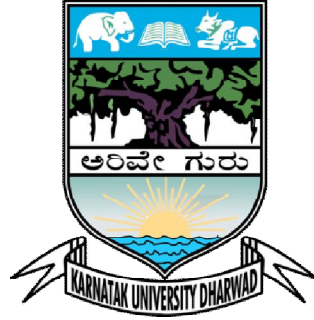


KARNATAK UNIVERSITY DHARWAD



“NAAC Accredited with ‘A’ Grade”
www.kud.ac.in



COLLABORATION GUIDLINES/ POLICIES
PLANNING, MONITORING & EVALUATION BOARD

2021-22

MEMBERS OF THE COMMITTEE

Dr. M. Y. Karidurgannavar, Dept. of Chemistry, KUD Chairman

Dr. P. G. Patil, Dept. of Mathematics, KUD Member

Dr. Girish G. Kadadevaru, Dept. of Zoology, KUD Member

**Dr. M. B. Hiremath, Dept. of Biotechnology & Member
Microbiology, KUD**

Dr. Devarajan Thangadurai, Dept. of Botany, KUD Member

**Dr. S. T. Bagalakoti, Director, IQAC, KUD Special
Invitee**

Dr. M. David, Director, PMEB, KUD Convener

KARNATAK UNIVERSITY

“Collaboration Guidelines/Policies”

Education is more important than ever before in today’s economic landscape. Competition for jobs is growing and employees are being asked to do more in less time and with fewer resources.

1. PREAMBLE

This is an attempt to openly state and begin a dialogue, organize forward thinking and develop sustainable goals, values, and methods,(1) to end the scarcity of academic and research collaborations with other regional, national and international organizations; (2) to create abundance of opportunities of mutual interest through a cooperation from other universities, organisations, institutes and foreign universities; and (3) to devise strategy we see, at the very least, the basics for all research to do simply without worry. Karnatak University and other collaborating parties further agree that this Memorandum of Understanding for collaboration in research and education would be of mutual benefit serving as an indication of continued interest in and a general framework for such collaboration. In the best interest and prime focus of promoting academic and research collaboration for Karnatak University with other world class universities, institutes and organization across the globe, Karnatak University framed policies and guidelines, referred as “Collaboration Guidelines/Policies” that are applicable and effective from January 1, 2022.

2. Responsibilities

Karnatak University promotes advanced research opportunities which will contribute to the improvement of quality and standards of research outcome of the University.

The committee of Karnatak University on developing ‘Collaboration Guidelines/Policies’ advises on rules, regulations and submission procedures for proposing collaborative and sponsored applications. Drafts, negotiates and executes research contracts, monitors requirements for quality control and protects/classifies

information as related to collaborative research projects and other academic and non-academic collaborative ventures of scientific, economic and of academic interest. University promotes and support nominations for prestigious prizes, awards and public recognition memberships, delineates award parameters, summarizes administrative and financial terms and conditions for grants and contracts.

Karnatak University authorizes committee on developing ‘Collaboration Guidelines/Policies’ for new fund creation and any changes to fund parameters; advises Principle Investigators (PI), department and central staff on terms of awards; sponsor policies/requirements; ensures required ethical certificates are obtained; monitors their status throughout collaborative project period; assists with post-award management matters, i.e., changes to award parameters; monitors and addresses as needed, change in PI status; ensures data integrity; offers training on research administration via multiple venues; maintains institutional research database for internal and external data reporting and statistics.

3. Objectives

Karnatak University is constantly working towards internationalizing the domain of education. It aims to develop many opportunities involving student and faculty exchanges that may open up more and more joint research collaborations in future. In this context it is worth mentioning that at present Karnatak University has few MOUs with different Universities and institutes across the country to promote joint academic activities.

Objective 3.1: To facilitate education, research and training collaboration between Karnatak University with any other State, National and Foreign University/Institution in the field of Arts, Science, Humanities and Social Sciences

There is an age-old adage that says “two heads are better than one”.

Academic and research collaboration with Karnatak University is a very valuable tool that not only accelerates the progress but also enhances the quality of the work and extends the repertoire of the partners. Academic collaboration of Karnatak University is beneficial to the faculty in learning new teaching tools, and to the students in increasing the breadth of their knowledge and learning different approaches to solve the problems; develop the skills they need to succeed, such as using team-building exercises or introducing self-reflection techniques.

Objective 3.2: To facilitate the mobility of students, scholars, scientists and faculty for advanced research, training and further extension activities

In order to facilitate and improve fundamental and socially relevant research in Karnatak University, an emphasis is being laid for strengthening collaboration between potential research groups with top research groups in the world, so that students, scholars and faculty can interact with the finest minds in the world in chosen area of teaching, research and education. Long term stay of international faculty will lead to tangible result such as large number of high impact research publications, solution to key national and international problems, development of niche courses, high quality text books and research monographs, imbibing of best practices from top international academicians and researchers, strong bilateral cooperation, and improved world reputation and ranking of Karnatak University. This also helps to formulate and design different aspects of faculty exchange in terms of handling courses and enhance research collaboration in the field of mutual interest; to plan the university's participation in academic events to facilitate exchange of international students, and to coordinate the exchange of teaching material to support joint academic programs.

This also aims at exposing large number of young students of Karnatak University, the torch bearers of the future generation, to state-of-the-art developments in science and technology, thereby increasing the number of highly trained scientific manpower, as well as significantly enhance the visibility of Karnatak University in the National and International Ranking. It is expected that some of the joint ideas would not only lead to breakthrough in science, but would also result in

sustainable technological products that will be beneficial to mankind at large, in addition to fulfil the local needs.

For instance, the Global Initiative of Academic Networks (GIAN) which offers a scheme to support longer term research program where it not only funds for long term visit by the international faculty (2 to 8 months) but would also fund the travel and sustenance of Indian students at the university/institute of the international collaborator.

Objective 3.3: To establish different types of collaboration

To extract the most business value from education, research, training and other extension activities, Karnatak University established a simple, yet powerful operation mechanism, formulated the following guidelines and policies. The type of collaboration is usually chosen according to purpose and extent of the complementary information or resources that are needed to fulfil the purpose of a cooperation. Generally, collaborations may be bilateral or multilateral. Karnatak University seek out and develop partnerships in support of the regionalization, nationalization and internationalization agenda under the following types of research collaboration:

3.3.1 Research collaboration within the Karnatak University

The category of Karnatak University researchers refers to a host of personnel, including faculty who are teaching staff, administrators, and students who can be undergraduate, graduate, or post-doctoral, can develop research collaborations within the Karnatak University.

3.3.1.1 Among faculty, staff and administrators of Karnatak University

Any faculty conducting research in Karnatak University may choose to invite colleagues from Karnatak University itself sharing similar interests, relevant expertise, and who have an established research track record can initiate new projects together, or to participate in an on-going research effort.

3.3.1.2 Within/between departments

There is much value in several aspects of cross-departmental collaboration. Students can develop expertise in two separate fields or leverage technical expertise in one field with, for example, business acumen in order to develop stronger skills. Similarly, collaboration between departments strengthens the university as a whole and leverages expertise across areas. This gives students greater access to resources, professors and opportunities than they would have in a single Department or University. Students can take advantage of these collaborative strengths to jumpstart their careers.

Colleagues within the same department or discipline of Karnatak University are familiar with the critical issues of the field. Even among individuals differing in sub-field specializations, there can be enough of a common theory, methodology, and nomenclature for collaboration to take place. Collaboration can also be nurtured between departments and across disciplines of Karnatak University. Projects likely to benefit are those with a multidisciplinary theme, utilizing complementary disciplines to develop innovative approaches to unsolved problems.

3.3.1.3 Among students

Research collaboration can also take place among students of Karnatak University. These types of collaboration may occur with students of relatively equal research experience and status (considered peers), or between a student with greater experience (senior) assisting the novice research student (junior) in selecting the appropriate research design, monitoring implementation, conducting evaluation and analysis, and report writing.

Students may be engaging in research activities in conjunction with assignments for research methodology courses. The purpose of these exercises are primarily to practice and refine research skills, and not necessarily with the intention of producing original research and preparing for publication. Besides providing

research experience, students can learn to appreciate the value of participating in a cooperative endeavour, learning about collegiality, responsibility and accountability.

3.3.1.4 Faculty and Students

Research conducted between faculty and students can occur in a variety of settings: (1) As assignments for research methodology courses, (2) Faculty instructing students on principles of action research, (3) As a component of a mentoring relationship, or (4) As part of a collaborative endeavour with academic institutions, governmental/quasi-governmental units, or private industry concerns. Students not only gain a greater appreciation for how research is conducted in a real rather than simulated setting, but can observe both how research is applied to real world problems as well as the results from either successful or unsuccessful investigations. Students can also benefit when their performance is evaluated and critiqued by faculty. This can strengthen student research skills and encourage them to pursue future collaborative opportunities.

3.3.2 Research Collaboration of Karnatak University with Government Agencies/Departments/Units

Collaboration Between Karnatak University and government will be established in the areas of socio-economic development, environmental issues, industrial issues, health concerns and educational challenges. There are number of mechanisms that can initiate a collaborative endeavour: (1) Government agencies (local, state, national, international) may seek technical assistance from Karnatak University experts to address specific problems (e.g. developing strategies to expand awareness of social and scientific problems), (2) Government agencies may offer competitive funding opportunities regarding a specific theme (e.g. Encouraging economic development, supporting technological advances in Science, Arts, Commerce, Management and Communication), and (3) Karnatak University researchers may approach government to request cooperation in a research effort.

As with Karnatak University collaborating with government, partnerships should be beneficial to both. Examples can be observed in a variety of disciplines (Education, Nursing, Pharmacy, Public Health) with a variety of government agencies, departments and units (State and local education departments/school/districts, health departments, economic development programs).

3.3.3 Collaboration of Karnatak University with Other Institutions

Collaboration between Karnatak University and other institutions offers a number of benefits including opportunities to interact with researchers having expertise in a needed area of the proposed investigation, gain access to needed resources including databases, equipment, staff, and study populations, gain credibility through the name recognition from prominent researchers, departments. The practice of working with teams from Karnatak University and institutions can offer fresh perspectives to address the research questions and avoid the pitfalls of academic inbreeding. Insights gleaned from sharing unique research experiences can result in submitting more comprehensive proposal. Potential collaborators demonstrating an established record of publishing on a relevant topic can enhance both opportunities for successful proposal submissions and subsequent publications as well. Collaboration between Karnatak University another institution also provides a mechanism to expand one's network of research contacts, which may in time lead to further collaboration.

Objective 3.4: Joint Research Programme (JRP) Among Collaborating Organizations

Joint research is a system which can be expected to produce more creative research outcomes by establishing the common research themes with private companies, universities, and public research institutes and promoting research cooperatively while exchanging opinions from a standpoint of mutual equality. When a theme has been decided, a joint research agreement is concluded and the project is implemented.

3.4.1 Programme Outline

In cooperation with counterpart agencies, these programs provide funding for national and international joint research carried out between excellent researchers in universities and institutes and their national and overseas counterparts. In carrying out joint projects, a synergistic effect is sought by such means as sharing resources and research facilities. This program also aims to enhance and expand training opportunities for young researchers, research scholars and students.

3.4.2 Main Joint Research Partners

- Private Companies
- Universities and
- Public Research Institutes

3.4.3 Requirements for Implementation of Joint Research

- It must be possible to expect higher efficiency and synergistic effects in comparison with independent
- Sanction order
- Date of commencement of project and its duration
- Principal Investigator and Co-Investigators and the implementing institutions
- Project staff
- Release of grants in yearly instalment and financial management
- Progress evaluation and monitoring
- Guidelines for publication of results
- Instructions for technology transfer and intellectual property rights

3.4.4 Research and Development Cooperation Projects between Academia and Industry

The Joint Research Units (JRU) aims to create regional, national and international strategic consortia between universities, technology innovation centers and companies that would act as a catalyzer for the cooperation between the research community and the productive unit. The cooperation between the different agents of the regional RDI (Research and Development by Industry) system is expected to:

- Create mixed working groups between research organizations and companies, which would become catalyzers for the development of Research and Development by Industry lines
- Capitalization of research groups
- Foster research organizations and companies to come closer
- Attract new RDI lines
- Encourage the transfer results of Research and Development to the market

3.4.5 Indian Funding Agencies for Research and Development

1. University Grants Commission (UGC)
2. All India Council for Technical Education (AICTE)
3. Council of Scientific and Industrial Research (CSIR)
4. Defense Research and Development Organization (DRDO)
5. Department of Atomic Energy (DAE)
6. Department of Biotechnology (DBT)
7. Department of Coal (DOC)
8. Department of Ocean Development (DOD)

9. Department of Science and Technology (DST)
10. Department of Scientific and Industrial Research (DSIR)
11. Indian Council of Medical Research (ICMR)
12. India Meteorological Department (IMD)
13. Indian Space Research Organization (ISRO) - Department of Space
14. Ministry of Communications and Information Technology (MOCIT)
15. Ministry of Environment and Forests (MOEF)
16. Ministry of Food Processing Industries (MFPI)
17. Ministry of Non-Conventional Energy Sources (MNES)
18. Ministry of Power, Central Power Research Institute (CPRI)
19. Ministry of Water Resources (MOWR)
20. Department of Education (DOE)
21. Science and Technology Application for Rural Development (STARD)
22. Indian National Science Academy (INSA)
23. Science and Technology for Weaker Sections (STAWS)

3.4.6 International Funding Agencies

1. International Foundation for Science.
2. Third World Academy of Sciences (TWAS)
3. Third World Network of Scientific Organizations

In the recent past, Karnatak University, Dharwad collaborated with Centre for Rapid & Sustainable Product Development (CDRSP), Polytechnic Institute of Leiria, Portugal, and University of Cambridge, UK had University Industry Collaborations under DBT-BIRAC/Agilent Technologies.

Objective 3.5: To jointly organize programmes, conferences, workshops, events

Collaboration between Karnatak University and any other State, National and Foreign University/Institution will create opportunities for offering Twinning Programmes (Masters' and Doctoral Degrees). The collaborating parties must outline the university's activities, promote international education, and interdisciplinary collaborative activities for specific subject areas, and formulate and design different aspects of the Study-Abroad and Study-in-India programs for students. Workshops, events, conferences are a great way to network, and organizing one puts Karnatak University students, scholars, faculty at the centre. They will be in contact with all of the speakers and have a chance to interact personally.

This can open doors to form personal relationships that will help career of students, scholars, faculty in the future. Event organizing can help to skills; communication, teamwork, and organization are all valuable skills that can put students, scholars, faculty ahead of the game later on. Even they can control the agenda. If scholars, faculty are active in the organization of the conference, they can also have a strong role in editing any of the final papers that come as a result of the event. This can increase publication records of the Karnatak University globally.

Objective 3.6: To jointly establish collaborative teaching, research, training and extension centre, institute and facility

In order to facilitate collaborative research, Karnatak University encourage preparation and submission of research proposals by the students, scholars and faculty of Karnatak University, keeping the call of proposal for joint research from many state, national and international funding agencies for the establishment of teaching,

research, training and extension centre, institute and facility at regional, national and international scale.

For example, establishment of collaborative teaching, research, training and extension centre, institute and facility in association with DAAD (Deutscher Akademischer Austauschdienst), EMBO (European Molecular Biology Organization), EMBL (European Molecular Biology Laboratory), ICGEB (International Centre for Genetic Engineering and Biotechnology), JSPS (Japan Society for the Promotion of Science), etc.

4 Areas of Cooperation for Karnatak University and Other Collaborating Party

The following general areas have been identified as possible starting points for collaboration of Karnatak University with other collaborating institute, organization, national and international universities. These areas can be further expanded and detailed by mutual consent. Implementation of specific activities under any MOU shall be subject to separate written agreements.

4.1 Exchange of information and experience

Representatives of both Karnatak University and other collaborating party should arrange joint meetings at least once a year to exchange experiences in education and research and to prepare proposals for joint projects. A joint Seminar/Workshop may be held once in two years or earlier to present the results of this collaboration. Information exchanged shall be made available in the public domain. Any exchange of proprietary information shall be subject to a separate written nondisclosure agreement.

4.2 Faculty and student exchange programs

Karnatak University will examine the possibility of creating one or more Visiting Faculty positions at respective institutions for faculty exchange. A Student Exchange Program will be formulated for short duration for joint research activities. A suitable umbrella agreement for such exchanges can be developed to avoid some

routine formalities in each individual case under any such collaborative program. In the case where students wish to enroll for formal course work, a separate, detailed document which addresses graduate and undergraduate admission requirements, application procedures, and credit transfer will be negotiated, examined and prepared in advance of the student's ability to register and enroll for courses. This will be approved by the necessary management levels of Karnatak University and other collaborating party and executed, and delivered by authorized representatives of both parties.

4.3 Cooperative research projects

The participants may define joint collaborative research projects between faculty or research groups in areas of mutual interest and/or complementary expertise. Collaborating faculty may approach various funding agencies to submit joint project proposals. Details regarding funding, intellectual property and other aspects of joint research projects will be considered in separate written agreements.

4.4 Educational exchange programs, continuing and distance education

Karnatak University will explore exchange opportunities for course development and transfer of credit for post-graduate courses, cross-institutional course offerings, and formulating a distance education program based on the expertise available in both institutions. They will also explore the possibilities of research in technology for distance and computer-based learning. The institutions will also work jointly for development of new courses in the emerging and futuristic areas of Science, Arts, Commerce, Humanities and Social Science through collaborative efforts.

5 Collaborative Research Agreements of Karnatak University

Collaborative Research Agreements of Karnatak University involves, research of mutual interest to the collaborators that includes scholars, students, faculty and scientists with shared rights and access to the results. If there is an expectation that there may be new or incremental intellectual property developed within the project,

both Karnatak University and other collaborator typically bring background intellectual property to the table.

The project scope is defined jointly by Karnatak University and other collaborator, the sponsor may contribute in-kind in addition to cash, and ownership of inventions or other intellectual property vests (belongs) to the parties that contributed to the invention. It is expected that Master's and Ph.D. students take part in the research, although postdoctoral fellows and research assistants are routinely involved.

Contributions made by various collaborating researchers during the project may change, which will change the attribution of credit and order of authors in the publication outcomes. Funding for the lead investigator is rarer and may not be possible if the project is leveraged through a federal or provincial granting program.

Project timelines take into account the students' course commitments and the academic calendar year, and the deliverables are largely reports on progress, although other deliverables may be included. The Karnatak University will require possible delays on publications to protect confidential or potentially commercialize intellectual property, but the publication needs of the student must be taken into consideration. Commercial rights to the arising intellectual property are negotiated, and can vary depending on the nature of the collaboration and the contributions of Karnatak University and collaborating organization.

6 Applicant Qualifications and Eligibility Criteria

Faculty members and full-time researchers belonging to Karnatak University and its constituent colleges may apply as principal investigators, whereas students, scholars and tenure-track research as co-investigators. An educational institution with a grade not less than A grade by NAAC and have experience of at least 15 years or have at least 10 batches of Master (Post Graduate) students graduating, are eligible to collaborate with the Karnatak University educational institution.

Collaborating party should be one of the following 'eligible organisations' (or a consortium of eligible organisations):

- (1) Education institution
- (2) UGC recognized Universities/ Deemed Universities
- (3) Academic Institutes and National/International Research & Development Laboratories/Institutes
- (4) Public sector research agency
- (5) Private, not for profit, research organisation

7 Collaboration Duration

MoU must clearly specify the starting and end date of all the collaborating agreements duly signed by both or all of the signing institutions. Validity may be modified through the mutual discussion and consent of the Karnatak University and other collaborating institution, and shall remain in effect from the date of signature for an initial period of five years. Either institution may terminate or propose revisions of the agreement by giving a six months' written notice of such intent. The MoU may be extended further, in five-year increments, by mutual written agreement.

8 Collaborative Format

Each team member will be responsible for a defined area of research, all researchers should understand how their work will contribute to the completion of the whole project and the upliftment of fame of Karnatak University. In other words, they must see the relationship between their individual efforts and the impact on the 'big picture'. Communication between collaborators of Karnatak University is critical for a successful research effort. Communication can take place with collaborators in close proximity to each other like face-face or through a long-distance relationship. Advances in technology that have facilitated communication include use of phones, internet, mail, paper as well as electronic, online dissemination and sharing of

information (chat rooms), and video conferencing. While each item offers an opportunity for synchronous/asynchronous communication, or simulated meetings, access to technology is no guarantee, so that, collaborators should regularly communicate. Some researchers have significant reservations about an over-reliance on technology. Any impediment to communication, technological or otherwise, may potentially be reflected in the quality of research.

9 Procedure and Stages of Collaboration

Research collaboration of Karnatak University involves a number of established activities that can be clustered and categorized into separate 'stages'. While each identified stage represents an important step in the research process, certain activities extend through multiple stages which can be quite interrelated.

The occurrence of research issues in collaborative endeavours parallels what goes on in research conducted by independent investigators. However, the involvement of staff from possibly many different disciplines, research settings, and geographical locations adds a layer of complexity and a degree of difficulty to the research process. This may result in an increased probability of untoward research issues occurring. The challenge to collaborators is to determine an appropriate response to issues that may arise during any stage of collaboration. In addition, related research issues that have an untoward impact on the responsible conduct of research will also be addressed.

9.1 Conceptualization

Research collaborations range from initiating a project with colleagues from the same discipline to participating with a mix of researchers from diverse disciplines and settings. In the latter case, collaborators may offer different theoretical approaches and strategies while attending to questions of research design.

Collaborations involving scientists from disparate fields of study can be especially complicated, because the parties may not have common vocabularies, compatible working styles, or shared assumptions about the collaboration. These complexities can be increased when the scientists are working in different countries. Interdisciplinary

and international collaborations place special responsibilities and obligations upon the participants.

A researcher's discipline and context will influence his/her philosophical assumptions about the nature of research. Even researchers within the same disciplines and working in the same setting (e.g., academic, government, private institution and private industry) may not necessarily share the same assumptions given their exposure to different research experiences. Regardless of how the collaboration is configured, the principal investigator(s) may seek each collaborator's participation when conceptualizing a research project. Agreements should be reached on (1) research goal(s), (2) specific objectives, and (3) the approaches/methodologies to achieve them. The investigators who conceptualize the research should be able to draw on findings from relevant literature, sometimes from diverse fields, and organize them into a meaningful and cohesive whole. Disagreements over how to conceptualize can be greater when collaborators bring different paradigms (e.g., quantitative vs. qualitative), use a separate and distinct knowledge domain, or operate under an alternate set of philosophical assumptions. Other areas of potential conflict might include disagreement over preferences for discipline-specific instruments that measure 'constructs' and collect data.

"Interdisciplinary collaborations regularly involve work on topics that appear very different from different disciplinary perspectives and participants should be prepared to recognize the distinct problems with which their colleagues must grapple. If the collaboration is to be fruitful, the researchers must be prepared to understand the implications that the problems and solutions of one discipline hold for the problems and solutions of the other and to address the problems appropriate to their own discipline".

During conceptualization, there should be a clear and convincing rationale for why the topic is worth studying. Researchers who are considering initiating a collaborative endeavour may ponder a number of questions, such as:

1. Is the outcome of the proposed collaboration worth the anticipated demand for resources?
2. Will the outcome be a relevant and significant contribution to the scientific field(s)? To society?
3. Is the proposed collaborative effort essential to achieving the goal and objectives of the project or can the investigation precede without a partnership?

Researchers contemplating these issues during conceptualization may gain clarity, proactively address areas of conflict with fellow collaborators, and enhance the responsible conduct of research. A successful coordination of each collaborator's input during this stage may enhance efforts to partition the research project appropriately, as well as clarify how each collaborator's contribution fits into the 'big picture'.

9.2 Proposal Preparation and Submission

The activities involved in preparing a proposal for submission go hand in hand with conceptualization. University recommends adopting a general framework that can provide guidance about all facets of a study ranging from assessing the general philosophical ideas behind the inquiry to the detailed data collection and analysis procedures. What knowledge claims are being made by the research (including theoretical perspective). Where differences in 'knowledge claims' occur, collaborators will have to identify the areas of articulation between the different knowledge claims. For example, one group of collaborators may focus on micro level of analysis while another group investigates the macro level. Collaborators may also diverge in their preferred strategies of inquiry and methods of data collection and analyses (e.g., some investigators collecting data through participant observation, others through planned intervention).

The challenge in preparing a proposal is more than having specialists write about their own area of expertise; it is also about being able to justify why these

multiple strategies are valuable and necessary to the research study, and how they will be integrated. The degree of collaboration and cooperation between investigators in preparing the proposal may be indicative of the anticipated quality of the research collaboration. While not all collaborators may have equal involvement at this stage, those individuals who review drafts and provide input can influence what form the proposal will ultimately take. Researchers who see that their input is valued can develop a sense of ownership in the proposed study, and perhaps an enhanced commitment to achieving the stated goals and objectives.

9.3 Management

Managing any collaborative relationship requires understanding the scope of the research, organizing participant priorities, allocating resources, maintaining the timetable, and demonstrating an ability to orchestrate all these components. While each member of the collaborative team may have his/her own assigned responsibilities, the principal investigator(s) ultimately is(are) held accountable for all that happens in the study. Accountability is defined as "The responsibility of program staff to provide evidence to stakeholders and sponsors of a program's conformity to its coverage, treatment, legal, and fiscal requirements". This suggests that the person(s) accountable for the research project may be required to be both competent researcher and manager. The researcher/manager is responsible for allocating roles and responsibilities as well as ensuring that all aspects of the research are conducted in a responsible manner.

An important determinant of a successful collaborative relationship is the establishment of an effective system of communication. Maintaining good communication can enhance a rapid response to problems that arise, modify a flawed protocol, avoid unnecessary loss of data, and reliably disseminate critical information to all participants. The system of communication could include a protocol for identifying personnel designated responsible for gathering and sorting queries, referring or responding, and disseminating information. Another aspect of communication is scheduling and conducting meetings and reviews. Meetings are held

to discuss project status, identify advances as well as impediments, and share information and data.

The outcome of the meetings can result in recommendations for addressing problems, modifying procedures, or even changing the direction of the research. Meetings may take place according to an established schedule, with the option of limiting attendance to key personnel or requiring all participants attend. Reviews are more likely to occur one-on-one. Reviews focus on critiquing performance and may include recommendations for improvement if appropriate. The difficulty, logistically speaking, of scheduling reviews may be reflected by the complexity of the collaborative endeavour (e.g., number/location of research sites, number of collaborators/disciplines, and settings).

Another area where accountability is a deep concern is the handling of budget and finance issues. For example, while recipients of government grants and contracts are obliged to follow specific rules and regulations on a host of allowable and unallowable expenses (e.g., staff, equipment, and travel), restrictions imposed by other sponsoring agencies may be somewhat different. Larger and more complex collaborative efforts can increase the difficulty in managing budgets. A management necessity is establishing formal agreements (e.g., material/technology transfer agreements, data ownership, copyright/patent issues) between institutions, researchers, and sponsoring agencies. These agreements are typically written in a legal format to protect and preserve the collaborators' best interest. The formal agreements clearly specify ownership rights to research material, how the material can be used, what obligations are incurred, the benefits enjoyed, and the need to provide proper acknowledgments of the source in order to avert conflicts that may arise during or after research.

Ensuring compliance is particularly important when dealing with collaborators who may be conducting research in separate and diverse locations. This aspect of management seeks to ensure that each staff member is behaving in accordance with institutional, state, national, or even international guidelines as they relate to research.

Noncompliance could have untoward consequences for use of collected data, suspension of research activities, as well as possible sanctions against the members of the research team.

9.4 Implementation

This stage sees the coordinated implementation of the agreed upon research design. Whether the study utilizes quantitative, qualitative, or mixed approaches, all collaborators are obliged to honour their assigned tasks by (1) strictly adhering to the research protocol, (2) keeping to the established timetable, (3) and maintaining an open line of communication. The ability for researchers to proceed with their assigned tasks may depend on fellow collaborators successfully completing their own responsibilities. Delays from one member of the research team may disrupt the sequence and progress of other members. If problems arise, an effective system of communication can be used to alert fellow collaborators to possible delays, as well as solicit assistance if necessary.

Implementing the research protocol can be said to begin with preparing staff to execute the research procedures in the appropriate manner. In some cases, where staff has significant experience, little or no training will be required, while others may need substantial training. Collaborators will need to agree on (1) the type of training to conduct, (2) who will administer training, and (3) how to monitor the quality of the training. Disagreement or uncertainty about any aspect of training may unduly influence the quality of the research, impugning the reputation of collaborators and their affiliated institutions.

Collaborator must also agree upon what 'data' will be collected, how it will be collected, who will be responsible for collecting it, where/how it will be stored and managed, and whether it can be shared or not. In some cases, certain members of the collaborative team will collect the data, while others will be responsible for management, analyses, and storage. It is essential that collaborators be clear on how they will be expected to articulate their tasks with specified team members. There should also be mechanisms in place to identify and correct staff deviations from the

research protocol. Staff can be monitored during both planned and unplanned site visits in order to observe performance on assigned tasks. In addition, periodic checks and/or reviews of recorded activities can also be implemented. Regular supervision is a proactive strategy used to avert either unintentional lapses or to identify instances of scientific misconduct. Coordinating this activity between all collaborators may prove difficult, especially if research is being conducted at multiple sites.

There are two primary activities occurring during evaluation:(1) Assessing the validity of the research process itself, and (2) Review and analysis of collected data. Assessing the research process is an ongoing activity useful in identifying deviations or violation of research protocol. This is an important mechanism to monitor how well the members of the collaborative research team are following the protocol.

9.5 Evaluation

During the conceptualization stage, collaborators should have reached an agreement as to the appropriate instrument(s) needed to measure and collect the constructs and variables that define the data. Collaborators must also agree on the appropriate procedure(s) to analyse the data. This decision-making process can range from agreeably clear cut to hostile and contentious, depending on shared or competing philosophical assumptions, past analytic experiences, and the resulting preferences. Disagreements are more likely to occur if collaborators hold distinctly different philosophical assumptions and perspectives about the nature of the data. Selection of analyses can also be influenced by the conventions prominent in specific settings (e.g., academic, government, private industry).

Even when collaborators share a common discipline and setting, there may still be debate over the merits of various preferred analytic procedures. Researchers are not required to understand the intricacies of each evaluative or analytic procedure conducted by their colleagues, especially if they do not share areas of expertise. However, researchers collaborating as authors should be prepared to explain how the interpretation of the findings was reached. "To qualify as an author, each person must be held accountable for the whole paper. This does not mean that each member is

responsible for every part of the paper... since different people may perform different tasks, but each person should be prepared to explain the paper and defend it in public". Thus, as an author, they bear a responsibility to effectively communicate their findings.

9.6 Dissemination

Dissemination, in the context of collaborative research, refers to circulating, distributing, or publishing data, information, or research findings. In this stage of collaboration, there are two targets for dissemination: inside the collaborative group and outside the group. The dissemination of preliminary and final findings, in either written or spoken formats, requires collaborators to agree on:

1. The process for approving all disseminated information
2. Who will be authorized to speak for or represent the collaborative team
3. What audience(s) should be targeted
4. Whether to place restrictions on the free flow of information both inside and outside the group

9.6.1 Dissemination within the group

An important determinant of a functional collaborative relationship is agreement on the flow of project-related information between collaborators. The agreement should establish what is to be shared as well as the mechanism used to distribute it. Collaborators may also have to negotiate issues that could impede the free flow of information within the group. Examples of project-related information include progress reports, the minutes of meetings, modification of protocols, preliminary and final data, and possibly the ideas generated from the research. The dissemination or sharing of data and ideas reinforces the sense of trust and collegiality that forms the basis of the collaborative relationship.

9.6.2 Dissemination outside the group

There are a number of reasons why information is disseminated outside the collaborative group:

- (1) The collaborators, as recipients of funding, may be obliged to submit a final report to sponsoring agencies
- (2) The release of research findings to media outlets
- (3) To share preliminary or final results with colleagues who are not members of the collaborative team
- (4) To prepare submissions to professional journals

While conflicts may occur when collaborators fail to agree on any one of these issues, the issue of preparing and submitting an article for professional journals disproportionately affects academic researchers. It is essential that an agreement on authorship be made at an early stage of collaboration. The agreement should define: (1) an acceptable criterion for contributing as an author, (2) a standard for acceptability regarding format and content of disseminated findings, (3) how credit for specific research findings will be allocated (authorship position).

9.7 Conclusion or Continuation

The decision to conclude, continue, or modify a collaborative relationship can be made during various stages of the research process: (1) During conceptualization, (2) During implementation, and (3) Following implementation:

During conceptualization - The original intent of collaborators may be to conduct an investigation with a limited research parameter. Once the research goal and objectives were achieved, the earlier agreements may have stipulated that the collaboration would conclude. Alternatively, collaborators might have intended that the collaborative research project was to be the initial phase of a series of planned research activities where the direction of subsequent investigations would be

determined by initial findings. In this second case, the configuration of the research team could remain intact, or perhaps new members with additional expertise would have to be recruited.

During implementation - Despite intentions to continue the collaboration beyond the initial study, researchers may change their minds if they discover they are unsuited to work together (e.g., disagreement on training and supervision of staff, unmet deadlines, and incompatible work styles). Conversely, the opposite scenario can also occur when interactions between collaborators are so positive, with such productive outcomes, collaborators may be influenced to continue the collaboration.

Following implementation - Research yielding unexpected findings may guide research into new, unanticipated directions. This may necessitate collaborators to reconsider (1) maintaining the configuration of the collaborative team, (2) modifying it (e.g., expanding or reducing), or (3) concluding and wrapping up the effort.

The decision to conclude or continue should be considered in light of its impact on the responsible conduct of research. The likelihood of making a significant contribution to a field of study must be balanced by the desire of each collaborator to continue as well as the rationale and cost for continuing the collaboration.

10 Impact on Responsible Conduct of Research (RCR)

A brief review of the stages of collaborative research reveals a number of issues that can influence the responsible conduct of research. As noted previously, while the issues can also affect research conducted by independent investigators, the nature and added complexity of the collaborative relationship may demand an increased awareness for researchers during each stage of collaboration. As a result, researchers may be better prepared to avoid or address the consequences of unsolved issues, which may involve delaying or inhibiting progress through each stage.

While some issues may appear to be tied to a particular stage of collaboration, they may have implications to activities occurring in subsequent stages. For example, failure to agree on a policy regarding authorship or data ownership during the

Management stage could have an impact on publication (Dissemination stage) and intentions to use collected data for future studies (Concluding or Continuing stage).

The use of multidisciplinary collaboration has been encouraged to provide a more comprehensive approach to complex research problems. In some cases, the problems require simultaneous approaches from a number of different perspectives. For example, efforts to control an outbreak of avian flu might require the participation of experts in the fields of virology, genetics, informatics, epidemiology, medicine, veterinary medicine, and history. Researchers participating in developing a proposal (Conceptualization stage) should be able to delineate each individual's expected contribution as well demonstrate how they will be integrated into a cohesive whole. This can represent a challenging prospect given the apparent differences in philosophical assumptions, theoretical frameworks, and methodologies. Once implementation has begun, effort will have to be made to ensure that every participant is aware of their roles and responsibilities, following protocol, and maintaining an open line of communication. A breakdown in communication can result in disrupting the progress of the research, incomplete dissemination of information, and a deterioration of collegiality.

Disagreements between collaborators can also occur between researchers sharing a common discipline and research setting. For example, a county health department may seek to release information about the number of cases from an infectious disease by city rather than county, a policy in stark contrast to the state health department's policy which withholds the names of cities where cases are reported. Both departments may justify their positions on ethical grounds (e.g. the right to know vs. right to privacy). This disagreement could have a negative impact on future efforts at collaboration.

As on when there is a call for proposal for the submission of joint research projects, the interested, potential and applicable applicants should inform and share the notification information to the internal project proposal evaluation committee as per the guidelines and suggestions of the committee on developing 'Collaboration

Guidelines/Policies’. Thereafter, the complete research proposal with the consent and agreement of mutually collaborating organization must be submitted to the PMEB Section, with due approval of submission to the respective funding organization/proposal inviting authority.

11 Outcome

The outcome of all the collaborative agreements in terms of revenue, copyright, trademark, royalty and any other intellectual property rights will be handled as per the Karnatak University’s ‘Collaboration Guidelines/Policies ‘from time to time.

12 Conflicts

Even though collaborators may face many of the same challenges as research conducted within, there may be additional challenges that can further complicate the investigatory process. Conflicting research paradigms, conventions, and standards of practice can compromise research integrity. Collaborators may not share the same professional jargon, speak the same language, or understand critical cultural variations. There may also be a difference of opinion as to what the research mission is and how it should be best accomplished. These differences may be compounded when dealing with collaborators coming from disparate settings such as academic institutions, government departments (foreign and domestic), non-governmental organizations, and private industry. Any conflict of interest will be handled by the joint committee of all the collaborative units and Heads of collaborative units will be the deciding authority whose decision is final.

13 Violations of Regulations by Collaborating Institutions

In case of any collaborating institutions violates the regulatory provisions and also terms and conditions of MoU, the approval of collaboration shall be revoked after hearing from the institutions. However, while revoking the permission for collaboration, the interest of students who have already enrolled for collaboration research programme shall be protected. Further, Karnatak University shall also take action under Section 14 of the UGC Act against Violating Institutions.

Any foreign collaborating party which are violating the regulations or else failing to comply with the directions of Karnatak University guidelines may withdraw the approval for collaboration. Further, such violations shall be intimated to University Grants Commission, New Delhi, Ministry of External Affairs of the Government of India, and Embassy of the Foreign Country, for further action as per law of their country. The visa issued to employees of such institution may be withdrawn. Repatriation of funds from India to their origin country may be prohibited with the help of Reserve Bank of India (RBI).

14 UGC Approvals for Collaborative Agreements

All the collaborative agreements will be intimated to University Grants Commission, New Delhi for further intimation and needful permission.

15 Miscellaneous

In addition to the above, all the proposed collaborative agreements must and should fulfil the rules, regulations, guidelines and policies set forth for the similar purpose by the regional, national and international organizations and agreements.