technology***

***Definition of Ethics***

Ethics are the elements which belong to a branch of philosophy dealing with the moral nature of human conduct, or it may be defined as, the principles and standards guiding moral conduct in everyday life or in a special field or profession. The word ethics suggests norms, moral responsibilities, personal values etc. The study on ethics helps to know the people’s beliefs, values, and morals, learn the good and bad of them, and practice them to maximize their well-being and happiness. It involves the inquiry on the existing situations, form judgments and resolve the issues. In addition, ethics tells us how to live, to respond to issues, through the duties, rights, responsibilities, and obligations.

***Engineering Ethics and Ethics of Technology***

Engineering ethics is the field of system of moral principles that apply to the practice of [engineering](https://en.wikipedia.org/wiki/Engineering). Engineering ethics is a subset of professional ethics: it is professional ethics of and for engineers. The focus of engineering ethics is on the roles and responsibilities of engineers. Engineering ethics is essentially a practical ethics. It exists in all aspects of the conceptual design to project implementation. Engineering has a direct and vital impact on the quality of life for all people. Accordingly, the services provided by engineers require honesty, impartiality, fairness, and equity, and must be dedicated to the protection of the public health, safety, and welfare. So, ethics focuses on assisting engineers in shaping their professional responsibility through the formulation of general ethical principles and professional codes, and by providing methods and techniques for tackling the moral issues and dilemmas that engineers encounter in their work.

Engineering ethical codes typically specify that professional conduct by engineers is bound by virtues such as honesty, integrity, competence, dignity, and objectivity. Codes typically specify that engineers have a paramount responsibility for the health, safety and welfare of the public. They specify a number of obligations, such as the obligation of furthering the interest of clients in giving advice, of not divulging confidential information, and of not making public statements that discredit the profession. Often, they contain an obligation to take proper care of the environment or to practice principles of sustainable development.

Technology ethics are principles that can be used to govern technology including factors like risk management and individual rights. They are basically used to understand and resolve moral issues that have to do with the development and application of technology of different types. Ethics of technology is a form of applied ethics focused on ethical issues involving technology that concern to society as a whole. Ethics of technology is in part an offshoot of applied ethics in general, and in part of engineering ethics- a field in which considerations of professional responsibility have sometimes given rise to more general ethical reflections on technologies and their role in society. An example may help clarify the distinction between engineering ethics and ethics of technology: The question of whether and how software engineers should be protective of privacy in the design of software is a question of engineering ethics. The question of whether and how privacy should be protected on the Internet is a question of ethics of technology.

There are many ethical issues associated with specific engineering branches and technologies developed within them. Ethical issues in some of the most important fields of engineering are as follows:

Chemical engineering

 Toxic by-products in the creation of chemicals

 Difficulty in establishing long-term effects of exposure of new chemicals

 Environmental issues: environmental impacts and safety

 Consumption of natural resources for chemicals

Civil engineering

 Safety of built structures

 Accessibility issues for different stakeholder groups (buildings, roads, bridges)

 Utility of built structures for different stakeholder groups

 Environmental issues

 Design of spaces for torture or incarceration considered inhumane

 Destruction of cultural heritage

Robotics

 Responsibility for actions by robots and artificial intelligence programs

 Well-being and safety issues

 Ethical issues concerning social robots and humanoid robots (such as the reduction of human contact)

 Ethical issues concerning unmanned aerial vehicles (drones) (such as the violation of privacy)

 Military applications of robotics

 Ethical issues involving technological singularity (such as the threat of harm to humans by an unethical artificial intelligence)

Environmental engineering

 General issues in environmental ethics (such as the level of responsibility for future generations)

 Ecological restoration

 Ethical issues with geo-engineering (such as those relating to hydraulic fracturing and drilling for exploration and production of water, oil, or gas)

 Ethical issues with climate engineering (such as the threat of unforeseen harmful side-effects)

Nuclear technology

 Development of nuclear weapons

 Risks of nuclear catastrophes

 Problems of waste disposal

Nanotechnology

 Health and environmental risks

 Ethical issues with nanomedicine

 Runaway self-replicating nanobots

 Just distribution of benefits and risks

 Military applications

 Privacy risks (molecular monitoring and tracking devices)

***Research Ethics***

Research ethics are important for a number of reasons. They promote the aims of research, such as expanding knowledge. They support the values required for collaborative work, such as mutual respect and fairness. This is essential because scientific research depends on collaboration between researchers and groups. Researchers are professionals hence, research ethics as a branch of applied ethics has well established rules and guidelines that defines their conduct. Research ethics is important in our daily life research endeavors and requires that researchers should protect the dignity of their subjects and publish well the information that is researched.

There exist many reasons why ethical norms are maintained while conducting research. First, they promote the main aims of the research which include among others, the acquisition of knowledge, promoting the truth in research by avoiding errors that could arise due to providing false information, fabricating or misrepresenting information. Second, research involves great efforts which require the cooperation and coordination among many people and researchers. It is therefore vital for the researchers and consumers to trust each other, respect the views of other scholars and treat them fairly and are accountable to their research endeavors. In this regard, there exist guidelines which are produced so as to maintain the copyright and patenting policies of their products. But, this can only be achieved if appropriate rules are executed to enhance confidentiality. Third, any work that researchers are involved in or any work that is published must be read by the public who also appreciate the efforts of the researcher. Fourth, if the research is being sponsored by funds from the public coffers, it must be well accounted for because, such research must be supported so as to enhance its quality and integrity. Finally, research ethics focuses on values which are societal in nature. Hence, researchers should enhance social responsibility, maintain the integrity of human values, and protect the welfare of the research subjects and animals in compliance with the international law and safety standards.

**Ethical Issues in Research**

Norms enhance the purpose of research which includes the dissemination of knowledge, reporting or saying the truth and finally the need to counteract errors. Various steps that are vital in research begin with research proposal writing and approval leading to the actual research study. A researcher must select the appropriate methodology to employ, relevant ways of collecting data, present the research findings and interpret them accordingly leading to presentation of information in a logical sequence. The data is then analyzed and reported well in form of an article, project report, thesis or a book. It is vital that a researcher must observe appropriate values at all these stages while conducting research. If this is not observed, it could result into research misconduct. And, it is within this framework that we discuss ethical issues related to research emphasizing on those related to the research itself, research subjects and the research process.

***Engineering Research Ethics***

The most salient practice in engineering is engineering design. However, another important practice is fundamental engineering research (sometimes called engineering science, in contrast to engineering proper). Such research is focused on the fundamental properties of materials, chemicals, systems and processes, with an eye towards possible later application in engineering design. It has many resemblances to research in non-applied science. Engineering research is largely subject to the same ethical principles that are relevant to (non-applied) research in the natural sciences. The relevant principles of research ethics include scientific integrity, collegiality, data integrity, institutional integrity and social responsibility, the protection of human subjects, and animal welfare in cases in which human subjects or animals are involved in the research process. Based on these principles, many different professional associations, government agencies, and universities worldwide have adopted specific codes, rules, and policies for research ethics.

***Ethical Issues in Engineering Research***

There are many types of ethical issues in the field of engineering. Ethical issues in engineering research may involve scientific integrity, institutional integrity, social responsibility, human subjects’ research, and animal welfare. Engineering innovation may give rise to the same issues, as well as issues relating to social responsibility and responsibility to clients, and issues concerning the impacts of technology that may relate to: the environment; health; safety; justice, access and equality; rights and liberties; individual rights and liberties; autonomy, authenticity and identity; human dignity; bodily integrity; dual use; hubris. Sometimes, ethical issues concern the moral permissibility of technological innovations themselves, independently from their potential or actual impacts; an engineer’s work might, for example, be seen as playing God. Finally, there are various ethical issues with technologies that are associated with specific engineering branches, such as nanotechnology and robotics.

As all other researches, engineering researches also must be concerned with Truth, Fairness, and Wisdom. Truth concerns the relationship of the research results to the physical world. Do the data and conclusions really correspond to reality? If data are made up (fabricated) or fixed up (falsified), they are not true. Fairness concerns social relationships within the world of research. In this category belong issues such as relationships among researchers (authorship and plagiarism); between researchers and human subjects (informed consent); between researchers and animal subjects (animal welfare); and relationships between researchers, their sponsoring institutions, funding agencies, and the government. For example, although true reports can be published without citing previous publications, or without securing informed consent from human subjects, these are not fair research practices. Wisdom concerns the relationship between the research agenda and the broader social and physical world, present and future. Will the research improve the human condition, or damage it? Will it lead to a better world, or a worse one? Which of the many possible lines of research would we be better off pursuing? We have finite time and money for pursuing research, and the wisdom of research programs is a valid question in research ethics.

These three concerns of research can be expanded into six domains:

Truth

1. **Scientific integrity** – The relationship between research and the truth. Issues under it are:

* basic technical competence (including experimental design)
* data manipulation
* statistical methods
* falsification
* fabrication
* unintentional bias

Fairness

2. **Collegiality** – Relationships among researchers. Issues under it are:

* authorship
* data sharing and timely publishing
* plagiarism
* peer review
* confidentiality
* candor
* mentorship

3. **Protection of human subjects** – Relationships between researchers and human subjects. Issues under it are:

* protection from harms; respect for persons (autonomy); beneficence (plus non-maleficence); justice
* access to treatments
* informed consent
* assent
* confidentiality and anonymity
* deceit
* debriefing
* research risks and benefits

4. **Animal welfare** – Relationships between researchers and animal subjects. Issues under it are:

* replacement, reduction, refinement
* pain and suffering
* enrichment
* animal rights

5. **Institutional integrity** – Relationships between researchers, their sponsoring institutions, funding agencies, and the government. Issues under it are:

* conflict of interest
* conflict of commitment
* regulatory compliance
* data retention
* institutional oversight
* institutional demands and support

Wisdom

6. **Social responsibility** – The relationship between research and the common good. Issues under it are:

* research priorities
* fiscal responsibility
* public service
* public education
* advocacy by researchers
* environmental impact
* forbidden knowledge

***Ethical Concerns with Impacts of Engineering/ Technological Research and Innovation***

The impacts of engineering/ technological research and innovation that raise ethical concerns include hard impacts (physical impacts on environment, health and safety) and soft impacts (impacts on social realities and ideals such as justice, equality, individual rights, identity, etc.). Ethical concerns have been raised in relation to the following impacts:

**Environment**: these are ethical concerns regarding the question whether the environmental impacts of a technology can be justified.

**Health**: these are ethical concerns with the impact of technologies on physical and mental health.

**Safety**: these are ethical concerns about the safety of technologies and the potential damage they could do, e.g. injury and death, economic damage, social and political damage, damage to national security, etc.

**Justice, access and equality**: these cover ethical concerns regarding the distribution of goods and risks for harm that result from the use of new technologies (justice issues), the question of whether everyone has adequate access to important new technologies (access issues, which are also a kind of justice issue) and whether or not technologies help increase or decrease equality and equal opportunity of human beings in society.

**Individual rights and liberties**: these cover ethical concerns about whether and how the impacts of technologies may reduce or violate individual rights and liberties, such as the right to privacy, right to freedom of information, right to freedom of movement, property rights, etc.

**Autonomy, authenticity and identity**: these cover ethical concerns regarding the impact of technology on free will, the ability to have one’s own thoughts, to make one’s own decisions, to be an authentic person, and to form and to develop one’s own biographic and social identity. Some technologies that have been controversial in this regard include neuro-technologies, human enhancement technologies, reproductive technologies, and artificial intelligence.

**Human dignity**: This covers ethical concerns regarding the impact of technologies on human dignity for instance, by human cloning, reengineering of humans, and human enhancement.

**Bodily integrity**: This covers ethical concerns concerning technologies that infringe the inviolability of the physical body and take away self-determination of human beings over their own bodies.

**Dual use**: This covers the possibility that a new technology or technological product can be used in ways other than its intended use, and that this alternative way of using it is morally controversial. Thus there is a “good” and an “evil” way of using the technology, hence the term “dual use”. Dual use issues arise with regard to civilian technologies that can be used for military purposes, as well as benign technologies that can be used for harmful purposes such as terrorism, substance abuse, or other abuse. Dual use issues often occur in relation to chemical, biological and nuclear technologies.

**Hubris**: This is a concern that for some technologies we overestimate our ability to predict their consequences as well as our ability to mitigate consequences that are undesirable. This particularly applies to complex and dynamic technologies that have potential impacts on biological and ecological systems. These include geo-engineering to combat climate change, the release of genetically modified organisms, reproductive cloning, human enhancement, and others.

***Research Misconduct, Ethics for Writing and Publishing etc.***

A researcher must select the appropriate methodology to employ, relevant ways of collecting data, present the research findings and interpret them accordingly leading to presentation of information in a logical sequence. The data is then analyzed and reported well in form of an article, project report, thesis or a book. It is vital that a researcher must observe appropriate values at all these stages while conducting research. If this is not observed, it could result into research misconduct. Research misconduct is defined as fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results. Fabrication is making up data or results and recording or reporting them. Falsification is manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record. Plagiarism is the appropriation of another person’s ideas, processes, results, or words without giving appropriate credit.

A finding of research misconduct requires that:

* there be a significant departure from accepted practices of the relevant research community
* the misconduct be committed intentionally, or knowingly, or recklessly
* the allegation be proven by a preponderance of evidence

The publication of articles in peer reviewed journals or a book is mandatory in academic and professional advancement in institutions of higher learning. Each institution of higher learning has to motivate its scholars to engage in the art of publishing so as to improve on its visibility and ranking to compete with other institutions in the world. Any written article must be original and should make significant contribution to knowledge by presenting findings that will be interesting to be read by other scholars. And, it can only be submitted for publishing if it is well researched, written and adheres to the necessary research ethical guidelines.

An article could be written by one author or more authors. In some instances, it could be written by a forth coming scholar or graduate student who then writes the name of a senior scholar without informing the scholar so as to participate in joint ownership of the paper. But, each of them must have a definite role to play so as earn credit to the final product and enhance accountability when the work is finally published. The paper can only be original if the authors jointly agree with the information. They should show their affiliation to an institution of higher learning because, it is mandatory for the researcher or author of a paper or article to contribute in one way or the other to the final paper. Upon completion of writing, the article is submitted to the chief editor or editor of a journal who then forwards it to a minimum of two academic scholars for peer review. The comments from the reviewers are meant to check on the quality of the paper by offering scholarly advice and input to it. These views are then forwarded to the author or authors who adhere to the rubric before the paper is accepted for publishing in the next journal issue. It is however unethical to submit one article to two different journals or duplicate publication of research findings without informing the editors that the work is under consideration elsewhere.

## INSTITUTIONAL ETHICAL COMMITTEE

**School of Applied Sciences andTechnology**

**Shahjalal University of Science & Technology, Sylhet 3114, Bangladesh**

**Application for Ethical Clearance**

**PART A**

1. StudyTitle:
2. Principal Investigator(s) name andaddress:
3. Co-investigator(s) name and address (ifany):
4. Place of thestudy/Institute(s):
5. Title of thestudy:
6. Type of researchinvolved:
7. Duration of the study with possible initiationdate:
8. Research budget and Funding agency (ifavailable):

**PART B**

1. A brief study plan including aims, background and methodology (max 400words).
2. Possibility of environmental pollution during experiment mentioning the names of solid, liquid and gaseous waste products, their disposal methods; possibility of noise pollution, thermal pollution, radio-active pollution etc. and their remedial process (max 200words).
3. List of hazardous materials and risky instruments that will be used during experiment; safety measures to prevent possible accident (max 200words).
4. Are subjects clearly informed about purpose of the study? Are the consent (signed/verbal) obtained from the study subjects before inclusion them in thestudy?
5. Possibility of Physical/ Social/ Psychological risk of the subjects; Discomfort of the subjects; Disclosure of the privacy etc. during study or in future; its minimizing process (max 200words).
6. Rationale for animal/human subjects’ usage mentioning the species’ name, where they will be kept, scarifying process etc.; rationale for pathogenic microbes’ usage mentioning the sources of microbes, the species’ name, how they will be handled and maintained etc. (max 200words).
7. For transgenic plant/GMO and Tissue culture- the sources, handling and maintaining process etc. (max 200words).
8. Is the study data confidential and will be used only for researchpurpose?
9. Additional information (ifany).

# Investigator’s Declaration

1. The research proposal herein is not unnecessarily duplicative of previously reportedresearch.
2. Standard procedures will be followed for allexperiments.
3. This research will not be harmful to anybody or society ornature.
4. All safety measures will be maintained, any kind of risk will be avoided, and environmental pollutions will be minimized during theresearch.
5. I will obtain approval from the Ethical Committee before initiating any significant changes in thisstudy.
6. I certify that, I will not initiate the study unless received approval from the Ethical authority in writing. Further, I certify that I will follow the recommendations of the Ethicalcommittee.

Signature

Name and Designation of Investigator

Date:

Place:

\*The filled in Part A and B having required information (2 copies) should be sent to:- Head of the Institutional Ethical Committee at the School of Applied Sciences and Technology, Shahjalal University of Scientce and Technology, Sylhet 3114

***School of Social Sciences***

**ResearchEthics guidelines of Social Sciences**

Research ethics are not merely about ‘doing the right thing’ at the individual, community andinstitutional levels. These guidelines are therefore oriented to something more fundamental thanmoral prescriptions or ‘do’s’ and ‘don’ts’. They seek to enable the creation of an ethos andculture of respect for various ethical practices without compromising on academic freedom andresearch autonomy. Additionally, these guidelines aim at--

a) helping researchers become cognizant of their ethical views and attitudes.

b) raising researchers’ awareness to conflicting standards, considerations and interests.

c) protecting and regulating relationships with individuals and groups directly affected by theresearch.

d) promoting sound research practice at the institutional level, associated with the quest fortruth and independence.

e) enhancing the ability of researchers to make well-founded decisions in such contexts; and

f) striking a balance between academic freedom and social responsibility.

These guidelines are based on foundational principles such as dignity, respect, equality, privacy,consent, confidentiality, integrity and responsibility to participants and the researchcommunity. Each of these principles and their import in any research isgiven in some detail below.

**1. Integrity in the Research Process**

The primary purpose of research at SUST (or its affiliated institutions and field) is to generate knowledge within an atmosphere thatnurtures the freedom to ask relevant questions within a set of norms that promote integrity. Theidea of knowledge has been identified with the pursuit of truth. However, it is apparent that bothwithin the sciences and more emphatically within the Social sciences the idea of truth remains acontested one. An ethical framework is vital to the scientific practice of research preciselybecause it is impossible for an applied/social scientist to practice outside some vision of the humancondition. Some of the ethical requirements of research include the freedom to pursue researchquestions, originality, accuracy, relevance, integrity, accountability and impartiality.

**1.1. Academic Freedom**

The idea of research has several different connotations depending on the context. Within the space of Universities, however, research is often guided by the quest for greater understandingthat may or may not seem immediately applicable, relevant or driven by the most popularparadigms and ideological orientations of the time. SUST will be committed to maintainingacademic freedom of researchers. This will include the freedom to ask potentially controversialquestions and to adopt diverse theoretical approaches to their area of enquiry.

However, researchers will be required to give due consideration to the framework within which

this freedom ought to be exercised. This framework will require researchers to be responsible to

1. Participants

2. Perspective of the Supervisor and Program Team in the case of supervisedresearch work of research scholars

3. Members of a collaborative team.

**1.2. Originality**

Originality is a primary requirement of all research and is of paramount importance. However,the notion of originality differs amongst disciplines. This may include asking new researchquestions, taking a new theoretical position towards a problem, approaching a new set ofparticipants, new texts or new sites or contexts or using new methods to ask old researchquestions. Since SUST is committed to interdisciplinarity and engaged research, the articulationof their personal location in relation to the question asked may be thought of as a valued aspectof originality.

Research at SUST is committed to accuracy and correct reporting of the data sources. The ethicalrequirement of accuracy will imply retaining the original character of the data even while theinterpretations may be at variance with the voice or text received. Impartiality in social sciencewill be reflected in the reflectivity with regards to the researcher’s theoretical location whiledetermining the research question, interpreting the data and writing.

**1.3Relevance**

There has been an increased emphasis on the criteria of relevance in recent writing in the academia especially in socialsciences. While asking questions that may help locate answers to social problems are to bevalued, this must not result in jeopardizing the theoretical potential. The ethical framework ofresearch at SUST will value academic freedom to pursue potentially controversial researchquestions within a framework of due diligence towards **participants’ interests.**

**1.4 Fairness**

Fairness involves honesty in the research process. This includes integrity in reporting datamentioned above, freedom from plagiarism, making accurate references to past work on thesubject and establishing norms about data sharing and ownership.

**1.5 Equality**

Research work will often be in a context of unequal power relations such as those betweensupervisor and research student or senior and junior colleagues or researcher and participant. SUST remains committed to the principle of equality. The rights of the junior partners in allmatters pertaining to equality and freedom have already been specified in other pertinentguidelines such as guidelines of Sexual Harassment Prevention and Complaint Cell, SUST or other guidelines stipulated by SUST from time to time.These will applyto research related relationships as well.Research ethics includes encouragement of dissemination of findings. In research work involvingsupervision or collaboration, clarity must be established early in the research process aboutownership of data and the right to publish.

**2. Conducting Research**

The following principles are the cornerstone of high-quality research at SUST. While eachprinciple is essential, together they enable the scholars to engage in exemplary practices andcreate a strong culture for ethical research. It is essential for researchers to use these principlesas guidelines as they attempt to negotiate through research dilemmas to decide ethical coursesof action.

**2.1 Individuals in research**

Research in all disciplines must be grounded in fundamental respect forhuman dignity. This means recognizing individual rights, safeguarding participants from physicaland harm and unreasonable strain, and respecting their privacy. It is necessary to considerthese issues at all stages of the research process including choosing a research topic,developing a research design, collecting data, synthesizing information to develop reports andduring dissemination of findings through presentations or publications.

**2.1 Informed Consent and Obligation to Notify**

Researchers need to share adequate information about the research including, the purpose ofthe study, the nature of engagement required from the participant, the duration of the study,the source of funding, intended use of results, the risks associated with participation and thelong term consequences of participation. As far as possible, researchers must have writtenapproval from participants, prior to engaging in data collection. However, oral consent may berecorded where participants are unable to provide it in a written form. Information must beshared in easy-to-understand language considering language, culture and literacy levels of theparticipants.In addition to obtaining it is necessary to respect the privacy and autonomy of participantsthroughout the research process. Participants must be allowed to withdraw from a study at anytime. In general, the data from participants ought to be used only for the purpose that theparticipant consents to.

***2.1.1 Confidentiality***

Researchers have an obligation to protect the personal identifying information of participants,especially vulnerable individuals, communities, and groups, to minimize risks of harm, exceptwhere the participant has consented to sharing of personal details, for example testimonials.Personal information must be de-identified and stored safely, separately from other data toprevent unauthorized use. Instead reference numbers may be used to connect information.When disseminating information through presentations or publications, it is necessary toanonymize the data. When gathering or storing information, it is important to consider longterm use of the data, including placement of data in archives, or use of data by otherresearchers.

***2.1.2 Safeguarding from Harm***

Researchers should take reasonable steps to ensure that participants are not exposed tophysical pain or mental harm, as a result of their involvement in a study. Participants may feeldiscomfort, go through re-traumatisation, or experience serious mental strain. Researchershave a responsibility to be sensitive to such issues and make efforts to minimize such risks. Riskis considered tobe minimal when the anticipated discomfort is similar to what the individualordinarily experiences in daily life or routine tests. Risk reduction strategy could involveproviding the participant with an emergency phone number or a support person/group in thecommunity where the participant lives. It is the researcher's duty to adopt such measures tominimize the possibility of harm to the participant arising from the research. When unintendedharm is caused, researchers need to inform the SUST ethics committee and take actions tominimize the risks.

**2.2 Protection of Children and Other Vulnerable Population**

Researchers need to make special efforts to protect children and other vulnerable populationsfrom harm. The issue of consent is more complex for research on children than with adults.Children may not be aware that their participation is voluntary and may feel the need torespect authority. They may also not be aware of the long-term consequences of participatingin a study. It is necessary to seek permission from parents or legal guardians when theparticipants are below the age of 18 years. Moreover, children must be informed that theirparticipation is voluntary, and they may choose to withdraw from the study. Researchers mustknow enough about children to be able to adapt methods for data collection, when necessary.

Some individuals may have difficulty understanding the scope of the study and giving informedconsent due to mental illness, intellectual disability, persons affected by dementia and otherconditions. Researchers have a special responsibility to protect the integrity of such persons.Consent must be obtained from legal guardians of the participants of the vulnerable groups.However, as with children, researchers need to consider and respect the perspective of theindividuals

**2.3 Conflict of Interest**

Researchers need to avoid getting into situations which may result in conflict of interest ordisclose such issues to the ethics committee to address such issues at the earliest. Suchsituations arise when the researcher’s personal, professional and financial gains deter themfrom engaging in the research process in an unbiased manner.

**3. Research Ethics Committees and the Board: Nature and Functions**

A simple structure has been envisaged for research ethics clearance at the level of programs,schools and centers. Research at these units will be governed by the SUST Ethics Review Board/Council constituted by the Vice Chancellor and Syndicate/Academic Council.

On the recommendations of the program committees at the Schools and advisorycommittee at the Centers, the Deans and Directors will respectively constitute ethicscommittees. These committees will be responsible for drafting program/center-level ethicspolicies that will cater to specific needs of that program yet adhering to the generalresearch ethics guidelines of SUST.

These duly constituted ethics committees will be responsible for evaluation of researchmethodology of MSc/MSS/MEng Dissertation/Seminar Paper and MPhil/PhD Research students and shallascertain whether these proposals require further scrutiny from the perspective of researchethics. All student-related issues will be resolved at the program/school level. Only such rarecases that may require further discussion may be sent to Research Ethics Boardfor furtherdeliberation.

Faculty and research staff proposals will be expected to comply with the Research EthicsRegulations in drafting their proposals. Before final submission to the CentralEthical Board, all suchproposals must be routed and scrutinized by the Faculty Research Ethics Committee and should be forwarded by the Head of the respective department. SUST Research Ethics Board will be constituted by the Vice Chancellor of SUST. The Board will (1)examine the project and proposals forwarded by the Head, Research Center, vis-à-vis ethics, (2) examine projectand proposals which are not covered by the terms of the SUST research ethics framework, and(3) advice Dean R&C on ethics related issues. The Board will meet at least twice during asemester.

**Rights and Responsibilities of Sponsor/ Funding Organization**

**1.**Funders and sponsors have the right to expect that researchersand institutions report the progress of their work and submit a copy of thefinal report on results of research as per the schedule agreed in advance.

**2.**Funders and sponsors have a right to get a copy, if any, of the ethical guidelines for research followed by the researchers and institutions.They also have a right to expect that the researchproposal submitted forfunding or sponsorship by researchers and institution contains necessaryinformation on ethical issues in and ethical conduct of the particularresearch proposed.

**3.**The funders and sponsors of research should respect the ethicalguidelines for research and should not expect researchers and institutionsto undertake research or conduct it in any way contrary to the ethicalguidelines.

**4.**Where sponsors and funders also act, directly or indirectly, asgatekeepers and control access to the participants, researchers shouldnot devolve onto the gatekeeper their responsibility toobtain separate andfull informed consent from participants and protect all rights of theparticipants.

**Rights and Responsibilities of Editors and Publishers**

**1.**Before accepting the research based articles for publication,editors and publishers have the right and duty to ensure that such materials, duly reviewed by referees deemed by the publication to have the relevantexpertise and knowledge in the particular field.

**2.**As social scientists and as journalists, editors are responsiblefor ensuring that the editorial policy and instructions to authors reflect theethical concerns and the guidelines for research.Referees and editorialstaff should be made aware of the editorial policy including the need forarticles/papers to adhere to prescribed ethical norms. Contributors shouldbe informed that the material submitted for publication should carryappropriate credits. Fabricated, falsified or plagiarized information shouldnot be entertained.

**3.**If, after the publication of material, any doubt is raised aboutits ethical status or ethical conduct of the study on which the said materials based, editors should take appropriate corrective steps.

**Application for Ethical Approval for a Research Project Involving Humans**

**School of Social Sciences**

**Shahjalal University of Science and Technology, Sylhet, Bangladesh**

**Section 1: Introduction**

This form is only designed as a guide/help resource to assist you with submitting a full human ethics application.

**Section 2: Investigators**

|  |
| --- |
| 1. **A. Chief Investigator**
 |
|  The chief investigator must be a SUST staff member. If this application is for a student project the chief investigator must be one of the student’s supervisors |
| Name (Including Title):  | ID No |  |
| School/Area |
| Telephone/ Mobile: | Email |  |
| In the space below, explain how the researcher has sufficient skills and experience to conduct the proposed research: |

|  |
| --- |
| 1. **B. Co-investigator 1**
 |
|  The chief investigator must be a SUST staff member. If this application is for a student project the chief investigator must be one of the student’s supervisors |
| Name (Including Title):  | ID No |  |
| School/Area |
| Telephone/ Mobile: | Email |  |
| In the space below, explain how the researcher has sufficient skills and experience to conduct the proposed research: |

|  |
| --- |
| 1. **C. Co-investigator 2**
 |
|  The chief investigator must be a SUST staff member. If this application is for a student project the chief investigator must be one of the student’s supervisors |
| Name (Including Title):  | ID No |  |
| School/Area |
| Telephone/ Mobile: | Email |  |
| In the space below, explain how the researcher has sufficient skills and experience to conduct the proposed research: |

|  |
| --- |
| 1. **D. Co-investigator 3**
 |
|  The chief investigator must be a SUST staff member. If this application is for a student project the chief investigator must be one of the student’s supervisors |
| Name (Including Title):  | ID No |  |
| School/Area |
| Telephone/ Mobile: | Email |  |
| In the space below, explain how the researcher has sufficient skills and experience to conduct the proposed research: |

|  |
| --- |
| 1. **E. Co-investigator 4**
 |
|  The chief investigator must be a SUST staff member. If this application is for a student project the chief investigator must be one of the student’s supervisors |
| Name (Including Title):  | ID No |  |
| School/Area |
| Telephone/ Mobile: | Email |  |
| In the space below, explain how the researcher has sufficient skills and experience to conduct the proposed research: |

|  |
| --- |
| 1. **F. Co-investigator 5**
 |
|  The chief investigator must be a SUST staff member. If this application is for a student project the chief investigator must be one of the student’s supervisors |
| Name (Including Title):  | ID No |  |
| School/Area |
| Telephone/ Mobile: | Email |  |
| In the space below, explain how the researcher has sufficient skills and experience to conduct the proposed research: |

**Section 3: General Information**

|  |  |
| --- | --- |
| 2. | Does the research project have a SCRIPT project ID? |
|  | No |
|  | YES |
| Script ID: |  |
| Source: |  | Name of Source: |  |
| Funding Start date: |  | Funding End date: |  |

|  |  |
| --- | --- |
| 3.  | Please indicate the type of project: |
|  | If Other, Please specify: |

|  |  |
| --- | --- |
| 4.  | Has this project been peer reviewed? Peer reviewed means accepted by a granting body that uses a peer review process (e.g., SUST Research Center) or if the project has been approved through your Department at SUST  |
|  | NO |
|  | YES - – please provide the acceptance/BAS Committee Chair’s letter |

|  |  |
| --- | --- |
| 5.  | Does this research involve any of the researchers going overseas? |
|  | NO |
|  | YES – please provide the evidence |

|  |  |
| --- | --- |
| 6.  | Does this research involve any students going overseas? |
|  | NO |
|  | YES – describe how supervision of the student is to be effected so that due respect and protection will be accorded to participants; and describe any considerations for researcher safety: |

|  |  |
| --- | --- |
| 7.  | List the locations research will be conducted. If the research is being conducted on a SUST campus, please specify the building and room number/s. |
|  | NO |
|  | YES – please provide the evidence |

|  |  |
| --- | --- |
| 8.  | Provide a lay summary of your project. Include background, aims and hypothesis, methods, and anticipated outcomes in your summary. |

|  |  |
| --- | --- |
| 9.  | Describe how your research will have an impact on the community. |

**Section 4 – Risk and Mitigation**

|  |  |
| --- | --- |
| 10.  | Outline the potential risks to participants. If potential risks are identified, explain how this research justifies the burden and risk to participants |
| Consider illness or injury, potential side effects, but also include potential embarrassment, economic loss, exposure to prosecution, anything stressful, noxious, or unpleasant, and complaints. Ensure you address these in your Participant Information Statement. Some examples of risks/expected adverse events may include:* For a drug-intervention clinical trial there will be side effects of the drug.
* For psychological based studies risks may be psychological stress due to the assessment; there may be a potential for increased risk of suicidality or self-harm; there may be a potential for worsening of psychological disorder etc.

For data collected off Curtin campus there may be a risk that participant privacy and confidentiality may be breached if data are not transferred correctly (e.g. if not going directly from site to Curtin campus there is a risk that consent forms may be stolen). |
|  |

|  |  |
| --- | --- |
| 11.  | If you identified risks in the previous question, outline how you will mitigate the risks identified above and your plan of action for expected adverse events and other identified risks. |
| Please outline how you will mitigate the risks identified above and your plan of action for expected adverse events and other identified risks. Please also outline your plan of action for unexpected adverse events. The Human Research Ethics Office will use this information and follow this procedure should an event or complaint occur. |
|  |

|  |  |
| --- | --- |
| 12.  | Outline the potential harm or risk to researchers. |
| Outline the potential harm or risk this research exposes to the research team, and if identified how these will be mitigated and your plan of action should these risks occur. You may complete the HSEM generic risk assessment form to help identify and mitigate any potential risks this research exposes to the research team. Some examples are: • Dangers to personal safety • Research located overseas |
|  |

|  |  |
| --- | --- |
| 13.  | Outline the potential risk to the University and the research. |
| Identify the risks this research exposes to The University and to the research and how these risks may be mitigated. Some examples are: • Reputational risk to The University if the study is a controversial topic.• Loss of data due to inadequate back-up procedures.• Unable to recruit expected numbers. |
|  |

**Section 5 – Participant Recruitment and Consent**

|  |  |
| --- | --- |
| 14.  | **Are you recruiting participants?** |
|  | NO – in the space below provide information on how you will gain access to participant information, where the information is held and who are the data custodians. If participants have provided, or will provide, consent for their information to be used please describe in the space below. If participants are not providing consent for their information to be accessed, please address a waiver of consent may be applied. |
|  |
|  | YES - – please provide the acceptance/ETHICS Committee Chair’s letter |

If you are NOT recruiting participants, please skip to Question 23.

|  |  |
| --- | --- |
| 15.  | Does your research involve staff and students from Shahjalal University? |
|  | NO |
|  | YES – please provide the evidence |

|  |  |
| --- | --- |
| 16.  | Describe your target population and sample size |
|  |  |

|  |  |
| --- | --- |
| 17.  | Select how you are going to recruit participants (select all that apply). |
|  | Database/medical records | Describe the source: |  |
|  | Social media including Facebook, Yammer, LinkedIn, Twitter etc. | List: |  |
|  | Classroom or hospital or clinic or community groups etc. | List sources: |  |
|  | Snowball recruitment or word of mouth etc.  | List: |  |
|  | Print media including flyers, newspapers, newsletters, etc. | List sources: |  |
|  | Radio/television | List sources: |  |
|  | Other | Describe: |  |

|  |  |
| --- | --- |
| 18.  | Describe your recruitment process. |
|  | When you are describing your recruitment processes please indicate who is going to talk to the potential participants, how they contact the researcher, or the researcher contacts them etc. If you are using telephone calls, flyers, social media, radio announcements etc., please provide a copy of the information and/or a transcript. If you are using any form of print media (e.g. flyers, newsletters, social media etc.) you need to put the ethics approval number and the SUST logo on the document |
|  |

|  |  |
| --- | --- |
| **19.**  | **Will participants receive anything in exchange for participating in research?** |
| Include in your answer anything the participant may receive from taking part in research including cash, vouchers, entry into a prize draw, stationery, access to a study drug once the study has concluded, other goods including chocolate bars etc. References to what the participant will receive should be in the participant information statement. It is discouraged to add this information to recruitment materials. If a prize is used please indicate the prize and the chances of winning this prize in the space below and in the Participant Information Statement. Please refer to the Competitions Toolkit for further guidance on prizes. Please refer to the Payments to Participants in Research guidelines available on the ethics website. |
|  | NO |
|  | YES – in the space below detail what the participant will receive, what the value is, and when it will be received. |
|  |

**Participant consent**

|  |  |
| --- | --- |
| **20.** | **Will participants provide consent?** |
|  | NO – In the space below provide a reason as to why consent will not be obtained and how privacy and confidentiality will be maintained. ( |
|  |
|  | YES – describe the process of how you will obtain consent: |
|  |

|  |  |
| --- | --- |
| **21.**  | **Is there the potential for the participant to be subject to coercion or pressure, including perceived position of power or people in dependent or unequal relationships?** |
|  | NO |
|  | YES - describe the dependent relationship between the participants and the researcher and how it will be addressed. |
|  |  |
| **22.**  | Does the research use deception, concealment, incomplete disclosure, limited disclosure, an opt-out approach, or use of information, samples, health information etc., without the specified consent from those persons? |
| Limited disclosure/deception/concealment/incomplete disclosure is defined as not fully disclosing or describing the aims or methods of observational research in public contexts, all the way to actively concealing information and planning deception of participants. An opt-out approach is where information is provided to the potential participant regarding the research and their involvement and their participation is presumed unless they take action to decline to participate. |
|  | NO |
|  | YES - describe the method, why it is essential and how participants will be informed after the study: |
|  |  |

**Section 6 – Research Methods**

|  |  |
| --- | --- |
| **23.**  | **Describe your research methods clearly outlining your study protocol and what each participant will be required to do for the research study (You may want to attach a flow chart or Standard Operating Procedure)** |
|  |

|  |  |
| --- | --- |
| **24.**  | Does your research involve withholding from one group specific treatments or methods of learning, from which they may “benefit” (e.g. in medicine or teaching)? |
|  | NO |
|  | YES  |

|  |  |
| --- | --- |
| **25.**  | Does your research include invasive physical procedures, collection of body fluid, tissue sampling, and infliction of pain, psychological interventions, treatments, administration of drugs or other substances or use of a medical intervention device? |
|  | NO |
|  | YES  |

|  |  |
| --- | --- |
| **26.**  | Does your research use medical records where participants can be identified or linked? |
|  | NO |
|  | YES  |

|  |  |
| --- | --- |
| **27.**  | **Briefly explain your research outcomes and how do you plan to analyze the data.**Provide sufficient detail in this section to describe the data you collect, how you will analyze it and what the outcomes of the research will be |
|  |

|  |  |
| --- | --- |
| **28.**  | **Does your research involve exposing participants to radiation?**Eg. radioisotopes, lasers, x-rays, microwaves, ultra-violet radiation |
|  | NO |
|  | YES- You will need to contact the respective Radiation Safety department at SUST Medical Centre and receive approval prior to submitting ethics. |

|  |  |
| --- | --- |
| **29.**  | **Does your research use health information (including biospecimens) that may reveal information that may be important for the health or future health of the donor(s), their blood relatives, or their community?** |
|  | NO |
|  | YES- – indicate how you will address the management of any proposed disclosure or non-disclosure of that information: |
|  |

**Section 7 – Specific Participant Groups**

**Children and Young People**

|  |  |
| --- | --- |
| **30.**  | **Does your research involve children and young people?**Mature minors are defined as a child under the age of 18 years who is assessed as being competent to consent by virtue of the fact that they fully comprehend the nature, consequences and risks of the proposed research. |
|  | NO |
|  | YES- Mature minorsIn the space below please describe: • Why these participants are considered mature minors and why parental consent is not required; and • Address why participation of children or young people is indispensable to this research; and how this study has been designed to be appropriate for children or young people: |
|  |
|  | YES -children not considered mature minors In the space below address why participation of children or young people is indispensable to this research; and how this study has been designed to be appropriate for children or young people: |
|  |

**Highly Dependent or Medical Care**

|  |  |
| --- | --- |
| **31.**  | Does your research involve people highly dependent on medical care who may be unable to give consent? |
| People who are highly dependent on medical care refer to those who may be unable to give consent. This may be people who are patients in the emergency department or intensive care, unconscious people, or people in terminal care. |
|  | NO |
|  | Yes - Describe how participation in research is in the best interest of the participant. |
|  |

**Cognitive Impairment, Intellectual Disability, Mental Illness**

|  |  |
| --- | --- |
| **32.**  | **Does your research involve people with a cognitive impairment, an intellectual disability, or a mental illness?** |
|  | NO |
|  | Yes - describe the nature of the intellectual or mental impairment e.g. permanent, temporary or fluctuating: |
|  |

**Illegal Activities**

|  |  |
| --- | --- |
| **33.**  | **Does your research involve people who may be involved in illegal activities?** |
| indicating future illegal activity. Such research may:♣ be intended to study, and perhaps to expose, illegal activity;♣ be not specifically intended to discover illegal activity, but likely to do so;♣ discover illegal activity inadvertently and unexpectedly. |
|  | NO |
|  | Yes - justify how the risk of discovery of illegal activities is justified by the benefits of the research: |
|  |

**Research involving participants in other countries**

|  |  |
| --- | --- |
| **34.**  | Does your research involve participants in other countries? |
|  | NO– skip to question 35. |
|  | YES- please respond to the questions below |

|  |  |
| --- | --- |
| **34a.**  | **Is there an ethics approval process in the country you intend to do the research?** |
|  | NO |
|  | Yes - in the space below describe if these processes are mandatory (as opposed to voluntary); how they function, what are the values and principles on which they rely and do they require reporting of the Bangladeshi review body approval? |
|  |

|  |  |
| --- | --- |
| **34b.**  | **Is a local, readily accessible contact available to participants to receive responses, questions and complaints about the research?** |
|  | NO- justify why a local contact will not be available to participants to receive responses, questions, and complaints about the research: |
|  |
|  | YES–describe: |
|  |

|  |  |
| --- | --- |
| **34c.**  | **Address any cultural sensitivities that need to be taken into account in designing and implementing the research.** |
|  |

**Research involving non-Bengali speakers (Ethnic People)**

|  |  |
| --- | --- |
| **35.**  | Does your research involve participants whose primary language is not Bangla? |
|  | NO– skip to question 36. |
|  | YES- in the space below describe what steps will be taken to ensure the participants provide informed consent, and that they fully understand the study requirements and their rights. |
|  |

**Section 8 – Conflicts of Interest**

|  |  |
| --- | --- |
| **34b.**  | **Are there any potential conflicts of interest?** |
| Specific to researchers, conflict of interests may include: ♣ the research is sponsored by another person or entity with which the researcher has an affiliation or a financial involvement. ♣ the researcher may benefit, directly or indirectly, from any inappropriate dissemination of research results (including any delay in or restriction upon publication of such results). ♣ the researcher may personally benefit, directly or indirectly, from the use of University resources in conducting University research. ♣ the researcher conducts a clinical trial which is sponsored by any person or organization with a significant interest in the results of the trial. ♣ private benefits or significant personal or professional advantage are dependent on a researcher’s research outcomes. ♣ in relation to the commercialization of research, substantial benefits for a researcher arise from collaborations and relationships with industry in the licensing and marketing of research discoveries and in the creation of spin-off companies. |
|  | NO |
|  | YES – –in the space below describe the potential conflicts of interest: |
|  |

**Section 9 – Attachment**

Please use the checklist below for attachments you may be required to include as part of your application:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | N/A | NO | YES | Version | Date |
| Peer review documents |  |  |  |  |  |
| Protocol/research proposal |  |  |  |  |  |
| Participant Information statement and consent form/s |  |  |  |  |  |
| Parent Information statement and consent form/s |  |  |  |  |  |
| Child Information statement and assent form/s |  |  |  |  |  |
| Questionnaires/survey instruments (list below) |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Translations where languages other than English are used |  |  |  |  |  |
| Recruitment materials (list below) |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Approval from the Radiation Safety Authority |  |  |  |  |  |
| Investigator brochure or Product Information (for drug intervention studies) |  |  |  |  |  |
| Research Data Management Plan |  |  |  |  |  |
| Working with Children |  |  |  |  |  |

|  |
| --- |
| NOTES1. In the footer of all your documents (e.g. protocol, recruitment material, information statements and consent forms, questionnaires etc.) you should include: • Name of the document • Version number • Date 2. Refer to the guidelines for Participant Information Statements and Consent Forms. Remember to include a phrase similar to the following: Shahjalal University Human Research Ethics Committee (HREC) has approved this study (HREC number XX/XXXX). Should you wish to discuss the study with someone not directly involved, in particular, any matters concerning the conduct of the study or your rights as a participant, or you wish to make a confidential complaint, you may contact the Ethical Board Director on ……. or the Director of the Research Centre, SUST Research on ……. or email…...  |

***School of Management and Business Administration***

**Research Ethics guidelines of School of Management & Business Administration**

**Committee name: Institutional Ethical Committee for Business Research**

**1. Harm to participants**

Research that is likely to harm participants is regarded by most people as unacceptable. But what is harm? Harm can entail a number of facets: physical harm; harm to participants’ development or self-esteem; stress; harm to career prospects or future employment; and ‘inducing subjects to perform reprehensible acts’.

• valuable personnel files, several participants experienced severe emotional reactions, including mental breakdown.

• Many of the participants in the Milgram experiment on obedience to authority experienced high levels of stress and anxiety as a consequence of being incited to administer electric shocks. The Academy of Management (AoM) Code of Ethical Conduct states that it is the responsibility of the researcher to assess carefully the possibility of harm to research participants, and, to the extent that it can be, the possibility of harm should be minimized. Similar sentiments are expressed by the Market Research society (MRS’s )Code of Conduct, which advocates that ‘the researcher must take all reasonable precautions to ensure that respondents are in no way directly harmed or adversely affected as a result of their participation in a marketing research project’. A further area of ethical consideration relates to the possibility of harm to the researcher, an issue that was introduced in Tips and skills ‘Safety in research’ . In addition to the possibility of physical or emotional harm through exposure to a fieldwork setting, certain research methods, such as auto-ethnography, may carry a greater risk of emotional or professional harm to the researcher because the researchers’ own personal self-disclosures constitute the basis for the analysis . If this analysis is made public, a great deal of sensitive, personal information pertaining to the researcher is placed in the public domain. The anonymity of the researcher thus cannot be maintained.

Sample sizes in specialized areas may be very small to the point where employees themselves could be identified. If there is a reasonable risk of an employee being identified, due to the sample size of the population or sub-population being covered, the employee must be informed of this risk at the beginning of the interview and given the opportunity to withdraw.

**2. Lack of informed consent**

 The issue of informed consent is in many respects the area within business research ethics that is most hotly debated. The bulk of the discussion tends to focus on what is variously called disguised or covert observation. Such observation can involve covert participant observation , or simple or contrived observation , in which the researcher’s true identity is unknown. The principle means that prospective research participants should be given as much information as might be needed to make an informed decision about whether or not they wish to participate in a study. Covert observation transgresses that principle, because participants are not given the opportunity to refuse to cooperate. They are involved whether they like it or not. The principle of informed consent also entails the implication that, even when people know they are being asked to participate in research, they should be fully informed about the research process. As the AoM Code of Ethical Conduct suggests:

It is the duty of Academy members to preserve and protect the privacy, dignity, well being, and freedom of research participants. This duty requires both careful research design and informed consent from all participants . Informed consent means explaining to potential participants the purposes and nature of the research so they can freely choose whether or not to become involved. Such explanations include warning of possible harm and providing explicit opportunities to refuse to participate and to terminate participation at any time. Because students and employees are particularly subject to possible coercion, even when unintended, special care must be taken in obtaining their informed consent.

Similarly, the MRS Code of Conduct states that informed consent means that respondents should be told, normally at the beginning of the interview, if observation techniques or recording equipment are to be used.

• It is extremely difficult to present prospective participants with absolutely all the information that might be required to make an informed decision about their involvement. In fact, relatively minor transgressions probably pervade most business research, such as deliberately underestimating the amount of time that an interview is likely to take so that people are not put off being interviewed, and not giving absolutely all the details about one’s research for fear of contaminating people’s answers to questions.

• In ethnographic research, the researcher is likely to come into contact with a wide spectrum of people, and ensuring that absolutely everyone has the opportunity for informed consent is not practicable, because it would be extremely disruptive in everyday contexts. Also, even when all research participants in a certain setting are aware that the ethnographer is a researcher, it is doubtful whether they are all similarly (let alone identically) informed about the nature of the research.

There are serious ethical dangers in the use of covert research but covert methods may avoid certain problems. For instance, difficulties arise when research participants change their behavior because they know they are being studied. Researchers may also face problems when access to spheres of social life is closed to social scientists by powerful or secretive interests. However, covert methods violate the principles of informed consent and may invade the privacy of those being studied. Participant or non-participant observation in non-public spaces or experimental manipulation of research participants without their knowledge should be resorted to only where it is impossible to use other methods to obtain essential data. In such studies it is important to safeguard the anonymity of research participants. Ideally, where informed consent has not been obtained prior to the research it should be obtained post-hoc.

**3. Invasion of privacy**

 This third area of ethical concern relates to the issue of the degree to which invasions of privacy can be condoned. The right to privacy is a tenet that many of us hold dear, and transgressions of that right in the name of research are not regarded as acceptable. The MRS guidance is clear: ‘the objectives of any study do not give researchers a special right to intrude on a respondent’s privacy nor to abandon normal respect for an individual’s values’. Privacy is very much linked to the notion of informed consent, because, to the degree that informed consent is given on the basis of a detailed understanding of what the research participant’s involvement is likely to entail, he or she in a sense acknowledges that the right to privacy has been surrendered for that limited domain. Of course, the research participant does not abrogate the right to privacy entirely by providing informed consent. As we have seen, when people agree to be interviewed, they will frequently refuse to answer certain questions on whatever grounds they feel are justified. Often, these refusals will be based on a feeling that certain questions delve into private realms or cover topic areas that they find sensitive and they do not wish to make these public, regardless of the fact that the interview is conducted in private. However, the MRS acknowledges that, although there are some topics that can be judged sensitive to everyone, because of the nature of the subject, it is impossible for the researcher to know beforehand which topics may be sensitive to a particular individual. It therefore recommends that the researcher ‘treat each case sensitively and individually, giving respondents a genuine opportunity to withdraw’. Covert methods are usually deemed to be violations of the privacy principle on the grounds that participants are not being given the opportunity to refuse invasions of their privacy. Such methods also mean that they might reveal confidences or information that they would not have revealed if they had known about the status of the confidant as researcher. The issue of privacy is invariably linked to issues of anonymity and confidentiality in the research process, an area that has already been touched on in the context of the question of whether or not harm comes to participants. The BSA Statement forges this kind of connection: ‘The anonymity and privacy of those who participate in the research process should be respected. Personal information concerning research participants should be kept confidential. In some cases it may be necessary to decide whether it is proper or appropriate to record certain kinds of sensitive information.’ Invasion of privacy can also be a particular issue when dealing with certain kinds of data, such as photographs. Raising issues about ensuring anonymity and confidentiality in relation to the recording of information and the maintenance of records relates to all methods of business research. In other words, while covert research may pose certain kinds of problem regarding the invasion of privacy, other methods of business research are implicated in possible difficulties in connection with anonymity and confidentiality.

**4. Deception**

Deception occurs when researchers represent their research as something other than what it is. The AoM Code of Ethical Conduct states: Deception should be minimized, and, when necessary, the degree and effects must be mitigated as much as possible. Researchers should carefully weigh the gains achieved against the cost in human dignity. To the extent that concealment or deception is necessary, the researcher must provide a full and accurate explanation to participants at the conclusion of the study, including counseling, if appropriate. Deception in various degrees is probably quite widespread in much research, because researchers often want to limit participants’ understanding of what the research is about so that they respond more naturally to the experimental treatment. Indeed, some ethical codes appear to condone the strictly bounded use of deception, in order to preserve the naturalness of the data. For example, in the section on informed consent it was mentioned that the MSR Code of Conduct states that respondents should be told at the beginning of an interview if observation techniques or recording equipment are to be used. However, if it is felt that this knowledge might bias the respondent’s subsequent behavior, the respondent may be told about the recording at the end of the interview. They should then be given the opportunity to see or hear the relevant section of the record, and, if they so wish, ‘the record or relevant section of it must be destroyed or deleted’. The ethical objection to deception seems to turn on two points. First, it is not a nice thing to do. While the SRA Guidelines recognizes that deception is widespread in social interaction, it is hardly desirable. Secondly, there is the question of professional self-interest. If business researchers became known as snoopers who deceived people as a matter of professional course, the image of our work would be adversely affected and we might experience difficulty in gaining financial support and the cooperation of future prospective research participants. As the Social Research Association (SRA) Guidelines puts it: It remains the duty of social researchers and their collaborators, however, not to pursue methods of inquiry that are likely to infringe human values and sensibilities. To do so, whatever the methodological advantages, would be to endanger the reputation of social research and the mutual trust between social researchers and society which is a prerequisite for much research. One of the chief problems with the discussion of this aspect of ethics is that deception is, as some writers observe, widespread in business research.

**5. Data management**

The routine collection and storing of digital data and the practices of data sharing raise new concerns about confidentiality and other ethical issues. They raise questions about the extent to which information can legitimately be used for research purposes that may be different from the original reason for collecting the data. This issue focuses on who owns the data and under what circumstances people are entitled to use it. In obtaining informed consent from research participants, any long-term preservation and sharing plans should be made explicit, so these decisions need to be made at the outset of a project. A good source of advice on the management and sharing of data is the UK Data Archive (2009), which states: The ease, with which digital data can be stored, disseminated and made accessible to secondary users via the internet means that many institutions embrace the sharing of research data to increase the impact and visibility of their research. As this statement highlights, it is increasingly common for researchers to be encouraged to make their data available to the wider scientific community so that maximum potential benefit may be gained from it. This raises issues relating to data security, the extent to which data need to be protected from unauthorized access or usage, particularly if they contain personal information relating to individuals, such as individuals’ names, addresses, occupations, or photographs. The specific piece of legislation that determines the extent to which personal data may be used for research purposes in the UK is the 1998 Data Protection Act. Common techniques for enhancing security include separating personal identifiers from expressions of opinion and storing them separately. The physical as well as technical security of data should be attended to—for example, by keeping filing cabinets and offices containing data locked and having password-protected databases. There is a further category in the Data Protection Act that relates to sensitive personal data, such as information about a data subject’s political or religious beliefs, ethnic origin, or whether he or she belongs to a trade union. This type of data is more rigorously protected, and there is greater onus on the researcher to obtain explicit, usually written, consent from data subjects for the processing of this type of personal data. However, the Act does provide for certain exemptions in the case of personal data that are collected for research purposes—namely, that, where personal data are processed for research that is not likely to cause damage or distress to any of the data subjects concerned, they may be kept and further processed at a later stage for other purposes. Additionally, as long as the results of the research are not published in any form that identifies any particular data subject, respondents do not have right of access to the data. Because the legislation surrounding data protection varies from country to country, the RESPECT project set out to identify some common principles for European researchers to bear in mind when dealing with data protection issues. This involved a group of legal specialists who reviewed the existing EU legislation and came up with a common set of guidelines for researchers to follow in dealing with this issue. These guidelines, which are extremely detailed and run for over eighty pages, can be viewed in full at the following address: www.respectproject.org /data /415data.pdf (accessed 23 July 2010) The length and detail of this report highlights the complexity of this issue, for which researchers may be advised to take legal advice. However, it is worth highlighting three of the recommendations that the authors of the report make. These include: • that researchers draft an outline of the processing operations (this is not limited to electronic processing) involved in their use of the data before they start to process it, so they can assess the legality of their usage in advance, rather than perform the operations and then find out afterwards whether or not they are permitted to use the data in this way. This point highlights the potential seriousness of using data unlawfully, for which criminal or administrative sanctions may be applied; • that researchers should decide who is the controller of the data and thus responsible for its usage, and on the basis of this determine which national legislation applies to their study. This is a particular issue in situations involving a group of researchers working together on a research project but based in different countries. This decision also depends on where the data processing will be carried out; • that prior to the processing the researcher should define who will be the data subjects and take precautions to respect their rights in relation to the data

**6. Copyright**

A further issue affected by legal considerations is copyright. Copyright is an intellectual property right that protects the owner of copyright from unauthorized copying. Most research publications, reports, and books, as well as raw data such as spreadsheets and interview transcripts, are protected by copyright. For employed researchers, the first owner of copyright is usually the employer. However, many universities waive this right in relation to research data and publications and give it to the researcher. Some researchers use Creative Commonslicences, which allow the creators of works to waive some of their rights in order to allow their work to be used more freely. The UK Data Archive provides a very helpful explanation of the situation regarding copyright: In the case of interviews, the interviewee holds the copyright in the spoken word. If a transcription is a substantial reproduction of the words spoken, the speaker will own copyright in the words and the transcriber will have separate copyright of the transcription. (UK Data Archive 2009: 23) The important thing to remember is that, if you want to share your data with other researchers, you will need to get copyright clearance from the interviewee for this at the time of the interview. There are also particular copyright issues pertaining to the use of visual data. For example, in order to reproduce a photograph in publication, consent may be required from the subject in the photograph as well the person who took it, who is usually the first owner of copyright; in such cases copyright is jointly shared.

**7. Reciprocity and trust**

It is argued elsewhere that ethics codes increasingly emphasize the importance of openness and honesty in communicating information about the research to all interested parties. Although this issue is related to the ethical principles of informed consent and avoiding deception discussed above, it goes further than these existing principles in placing the responsibility on researchers for taking action that helps to overcome the power inequalities between themselves and research participants, and for ensuring that the research has benefits for them both. For example, the Economic and Social Research council (ESRC) Research Ethics Framework makes frequent mention of the need to communicate benefits to research participants. At its most advanced, this incorporates the concept of reciprocity, the idea that the research should be of mutual benefit to researcher and participants and that some form of collaboration or active participation should be built into the research project from the outset. This encourages a view of the research relationship as a mutually beneficial exchange between researcher and participants who see each other as moral beings and enforce on each other adherence to a set of agreed-upon moral norms. It also resonates with developments in qualitative research that have sought to re-conceptualize researcher–subject relationships.

**8. Religious and Political sensitive issues:**

Religion and politics play a predominant role in our society. However, this affinity for religion and political issues has often been exploited in an unethical manner. Therefore, any researcher wants to conduct any research related to religious and political issues. They should follow the ethical guidelines so that they continue the political and religious harmony.

**Institutional Ethical Committee for Business Research**

**School of Management&Business Administration, Shahjalal University of Science & Technology, Sylhet 3114, Bangladesh**

**Application for Ethical Clearance**

### PART A

1. Principal Investigator(s) name and address:

2. Co-investigator(s) name and address (if any):

3. Place of the study/Institute(s):

4. Title of the study:

5. Type of research involved:

6. Duration of the study with possible initiation date:

7. Research budget and Funding agency (if available):

Signature

Name and Designation of Investigator

Date:

Place:

\*The filled in Part A, Bhaving required information (2 copies) should be sent to:- Head of the Institutional Ethical Committee at the School Management & Business Administration, Shahjalal University of Science and Technology, Sylhet 3114

### PART B

1. Study Title:

2. A brief study plan including aims, background, and methodology (max 400 words):

3. Strictly follow the guidelines which have given in ethical guidelines as Harm to participants,Lack of informed consent, Invasion of privacy, Deception, Data management,Copyright, Reciprocity and trust,Religious and Political sensitive issues

4. Rationale for include above issues (max 100 words):

11. Additional information (if any):

### Investigator’s Declaration

1. I certify that I have determined that the research proposal herein is not unnecessarily duplicative of previously reported research.

2. I certify that, I am qualified and have experience in the experimentation on animals/ human subjects.

3. Standard procedure will be followed for sample collection and in experiments.

4. I will obtain approval from the Ethical Committee before initiating any significant changes in this study.

5. I certify that, I will not initiate the study unless received approval from the Ethical authority in writing. Further, I certify that I will follow the recommendations of the Ethical Committee

Signature

Name of Investigator

Date:

***General Consent Form***

**CONSENT FORM**

I have read the information sheet and understand the purpose of the study and have been given the opportunity to ask any related questions. I understand that I may withdraw from the interview at any time.

I understand that all information provided by me is strictly confidential. Any published material will not include participant’s name or other identifying information. I understand that the interview session will be taped and/or videotaped for the purpose of facilitation and analysis. The tapes/videotapes will be stored in a locked cabinet for the duration of the study, after which they will be erased. I understand that the written records will be kept for a period of 5 years in a locked cabinet at Shahjalal University of Science & Technology, Sylhet, Bangladesh.

On the basis of the above, I agree to participate in this study.

Name :……………………………………………………………………………..

Signature :………………………………………………………………………………

Date :……………………………………………………………………………….

***Ethical Clearance Certificate***



SHAHJALAL UNIVERSITY OF SCIENCE & TECHNOLOGY

ETHICAL CLEARENCE CERTIFICATE

Certificate Reference Number: …………………………….

Project Title: ………………………………………………….

Nature of Project:

Principal Researcher:

Supervisor:

Co-supervisor (s):

 On behalf of the Shahjalal University of Science & Technology Research Ethics Board (SREB) I hereby give ethical approval in respect of the undertakings contained in the above-mentioned project and research instrument(s). This project was placed before the Faculty Ethical Committee and has been approved as there is no objection to hold this project work.Should any other instruments be used, these require separate authorization. The researcher (s) may therefore commence with the research as from the date of this certificate, using the reference number indicated above.

Please note that the SREB must be informed immediately of

• Any material changes in the conditions or undertakings mentioned in the document

• Any material breaches of ethical undertakings or events that impact upon the ethical conduct of the research

The Principal Researcher must report to the SREB in the prescribed format, where applicable, annually, and at the end of the project, in respect of ethical compliance.

The SREB retains the right to

•Withdraw or amend this Ethical Clearance Certificate if

o Any unethical principal or practices are revealed or suspected

o Relevant information has been withheld or misrepresented

o Regulatory changes of whatsoever nature so require

o The conditions contained in the Certificate have not been adhered to

• Request access to any information or data at any time during the course or after completion of the project.

The Ethics Committee wished you well in your research.

Yours sincerely

Name of the Director of SREB

--th ---------- 202

The completion of the comprehensive research ethics guidelines of Shahjalal University of Science and Technology was possible by the active participation of the following respectable members of SUST Ethical Committee formed by the 150th Academic Council-

|  |  |  |
| --- | --- | --- |
| Si No | Name | Signature |
| 01 | Professor Dr. S M Abu Sayem, Convener of the committee and Dean School of Life Sciences, SUST. |  |
| 02 | Professor Dr. Md. Rashed Talukder, Dean School of physical Sciences, SUST. |  |
| 03 | Professor Dr. Romel Ahmed, Dean School of Agriculture & Mineral Sciences, SUST. |  |
| 04 | Professor Dr.Mushtaq Ahmed, Dean School of Applied Sciences, SUST. |  |
| 05 | Professor Dr. Md. Faisal Ahmmed, Dean School of Social Sciences, SUST. |  |
| 06 | Professor Dr. Md. Monirul Islam, Dean School of Management & Business Sciences, SUST. |  |
| 07 | Professor Dr. Md. Shamsul Haque Prodhan, Chairmam, Department of Genetic Engineering and Bitechnology, SUST. |  |
| 08 | Dr. Shamim Ahmed, Chairmam, Department of Biochemistry & Molecular Biology, SUST. |  |
| 09 | Professor Dr. S M Saiful Islam Department of Chemistry, SUST. |  |
| 10 | Professor Dr. Nazia Chawdhury ,Chairman, Department of Physics, SUST. |  |
| 11 | Professor Dr. Mohammad Abdul Munim Joarder , Department of Economics, SUST. |  |
| 12 | Professor Dr. Md. Abul Kalam Azad , Department of Genetic Engineering and Biotechnology, SUST. |  |
| 13 | Professor Dr. Md. Abdullah Al Mamun , Department of Genetic Engineering and Biotechnology, SUST. |  |
| 14 | Professor Dr. Asif Iqbal , Department of Genetic Engineering and Biotechnology, SUST. |  |
| 15 |  Dr Md. Ashrafuzzaman ,Associate Professors, Department of Genetic Engineering and Biotechnology, SUST |  |
| 16 | Dr. Md. Jahangir Alam, Associate Professors, Department of Genetic Engineering and Biotechnology, SUST. |  |
| 17 | Dr. Md. Nurshad Ali, Assistant Professors, Department of Biochemistry & Molecular Biology, SUST. |  |