



The Papua New Guinea
University of Technology

Academic Board

**Postgraduate Studies, Research and Innovation Committee
(PSR&IC)**

Research Management Policies and Guidelines

November 2021

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FOREWORD

I warmly welcome this opportunity to kindly write this short forward message for this important Research Management Policies and Guidelines for the Papua New Guinea University of Technology (PNGUoT).

Research is one of the key functions of PNGUoT apart from teaching, administration and community engagement. Hence, the research function of the University, over the years was guided by research rules that guide all research activities at the University. The 1986 Guideline for Research Committee was revised in 1994 to promote various research activities of the University including consideration and approval of research project grants. Since then, there hasn't been any major commitments to revise the research guidelines.

In 2020, the former Postgraduate Committee and Research Committee have been subsumed into a new committee called Postgraduate Studies, Research & Innovation Committee (PSR&IC). In 2021, the PSR&IC has reviewed and revised the research policy document in line with its Strategic Plan 2020 – 2024 and beyond, and its mission to grow world class technocrats through high quality experiential teaching, research and ardent application of science, technology and innovation.

This “Research Management Policies and Guidelines”, is a document that promotes research initiatives and activities that can lead to enhance research culture at PNGUoT. The document realigns itself with the National Code of Research Ethics and national development agenda and priority areas. It promotes research and innovation initiatives and activities at the department and research centre levels in a number of key areas including research seminars and postgraduate research. The policy document is not by any means complete in itself but contents of it can reviewed and revised as triggered by dynamics of needs and circumstances as time goes by.

A vote of thanks to all heads of department, coordinators of research centres, members of the Postgraduate Studies, Research and Innovation Committee (PSR&IC), and professional support staff for playing different roles to contribute to the research and innovation activities of the University. I must thank the Dean of the Postgraduate School, Professor Akanda, for providing key leadership over the years in the research and postgraduate activities of the University including compiling the PNGUoT Research Report each year when it began in 2013. I also wish to thank the Vice Chancellor, Dr Ora Renagi, and his management team for their continued support by providing overall leadership and making funds available for research and innovation activities at the University.

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Dr Garry Sali
Association Professor & DVC

PREFACE

The Papua New Guinea University of Technology (PNGUoT) produced its first *Research Committee Guidelines* in 1986. The Guidelines were revised in 1994 to promote research activities in line with the Mission of the University. The University emphasized the following activities for the promotion of research.

- Weekly Research Seminars
- Quarterly Research Newsletter: *Research NIUS*
- Short-Term Research Fellowships
- Consideration and approval of Research Project Grants
- Review and approval of Conference Funding for the presentation of papers

The research activities mentioned above suffered some setbacks due to the University's financial problems since the floating/devaluation of the PNG currency, the Kina, in 1995. In real terms, the State grant to the university reduced to just about 50% at one stage. As a result, there had been a high turnover of qualified academic staff, mainly expatriate academics. Some national staff also left the University for jobs in an industry that offered better remuneration packages. Consequently, *Research NIUS* was discontinued due to lack of contributions from academics, Short-Term Fellowship could not be implemented due to a shortage of funds, and research grants and conference funding were severely limited. In pursuance of the strategic goal of scholarship character improvement of the University, research, and postgraduate teaching activities gradually improved since 2005 due to better State grants and a more favorable exchange rate. Academic departments were encouraged to offer postgraduate programs, including those based on research. The introduction of the Graduate Assistantship Program (GAP) and revision in 2018 to attract talented first degree and Master degree holders to undertake postgraduate studies and revision of research and conference funding are among some of the initiatives undertaken by the Research Committee since 2005. In recent years the University has witnessed increasing budgetary allocation from the Government, and so it has become expedient to review and revise the research policy document. Also, the Research Committee has been renamed as Postgraduate Studies, Research and Innovation Committee (PSR&IC). The PSR&IC has reviewed and revised the research policy document in 2021 to promote research activities leading to enhanced research culture in the University in line with the PNGUoT Strategic Plan (2020 – 2024), emphasizing national priority areas and alignment of the policy with the **National Research Code of Ethics**. The new guidelines stipulate developing a corporate research plan, promoting departmental seminars, expanding excitement and encouragement in participation in the weekly University Seminar series, increasing research funding for postgraduate research and capstone projects, and allowing GAP scholars to attend in-country conferences increased level of conference funding. The academic departments will be required to identify research focus areas relevant to Papua New Guinea. The PSR&IC also formed a sub-committee on Research and Innovation and is tasked to develop a roadmap and strategic framework for cutting-edge research and innovation and how this can be leveraged to provide solutions for society at large, and to foster original and critical thinking to empower students and staff to be creative and entrepreneurial. The University will facilitate training young researchers in research methodology, preparation of project concept paper (PCP), scientific writing, etc.

The Academic Board has approved the revised policy.

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Professor Shamsul Akanda, Ph D.
Dean, Postgraduate School, and
Chairman, Postgraduate Studies, Research and Innovation Committee.

ACKNOWLEDGEMENTS

Acknowledgments are due to Dr. William Kojo Modey (Research Committee member), Associate Professor, Department of Applied Sciences, and Acting Director for the Environmental Research and Management Centre for his revision of the Research Management Policy to align it with the National Research Code of Conduct. The leadership of Dr. Augustine Moshi, Pro Vice-Chancellor (Academic) and the former Chairperson of the Research Committee, was phenomenal. The contributions of the Research Committee Members, namely Prof. C. Gonduan, Prof. T. Okpul, Dr. G. Arpa, and the late Dr. Mex Peki, are highly appreciated.

Due to time constraints, this draft could not be sent to the Academic Board in 2020 for approval. In the meantime, the Committee was renamed **Postgraduate Studies, Research and Innovation Committee (PSR&IC)** to align with the PNGUoT Strategic Plan 2020-2024 with new membership. Therefore, the Committee again decided to send the draft to the new members for their inputs. The critical editorial reviews and comments from Prof. C. Gonduan, Prof. J. Babarinde, Dr. R. Orake, Dr. M. Betasolo, Dr. P. Michael, Dr. M. Kavi, Dr. K. Ail, and Mr. A. Anugu is highly commended.

To have an independent review of the policy document, a Sub-Committee, with Prof. G. Danbaro, Prof. J. Babarinde, Dr. R. Orake, Dr. M. Betasolo, Dr. S. Syed, and Dr. L. Yamarak was formed. The valuable comments and suggestions from the sub-committee members further improved the policy document making it more robust and flexible to meet the needs for the implementation of the Strategic Plan towards development of sustainable research culture at the PNGUoT. The contributions from the sub-committee members are hereby gratefully acknowledged.

Furthermore, the PSR&IC highly appreciates Professor Teatulohi Mataihano, Chairman & Chief Executive Officer (currently, Vice Chancellor of the Pacific Adventist University) , and Dr. Kulala Mulung, Acting/Chairman, PNG Research, Science and Technology Secretariat, for providing a copy of the National Research Code of Conduct.

Finally, the constructive suggestions from the Heads of Departments and other academic staff are gratefully acknowledged.

In closing, the Senior Executive Management has substantially increased the research budget, which demonstrates the commitment of the university to strengthen the research culture at the PNGUoT. The generosity of the SEMT is highly appreciated.

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Chairperson, PSR&IC

PNG UNIVERSITY OF TECHNOLOGY STRATEGIC RESEARCH PLAN 2020-2024

The PNG University of Technology (PNGUoT) was a technical college until it was elevated to University status in 1965. The University's teaching activities emphasized skills training in engineering, technology, and applied and natural sciences to supply the workforce to local industries, businesses, and government departments. However, as the University has grown in terms of the number of programs it offers and the student population, the need for postgraduate studies and research and the encouragement of technologically sound capstone projects have become more apparent. Therefore, from 2005, one of the University's strategic goals was promoting scholastic character through postgraduate studies and research. The tasks of promoting this strategic goal were vested with the Office of the Vice-Chancellor.

Postgraduate studies have picked up well, with 14 departments having PG programs at the diploma, master, and doctorate levels. Research activities are also picking up, but need further promotion, hence, the need for a strategic research plan. The plan will show a definite commitment by the University to promoting research. This policy aligns with the University's Mission, PNGUoT Strategic Plan (2020-2024), and the National Vision for 2050. The policy will be the impetus for the various departments and research centers, with revived interest in research ethics and data storage and management.

Research may be defined as the systematic and diligent search for new information. It may lead to 'discovery and interpretation of new facts or revision of accepted theories and laws, or finding practical applications of new or revised theories and laws. Research methodology may take the form of a theoretical study or experimental investigation, or a combination of both.

Vital research programs at the University will have synergy with teaching and learning at postgraduate and undergraduate levels, leading to enhanced academic quality. The University of Technology is now well suited to promote research because of its qualified staffing. Being located in Lae, the industrial hub of Papua New Guinea, the University has the advantage of close cooperation in research with many research institutions, industries, business organizations, and government agencies. Also, the University has many MOUs for collaboration with overseas universities and other agencies.

Each academic department and research center will develop its sub-plan in line with the University's Research Plan. The sub-plans will be more specific to their academic disciplines.

The academic departments' research programs need to be specific academic discipline-oriented. Thus, research topics may include those from agriculture, forestry, applied chemistry, food technology, mining and mineral processing, drilling and exploration, architectural designs and heritage, energy and power supply, telecommunication, roads and highways, surface hydrology, disaster management, earthquake resistant design, downstream processing, culture and traditions, tribal integration, land use issues, sociology, climate change and environmental sustainability, community development, leadership development, promotion of SMEs, etc. Each academic department and research centre will have distinctive focus areas where research efforts will be directed. Table 1 below outlines the University's Research Plan for the next five years.

Table 1: Strategic Research Plan; Goals and Actions

Goals	Actions	Responsibility	Comments
<p>1. Increase Research Project Funding</p>	<p>Increase PNGUoT grant allocation</p> <p>Support competitive bids for PNG RST research fund</p> <p>Increase support for academic departments to organize annual research conferences or workshops as part of the strategic plan</p> <p>Increase support for research of GAP scholars</p> <p>Increase funding from Local & National Government Departments with a focus on development projects</p> <p>Increase cooperation with international research funding agencies, universities, and organizations</p> <p>Increase cooperation with local and national, and multinational industries</p>	<p>SEM</p> <p>PSR&IC</p> <p>SEM/PSR&IC</p> <p>SEM/PG School</p> <p>Departments</p> <p>Departments</p> <p>Departments</p>	<p>Workshops will be encouraged to finalize research priorities at the departmental level by inviting relevant academics, researchers, professionals, or industries.</p>
<p>2. Improve infrastructure support for research</p>	<p>Improve IT services</p> <p>Improve library services</p> <p>Increase the budget for research equipment</p>	<p>ICTS, SEM</p> <p>Librarian/SEM</p> <p>SEM/Department</p>	
<p>3. Enhance Research Culture at PNGUoT</p>	<p>Encourage and reward publications in indexed journals</p> <p>Encourage membership of professional bodies</p> <p>Encourage departmental seminars</p> <p>Increase participation at national</p>	<p>PSR&IC/SEM</p> <p>Departments</p> <p>Departments</p>	

	<p>and selected international seminars/conferences</p> <p>Launch a journal of science and technology</p> <p>Reduce teaching load of researchers</p> <p>Encourage PG programs across all departments</p> <p>Provide training in research proposal writing for competitive grants</p> <p>Postgraduate Certificate Course in student-centered teaching</p> <p>Provide training on research methodology</p> <p>Provide training on how to write research papers</p> <p>Encourage participation in Scicom courses</p>	<p>PSR&IC/SEM</p> <p>PSR&IC</p> <p>Departments</p> <p>PG School</p> <p>TLMU/Departments</p> <p>CDS/TLMU</p> <p>TLMU/Academic Departments</p>	
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<p>4. Foster Innovation Culture</p>	<p>Create/accumulate knowledge, technology, and entrepreneurship culture towards the product, process, and service developments.</p> <p>Prepare a database with research conducted by the academic department with the possibility of further studies towards product development and/or service improvement.</p> <p>Foster original and critical thinking to empower students and staff to be creative and entrepreneurial.</p> <p>Venture to find creative staff and students to build and maintain an innovative culture in the university.</p>	<p>PSR&IC</p> <p>Sub-Committee on Innovation</p> <p>Academic Departments</p> <p>Research Centres</p>	
<p>5. Encourage Departmental Research Plans</p>	<p>Academic departments prepare a department-specific research plan</p> <p>Encourage inter-departmental research cooperation</p>	<p>Academic Departments</p> <p>Departments and Research Centres</p>	

<p>6. Engage in Private, Public partnership in Research and Collaboration</p>	<p>Increase funding from Local & National Government Departments with a focus on development projects</p> <p>Increase cooperation with international research funding agencies, universities, and organizations</p> <p>Increase cooperation with local and national, and multinational industries</p>	<p>SEM/ PSR&IC</p> <p>Academic Departments</p> <p>Research Centers</p>	
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THE PAPUA NEW GUINEA UNIVERSITY OF TECHNOLOGY

**THE POSTGRADUATE STUDIES, RESEARCH AND INNOVATION COMMITTEE
(PSR&IC) OF THE ACADEMIC BOARD.**

TERMS OF REFERENCE

The responsibilities of the PSR&IC Committee fall under three categories; postgraduate study, research, and publications. They are:

1. To formulate or review the postgraduate admission policy of PNGUoT at least once every three years.
2. To vet appointments of supervisors and thesis examiners of each postgraduate student.
3. To consider and approve examination arrangements and results for each postgraduate program and student.
4. To organize annual postgraduate students' research presentations.
5. To ensure compliance of postgraduate programs with the PNG NQF.
6. To recommend to the Academic Board names of students who are eligible to graduate with postgraduate qualifications.
7. To formulate or review the research policies of PNGUoT at least once every three years.
8. To consider and approve or reject applications for research funding
9. To consider and approve or reject applications for conference funding
10. To edit and publish PNGUoT's Annual Research Report
11. To consider and approve the objectives of all academic publications produced under the auspices of the University for dissemination beyond the University
12. To consider and approve the terms of reference of the editorial board for each academic publication of the University
13. To call for and receive reports from each editorial board for academic publications of the University
14. To consider and recommend to the Vice Chancellor's Committee for approval, an annual maximum amount of funding for each editorial board

The Committee, while acting under the above terms of reference, wishes to ensure that all research activities within the University and in associations with other research bodies or individuals outside the University are coordinated through the Committee, enabling the Committee to act as a clearing house for research information on national research policy, priorities, funding, other research being undertaken, etc., thus putting the Committee in the best position for helping researchers to begin, continue, and disseminate research results.

To help in this endeavour, the Committee has formulated a set of Research Policies (set out below) to aid the Committee in its duties and help researchers develop research projects. There also follows a set of guidelines to amplify the policy statements' intention and a list of research areas (by no means exhaustive), considered critical, from the points of view of national priority, and the role of research within this University. Also attached are conditions for using research funds, guidelines for submitting research proposals and research progress reports, and the development of a Data Management Plan (DMP).

1. RESEARCH POLICIES

- (a) That the University be committed to an active policy of research **based on the identified research needs of Papua New Guinea.**
- (b) That the Postgraduate Studies, Research and Innovation Committee will circulate the call for research proposals from departments, individuals, or groups once or twice a year using online and hard copy circulars to reach all concerned
- (c) That duplication of research be minimized, and the coordination of similar research projects be encouraged.
- (d) That research project should preferably be of an applied problem-solving nature as distinct from pure research activities.
- (e) That approved research projects will be financially supported as far as the Committee's resources permit.
- (f) That the use of outside funds for approved research be encouraged.
- (g) That national academic staff and national postgraduate students be encouraged to participate in the research program and appropriate facilities and training made available.
- (h) \That the documentation and dissemination of results from current and completed research, projects through seminars and conferences, external publications, theses, the University Reporter series, and the University Publications, be encouraged.
- (i) That the Annual Report of the Committee includes, where appropriate, articles and abstracts describing research in the University.
- (j) That where University funds and/or facilities have been used in research; leading to the application for a patent, the University be a joint patentee on a suitable partnership basis with the researcher (s) and any other authorities involved.
- (k) \The procedure of identifying research projects that the University will fund will be based on indicators, such as previous records of receiving funds from external sources; publication list; relevance to Papua New Guinea; the likelihood of industry funding in the future; knowledge generation; interdisciplinary; research group stability and funding availability.
- (l) The Postgraduate Studies, Research and Innovation Committee reserves the right to award or refuse to fund.
- (m) Postgraduate Studies, Research and Innovation Committee funding is provided to purchase capital equipment. It is then made available on the understanding that the approved research has absolute priority in the use of that equipment.

- (n) The University will not tolerate any level of plagiarism at any point of the research and publication. If caught severe disciplinary charges will be laid against any staff who plagiarises.

2. GUIDELINES FOR RESEARCH POLICIES

- (a) "That the University be committed to an active policy of research consistent with the institutional mission statement, objectives, PNGUoT Strategic Plan (2020-2024); and the identified research is of paramount importance to the needs of Papua New Guinea."

Part of this university's role in the country and community is as a centre for research activities, a store for experimental data, and a source of expert advice on technological matters. However, the priority in research must be given to the needs of this country, as identified by current human resources requirements and national development policy. To this end, information gained from research activities should lead to:

- i. the reduction of inequalities in incomes and services in Papua New Guinea;
- ii. increased income-earning opportunities of Papua New Guinea, and maximizing the growth of national income consistent with (i) above, either in the short- or long-term;
- iii. the increase of social services directly available to Papua New Guineans;
- iv. increased self-reliance by reducing dependence on foreign technological expertise, workforce, or imports;
- v. a greater understanding of effective teaching and learning processes;
- vi. a greater understanding of Papua New Guinea's cultural heritage.

Research benefits must be made available to small-scale artisan, service, and business activities using social, political, economic, and technology-appropriate tools to Papua New Guinea.

- (b) "That duplication of research effort be minimized, and the coordination of similar research projects be encouraged".

With the relatively limited funds, which it seems likely the University will have at its disposal for research in the future, these funds must be used to maximum advantage. Any duplication of research, either done within the University or outside, must be considered a waste of funds and should be avoided. In addition, more interchange of information between this University and other universities, research institutions, and Government departments is necessary. The Research Reports of the University should be given the widest possible circulation, and other researchers in Papua New Guinea should be encouraged to inform the University of their research.

Often, however, the nature of a research project is such that two or more individuals (groups) can be usefully employed in different aspects of one problem area. There is merit in grouping research under broad headings which may embrace the activities of several departments. Such **m u l t i - d i s c i p l i n a r y** projects will be encouraged; they allow a clearer view of the general direction of research efforts and the overall benefits accruing.

(c) "That research projects should preferably be of an applied problem-solving nature as distinct from pure/basic research activities".

Projects in which data-gathering, with no processing for the intended solution of a problem as the sole activity, are an area of low priority. Higher priority will be given to those projects which have the following characteristics.

- i. A research project should be prompted by a problem arising directly from the development of technology in Papua New Guinea.
- ii. The project should investigate a problem, with research findings directly and immediately applicable to a situation in Papua New Guinea.
- iii. Beneficial effects of the eventual solution of the problem should be apparent at the time of approval.
- iv. The problem should be well-defined, with the practical objectives of the research, and intended benefits are specifically and clearly defined.

(d) "That approved research projects will be financially supported."

The Committee intends to commit continuing financial support for an approved project, for the period, and up to the amounts originally approved, with the provision that regular reports are received, and measurable progress is being made (See the note below on "Guidelines for Research Progress Reports"). Thus, the Committee will make a provisional commitment to funds for future financial periods for continuing projects, subject to the available money.

(e) "That the use of outside funds for approved research be encouraged".

Because of the limited funds available in the Research Fund, researchers are encouraged to search for possible aid suppliers outside the University. Departments should find out about potential sources in their fields both within and outside of PNG. Applications for funds should come through the Postgraduate Studies, Research and Innovation Committee for its support.

(f) "That national staff and postgraduate students be encouraged to participate in the research program and appropriate facilities made available."

- i. Funding allocation will be of priority to projects undertaken by National junior academics jointly with a senior academic.
- ii. Funding allocation will be of priority to co-researchers who are national postgraduate students

of MPhil or Ph.D. under a qualified supervisor's supervision.

- (g) "That the documentation and dissemination of results from current and completed research projects through seminars and conferences, external publications, theses, and the University Research Series, and the University Publications, be encouraged."
- (i) Preliminary results should be reported as soon as possible to give as wider circulation of them as desirable.
 - (ii) **The organization of regular weekly research seminars is encouraged within the University to enable staff to be aware of the research undertaken by colleagues.**
 - (iii) Presentation of papers of importance at national and international conferences should be encouraged with financial support, in part or whole, from funds available to the University. Every endeavor should be made to obtain funding from external bodies.
 - (iv) Reciprocal arrangements between the university staff and researchers at other institutions are encouraged, whereby a free exchange of information and results is established.
- (h) "That the Annual Report of the Committee include, where appropriate, articles and abstracts describing research in the University."
- i. All types of research (peer-reviewed journals articles, conference papers, book chapters, contract research, ongoing research, consultancy, etc.) for a particular year will be listed in the Annual Report.
 - ii. Wherever possible, research should be reported in appropriate journals, and the university's acknowledgment stated for any assistance provided.
 - iii. **Copies of published articles are to be kept in the Library.**
- (i) "That where University funds and/or facilities have been used in research, leading to the application for a patent, the University be a joint patentee on a suitable partnership basis with the research worker (s) and any other authorities involved."
- (j) "The procedure of identifying research projects that the University will fund will be based on indicators, such as previous records of receiving funds from external sources; publication list; relevance to Papua New Guinea; the likelihood of industry funding in the future; knowledge generation, interdisciplinary; research group stability and funding availability."
- i. Wherever possible, all fund applications made by expatriate staff and senior national academics to PSR&IC should include some junior academics as co-researchers or proponents.
 - ii. Funding allocation will prioritize researchers who have had some years of funding from external sources.
 - iii. A list of publications on similar ongoing projects will be considered a fair indicator for Postgraduate Studies, Research and Innovation Committee funding.

- iv. Research projects relevant to benefiting Papua New Guinea, socially and economically, will be considered a fair indicator for Postgraduate Studies, Research and Innovation Committee funding.
- v. Researcher(s) ensuring the likelihood of aid funding from external sources and the overseas grant will be considered a fair indicator for Postgraduate Studies, Research and Innovation Committee funding.
- vi. Research projects that are likely to generate new knowledge or investigate knowledge gaps among established theories in practice will be considered for Postgraduate Studies, Research and Innovation Committee funding
- vii. Interdisciplinary research projects will be assessed favorably for Postgraduate Studies, Research and Innovation Committee funding.
- viii. Research groups with co- or joint researcher(s) who are National Academic staff will be favorably considered for funding by the Postgraduate Studies, Research and Innovation Committee.
- ix. Applications for support from researchers who have previously made effective use of Postgraduate Studies, Research and Innovation Committee funds will be encouraged.

3. RESEARCH PROMOTION STRATEGIES

- (a) Recognition of the University of Technology as a Centre of Research Excellence in one or more fields of intellectual inquiry.
- (b) Recognition of some members of staff of the University of Technology as researchers of international repute. The Postgraduate Studies, Research and Innovation Committee will form a sub-committee with at least one member from outside the PNGUoT to make recommendations. The RC will make the final decision in this regard.
- (c) The training of Nationals for responsible and recognized academic positions in the University.
- (d) The training of Nationals for responsible senior technical and management positions in industries and Government.
- (e) Identify and support priority research following the criteria and indicators outlined in the Policy Statement.
- (f) Establish linkages with industries within and outside PNG to obtain financial and other support for various research activities at the University.
- (g) Establish linkages with other universities to expand the research horizon of particular research activity through joint research, staff exchanges, and the use of specialists' facilities.

- (h) Host National and International Conferences at the University campus.
- (i) Encourage existing departmental journals to flourish and be sustained by strengthening the Editorial teams and recognizing research works published through those journals.
- (j) Implementation of, and participation in, the University Postgraduate Studies, Research and Innovation Committee Seminar Series.
- (k) The best journal paper (peer-reviewed) for a particular year should be awarded a prize of K1,500/, a plaque, and a certificate of recognition approved by the Academic Board. In addition, the PSR&IC will form a panel in consultation with the SEMT, the Research and Innovation Awards Committee to review and recommend the nominee to the Committee. The PSR&IC will then forward the recommendation to the AB for final approval. Finally, the selected nominee should be recognized during the Graduation Ceremony.

For multiple authors cash prize will be awarded as follows:

- (a) The single author will take 100 percent.
- (b) Two authors will take at the ratio of 60 to 40 percent.
- (c) Three authors will take at the ratio of 50 to 30 to 20 percent.
- (d) Four authors will take at the ratio of 40 to 30 to 20 to 10 percent.

Based on these criteria, the Committee awards researchers annually based on quality and the number of publications (original research publications, not review papers) done by a researcher within a year.

To be considered for this award, the interested candidates apply for awards in a letter expressing interest with the following documentation;

- (a) Formal Approval of publication by the Editor or Editorial Board
- (b) Sample of the research paper on the Journal
- (c) Rating of the paper in the Journal

4. CONDITIONS FOR THE USE OF RESEARCH FUNDS

- (a) Research funds are allocated by the Postgraduate Studies, Research and Innovation Committee for use by a specific person (s), on a particular project. The fund should not be used for other activities or on research projects other than the one approved.
- (b) Research funds will usually be allocated in grants for **travel, consumables, equipment, and research personnel**. The amount allocated for one of these items should not be transferred to another without the consent of the Committee.

- (c) Each approved research project will be given a project number, and the amount allocated will be held against this number. Claims against the allocation for a project should be made through **purchase orders** countersigned by the Chairman of the Committee. The project number should be given on the purchase order.
- (d) The amount allocated to each project for travel is intended to cover all per diem expenses.
- (e) Research funds for travel with Air Niugini should be converted to Miscellaneous Charge Orders. Any Air Niugini tickets bought from research funds and not used within a month of the issue should be returned to the Committee. After a journey, the stubs or tickets should be passed to the Executive Officer of the Committee. No further travel will be authorized until either the tickets or ticket stubs are returned.
- (f) Recipients of research funds will be required to provide written reports on their research when requested by the Committee.
- (g) Postgraduate research funding will be sent directly to Principal Supervisor (s) and not to students, except when the student is a staff member under approved PG study.
- (h) Conference funding will not be considered for staff during the first twelve (12) months of employment with the University but are encouraged to apply for research funding.
- (i) The Committee will only fund conferences for projects that are supported by the Committee and undertaken at PNGUoT. The decision to fund will depend on the nature of the impact, research priorities of PNGUoT or Papua New Guinea. The funding contributions should be such that the Committee contributes 70%, designating department 20%, and the researcher 10%. Applicants for conference attendance must indicate this clearly in the first instance.

(See Appendix I for further guidelines)

5. GUIDELINES FOR RESEARCH PROGRESS REPORTS

- (a) In the case of research projects, wholly or partially funded by the University's internal research funds, progress reports to the Postgraduate Studies, Research and Innovation Committee must be made by the recipient.
- (b) Progress reports are to be made at intervals of one semester throughout the project's total duration (whether or not the University funds the entire project).
- (c) On completion of the project, a final evaluation report needs to be submitted to the Postgraduate Studies, Research and Innovation Committee following the same format and covering the same topics as the progress reports but reporting on the whole program period.
- (d) Progress reports are to be submitted to the Executive Officer of the Postgraduate Studies, Research and Innovation Committee before each mid-semester break following the commencement of the project until its completion. Failure to submit a progress report by a recipient may result in the discontinuation of funds.

- (e) The final evaluation report is to be submitted on or before the Friday of the first week after the mid-semester break on completion of the project. Failure to submit by a recipient present on campus during that week will result in automatic ineligibility for future internal research funds.
- (f) Adequate notice (normally one month) should be given to the Postgraduate Studies, Research and Innovation Committee if a project is suspended or terminated before its completion. The Committee will then require an evaluation report to be submitted.
- (g) The report should be organized in detail to understand easily when read in conjunction with the original proposal. This will enable actual performance reported by recipients to be compared with performance targets stated in the proposal.
- (h) Reports should state changes in research strategy, methodology, personnel, program, and budget necessitated by current conditions or report adequate progress as stated in the proposal.
- (i) If delays or increases in the budget have resulted, the underlying problems (e.g., funding, personnel, the supply of materials or equipment, etc.) should be outlined.
- (j) Reports should include a general overview of progress and lists of interim results, achievements, publications arising from the project, and detailed expenditure to date. An indication should also be given to the progress of relationships with other institutions and organizations.
- (k) Reports should conclude with any requests (for carry-over of funds, etc.) necessary to be made to the Postgraduate Studies, Research and Innovation Committee.
- (l) All the reports must be written by the principal investigator or the proponent of the research. In the case of a PG project, the reports must be written by the student and submitted on approval by the Principal Supervisor.

6. IMPORTANT RESEARCH CRITERIA

- (a) The research proposed should be original and must display quality in relevance and applicability.
- (b) Research has not been published already or presented elsewhere.
- (c) The research proposed must be a research priority area relevant to Papua New Guinea.
- (d) External cooperation in terms of consultation or funding should be established for the proposed research.
- (e) The research that includes a postgraduate student will be given preference. However, in case there is no postgraduate student available, PSR&IC will still consider the proposal.
- (f) The research proposed should always display teamwork with the participation of junior colleagues.

- (g) Both research and/or conference papers must be peer-reviewed and published in an authentic journal. In the case of conference publication, the organization should be by reputed institutions, bodies, or associations academically relevant, known, or recognized by PNGUoT. In addition, the theme should be in line with the research priorities of PNGUoT or Papua New Guinea.

7. RESEARCH ETHICS

(Reference: Adopted from David B. Resnik, JD, PhD (2011). *What is Ethics in Research and Why is it Important? National Institute of Environmental Health Science, United States of America:*

<http://www.niehs.nih.gov/research/resources/bioethics/whatis/> downloaded on 6th November, 2013)

The following practices must be avoided at all times during research undertakings at PNGUoT, and violation may be deemed a deviation from ethical and acceptable research conducts. Furthermore, it may lead to forfeiture of research funding or disciplinary actions:

- (a) Publishing, or submitting the same paper in two different journals or conferences just for the sake of increasing the volume of publications. This includes alteration of contents of previously published papers or authorships to make it look like a new submission.
- (b) Submitting research works to predatory journals just for the sake of increasing your volume of publications. "Predatory journals and publishers are entities that prioritize self-interest at the expense of scholarship and are characterized by false or misleading information, deviation from best editorial and publication practices, a lack of transparency, and/or the use of aggressive and indiscriminate solicitation practices."
- (c) Not informing a collaborator, such as students, funding body, colleague(s), or the University of your intent to present a paper or publish or file a patent gives the impression that you are the sole researcher or inventor.
- (d) Including a colleague as an author on a paper in return for a favour, or otherwise when the colleague did not substantially contribute to the research and the article.
- (e) Using an inappropriate statistical technique to enhance the significance of the research.
- (f) Claiming or unauthorized use of data in a publication without substantial contribution to the research or inclusion as a senior author in the authorship without significant input.
- (g) Conducting a literature review that fails to acknowledge the contributions of other people in the field or relevant prior work fails to get written permission from publishers of critical literature.
- (h) Stretching the truth on a grant application to convince reviewers and the Postgraduate Studies, Research, and Innovation Committee that the project will significantly contribute to the field.
- (i) Overworking, neglecting, or exploiting postgraduate students without ethical consideration.
- (j) Promising a student a better grade for sexual favors or questionable and intimate relationships to get a research or publication done entirely or in part.
- (k) Making significant deviations from the research protocol approved by the Postgraduate Studies, Research and Innovation Committee concerning the research's scope and financial status. This includes but is not limited to the authorization of another person who is not a research team member to analyze and draft a manuscript and claim authorship.

- (l) Claiming ownership of data without significant contributions to any components of the research, data collection and processing.
- (m) Tampering with progress reports and acquittals of funding after attending conferences and carrying out research.
- (n) Making unauthorized copies of data, papers, or computer programs

8. RESEARCH ETHICAL PRINCIPLES

The following is a rough and general summary of some ethical principles that various codes address: (Shamoo, and Resnik, 2009). *Responsible Conduct of Research*, 2nd ed. (New York: Oxford University Press).

(a) Honesty

Strive for honesty in all scientific communications. Honestly report data, results, methods and procedures, and publication status. Do not fabricate, falsify, or misrepresent data. Do not deceive colleagues, granting agencies, or the public.

(b) Objectivity

Strive to avoid bias in experimental design, data analysis, data interpretation, peer review, personnel decisions, grant writing, expert testimony, and other aspects of research where objectivity is expected or required. Avoid or minimize bias or self-deception. Disclose personal or financial interests that may affect research.

(c) Integrity

Keep your promises and agreements; act with sincerity; strive for consistency of thought and action.

(d) Carefulness

Avoid careless errors and negligence; carefully and critically examine your work and the work of your peers. **Keep good records of research activities**, such as data collection, research design, and correspondence with agencies or journals.

(e) Openness

Share data, results, ideas, tools, resources. Be open to criticism and new ideas.

(f) Respect for Intellectual Property

Honor patents, copyrights, and other forms of intellectual property. Do not use unpublished data, methods, or results without permission. Give credit where credit is due. Give proper acknowledgement or credit for all contributions to the research. Never plagiarize.

(g) Confidentiality

Protect confidential communications, such as papers or grants submitted for publication, personnel records, trade or military secrets, and patient records.

(h) Responsible Publication

Publish to advance research and scholarship, **not just to promote your career**. Avoid wasteful and duplicative publication.

(i) Data ownership

The data collected by a student, staff or any member of a research team or group belong to the supervisor or panel of supervisors, the department, PG school, or the University. Therefore, the ownership of data must be initially discussed and made known.

(j) Responsible Mentoring

Help to educate, mentor, and advise students. Promote their welfare and allow them to make their own decisions.

(k) Respect for colleagues

Respect your colleagues and treat them fairly.

(l) Social Responsibility

Strive to promote social good and prevent or mitigate social harms through research, public education, and advocacy. In particular, research should promote gender equity and social inclusion (GESI).

(m) Non-Discrimination

Avoid discrimination against colleagues or students based on sex, race, ethnicity, religion, or other factors unrelated to their scientific competence and integrity.

(n) Competence

Maintain and improve your professional competence and expertise through lifelong education and learning; take steps to promote competence in your field of study.

(o) Legality

Know and obey relevant laws and institutional and governmental policies.

(p) Animal Care

Show proper respect and care for animals when using them in research. Do not conduct unnecessary or poorly designed animal experiments. In particular, the welfare and safety needs of animals used in research concerning husbandry practices, transportation, space requirements, nutrition and feeding, watering, and health should be met by following widely accepted standard operating procedures. Deprivation and cruelty to animals should be avoided, and animals should be allowed to display their natural instincts as much as possible.

(q) Human Subjects Protection

When researching human subjects, minimize harms and risks and maximize benefits; respect human

dignity, privacy, and autonomy; take special precautions with vulnerable populations, and strive to distribute the benefits and burdens of research fairly.

(r) Ethical Decision Making in Research

Proposal for a scientific oath as the following is indicated in the Postgraduate Studies, Research and Innovation Committee Application form and signed by the researcher to abide by every ethical research principles:-

"I will conduct my activities as a researcher with integrity and honesty; I will use my scientific knowledge and skills for the benefit of humanity and sustainable development; I will show respect for animals, the environment, and nature; I will act per research ethics, and I will not allow considerations based on ideology, religion, ethnicity, prejudices or material advantages to overshadow my ethical responsibility as a researcher."

(s) Research must promote peace.

(t) Research must create a security that is mutually beneficial for individuals, groups, and nations. Research must not violate international conventions, which are meant to ensure peace.

The following guidelines pertain to how research ethics may be exercised through good research practices:

(u) The researcher and the research institution are responsible for exercising honest research practices. Integrity, honesty, and accountability are the fundamental demands of research ethics. Research must not conceal, misrepresent, or falsify anything, whether concerning the research's planning, execution, or reporting. Following the Research Ethics Law, cases of doubt may be presented to the Postgraduate Studies, Research and Innovation Committee for investigating integrity in research.

(v) Fraud, however, must be distinguished from common mistakes in research, in that fraud implies a deliberate intent to misrepresent reality. Researchers who discover or are made aware of errors in their research must admit the mistake, rectify it and ensure that the consequences of the mistake are minimal. It is also dishonest to present that something the researcher knows or should know lacks empirical or theoretical substantiation or fails to offer crucial new knowledge. Each researcher has an independent responsibility not to accept fraudulent research practices, either on behalf of him or herself or others. The researcher has to respect the research results of others and to cite relevant works conscientiously. Plagiarism, by all means, should not be tolerated.

(w) The researcher is responsible for critically assessing whether their research could potentially benefit society, either directly or indirectly. The researcher is independently accountable for determining if the research is directly or indirectly beneficial to society and ensuring that it does not cause damage. The researcher, therefore, has to be critical when selecting research topics and research strategies.

(x) The researcher as a peer reviewer must follow the following rules: i)The researcher must abstain from acting as a reviewer if s/he has been involved in a contentious dispute with the given author

or is directly involved in a collaborative or competitive relationship with the author. ii) The researcher must when necessary, state the limits of his or her competence.

- (y) When conducting research, the researcher must follow national and international regulations on ethics and safety.
- (z) Good research practice entails that national laws and regulations are adhered to, both at home and abroad. It also entails that the researcher carefully considers whether it is ethically defensible to follow foreign statutes and regulations if such laws are of a different ethical standard than in their home country.
- (aa) Even though openness is a deep-seated norm in research, there are also areas where there is a need to guarantee the anonymity of the research subjects. This pertains to sensitive personal information cases and may have unfortunate consequences for the research subjects.

9. AUTHORSHIP POLICY

- (a) According to the PNG National Research Code of Conduct (Version 1, Updated 13 October, 2015), "authors to a scientific publication must be ethically attributed or compiled. Authors must be strictly based on substantial contributions based on a clear understanding of the concept and design of the project, analysis and interpretation of the research data, and drafting or critically revising significant parts of the work. Researchers must promote an environment of honesty, integrity, accuracy, and responsibility in the dissemination of research findings
- (b) Authorship must not be tied to one's position, relationship, or professional assistance.
- (c) It is simply not enough to have provided materials or routine technical support or to have made the measurements on which the publication is based to be an author
- (d) Substantial intellectual involvement is required to be an author
- (e) None of the following must justify including a person as an author, except when (a) above is fully satisfied:
- Being a head of the department, holding other positions of authority, or personal friendship with the authors
 - Providing a technical contribution but no other intellectual input to the project or its publication
 - Providing routine assistance in some aspects of the project
 - Acquisition of funding or general supervision of the research team
 - Providing data that has already been published or materials obtained from third parties but with no other intellectual input
- (f) Individuals that do not meet the strict authorship guidelines but provided valuable contributions to the research should be acknowledged for their appropriate contributions
- (g) When several authors are on a publication, one should be appointed as the corresponding author to manage communication about the work with publishers.
- (h) The senior author must retain a written acknowledgement of authorship in the form of an original handwritten signature. Such signed acknowledgements must also apply to published conference abstracts.
- (i) The roles of **students** on projects (undergraduate or postgraduate) must be ethically considered. Students that play a substantial role based on a clear understanding of the concept and design of the project and a significant or leading role in data collection **must be the first author on any publication arising from the data collected.**
- Merely acknowledging such students is not ethical and is a complete violation of research practices. Students must be mentored on the importance and writing of scientific manuscripts for journal publications and what it means for their careers. Researchers and supervisors must ensure that research trainees receive appropriate credit for their work
- (j) Researchers must offer authorship to all people, including research trainees, who meet the criteria for authorship listed above. That offered authorship must be accepted or declined in writing

10. SUPERVISION OF RESEARCH TRAINEES

Mentoring and supervision of research students or trainees are critical in shaping a culture of excellence and professionalism. Research trainees must receive training on research ethics as outlined in this

document. Such training must be of top priority for early completion in their enrollment. Supervisors must ensure a positive mentality essential to a culture of research excellence, professionalism, integrity, and mutual respect. To ensure these expectations,

- (i) Research trainees must be assigned to academic staff with demonstrated experience in supervision in the student's area of interest.
- (ii) The ratio of research trainees to supervisors must be reasonable for effective academic interaction. Reasonably, a Principal Investigator (PI) must not hold more than **FIVE** trainees at a time
- (iii) Induction and training of all trainees must be provided, maybe by the Teaching and Learning Methods Unit (TLMU)
- (iv) Supervisors of the trainees must ensure that training starts as soon as possible. The training must be diverse to include issues, such as discipline-based research methods, data management, personal and skills development, software demonstration, etc.
- (v) The research supervisor must guide and mentor the professional development of the trainees, and such training must include how to report the research outcomes in appropriate forums and media, such as journals, workshops, conferences, and get-togethers, etc.
- (vi) The research trainee must show a professional attitude that s/he is willing to be trained and mentored. Frequent research discussions with the supervisor must be routine and must be mutually understood and welcomed.
- (vii) The trainee and the supervisor must initially sign a resource use proforma and follow an approved and signed training plan, which is measurable. The resource proforma must show what equipment is available, what needs to be acquired, who needs to demonstrate the use of the equipment etc.
- (viii) The trainee should not wait until approached by the supervisor. The trainee must be proactive in maintaining an appropriate schedule of meetings with the supervisor
- (ix) Supervisors must have an open policy for interactions with research students

11. RESEARCH INVOLVING HUMAN SUBJECTS

All research involving humans in PNGUoT must have ethical approval from the **PNGUoT Academic Ethics and Integrity Committee**. Research must also comply with the *PNG National Research Code of Conduct and Ethics*. Failure to provide institutional assurance of compliance with these required standards for research involving human subjects may result in loss of funding or endorsement.

11.1 Use of Human Material

The use of human material, including tissue, is regulated under the National Health regulations, Medical Research Advisory Committee approval, and should follow standards set by the PNGUoT Academic Ethics and Integrity Committee

11.2 Adults Lacking Mental Capacity

Research governing intrusive research concerning adults lacking mental capacity is to be subject to approval by the PNGUoT Academic Ethics and Integrity Committee

11.3 Research Involving Minors

The protection of children who are research subjects or family to community members with whom researchers work requires researchers to uphold and promote the highest ethical and professional conduct standards. While acknowledging that local laws and customs may differ from one region to another, the Code is based on expectations guided by national and international legal standards set in Article 1 of the UN Convention of the Rights of the Child, health and welfare regulations, and the PNG Lukautim Pikinini (Child) Act 2009.

11.4 Use of Children's Images for Research

When photographing or filming a child for research-related purposes, researchers must:

- a) before photographing or filming a child, assess and make sure to comply with local traditions or restrictions for reproducing personal images
- b) before photographing or filming a child, obtain consent from the parent or guardian of the child. An explanation of how the photograph or film will be used must be provided in advance of filming
- c) ensure photographs, films, videos, and DVDs present children in a dignified and respectful manner and not in a vulnerable or submissive manner
- d) ensure images are honest representations of the context and the facts
- e) ensure file labels do not reveal identifying information about a child when sending images electronically
- f) treat the confidentiality of the children in research programs with the utmost importance and never provide a child's details to an unauthorized person(s).

11.5 Confidentiality

Researchers must guarantee confidentiality and anonymity to research participants, and such a guarantee should be respected. Such guarantees are likely to give rise to a legal obligation of confidentiality. Failure to maintain such confidentiality may lead to an action in the civil courts for a breach of confidence. In some exceptional situations, confidentiality may be broken, and information disclosed where this is in the public interest to do so.

12. RESEARCH INVOLVING ANIMALS

Research involving animals should be undertaken with clear scientific intent. There should be a reasonable

expectations that the research will:

- (i) Increase knowledge of the process underlying the evolution, development, maintenance, alteration, control, or biological significance of behavior
- (ii) Determine the replicability and generality of prior research

- (iii) Increase understanding of the species understudy
- (iv) Provide results that benefit the health or welfare of humans or other animals

Research may not be conducted until reviewed by an appropriate ethics committee, for example, PNGUoT Academic Ethics and Integrity Committee, PNG Science and Technology Secretariat, etc. It is performed following the guidelines given in the *Code for the care and use of animals for scientific purposes*.

13. MANAGEMENT OF RESEARCH DATA

A very critical aspect of research is data integrity, preservation, and maintenance. For example, in the event of an economic dispute arising from patent registration and ownership, proper preservation and maintenance of research data become appropriate forensic tools for ownership assignment. For supervisors and students, proper planning, creation, and organization of research data are essential in preparing data for thesis writing, publication in journals, and meeting requirements from funders. Research must begin with a Data Management Plan (DMP). Table 2 below lists the essential elements of a Data Management Plan. Appendix IV is a typical template to guide the writing of a Data Management Plan if required by funders or grant donors.

For quality assurance purposes, it is a requirement that all researchers must have notebooks that are used for daily entries of works done with dates, procedures, sample calculations, sample results, etc. Exhausted notebooks must be scanned and stored electronically using appropriate storage and backup and preservation and archiving policies by the University Library.

The University Library must have a process and policy to preserve and archive research data produced at the Papua New Guinea University of Technology. That policy must include a procedure for the selection of data and retention periods for such selected data. The Library should retain research data and primary materials for sufficient time to allow reference to them by other researchers and interested parties.

Table 2: Elements of a Data Management Plan for Research Projects. [Source: <https://www.icpsr.umich.edu/icpsrweb/content/datamanagement/dmp/elements.html>]

Element	Description	Recommended?
Data description	A description of the information to be gathered; the nature and scale of the data that will be generated or collected	Yes
Existing data	A survey of existing data relevant to the project and a discussion of whether and how these data will be integrated	Yes
Format	Formats in which the data will be generated, maintained, and made available, including a justification for the procedural and archival appropriateness of those formats	Yes

Metadata	A description of the metadata to be provided along with the generated data, and a discussion of the metadata standards used	Yes
Storage and backup	Storage methods and backup procedures for the data, including the physical and cyber resources and facilities that will be used for the effective preservation and storage of the research data	Yes
Security	A description of technical and procedural protections for information, including confidential information, and how permissions, restrictions, and embargoes will be enforced	Yes
Responsibility	Names of the individuals responsible for data management in the research project	Yes
Intellectual Property Rights	Entities or persons who will hold the intellectual property rights to the data, and how IP will be protected if necessary. Any copyright constraints (e.g., copyrighted data collection instruments) should be noted	Yes
Access and sharing	A description of how data will be shared, including access procedures, embargo periods, technical mechanisms for dissemination, and whether access will be open or granted only to specific user groups. A timeframe for data sharing and publishing should also be provided.	Yes
Audience	The potential secondary users of the data	Yes
Selection and retention periods	A description of how data will be selected for archiving, how long the data will be held, and plans for eventual transition or termination of the data collection in the future.	Yes
Archiving and preservation	The procedures in place or envisioned for long-term archiving and preservation of the data, including succession plans for the data should the expected archiving entity go out of existence	Yes
Ethics and privacy	A discussion of how informed consent will be handled and how privacy will be protected, including any exceptional arrangements that might be needed to protect participant confidentiality, and other ethical issues that may arise	Yes
Budget	The costs of preparing data and documentation for archiving and how these costs will be paid. Requests for	No

	funding may be included	
Data organization	How the data will be managed during the project, with information about version control, naming conventions, etc.	No
Quality assurance	Procedures for ensuring data quality during the project	Yes
Legal requirements	A listing of all relevant government or funder requirements for data management and data sharing	Yes

14. RESPONDING TO IRRESPONSIBLE RESEARCH PRACTICES

According to the Singapore statement on research integrity, "research institutions and agencies that have commitments to research should have procedures for responding to allegations of misconduct and other irresponsible research practices, and for protecting those who report such behavior in good faith." The Singapore statement on research integrity was crafted as part of the 2nd World Conference on Research Integrity held in July of 2010. The statements served as a global barometer to guide the responsible conduct of research.

Per the PNG National Research Code of Conduct (Version 1, Updated 13 October, 2015), irresponsible research practices may include, but are not limited to the following:

- i. Falsification or misrepresentation of results
- ii. plagiarism
- iii. misleading, or falsified assignment of authorship
- iv. failure to declare and manage severe conflicts of interest
- v. falsification or misrepresentation to obtain funding
- vi. researching without ethics approval as required by the PNGUoT Academic Ethics and Integrity Committee, and Postgraduate Studies, Research and Innovation Committee
- vii. risking the safety of human participants, or the wellbeing of animals or the environment
- viii. deviations from this Code that occur through gross or persistent negligence ,
- ix. willful concealment or facilitation of research misconduct by others.

If such inappropriate practices occur and are verified, actions must be taken immediately. Suppose an individual or group of persons are affected by such improper practices. In that case, written complaints can be submitted to the PNGUoT Academic Ethics and Integrity Committee or the Postgraduate Studies, Research and Innovation Committee. Serious misconduct in research can lead to severe penalties, including termination of employment. People who are the subject of such complaints must be entitled to appeal to a higher body through the University's disciplinary processes.

14.1 Breaches and Misconduct of the Research Code

The term "Breach" is used for less severe deviations from the Research Code and can appropriately and easily be remedied within the institution.

The term "Research Misconduct" is used for more serious or deliberate deviations.

A complaint or allegation relates to research misconduct if it involves all of the following:

- (i) an alleged breach of the research code
- (ii) intent and deliberation,
- (iii) recklessness or gross and persistent negligence
- (iv) serious consequences, such as false information on the public record or adverse effects on research participants, animals, or the environment.

Research misconduct includes fabrication, falsification, plagiarism, or deception in proposing, carrying out, or reporting the research results, including false authorship assignment and failure to declare or manage a severe conflict of interest. It includes avoidable failure to follow research proposals approved by the Academic Integrity Committee, particularly where this failure may result in unreasonable risk or harm to humans, animals, or the environment. It also includes the willful concealment or facilitation of research misconduct by others. Repeated or continuing breaches of the Research Code of Conduct may also constitute research misconduct, and do so where these have been the subject of previous counseling or specific direction. Proven research misconduct warrants disciplinary action. To do so;

- (i) An internal research misconduct inquiry team must be established by appointing appropriate members, including at least one member with knowledge and experience in the relevant field of research and at least one member who is familiar with the responsible conduct of research. At least one member should have experience on similar panels or have relevant experience or expertise.
- (ii) To achieve this membership composition, the University must draw from its staff.
- (iii) All members must be free from bias and conflict of interest, and the inquiry team must be independent
- (iv) The independent research misconduct inquiry team will report findings of fact to the CEO (Vice-Chancellor), or a delegated officer, of what research misconduct has occurred if any
- (v) During such inquiries, no legal representation is allowed
- (vi) Upon recommendations from the team, the University will take any necessary action(s) under its policy instruments regulating employment conditions. The University may apply any number of the 5 key principles enshrined in the Staff Code of Conduct approved by the University Council on 7th February 2020.

However, at the end of the inquiries, if the allegations are shown to be unfounded, the University should make every effort to reinstate the good reputation of the accused researcher and their associates. In pursuance to that, any persons who make mischievous complaints should face disciplinary action.

APPENDIX I

GUIDELINES AND NOTES ON THE COMPLETION OF THE APPLICATION FORM

- 1. The Postgraduate Studies, Research and Innovation Committee considers applications for assistance with conference expenses from full-time members of the university staff. Entries should be typed clearly, and all statements should be accurate and brief.**

- 2. In allocating funds for Conferences outside Papua New Guinea, the Postgraduate Studies, Research and Innovation Committee will adopt the following guidelines:**
 - (a) The prescribed application should be typed. No hand-written application will be acceptable
 - (b) Staff will not receive funds if he has received funds in the previous calendar year.
 - (c) Staff will not receive funding for more than one conference in one calendar year.
 - (d) For International Conferences, funding will not usually be provided for more than one person from the same department to attend the same conference.
 - (e) A person must make a substantial contribution (which will typically be interpreted by the Postgraduate Studies, Research and Innovation Committee as the formal oral presentation of a paper) to be eligible to receive funds. Postgraduate Studies, Research and Innovation Committee may obtain a peer review report on the proposed conference paper.
 - (f) All expenses will be paid for members of staff on national salary scales.
 - (g) Members of staff attending conferences to abide by the Cost-sharing principle of Postgraduate Studies, Research and Innovation Committee contributing 70% of the total cost, 20% percent from the applicant's department, and 10% from the applicant.
 - (h) All applicants will be expected to seek outside funding to supplement or replace the contribution made by the University.
 - (i) All application forms must be signed and countersigned by the applicant (s) and his/her head of department, respectively.
 - (j) All application forms from the head of the department must be signed by the head of that department and countersigned by the Vice-Chancellor, respectively.
 - (k) All application forms should include; Letter of acceptance, an invitation letter, the official website of the conference.
 - (l) The conference must be an International Conference or International Symposium

- 3. In allocating funds for a Conference within Papua New Guinea, the Postgraduate**

Studies, Research and Innovation Committee will adopt the following guidelines:

- (a) The prescribed application should be typed. No hand-written application would be acceptable.
- (b) The funds are available for attendance at conferences, seminars, and workshops within Papua New Guinea.
- (c) Postgraduate Studies, Research and Innovation Committee funding for any Conference will be extended to no more than two members of the same department.
- (d) A staff member will not usually be funded for more than two internal conferences (in-country) trips in an academic year.
- (e) The applicant should demonstrate that s/he will make a significant contribution to the proceedings (e.g. present a paper at the conference).
- (f) All application forms must be signed and countersigned by the applicant (s) and his/her head of department, respectively.
- (g) All application forms from the department must be signed by the head of that department and countersigned by the Vice Chancellor.
- (h) Funding will be extended to support one person only in the case of papers with joint authorship.

4. Specific Points: "relating to the Application Form."

- (a) Under 2, each application should deal with one conference only. Under 2 (d) and 2 (e), give details if the duration of your stay will be different from the duration of the conference.
- (b) Under 5, be sure to give full details of any other financial assistance, including departmental, applied for or obtained.
- (c) Under 3, give details of your relevant publications, reports, unpublished papers, etc., during the last five years in the area covered by the conference.
- (d) Under 10, the application should be forwarded to the Executive Officer, Postgraduate Studies, Research and Innovation Committee through the appropriate Head of Department. The Head of Department is requested to make detailed comments but may not decline to forward it to the Executive Officer, Postgraduate Studies, Research and Innovation Committee for consideration.

5. Application Procedure.

The completed application form should be sent to the Executive Office of the Postgraduate Studies, Research and Innovation Committee, who will arrange for it to be considered by the Committee.

6. Conference Reports.

Recipients for conference expenses funds must submit a report to the Postgraduate Studies, Research and Innovation Committee through the Head of their Department after the conference attendance. Also, the recipients **must** present his or her paper to the Research Seminar Series

7. Research Seminar Series

Recipients of University funding for research are obligated to present their works at the Research Seminar Series.

APPENDIX II

**THE PAPUA NEW GUINEA UNIVERSITY OF
TECHNOLOGY THE POSTGRADUATE STUDIES,
RESEARCH AND INNOVATION COMMITTEE
APPLICATION FOR RESEARCH FUNDS**

REF. NO.:

INSTRUCTIONS TO APPLICANTS:

- a) This application must be typed. Handwritten, Incomplete, and late applications will not be considered.
- b) The completed application must be supported by appropriate documentary evidence including:
 - i) Detailed Research Proposal
 - ii) Letter of Confirmation by Research Partners and collaborators.
 - iii) Evidence of the Head of Department support.
 - iv) Clearance from the Academic Ethics and Integrity Committee wherever necessary
- c) Postgraduate students' application is submitted by Principal Supervisors.
- d) Application Forms should also be submitted to the Executive Officer of the Committee in an electronic or digital copy.

1. PROJECT DETAILS:

(a) TITLE:

(b) GENERAL AREA OF RESEARCH

- I. Abstract/Summary- Key summary of the research and outcome
 - II. Objective
 - III. Importance- Significance of the research
 - IV. Literature review- key literatures relevant to the research and identify gaps to be addressed in this research. State from the literature the equation, procedures, models etc.. to be used in this research.
 - V. Originality- state the level of originality from this research
 - VI. Expected Outcome/Finding
-

(c) OBJECTIVES OF PROJECT

2. RELEVANCE: JUSTIFY THE RELEVANCE OF THIS PROJECT TO PNG

3. Would the project have any adverse impact on the environment? YES NO

If yes, please attached the clearance from the PNGUoT Ethics and Integrity Committee.

3. DETAILS OF APPLICANT:

(a) NAME OF TEAM LEADER

(b) DEPARTMENT

(c) POSITION

(d) RESEARCH EXPERIENCE IN THE GENERAL AREA
(ATTACH LIST OF PUBLICATIONS)

4. TEAM STRUCTURE:

(a) (LIST MEMBERS OF RESEARCH TEAM, INDICATING
NATIONAL STAFF REGISTERED FOR POSTGRADUATE
RESEARCH STUDIES WITH AN ASTERIX)

(b) LIST DEPARTMENTS COLLABORATING ON THIS PROJECT:

5. EXTERNAL COLLABORATION AND FUNDING:

(a) WILL THIS RESEARCH BE CONDUCTED IN COLLABORATION
WITH AN EXTERNAL AGENCY?

Y

E

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IF YES, SUPPLY DETAILS:

(b) ARE EXTERNAL SOURCES OF FUNDING

AVAILABLE? YES

NO

IF YES, SUPPLY DETAILS:

6. METHODOLOGY, TIME SCALE, AND PUBLICATION:

(a) DETAILS OF RESEARCH METHODOLOGY

(b) EXECUTION SCHEDULE AND EXPECTED DATE OF COMPLETION FOR LONG TERM PROJECTS INDICATE MEASURES TAKEN TO ENSURE SUSTAINABILITY:

(c) HOW WILL THE WORK BE PUBLISHED?

- | | |
|---------------------------|--------------------------|
| INTERNATIONAL REFEREED | <input type="checkbox"/> |
| JOURNAL NATIONAL REFERRED | <input type="checkbox"/> |
| JOURNAL CONFERENCE | <input type="checkbox"/> |
| PROCEEDINGS | <input type="checkbox"/> |
| DEPARTMENTAL MONOGRAPH | |
| OTHER (DESCRIBE) | <input type="checkbox"/> |

7. PREVIOUS PROJECTS:

LIST ALL PREVIOUS PROJECTS FUNDED BY POSTGRADUATE STUDIES, RESEARCH AND INNOVATION COMMITTEE AND/OR EXTERNAL AGENCIES WHILE AT PAPUA NEW GUINEA UNIVERSITY OF TECHNOLOGY AND INDICATE CURRENT STATUS (IE COMPLETED SATISFACTORILY OR IN PROGRESS). IN THE CASE OF PROJECTS IN PROGRESS, AN EXPECTED COMPLETION DATE IS REQUIRED:

8. JUSTIFICATION FOR FUNDS REQUESTED:

EXPLAIN IN DETAIL WHY EACH ITEM IS REQUIRED AND HOW IT

WILL BE USED. PROVIDE A SUMMARY ON THE NEXT PAGE:

- (a) STAFF:**
- (b) TRAVEL:**
- (c) CONSUMABLES:**
- (d) MAINTENANCE & OPERATING EXPENSES**

Budgetary Item	Quantity	Unit	Unit Cost	Total Cost	Remarks
A. STAFF:					
1.					
2.					
3.					
B. TRAVEL:					
1.					
2.					
3.					
C. CONSUMABLES:					
1.					
2.					
3.					
D. MAINTENANCE & OPERATING EXPENSES:					
1.					
2.					
3.					
GRAND TOTAL					

9. ATTESTATION:

I..... of
 certify that I will conduct my activities as a researcher with integrity and honesty; I will use my scientific knowledge and skills for the benefit of humanity and sustainable development; I will show respect for animals and nature; I will act per research ethics, and I will not allow considerations based on ideology, religion, ethnicity, prejudices or material advantages to overshadow my ethical responsibility as a researcher. To the best of my knowledge and belief, the details filled in this document correctly describes myself, my qualification, my experience, and my research undertaking. I understand that any willful mis-statements described herein may lead to my disqualification or forfeiture of my allocated fund for this project.

SIGNATURE:

.....(APPLICANT)

DATE:

10. RECOMMENDATION OF THE HEADS OF DEPARTMENT:

(a) DO THE DEPARTMENTS HAVE THE CAPACITY TO CARRY OUT

THIS PROJECT? YES

NO

(b) DOES THIS PROJECT HAVE YOUR APPROVAL AND

SUPPORT? YES

NO

IF NO, GIVE REASONS_

(c) DO YOU AGREE TO HAVE THE WORK CARRIED OUT IN YOUR DEPARTMENTS?

YES

NO

IF NO, GIVE REASONS_

(d) OTHER COMMENTS IN SUPPORT OF THIS APPLICATION/INCLUDING LOCATION OF EQUIPMENT OF PROJECT; AFTER COMPLETION.

(e) SIGNATURES OF DEPARTMENT HEADS CONCERNED:

..... **Date:**

..... **Date:**

..... **Date:**

Conditions for the Use of Research Funds

1. Research funds are allocated to staff members solely to enable the research project outlined on the application form to be undertaken.
2. Research funds will be allocated as specified amounts for personnel emoluments, travel, consumables and equipment. Transfer between heads requires approval as follows:
 - a) up to and including K100 on the written authorization of the Chairman of the Postgraduate Studies, Research and Innovation Committee.
 - b) over K100 by the Postgraduate Studies, Research and Innovation Committee.
3. Each approved research project will be given a project number that will be specified on all purchase orders or claims submitted for approval.
4. All purchase orders or claims must be submitted to the Bursar through the Executive Officer, Postgraduate Studies, Research and Innovation Committee for approval.
5. Research funds for air travel may not be converted to miscellaneous charges orders. Unused air tickets must be returned to the Accountant.
6. Research funds may not be carried forward from year to year.
7. Recipients of research funds are required to provide up-to-date progress reports and a final report upon completion of the project together with complete statements of expenditure to the Executive Officer of the Committee. Reports should be submitted following the Guidelines for Research Progress Reports available from the Executive Officer.
8. The Research Committee will not consider any application for new funds if reports are not submitted as set out under 7 above.
9. The Postgraduate Studies, Research and Innovation Committee will not consider hand-written applications.
10. Where University funding is severely affected, the Postgraduate Studies, Research and Innovation Committee reserves the right to reduce requested funding and or establish funding ceiling to accommodate for all.

THE PAPUA NEW GUINEA UNIVERSITY OF TECHNOLOGY
THE POSTGRADUATE STUDIES, RESEARCH AND
INNOVATION COMMITTEE
APPLICATION FORM FOR FUNDS FOR CONFERENCE EXPENSES

Please read the attached notes before completing this form.

1. PERSONAL DETAILS:

- 1.1 NAME: _____
- 1.2 DEPARTMENT: _____
- 1.3 POSITION: _____

2. CONFERENCE DETAILS:

- 2.1 TITLE: _____
- 2.2 SUBJECT MATTER: _____
- 2.3 ORGANISING BODY: _____
- 2.4 DATES/DURATION: _____
- 2.5 LOCATION: _____

3. REASONS IN SUPPORT OF APPLICATION:

- 3.1 In what way is the Conference relevant to your interest?

- 3.2 How will your attendance benefit your Department and the University?

4. CONTRIBUTION TO THE CONFERENCE:

4.1 What will be your contribution?

5. PREVIOUS UNIVERSITY SUPPORT:

5.1 Have you previously received Department/University funds for Conference Attendance?

NO

YES (Give details and dates)

6. CONFERENCE ATTENDANCE IN PREVIOUS YEAR:

6.1 Have you attended other Conferences in the past 12 months?

NO

YES (Give details)

7. OTHER FINANCIAL ASSISTANCE:

7.1 Give full details of other financial assistance applied for or obtained (including Departmental).

8. FUNDS APPLIED FOR:

- detail travel costs from Port Moresby for overseas Conferences.

9. PUBLICATIONS:

9.1 List your publications relevant to the Conference (not more than five most recent ones).

10. ATTESTATION:

I hereby attest that any funds received will be applied for the purposes detailed above.

10.1 **SIGNATURE:** (Applicant) Date:

11. RECOMMENDATION (HEAD OF DEPARTMENT):

11.1 Recommendation:

APPROVED

NOT APPROVED

11.2 Will Departmental funds are available:

NO

YES

Specify

11.3 Will other members of the department be attending?

NO

YES

11.4 **SIGNATURE:** (Head of Dept.) Date:

12. NOTES ON THE COMPLETION OF THE APPLICATION FORM:

- 12.1 The Postgraduate Studies, Research and Innovation Committee considers applications for assistance with conference expenses from full-time members of the staff of the University. Applications from the postgraduate students can also be considered on a case by case basis. Entries should be typed clearly and all statements should be accurate and brief. If more space is required under a particular item, please use that available on Page 3 and extra sheets as necessary.
- 12.2 In allocating funds for Conferences **outside Papua New Guinea**, the Postgraduate Studies, Research and Innovation Committee will adopt the following guidelines:
- (a) A person will not receive funding for more than one conference in one calendar year.
 - (b) A person will not normally receive funds if he has received funds in the previous calendar year.
 - (c) Funding will not normally be provided for more than one person from the same department to attend the same conference.
 - (d) A person **must** make an oral presentation of a research paper to be eligible to receive funds.
 - (e) Only staff whose research is funded by the Committee be eligible to attend conferences.
 - (f) Members of staff attending conferences should abide by the Cost – Sharing principle of Postgraduate Studies, Research and Innovation Committee contributing 70% of the total cost, 20% from the applicant's department, and 10% from the applicant.
 - (g) Where departmental business is concerned with a person's attendance at a conference, departments will be expected to contribute funds.
 - (h) All applicants will be expected to seek outside funding to supplement or replace the contribution made by the University.
- 12.3 In allocating funds for Conferences **within Papua New Guinea**, the Postgraduate Studies, Research and Innovation Committee will adopt the following guidelines:
- (a) The funds are available for attendance at conferences, seminars, and workshops within Papua New Guinea.
 - (b) Only staff whose research is funded by the Postgraduate Studies, Research and Innovation Committee be eligible to attend conferences.
 - (c) Conferences may be attended by more than one member of the same department.
 - (d) A member of staff will not normally be subsidized for more than one internal conference trip in the same academic year.
 - (e) The applicant should be able to demonstrate that he will make a significant contribution to the proceedings (e.g. present a paper at a conference).
- 12.4 Specific points:
- (a) Under 2, each application should deal with one conference only. Under 2.4 and 2.5 give details if the duration of your stay will be different from the duration of the conference.

- (b) Under 8, be sure to give full details of any other financial assistance, including departmental, applied for, or obtained.
- (c) Under 11, give details of your relevant publications, reports, unpublished papers, etc., during the last five years in the area covered by the conference.
- (d) Under 13, please note that the application should be forwarded to the Registrar through the appropriate Head of Department. The Head of Department is requested to make detailed comments but may not decline to forward it to the Registrar for consideration.

12.5 Application procedure:

The completed application form should be sent to the Registrar (for the attention of the Secretary to the Postgraduate Studies, Research and Innovation Committee) who will arrange for it to be considered by the Committee.

12.6 Conference reports:

Recipients of conference expenses fund are required to submit a report to the Postgraduate Studies, Research and Innovation Committee through the Head of their Department at the conference attended and their participation in it.

APPENDIX IV: A TYPICAL TEMPLATE FOR WRITING A RESEARCH DATA MANAGEMENT PLAN

[Source: Directorate for Mathematical and Physical Sciences – Division of Astronomical Sciences (NSF-MPS/AST)]

Products of Research

Describe the types of data and products that will be generated in the research, such as images of astronomical objects, spectra, data tables, time series, theoretical formalisms, computational strategies, software, and curriculum materials.

- Give a short description of what "data" and "data collection" will mean in your research—explain what the contents of the datasets will be, including size if known. If the size is not known, please provide an estimate. *Consider these questions:*
 - What data will be generated in the research?
 - What data types will you be creating or capturing?
 - How will you capture or create the data? (e.g. experimental measures, observational or qualitative, model simulation, processed, etc.)
 - If you will be using existing data, state that fact and include where you got it.
 - What is the relationship between the data you are collecting and the existing data?

Data Format

Describe the format in which the data or products are stored (e.g., ASCII, HTML, FITS, VO compliant tables, XML files, etc.). Include a description of the metadata that will make the actual data products useful to the general researcher. Where data are stored in unusual or not generally accessible formats, explain how the data may be converted to a more accessible format or otherwise made available to interested parties. In general, solutions and remedies should be provided.

- Explain the specific format of your data. You are also asked to describe what metadata will be available and necessary for accessing your data. Think about how a "general researcher" would perceive your data, and what information you can include with your data to help that researcher use the data. Metadata may entail descriptions of research details, such as experiments, apparatuses, computational codes, etc. An example of metadata could also be as simple as a "readme" file to explain variables, the structure of the files, etc. *Consider these questions:*
 - Which file formats will you use for your data, and why?
 - What transformations (to more shareable formats) will be necessary to prepare data for sharing?
 - What form will the metadata describing/documenting your data take?
 - How will you create or capture these details?
 - Which metadata standards will you use and why have you chosen them? (e.g. accepted domain-local standards, widespread usage).
 - What contextual details (metadata) are needed to make the data you capture or collect meaningful?

Access to Data and Data Sharing Practices and Policies

"Access to data" refers to data made accessible without explicit requests from the interested party, for example, those posted on a website or made available to a public database. Describe your plans, if any, for providing such general access to data, including websites maintained by your research group, and direct contributions to public databases. If maintenance of a web site or database is the direct responsibility of your group, provide information about the period the web site or database is expected to be maintained. Note that data taken at national or private observatories may be accessible through public archives (perhaps after a standard proprietary period). Various forms of data (e.g., FITS images and tables, other data tables) also may be deposited with published articles in the AAS journals and other journals. Particular attention should be paid to data sets that are products of well-defined surveys. Also describe your practice or policies regarding the

release of data for access, for example, whether data are posted before or after formal publication. "Data sharing" refers to the release of data in response to a specific request from an interested party. Describe your policies for data sharing, including where applicable provisions for the protection of privacy, confidentiality, intellectual property, national security, or other rights or requirements.

- The differentiation between "Access to data" and "Data sharing" is a key distinction made by the AST data management plan guidelines. Please keep in mind that you are expected to adequately provide responses for both how you plan on making your data accessible without a specific request from a researcher, and how you will be able to provide data upon demand. Use this section to also explain issues of confidentiality and intellectual property as their impact on the dissemination of your data. *Consider these questions:*
 - How and when will you make the data available? (Include resources needed to make the data available: equipment, systems, expertise, etc.)
 - What is the process for gaining access to your data?
 - How long will the original data collector/creator/principal investigator retain the right to use the data before opening it up to wider use?
 - Do you plan on publishing findings that rely on the data? If so, do your prospective publishers place any restrictions on other avenues of publication?
 - Explain details of any embargo periods for political/commercial/patent or publisher reasons.
 - Are there ethical and privacy issues? If so, how will these be resolved?
 - What have you done to comply with your obligations in your IRB Protocol?
 - Who will hold the intellectual property rights to the data and how might this affect data access?

Policies and Provision for Re-Use, Re-Distribution, and Products of Derivatives

Describe your policies regarding the use of data provided via general access or sharing. For example, if you plan to provide data and images on your website, will the website contain disclaimers, or conditions regarding the use of the data in other publications or products? If the data or products (e.g., images) are copyrighted (by a journal, for example), how will this be noted on the website?

- Explain how the policies you outlined in the section above can be applied to the re-use and re-distribution of your data. Identify who will be allowed to use your data, how they will be allowed to use your data, and whether or not they will be allowed to disseminate your data. **If you will be restricting access, use, or dissemination of the data, you must explain how you will codify and communicate these terms.** *Consider these questions:*
 - Will any permission restrictions need to be placed on the data?
 - What and who are the intended or foreseeable uses/users of the data?
 - How will the dataset be licensed if rights exist? (e.g. any restrictions or delays on data sharing needed to protect intellectual property, copyright, or patentable data.)

Archiving of Data

Describe whether and how data will be archived and how the preservation of access will be handled. If the data will be archived by a third party (e.g., national observatory or journal), please refer to their preservation plans if available.

- This portion of the Data Management Plan asks the researcher to provide a long-term strategy for archiving and preserving the data from the research described in the proposal. *Consider these questions:*
 - What is the long-term strategy for maintaining, curating, and archiving the data?
 - Which archive/repository/database have you identified as a place to deposit data?

- What procedures does your intended long-term data storage facility have in place for preservation and backup?
- How long will/should data be kept beyond the life of the project?

Also, consider these questions about the data and associated information that will be deposited:

- What data will be preserved for the long-term?
- What transformations will be necessary to prepare data for preservation?
- What metadata/documentation will be submitted alongside the data or created on deposit/transformation to make the data reusable?
- What related information will be deposited (e.g. references, reports, research papers, fonts, the original bid proposal, etc.)?