
**Research & Development Cell in
Ramakrishna Mission Vivekananda Educational & Research Institute
(abbreviated as 'RKMVERI')
Deemed to be University declared by the Government of India
under Section 3 of UGC Act, 1956**

Profile of the University and the Academic Endeavours/Activities giving a bird's eye-view of the entire University is uploaded on the website: www.rkmvu.ac.in

At the very outset we invite kind reference to the 'Profile and Activities of RKMVERI' updated as on 6 August 2022, uploaded on the University's website—this is a comprehensive document delineating the 'Academic Thrust Areas', academic programmes (postgraduate, research and outreach/extension) conducted by various 'Schools and Departments' in different Campuses of the University, an exhaustive list of the projects completed and/or in progress in recent years, MoUs for research and other collaborative endeavours with various Institutes, Universities, Agencies, etc. The link for this comprehensive document is: <http://rkmvu.ac.in/profile-2022-08-01>

1. Research & Development (R & D) Cell in Higher Education Institutions

The following extract from the 'Foreword' by Prof. M. Jagadesh Kumar, the Hon'ble Chairman, University Grants Commission (UGC) to the Booklet on 'UGC Guidelines for the formation of R & D Cell in Higher Education Institutions' issued in March 2022 sets the tone and delineates the *raison d'etre* of the formation of these R & D Cells:

"National Education Policy (NEP) 2020 envisages the promotion of quality research within the Higher Education System. Research, innovation and development are important aspects to enhance quality education by the Higher Education Institutions (HEIs). Societal challenges of our country can only be addressed by having a strong and vibrant higher education ecosystem with an emphasis on research, innovation and technology development. The integration of Research, Innovation and Technology Development is the foundation of Atma-Nirbhar Bharat (self-reliant India). I am delighted to present the 'Guidelines for Establishment of Research and Development Cell (RDC) in HEIs'. The establishment of RDC in HEIs will enable attainment of targets of Atma-Nirbhar Bharat and is expected to play a pivotal role in catalyzing research

culture mandated in NEP 2020. The purpose of these guidelines is to put in place a robust mechanism for developing and strengthening the research ecosystem within HEIs, aligned with the provisions of NEP-2020. The essential elements of such an ecosystem, viz., generation of knowledge and facilitation of research, innovation and technology development for industrial & societal benefits, are addressed by human resource, intellectual capital, governance and financial resources, information management system, research promotion & guidance, Integrity and ethics, capacity building and research monitoring. The Guidelines are to create a conducive environment for enhanced research productivity; to encourage collaboration across industry, government, community-based organizations, and agencies at the local, national, and international levels and to facilitate greater access to research through mobilization of resources and funding.

I am confident that the establishment of RDC in HEIs will help in creating new knowledge, creating a research ecosystem for reliable, impactful, and sustained research output and facilitating intellectual growth that would promote quality research and contribute meaningfully towards the goal of a self-reliant India. It is expected that these guidelines would be great help to HEIs in the establishment of RDC. I hope HEIs will find it useful and take the benefits of this initiative of UGC.”

Thus, the essential features on which the envisioned R & D Cell is based are as follows:

- ✓ The National Education Policy (NEP) 2020 envisages the promotion of quality research within the Higher Education system. Research and innovation are important aspects to enhance quality education by the Higher Education Institutions (HEIs).
- ✓ Societal challenges of our country can only be addressed by having a strong and vibrant higher education ecosystem with an emphasis on research, innovation, and technology development.
- ✓ The integration of Research, Innovation and Technology Development is the foundation of Atma-Nirbhar Bharat (self-reliant India). The establishment of Research and Development Cell (RDC) in HEIs will enable attainment of targets of Atma-Nirbhar Bharat and is expected to play a pivotal role in catalyzing multidisciplinary/ transdisciplinary and translational research culture mandated in NEP 2020.

Ramakrishna Mission Vivekananda Educational and Research Institute (hereafter called RKMVERI for short), Deemed to be University declared by the Government of India under the UGC Act, 1956, headquartered at Belur Math in West Bengal, is based upon and attempts to actualize Swami Vivekananda's educational vision, of which NEP 2020 is largely an echo. Listed below are some thoughts of Swami Vivekananda on education.

1.1. Swami Vivekananda on Higher Education

(Abbreviation used in the subsequent paragraphs:

CWSV: The Complete Works of Swami Vivekananda 1995, Calcutta: Advaita Ashrama)

1.1.1. Higher Education to solve the problems of life:

“Does higher education mean mere study of material sciences and turning out things of everyday use by machinery? The use of higher education is to find out how to solve the problems of life, and this is what is engaging the profound thought of the modern civilized world, but it was solved in our country thousands of years ago.” (CWSV 5:368)

1.1.2. Education for being 'Atma-Nirbhar':

“By education I do not mean the present system, but something in the line of positive teaching. Mere book-learning won't do. We want that education by which character is formed, strength of mind is increased, the intellect is expanded, and by which one can stand on one's feet.” (CWSV 5:342)

1.1.3. Education means development of faculty:

“True education may be...described as a development of faculty, not an accumulation of words, or as a training of individuals to will rightly and efficiently.” (CWSV 5:231)

1.1.4. Ideal of education is man-making:

“The ideal of all education, all training, should be this man-making.” (CWSV 2:15)

1.1.5. Education to be a perfect blend of Western and Eastern ideas:

“What we want are Western science coupled with Vedanta, Brahmacharya as the guiding motto, and also Shraddha and faith in one's own self.” (CWSV5:366)

1.1.6. No one can teach anybody—the teacher is merely a ‘facilitator’ to help manifest the knowledge inherent in the student:

“Education is the manifestation of the perfection already in man.” (CWSV 4:358)

“Thus Vedanta says that within man is all knowledge—even in a boy it is so—and it requires only an awakening, and that much is the work of a teacher.” (CWSV 5:366)

“You cannot teach a child any more than you can grow a plant. All you can do is on the negative side—you can only help.” (CWSV 5:410)

“You can take away the obstacles, but knowledge comes out of its own nature. Loosen the soil a little, so that it may come out easily. Put a hedge around it; see that it is not killed by anything, and there your work stops. You cannot do anything else. The rest is a manifestation from *within* its own nature. So with the education of a child; a child educates itself.” (CWSV 4:55)

1.1.7. Education is that by which the will is controlled:

“What is education? Is it book-learning? No. Is it diverse knowledge? Not even that. The training by which the current and expression of will are brought under control and become fruitful is called education.” (CWSV 4:490)

“We have but one method of acquiring knowledge. From the lowest to the highest Yogi, all have to use the same method: and that method is what is called concentration.” (CWSV 1:390)

In the above utterances of Swami Vivekananda, the emphasis on ‘Atma-Nirbharata’ (Self-reliance) is prominent. Societal challenges can only be addressed by having “a strong and vibrant higher education ecosystem with an emphasis on research, innovation, and technology development” and the inspiration would be man’s “faith in one’s own self” and “concentration”. Only then the establishment of Research and Development Cell (RDC) in HEIs will enable attainment of targets of Atma-Nirbhar Bharat and play “a pivotal role in catalyzing multidisciplinary/ transdisciplinary and translational research culture mandated in NEP 2020.”

2. Vision of R & D Cell as per the UGC guidelines

To put in place a robust mechanism for developing and strengthening the research ecosystem within HEIs, aligned with the provisions of NEP 2020. This echoes Swami Vivekananda’s vision in this regard as shown below.

2.1. Swami Vivekananda's Vision in this regard

"What we need you know, is to study, independent of foreign control, different branches of the knowledge that is our own, and with it the English language and the Western Science; we need technical education and all else that may develop industries so that men, instead of seeking for service, may earn enough to provide for themselves, and save something against a rainy day." (CWSV 5:368-69)

"We must have a hold on the spiritual and secular education of the nation. ...You must dream it, you must talk it, you must think it, you must work it out. Till then there is no salvation for the race." (CWSV 3:301)

"...We must have the whole education of our country, spiritual and secular, in our hands, and it must be on national lines, through national methods as far as practical." (CWSV 3:302)

"Of course this is a very big scheme, a very big plan. I do not know whether it will ever work out. But we must begin the work." (CWSV 3:302)

2.2. Vision of RKMVERI (Deemed to be University) in tune with Swami Vivekananda's educational vision, NEP 2020 and UGC guidelines

2.2.1. RKMVERI will be a great centre of learning harmonizing the twin excellences of ancient wisdom and modern knowledge in the light of the Upanishadic dictum: (dve vidye veditavye, para cahivaapara ca) meaning both secular and spiritual wisdom are to be cultivated.

2.2.2. It will strive to create a band of educated men and women of impeccable character and integrated personalities in whom are harmoniously blended the triple faculties of head to think, heart to feel and hands to work, with concentration interpenetrating each of them, through imparting life-building, character making education."

The vision of RKMVERI following the footsteps of Swami Vivekananda and in tune with the vision provided in the UGC guidelines will develop "a robust mechanism for developing and strengthening the research ecosystem" in the institution aligned with the provisions of NEP 2020.

3. Mission of RDC as in UGC guidelines

- 3.1. To create a conducive environment for enhanced research productivity.
- 3.2. To encourage collaboration across industry, government, community-based organizations, and agencies at the local, national, and international levels.
- 3.3. To facilitate greater access to research through mobilization of resources and funding.

4. Swami Vivekananda's thoughts on education in tune with the above mission

Greater access to research, enhanced research productivity and collaborations can be achieved in the light of the following teachings of Swami Vivekananda:

4.1. Power of concentration:

"We have but one method of acquiring knowledge. From the lowest man to the highest Yogi, all have to use the same method; and that method is what is called concentration." (CWSV 2:390)

4.2. Flexibility:

"...Along with the development of concentration we must develop the power of detachment. We must learn not only to attach the mind to one thing exclusively, but also to detach it at a moment's notice and place it upon something else." (CWSV 6:38)

4.3. Wisdom and knowledge:

"To me the very essence of education is concentration of mind, not the collecting of facts. If I had to do my education over again, and had any voice in the matter, I would not study facts at all. I would develop the power of concentration and detachment, and then with a perfect instrument I could collect facts at will. Side by side, in the child, should be developed the power of concentration and detachment." (CWSV 6:38)

4.4. Universities as the Organs of Civilization and Intellectual Adventure:

"My idea of education is personal contact with the teacher—**Gurugriha-vasa**. Without the personal life of a teacher there would be no education." (CWSV 5:224)

"One should live from his very boyhood with one whose character is like a blazing fire and should have before him a living example of the highest teaching. ... In our country, the imparting of knowledge has always been through men of renunciation.

The charge of imparting knowledge should again fall upon the shoulders of Tyagis.” (CWSV 5:369-370)

4.5. “Without faith, humility, submission, and veneration in our hearts towards our religious teacher, there cannot be any growth of religion in us; ...In those countries which have neglected to keep up this kind of relation the religious teacher has become a mere lecturer, the teacher expecting his five dollars and the person taught expecting his brain to be filled with the teacher’s words, and each going his own way after this much has been done.” (CWSV 3:52)

4.6. Physical Education:

“...In spite of the greatness of the Upanishads, in spite of our boasted ancestry of sages, compared to many other races, I must tell you that we are weak, very weak. First of all is our physical weakness. That physical weakness is the cause of at least one-third of our miseries.” (CWSV 3:241)

“...Our young men must be strong. Religion will come afterwards. Be strong, my young friends; that is my advice to you. You will be nearer to Heaven through football than through the study of the Gita. ... You will understand the Gita better with your biceps, your muscles, a little stronger. You will understand the mighty genius and the mighty strength of Krishna better with a little of strong blood in you. You will understand the Upanishads better and the glory of the Atman when your body stands firm upon your feet, and you feel yourselves as men.” (CWSV 3:242)

“My child, what I want is muscles of iron and nerves of steel, inside which dwells a mind of the same material as that of which the thunderbolt is made. Strength, manhood, Kshatra-Virya+Brahma-Teja.” (CWSV 5:117)

4.7. Education as Initiation into a New Life

“The conditions necessary for the taught are purity, a real thirst after knowledge, and perseverance.” (CWSV 3:48)

“As to the thirst after knowledge, it is an old law that we all get whatever we want. None of us can get anything other than what we fix our hearts upon. ... The student who sets out with such a spirit of perseverance will surely find success and realisation at last.” (CWSV 3: 48)

4.8. Knowledge is not mechanical collection of facts and information

“Another thing that we want is the abolition of that system which aims at educating our boys in the same manner as that of the man who battered his ass, being advised that it could thereby be turned into a horse.” (CWSV 5:366)

“Education is not the amount of information that is put into your brains and runs riot there, undigested, all your life.” (CWSV 3:302)

“The ass carrying its load of sandalwood knows only the weight and not the value of the sandalwood. If education is identical with information, the libraries are the greatest sages in the world, and encyclopaedias are the Rishis.” (CWSV 3:302)

“You see, no one can teach anybody. The teacher spoils everything by thinking that he is teaching. Thus Vedanta says that within man is all knowledge—even in a boy it is so—and it requires only an awakening, and that much is the work of a teacher.” (CWSV 5:366)

4.9. Harmony of the faculties of human mind: “reflective (jnana), emotional (bhakti), active (karma)” and meditative (yoga) (Cf. Radhakrishnan Educational Commission)

The Emblem of Ramakrishna Math and Mission designed by Swami Vivekananda himself depicts the ideas of the union of Karma, Jnana, Bhakti and Yoga—“The wavy waters in the picture are the symbolic of Karma; the lotus of Bhakti; and the rising-sun, of Jnana. The encircling serpent is the indicative of Yoga and the awakened Kundalini Shakti, while the swan in the picture stands for the Paramatman (Supreme Self). Therefore the idea of the picture is that by the union of Karma, Jnana, Bhakti, and Yoga, the vision of the Paramatman is obtained.” (CWSV 7:204)

The qualities like the power concentration and detachment (not to attach mind on one thing exclusively but withdrawing at once from a thing when required helps multitasking easier), thirst for knowledge, innovation and not mechanical learning will enable greater access to research and enhanced research activity. Further qualities like physical strength (nothing can be done with physical strength), faith and humility towards teacher (no one can learn without respect for teacher) and above all a balance of karma, jnana, bhakti and yoga in an individual will always help build better relations and thus encourage collaborations.

Interestingly, the recommendations of the *Report of the University Education Commission* like the Radhakrishnan Commission drafted just after Indian Independence echo the above vision of Swami Vivekananda.

5. Some excerpts from recommendations of the 'Report of the University Education Commission' (December 1948–August 1949, First Volume, Second Chapter, First Reprint Edition 1962, Publication No.606) on *The Aims of University Education*:

5.1. The Impact of Political Change:

Great as were the changes that had taken place in the political and economic conditions of Indian society in the years that preceded the transfer of power on August 15, 1947, considerable as was the progress in education during that period, they are less great than the changes that have been crowded into these few months of freedom. The academic problem has assumed new shapes. We have now a wider conception of the duties and responsibilities of universities. They have to provide leadership in politics and administration, the professions, industry and commerce. They have to meet the increasing demand for every type of higher education, literary and scientific, technical and professional. They must enable the country to attain, in as short a time as possible, freedom from want, disease and ignorance, by the application and development of scientific and technical knowledge. India is rich in natural resources and her people have intelligence and energy and are throbbing with renewed life and vigour. It is for the universities to create knowledge and train minds who would bring together the two, material resources and human energies. If our living standards are to be raised, a radical change of spirit is essential.

5.2. Universities as the Organs of Civilisation:

If India is to confront the confusion of our time, she must turn for guidance, not to those who are lost in the mere exigencies of the passing hour, but to her men of letters, and men of science, to her poets and artists, to her discoverers and inventors. These intellectual pioneers of civilization are to be found and trained in the universities, which are the sanctuaries of the inner life of the nation. In simpler conditions of life, in primitive societies, the leader can follow the urge of his instinct and take us to the scene of his vision. In the complex organization of modern life, any reform requires careful thought and planning. Our leaders must be capable of intellectual analysis and imaginative insight.

5.3. Intellectual Adventure:

If our cultural life is to retain its dynamism, it must give up idolatry of the past and strive to realise new dreams. We should think with the young men in the

Latin poem that nothing is done while anything remains to do. All that man has yet done is very little compared to what he is destined to achieve. The present which moves backwards and forwards, which is a summary of the past and a prophecy of the future, is hallowed ground and we who tread on it should face it with the quality of reverence and the spirit of adventure. Universities are the homes of intellectual adventure.

5.4. An Integrated Way of Life:

A life of strenuous endeavour for human betterment is not possible, if we are not persuaded that life has a meaning. Many of our popular writers today seem to be possessed by the one desire to escape from the world of meaning and teach us the essential purposelessness of life. They make us believe, with a good deal of cleverness and sophistry, that life is infinitely complicated and totally inexplicable. Many of our students are taught to assume that free-will and personal responsibility are illusions, that human beings are conditioned almost wholly by their physical make-up and the society in which they live, and that the only sense that the religious statements make is emotional and subjective. This is a generation which knows how to doubt but not how to admire, much less to believe. This aimlessness, this indifference to basic issues, is to no small extent, responsible for the decline of standards, for the fading of ideals, for the defeat of human endeavour.

The purpose of all education, it is admitted by thinkers of East and west, is to provide a coherent picture of the universe and an integrated way of life. We must obtain through it a sense of perspective, a synoptic vision, a samanvaya of the different items of knowledge. Man cannot live by a mass of disconnected information. He has a passion for an ordered intellectual vision of the connections of things. Life is one in all its varied manifestations. We, may study the factual relations of the different manifestations but. we must have knowledge of life as a whole. It cannot be a collection of distracting scraps but should be a harmony of patterns. The subjects we study must be taught as parts of a connected curriculum.

5.5. Wisdom and Knowledge:

Our ancient teachers tried to teach subjects and impart wisdom. Their ideal was wisdom (*irfan*) along with knowledge (*ilm*), *jnanam vijnanasahitam* (Bhagavata Gita IX.I). We cannot be wise without some basis of knowledge though we may easily acquire knowledge and remain devoid of wisdom. To use the words of the Upanishad, we may be the knowers of texts (*mantravid*) and not knowers of self

(*atmavid*) (Chandogya Upanishad VII.7.3). Plato distinguishes between factual information and understanding. No amount of factual information would make ordinary men into educated or 'virtuous' men unless something is awakened in them, an innate ability to live the life of the soul.

"Where is the wisdom we have lost in knowledge?

Where is the knowledge we have lost in information?

The cycles of Heaven in twenty centuries

Bring us farther from God and nearer to the dust." (T.S Eliot)

5.6. Education as Growth:

The function of education is the guidance of this adventure to the realization of the potentialities of each individual in the face of the actual world of men and things. It aims at the development of the individual, the discovery, training and utilization of his special talents. Like all living organisms the individual grows by the impulse of his own self-development. The natural tendency of the child is to grow into maturity. From complete dependence on others the child has to grow into relative independence. The function of the teacher is to assist the growth by stimulation and guidance. The growth is advanced by the acquisition of knowledge and skills. These later are intended to set free and develop the possibilities of human individuals. Education is not a discipline imposed from above on an apathetic if acquiescent nature. It is a process of leading up the inward nature to its fulfilment. All true development is self-development. The process of education as growth is continuous and lifelong. It is said that a pupil gets a fourth of his education from his teacher another fourth by his own intellectual effort, a third fourth from his fellow students and the rest in course of time through life and experience (*acharyaat paadam aadhatte sisayah paadam svamedhayaa; paadam sa-brahmacharibhyo' paadam kaalakramena tu*). We learn from the teacher, by ourselves, from one another and from life or experience. Education is not always formal. Where we have a number of keen young men as members of an intellectual community, they educate one another through the daily give and take. Experience is a great teacher. We learn daily and hourly from our home, from our community, from the press, the radio and the movies. All life is experience and therefore education. As Tennyson famously wrote in his famous poem 'Ulysses':

"I am a part of all that I have met;

Yet all experience is an arch wherethro'

Gleams that untravell'd world whose margin fades

For ever and forever when I move." ...

"Tho' much is taken, much abides; and tho'

We are not now that strength which in old days

Moved earth and heaven, that which we are, we are;

One equal temper of heroic hearts,

Made weak by time and fate, but strong in will

To strive, to seek, to find, and not to yield."

(This poem, though not occurring in the Radhakrishnan Commission document, has been added by us as it seems to be so relevant to the flow of this discussion)

5.7. Physical Education:

Human beings are psycho-physical in nature. They have bodies which obey certain definite laws of growth. These must be kept in a state of health and physical fitness. Education of the body through physical exercises, sports and athletic activities helps to develop qualities of initiative, courage, discipline, fair play and team spirit. We cannot realise fully our intellectual possibilities without health and physical vigour. No. great nation can be built without strong physical foundations.

5.8. The Triune Character of the Human Mind:

Human beings, are not all built in the same way. They are of different types, reflective, emotional or active, though they are not exclusively so. They are distinguished on account of the dominance of emphasis of the one or the other. Cognition, feeling and will, though logically distinguishable are not really separable in the concrete life of mind. These three sides which answer to the familiar distinction of jnana, bhakti and karma, express themselves through theoretical contemplation, aesthetic enjoyment and practical activity. These are found in different proportions in different individuals. The true educator should understand the psychological make-up, the svabhava of the pupil and adapt his teaching to the mind of the pupil. The difficulty is to discover the true inward being of each individual. In the same family we have individuals of different temperaments. A seer of the Rg Veda says: "I am a poet. (karuh), my father is a physician (bhisag) and my mother a grinder of corn (upalapraksini) . Even as medical men treat their patients. with a view to their individual defects and prescribe remedies against the particular diseases to which they are inclined, the teachers, should discover the tendencies and weaknesses of the individual pupils encourage their desirable aptitudes and cure the weaknesses to which they are inclined. In a well-planned educational system, opportunities will be provided at

every level to the pupils for the exercise of their reflective powers, artistic abilities and practical work. The sensitive teachers will be able to find out the mental make-up of the pupil whether he has in him more of the reflective or the artistic or the practical bent. If he is reflective, he must find out whether he has philosophic or scientific, mathematical or linguistic talents; if he is artistic, he must discover whether he has taste for literature or music, painting or sculpture; if he is practical minded, he must notice whether he is a great experimenter or is mechanically minded. These varying tendencies can be discovered at the Secondary School stage and if proper guidance is provided, much wastage at the later stages will be avoided. Secondary Schools are expected to offer many different kinds of vocational training. It is wrong, to think that the more intelligent go to the universities and the less intelligent to technical schools. Success in a technical school requires as high an intelligence as success in a purely literary or scientific course. It may be of a different kind even as pupils are of different kinds, meditative or mechanical, scientific or artistic. Bookishness or the manipulation of concepts is not the only kind of intelligence. The new Secondary Schools should insist on the equal dignity and importance of the different courses they offer.

5.9. Unity of Mind and Interdependence of Knowledge:

If education is to guide the individual towards the comprehension of the art of life, it must energise his whole being and give him ideas of nature, society and values. Human mind is a unity and all knowledge is interdependent. In a sense every study should excite and satisfy the different mental powers. It must give, the pupils intellectual vision, aesthetic enjoyment and practical power. Education must look to the whole man. Karl Marx says "The education of the future will in the case of every child over a certain age, combine productive labour with education (unterricht) and athletics (gymnastik) not merely as one of the methods of raising social production but as the only method of producing fully developed human beings." On this question of learning through doing Marx and Gandhi agree. Whether we are being introduced to the delights of literature, or the wonders of science, or the pride of craftsmanship our whole being must be at work. Only then is, education turned into joy triumphing over weariness and pain. While a general understanding of the scientific method, of the history of our society and the world and literature which feeds our imagination and stabilises our emotional life is to be regarded as a part of general education for all, professional education trains the students for competence in an occupation. Education has among others this double aim of preparing for a particular

vocation and also for citizenship in a democratic community. These two ends are not exclusive of each other. If knowledge is power all education is both pure and professional. The vocation may well require specialization in humanities or social sciences. Professional education is different from general education, not so much in its subject matter as in its method, outlook and objective. To give a basic understanding of the principles of science, history and literature is the aim of the general course; to train experts in them is the aim of the specialized course.

5.10. Learning 'must become vibrant with power, radiant with light':

The process of education becomes dull and boring if we are unable to interest the live minds of the students. What they learn unwillingly becomes dead knowledge which is worse than ignorance. Learning is an activity of thought. It is not stuffing the mind with facts. We must be able to use what we learn, test it, throw it into fresh combinations. It must become vibrant with power, radiant with light.

5.11. Education as Initiation into a New Life:

Education, according to the Indian tradition, is not merely a means to earning a living; nor is it only a nursery of thought or a school for citizenship. It is initiation into the life of spirit, a training of human souls in the pursuit of truth and the practice of virtue. It is a second birth, *divitiyam janma*.

5.12. Inadequacy of Education as adjustment to society:

It is of course true that we should mould students to a pattern that is sanctioned by the past if society, is not to become discontinuous. Education is a means by which society perpetuates itself. In 1852 Newman defined the function of the university thus: 'If a practical end must be assigned to a university course, then I say it is training good members of society'. No system of education could be directed to the weakening of the State that maintains it. But education is also an instrument for social change. It should not be its aim merely to enable us to adjust ourselves to the social environment. We must train people not merely to be citizens but also to be individuals. Many systems of education tend to transform the individual, who might otherwise seek to rise above the type, into the representative of the community. On such a scheme we cannot get leaders, who with new values transform the community. There is no stimulus to individuality, to being in any respect distinct or different from one's surroundings. The aim of education should be to break ground for new values and make them possible.

5.13. Flexibility of the Educational System:

The institutions of democracy must be flexible, capable of adaptation to the changing needs and conditions of men. We must make modifications whenever we feel that changes are necessary to realise more effectively the ends of individual development and social welfare. Educational systems are built for a time and not for all time. There are no changeless ways of educating human nature. A curriculum which has vitality in the Vedic period or the Renaissance cannot continue unaltered in the 20th Century. Realizing that the vision of free men in a free society is the living faith and inspiring guide of democratic institutions, we must move towards that goal adapting wisely and well to changing conditions.

6. Mission of RKMVERI

- 6.1. Pursuit of Excellence:** To strive for excellence in teaching, research and all academic endeavours.
- 6.2. Harmonious Blending of Eastern and Western Values:** To inculcate ancient values like sacredness of knowledge, shraddha, purity, truth and unselfishness, blending them with the predominantly western values like scientific temper, rational outlook, technological efficiency, teamwork, professional integrity and work ethics.
- 6.3. Social responsibility:** To train and educate the youth by fostering social responsibility to become worthy citizens as well as to effectively participate in the enormous task of society through building of individual character, cast in the mould of harmony and peace.

The above mission of RKMVERI echoing the ideas of Swami Vivekananda on education is also in tune with the Radhakrishnan Report on University Education Commission 1948-49 and again with NEP 2020. Thus we may justifiably state that the mission of RKMVERI serves to fulfil the needs as laid down in the UGC guidelines such as:

6.3.1. Create a conducive environment for enhanced research productivity.

Encourage collaboration across industry, government, community-based organizations, and agencies at the local, national, and international levels.

6.3.2. Facilitate greater access to research through mobilization of resources and funding.

7. Objectives of R & Development Cell (RDC) as given in the UGC guidelines

- 7.1. To create an organizational structure with role-based functions of RDC, formulate Research Policy for the HEIs, identify thrust areas of research, and form related cluster groups/ frontline teams/ consortia of researchers.
- 7.2. To create enabling provisions in Research Policies for recruitment of research personnel, procurement of equipment, and financial management with adequate autonomy to the Principal Investigator(s) and disseminate research outcomes to stakeholders and the public at large.
- 7.3. To establish a special purpose vehicle to promote researchers and innovators, identify potential collaborators from industry, research organizations, academic institutions & other stakeholders for cooperation and synergistic partnerships.
- 7.4. To act as a liaison between researchers & relevant research funding agencies, extend guidance in preparation & submission of project proposals and post-sanctioning of the grants to oversee adherence to timelines.
- 7.5. To have better coordination among other cells/centers dealing with University-Industry Inter Linkage, Incubation, Innovation and Entrepreneurship Development and Intellectual Property Rights (IPR).
- 7.6. To develop an Institutional Research Information System for sharing the status of ongoing/completed research projects/programmes, expertise & resources, etc., making effective use of Information and Communication Technology (ICT) for preparing the database of in-house experts to provide industrial consultancy and services.
- 7.7. To engage and utilize the services of superannuated active faculty/scientists in research capacity building of talented young minds and promote mobility of researchers across institutions and R&D Labs.
- 7.8. To serve as nodal center for ideation and conceptualization of research topics/themes by organizing workshops and training programs and ensuring the integrity and ethical practices in research activities including clearance of bioethical committee wherever required.

8. Initiatives by RKMVERI to realize the objectives provided in UGC guidelines

The details in this regard are given in the document uploaded on the University website – see the following link:

RKMVERI - Research and Development:

<http://rkmvu.ac.in/research/rkmveri-rd-related/>

The above document has been updated with research publications, journals, MoUs, Research Centres and many more details to show the vibrant Research Ecosystem in our Deemed University, RKMVERI.

Needless to say, this page will be continuously updated with the addition of more and more information/data as the Research Ecosystem of RKMVERI grows in quantity and quality. It will further be refashioned, its structure, contents, design, etc., undergoing continuous modifications for the better.

9. Functions of RDC as given in the UGC guidelines

UGC's initiative is to establish a RDC in HEIs with the mandate for promoting quality research that contributes meaningfully towards the goal of a self-reliant India ('Atma-Nirbhar Bharat'), aligned with the provisions of NEP 2020. The RDC would help creating a research ecosystem for reliable, impactful, and sustained research output. The essential elements of such an ecosystem, namely, generation of knowledge and facilitation of research, innovation and technology development for industrial and societal benefits, are addressed by human resource (researchers and faculty), intellectual capital (knowledge and skills), governance (regulation and policies) and financial resources (funding and grants).

9.1. Functions of RKMVERI's RDC in tune with the UGC guidelines

Once again, reference is being drawn to the link given above to the RKMVERI website:

RKMVERI - Research and Development

<http://rkmvu.ac.in/research/rkmveri-rd-related/>

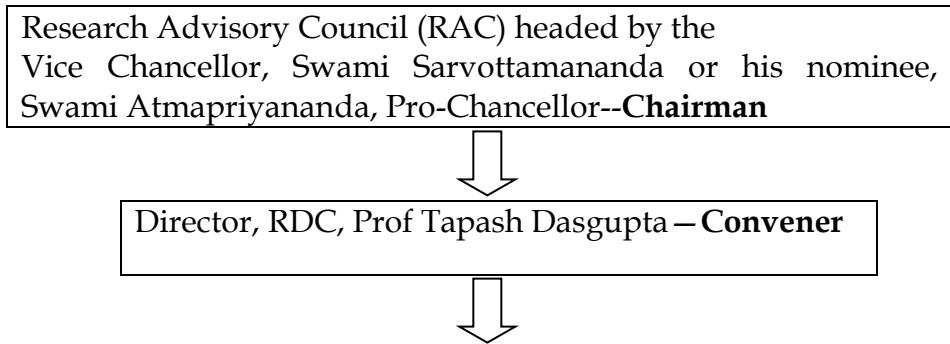
for all the details in this regard, with the latest updates (as on 6 August 2022).

10. Efficient Governance Mechanism of RKMVERI's RDC

- 10.1.** The Research Governance has a Research Advisory Council (RAC) headed by the Vice Chancellor, Swami Sarvottamananda or his nominee, Swami Atmapriyananda, Pro-Chancellor, as the apex body of RDC.
- 10.2.** The Director, Prof. Tapash Dasgupta, Dean of the School of Agriculture and Rural Development, nominated by Vice Chancellor from among the distinguished researchers from the University, who will head various committees to drive the governance.
- 10.3.** RDC has multiple committees to smoothen its functioning with respective committee members nominated by the Director, RDC, and approved by RAC.

The Chairman (Head) of the RAC and the Convener (Director) will be ex-officio members of all the Committees.

10.4. The organizational structure of RDC of RKMVERI comprising of various committees for specified functions is as follows:



Committee-1	Committee-2	Committee-3	Committee-4	Committee-5
<u>Finance and Infrastructure:</u> Registrar, Deputy Registrar, Finance Officer, Accounts Dept. staff	<u>Research Program, Policy Development:</u> Two or three active research faculty from the various Depts., total: 25-30 (from 12 Depts)	<u>Collaboration and Community:</u> Same as Committee-2	<u>Product Development, Monitoring, and Commercialization:</u> Heads and some faculty/senior research staff of the various Depts., total: 12-15 from all the Depts.	<u>IPR, Legal & Ethical Matters:</u> Institutional Ethical Committee members, Academic Coordinators, legal experts

The aim is to:

- ✓ Ensure functional autonomy, transparency, accountability, adaptability by strengthening interlinkages to create a conducive research environment.
- ✓ Fostering the human elements (faculty, staff, scholars, and students), logistics (land, buildings, and facilities), knowledge resources (research equipment, project utilities, and consumables), fund flow, etc. through a steady, proficient, effective governance (Rules, Norms, and Policies) and financial (Grants and Funds) management.
- ✓ Establishing an effective and robust Research Governance in RDC.

11. Administration of RKMVERI's RDC in tune with the UGC guidelines

- 11.1.** The organizational structure of RDC (Bodies, Authorities and Committees) will assist planning, execution, and monitoring of research activities in RKMVERI and also formulate rules, regulations, and policy frameworks for utilization of facilities and resources at the institution.
- 11.2.** Strategy adopted (to especially promote 'Translational Research' – 'land to bedside' particularly in Biomedical Research) to integrate multiple functional units which can hold up institutional research under a single-window operational system for effective administration. For example, certain areas of biomedical research, rather neglected, but urgently needed for the rural population have been taken up by the School of Biological Sciences in the Dept. of Biomedical Science and Technology.
- 11.3.** The activities of RDC are mentored and monitored by various committees for devising research models, technology, appraisal, foresight & review functions, mediating sectoral R&D progress, and IPR protection.
- 11.4.** RDC will be keeping a close contact with Ministry Innovation Cell to make use of various innovative plans for facilitating the researchers.

12. Research Ecosystem/Collaboration in RKMVERI

A vibrant research ecosystem in the Institute RKMVERI aims to provide meaningful thrust for sustainable research and innovation and promote collaboration between government, universities, research institutes and industries and to build a sustainable research ecosystem that leads to consistent quality research outcomes and enhanced productivity.

- 12.1.** In order to make RDC functionality viable, RKMVERI have developed connections and research collaborations with well-known/established Institutes/Research Hospitals for research.
- 12.2.** RDC in RKMVERI will act as a facilitator for networking and collaborative research with other national and international institutions working in inter- disciplinary, trans-disciplinary, and multidisciplinary research areas.

- 12.3. Reformed administrative structure at RKMVERI will reach out to key industry players, research organizations, institutions, associations, NGOs, government bodies to forge strategic partnerships.
- 12.4. RKMVERI has already established collaborations, teams/consortia, partnerships, and combined ventures for joint research activities through clustering institutions and organizations to facilitate the exchange of students, scholars, and faculty. These collaborations are prominently displayed on the University website.
- 12.5. The need to strengthen resource sharing in content and infrastructure both within the university and among universities, funding agencies, industries, corporates and the Government has been well recognized and being implemented.

The following is a fairly exhaustive list of MoUs (Memoranda of Understanding) signed by RKMVERI with various Governmental and non-Governmental Agencies, Institutes, Universities, etc., in India and abroad for research collaborations:

MoUs (Memoranda of Understanding) signed with the following Agencies/Institutes/Universities:

- (1) NIMHANS Bengaluru (for Consciousness research),
- (2) INK (Inst. of Neurosciences) Kolkata (for neuro-physiological research),
- (3) Tata Medical Centre for Kolkata (for research in cancer biology and oncological biotechnology),
- (4) Chittaranjan National Cancer Institute, Kolkata (for research in cancer biology and oncological biotechnology),
- (5) Ramakrishna Mission Seva Pratishthan Hospital, Kolkata (for research in multi-disciplinary medical fields),
- (6) Indian Council for Agricultural Research (ICAR), Govt. of India (for research in various fields in agriculture),
- (7) Department of Disaster Management and Civil Defence, Govt. of West Bengal (for 'Swami Vivekananda Chair in Environment and Disaster Management'),
- (8) Visva-Bharati (Central University, Shantiniketan (for research in the area of 'Translational Studies'),
- (9) University of Calcutta (for research in Sports Sciences),
- (10) Sava Yoga International and Italian Yoga Federation, Italy (for research in Yoga),

- (11) Peerless Hospital and BK Roy Research Centre, Kolkata (for various biomedical fields with particular reference to Medical Laboratory Science and Technology; Critical Care Science and Technology),
- (12) Sree Venkateswara Vedic University, Tirupati (for promotion of Sanskrit),
- (13) ICAR-National Rice Institute, Cuttack, Odisha (for agricultural research),
- (14) Indian Council of Agricultural Research [for two Krishi Vigyan Kendras (KVKs) for agricultural research technology transfer--one KVK in Arapanch, Dist. 24-Parganas South, another KVK in Sargachhi, Murshidabad),
- (15) Sports Authority of India, New Delhi (for research in Sports Science),
- (16) Special Olympics Asia Specific and Special Olympics Bharat (for research in special olympics and the intellectually challenged),
- (17) University of California Davis (Center for Excellence in Nutritional Genomics (CENG) and its Global HealthShare® (GHS), USA (for research in Agricultural Science in relation to food security and public health)
- (18) Dept. of Agriculture, Government of Jharkhand (for research in various fields of agriculture),
- (19) Laxmibai National Institute of Physical Education, Gwalior (for research in Sports Science),
- (20) Divine Life Society, Rishikesh (for research in Yoga-Vedanta, Sanskrit, ancient Indian spiritual heritage, etc.),
- (21) Department for the Welfare of the Differently Abled (Disability Commission), Government of Tamil Nadu (for research in differently abled--visual impaired, hearing impaired, mentally retarded, intellectually disabled, etc.),
- (22) Rotary Club (for the development of an 'Integrated Sports Complex' in the Coimbatore 'Off-Campus' Centre for research in Sports Science including Adapted Sports for the disabled),
- (23) The Chatterjee Group--Centres for Research in Engineering, Science and Technology (TCG-CREST), Kolkata (for research in computer science, data science, machine learning, artificial intelligence, etc.),
- (24) Variable Energy Cyclotron Centre (VECC), Kolkata (for research collaboration with RKMVERI's Dept. of Computer Science--with special reference to robotics and sign language).

13. Understanding Research Ecosystem /Collaboration from the Western Perspective

Excerpts given below are from a research paper by Michelle L.A. Nelson and Ross Upshur) published in OCUFA'S Journal of Higher Education: "Healthy research ecosystem—healthy researchers? The researcher as an organism of focus within a research ecosystem" (the Fall 2019 Issue)—this paper gives fresh insights into Research Ecosystem from the Western perspective and may be useful as a comparative study with the Indian perspective.

13.1. The researcher in research ecosystem

The consensus in the Canadian research community is that the current research ecosystem is not in its healthiest state, and is unable to support itself. The modern scientific research environment has been characterized as hypercompetitive, with an increasing number of investigators and scientists competing for a flat or decreasing amount of available research funding. Secure research positions across the spectrum of academic disciplines are diminishing with a corresponding concern about the ability of younger researchers to commence and sustain careers. Data from grant competitions indicate that those with established track records are generally more successful than those without. The Canadian Institutes of Health Research noted in its President's Report that persistent inequalities and inequities exist, particularly with respect to gender, age, and opportunities for scientists representing disadvantaged populations (such as Indigenous Peoples).

It has been noted that many new investigators are dependent upon senior scientists for sustaining their careers. Younger researchers experience prolonged stays in post-doctoral fellowships as tenure-stream and research institute scientist positions become increasingly scarce. It has been reported that only 18.6 per cent of PhDs were employed in full-time faculty positions (both tenure-stream and contract faculty), despite the majority of people entering doctoral degrees with the intention of becoming a university professor. In Ontario, senior colleagues are remaining in their faculty appointments into their seventies; a trend thought to be partly to blame for decreasing faculty positions for early career researchers. This is mentioned in the Naylor (Report of Professor David Naylor in 2017 released the Investing in Canada's Future: Strengthening the Foundations of Canadian Research) report:

The abolition of mandatory retirement led to an increase in the number of faculty members still working full time past age 65. This situation has increased the need for a comprehensive lifecycle plan.

Many early career scientists report spending a disproportionate amount of their time pursuing funding to become self-supporting, but also report having limited access to the necessary administrative support to achieve these goals. There is significant pressure to publish and demonstrate the impact and importance of their research, even if it is in its infancy. The average age at which an investigator receives their first grant as a principle investigator is increasing.

This perilous state of affairs has led many young researchers to consider abandoning their research careers. A literature called “quit lit” has emerged, documenting the not-so-happy experiences of young researchers. In one report, when early career researchers were asked about the challenges for young scientists, one individual replied: “old scientists.” Given the increasingly competitive nature of the research ecosystem, notions of a sustainable research ecosystem will need to grapple with how these resources can be managed.

It should be noted that mid- and late-career researchers report many of the same concerns. Salary support is difficult to obtain for those who have not secured tenure. The soft money economy that sustains research is reliant on continuous funding and the disruptions caused by failing to get continuous funding, imperils research programs that have not quite reached maturity.

Most research institutions cannot fully bridge-fund investigators while waiting for success in the next funding cycle, which may cause invaluable research team members to seek employment elsewhere. Senior investigators undergo periodic review with an expectation that they will meet performance metrics related to publications, citations, and the dollar values of grants. In university settings, merit pay is often tied to similar expectations of research performance. These standards are rarely tailored to the achievements and career stage of senior investigators, rather they are a one size fits all performance evaluation structure.

The current situation reflects choices (or adaptations), for the most part, that are made within the research ecosystem. The current metrics used to evaluate researchers’ productivity reflect the values of the research community. If incentives are structured to foster competition and value certain processes and outputs over others, then the consequences will be clear and stark: predators will eat the prey, disequilibrium will occur, and the system will collapse.

In our current research system, salary support usually comes from institutions such as universities and research institutes. Researchers are encouraged to seek prestigious

external funding for salary support, including new investigator awards and research chairs. There are also provincially supported career research awards and, in some instances, chairs associated with philanthropy. These awards typically reduce funding pressure on institutions and bring associated overhead costs with them. Researchers are expected to apply for external funding to support their research operating costs and support the training of undergraduate and graduate students, as well as post-doctoral fellows. Continued success in competitive funding cycles is required for research programs to grow and for careers to flourish.

There is no cap or ceiling on how much funding any one researcher can hold at any given time in their career or over their career. This open-ended policy is intended to reflect the meritocratic spirit of research; the most successful have demonstrated their ability to acquire funding and produce high-quality results, and use these results to acquire ongoing funding. There are good arguments for apportioning resources to researchers according to which stage they are at in the research lifecycle. In the Naylor's report:

One approach, among others, would be to aim for higher success rates for [early career researchers], and gradually shift that balance through career stages with lower success rates for established researchers who will often be pursuing much larger grants that bear closer scrutiny."

It may be better to allocate funds in protected envelopes for various career stages and set career limits for investigators as suggested by the U.S. National Institutes of Health (NIH). However, care must be taken not to discriminate against senior researchers.

13.2. Researchers as creators and recipients of ecosystem resources

One way of adapting lifecycle thinking into research ecosystem is to see researchers as both providers and consumers of ecosystem providers and consumers of ecosystem services and resources. Thinking from a lifecycle approach, it may be wise to structure the ecosystem to protect younger faculty from over engaging in service commitments such as committee membership, teaching, renewing grants and manuscripts, while increasing incentives for senior faculty to be engaged and taking leadership in these areas. The lifecycle of a researcher could be, and should be, discussed and debated extensively, but it strikes us that the central issue comes down to performance metrics that are representative of norms and values. The highest value arising from a research ecosystem is not simply the production of "knowledge product." The modern scientific world is a complex ecosystem that requires service in a variety of different processes,

each of which requires support and nourishment. Over valuing particular facets of this has led to a hypercompetitive environment with seriously perverse incentives for behaviors that are not in the collective good. If we understand research as a broadly social enterprise, being the most truth aspiring activity that humanity can engage in, then reconsidering all elements of the research ecosystem and redirecting resources to support and nourish it may well be in order.

14. Research Ecosystem/Collaboration in RKMVERI

RKMVERI has taken the initiative to build a sustainable research ecosystem that will lead to consistent quality research outcomes and enhanced productivity. The following passage quoted from the article by Michelle L.A. Nelson and Ross Upshur in Section 8.1., above provides useful guidelines in this regard:

“Thinking from a lifecycle approach, it may be wise to structure the ecosystem to protect younger faculty from over engaging in service commitments such as committee membership, teaching, renewing grants and manuscripts, while increasing incentives for senior faculty to be engaged and taking leadership in these areas. The highest value arising from a research ecosystem is not simply the production of “knowledge product.” Researchers are encouraged to seek prestigious external funding for salary support, including new investigator awards and research chairs. There are also provincially supported career research awards and, in some instances, chairs associated with philanthropy. These awards typically reduce funding pressure on institutions and bring associated overhead costs with them. Researchers are expected to apply for external funding to support their research operating costs and support the training of undergraduate and graduate students, as well as post-doctoral fellows.”

- 14.1.** For the purpose of making RDC in RKMVERI viable, initiative is being taken to develop a connection with RDCs of already well-known/established HEIs to as a facilitator for networking and collaborative research with other national and international institutions working in inter-disciplinary, trans-disciplinary, and multidisciplinary research areas. The different outreach/extension programmes and the various MoUs signed for extensive research activities has been posted on the University website updated as on 6 August 2022 and continuously being updated as the activities keep growing in quantity and quality, the link for this being: <http://rkmvu.ac.in/research/rkmveri-rd-related/>

- 14.2.** Reference is also drawn, as stated in the very beginning of this document, to the 'Profile and Activities of RKMVERI' updated as on 6 August 2022 on the University's website, which is a comprehensive document delineating the 'Academic Thrust Areas', various 'Schools and Departments in different Campuses of the University', exhaustive list of project completed and/or in progress in recent years, MoUs for research and other collaborative endeavours with various Institute, Universities, Agencies, etc. The link for this comprehensive document is as follows: <http://rkmvu.ac.in/profile-2022-08-01>
- 15.** Reformed administrative structure at RKMVERI will aim to reach out to key industry players, research organizations, institutions, associations, NGOs, government bodies to forge strategic partnerships and establish collaborations, teams/consortia, partnerships, and combined ventures for joint research activities through clustering institutions and organizations to facilitate the exchange of students, scholars and the faculty.
- 16. Research Information Management System as per the UGC guidelines**
- 16.1.** Since HEIs play a key role in the advancement of research and innovation as two distinct entities through Research Information Management System (RIMS) for the benefit of faculty, students, industry and other stakeholders, HEIs should put in place a RIMS to collect and manage research-oriented information, databases, publications, research projects, fellowships, collaborations, patents, thrust areas, innovations etc. aligned with the institution's research policies.
- 16.2.** RIMS would also provide a platform for accessing resource-centric information pertaining to human capital (Expertise), physical capital (State-of-Art Research Laboratories and Sophisticated Instrumentation Facility), and knowledge capital (Digital Library & Information, Intellectual Property Facilitation, Quantitative Methods & Data Analysis, Analytical and Consultancy Services). As per the requirements of various regulatory agencies, researchers can submit, modify, or update their research compliances such as protocol approval, training records, equipment lists, etc.
- 16.3.** RIMS can provide a centralized and integrated database to manage issues related to and radioactive-safety approval clearances for use and disposal of biological, chemical and radioactive hazardous materials, protective

equipment measures, surveillance of staff, appropriate trainings/workshops, etc.

- 16.4. Each HEI needs to create a blog or portal for Institutional Research Information and Institutional Repository and sign an MoU with UGC-INFLIBNET to access and upload the research information through Shodh Ganga, Shodh Gangotri, Shodh Sindhu, Shodh Shuddhi, and Shodh Chakra. The Innovation Management (ISO 56002:2019) can be implemented as a common framework to develop and deploy innovation capabilities, evaluate performance, and achieve intended outcomes of global standards.

17. Information Management System in RKMVERI

RKMVERI has an MoU with UGC-INFLIBNET and is in the process of developing a comprehensive RIMS as the UGC guidelines.

17.1. Information about seminars, workshops, and other research related activities

In the Institute's ERP Application (a web based internal portal) all the information about the seminars, workshops, and other research related activities are stored and is accessible to all faculty and research fellows.

17.2. Research projects

Basic Information about the research projects undertaken by various departments is tracked on their respective websites and their detailed information is tracked in the Institute's ERP Application which is used by the faculty and those involved in the research projects.

17.3. Information about Faculty, Research Scholars (PhD) and Post Docs involved in research and development activities

Basic Information about the faculty, PhDs and post-doctoral Fellows at various departments is tracked on their respective websites and their detailed information is tracked in the Institute's ERP Application which is used by the faculty and those involved in research.

18. Human Resources of RKMVERI as per UGC guidelines

- 18.1. The Director of RDC, the Conveners and members of various committees (nominated by the Director of RDC from/among the existing faculties

with research credentials) and supporting administrative/technical staff seeks to ensure smooth conduct of the research activities.

- 18.2. Re-employing or designating superannuated faculty/scientists with exceptional research profiles and eminent faculty as Mentors/Scientists/Professor Emeritus on a selective basis is being initiated afresh as such a system has been newly introduced by UGC in the R & D guidelines in pursuance of the NEP 2020, as a departure from the old system wherein such retired research faculty/scientists were usually kept out of the research ecosystem. This will certainly help to build a resilient research ecosystem in RKMVERI. Also, RKMVERI is ensuring that distinguished faculty or research scientists grooming young talents will help replenish the void created as a result of superannuated faculty/researchers in RKMVERI.

19. Research Promotion & Guidance

- 19.1. Research promotion activities are aligned with the mandates of various National Missions, SDGs, Start-up India leading to a Self-Reliant India (Atma-Nirbhar Bharat).
- 19.2. Research guidance from RDC will aim to encourage the research faculty to conceive ideas through enhanced industry-academia interactions and prepare research proposals for funding from various agencies. Organizing events like capacity-building programs (Research Methodology and Research Techniques) and specific research theme-based workshops and Research Internships is being undertaken to motivate the end-users (students, scholars, and faculty) to participate actively in the process of ideation and innovative research in emerging areas.

20. Research Thrust and Clustered Areas

- 20.1. Since inception, RKMVERI which is a humble by Ramakrishna Mission (the Sponsoring Society) to actualize however infinitesimally Swami Vivekananda's educational vision, has identified certain 'Thrust Areas' which are 'gap areas' in the sense that these are scarcely addressed by other conventional Universities, besides being areas that would directly benefit the common masses of people by enhancing their quality of life. Swami Vivekananda poignantly said: "So long as the millions live in hunger and ignorance, I hold every man a traitor who, having been

educated at their expense, pays not the least heed to them". RKMVERI is therefore firmly committed to orientate all its programmes to this end of social regeneration, uplift of the masses, reaching the unreached, marginalized and neglected sections of the society. RKMVERI, true to its mission bequeathed by its founder, Swami Vivekananda, strives to undertake what is called 'Translational Research' for the benefit of the society, by identifying and underpinning the societal needs and the availability of key resources, including in-house human resources, faculty research competencies, and support systems. RKMVERI is thus set to create a unique model of HEI wherein education is shown as a lever for social uplift and amelioration of the masses besides being a lever for character-building at the individual level. As an example may be cited the thrust area, 'Integrated Rural and Tribal Development', one of the earliest 'thrust areas' chosen since the very inception is successfully being implemented by RKMVERI. We are planning to establish two Centres of Excellence (CoE): one, 'Centre for Humanistic Sciences and Humanitarian Activities'; two, 'Centre for Environment and Disaster Management', thus achieving excellence in contemporary research on the one hand and building up the individual moral character of the educated youth – *atmano mokshartham jagaddhiya cha* ('for one's own liberation and for the welfare of the world') as Swami Vivekananda taught.

- 20.2. Research Clusters and/or Regional Research Consortia will be prompted/formed by RDC to bring all researchers, faculty, students, scholars, and Post-Doctoral Fellows for joint high value (interdisciplinary and trans-disciplinary) research projects to avail national and international funding opportunities. Shared infrastructure and expertise will enable cross-fertilization of ideas and mobilization of resources. Further, forming Regional Research Consortia adds a synergistic advantage in finding solutions in inter-disciplinary, transdisciplinary, and multidisciplinary areas. CoEs can serve as Incubation Centres to transform innovative ideas into processes and products administered and monitored by the proposed RDC, which will also provide an avenue for community talent with prior learning/expertise to engage in research and innovation activities of RKMVERI.

21. Research Incentives and Recognition

- 21.1.** As incentives often play a significant role in triggering and catalyzing research interest among scholars and faculty unless they are highly motivated to pursue the cultivation of knowledge for its own sake and/or for selflessly serving the society. Incentivizing quality publications and patents by students and faculty often have a positive impact. Institution of Excellence Awards for accomplishments/achievements in the form of impactful quality research and/or research-based teaching in order to further stimulate and invigorate the research and innovation activities of RKMVERI will be initiated.
- 21.2.** RDC will also develop a policy focusing on identifying specific intensives for research faculty and develop a unique Research Career ladder for strengthening the mission "Research".

22. Technology Development and Business-centred Facility

RKMVERI will focus on technology development and developing a business-centered facility that will be a hub for strategic partnerships/collaborations, industry-institute interface, sponsored or contract research, new knowledge generation, IPR, and patent services, venture capital, trade/market portfolio, technology transfer, and commercialization of research to facilitate innovation, incubation, entrepreneurship and start-up ventures.

23. Finance

- 22.1.** RDC of RKMVERI will facilitate resource mobilization and create a Corpus for research and development from government, industry, and other funding agencies and channelize the practice, already in vogue, of mobilizing Corporate Social Responsibility (CSR) funds for sustenance and furtherance of research activities.
- 22.2.** Apart from creating a Corpus Fund exclusively for R&D, RDC of RKMVERI will explore venture capitalists and angel investors for funding research and innovation activities through liaising with funding agencies, and track funding opportunities from industrial consortia.
- 22.3.** RKMVERI already makes provision for research in the annual budget which will be enhanced substantially as much as possible, subject to the

availability of funding agencies. Support is already being provided through seed funding for freshly recruited faculty to develop research facilities, publications and patenting.

24. Research Promotion & Guidance in RKMVERI

RKMVERI has, since inception, been laying special emphasis on promotion of research by the PhD scholars as well as the faculty. In fact, RKMVERI has attempted to convert M.Sc. dissertations into short research papers of quality with a high rate of success. For the guidance/supervision of research scholars by competent research faculty, RKMVERI has often appointed adjunct faculty and renowned researchers from various Institutes across the country.

25. Integrity and Ethics in RKMVERI

25.1. Integrity and ethics are themes very dear to RKMVERI's heart, being the core values of research in all the Schools/Depts. of RKMVERI. Regular initiatives are undertaken to help ensure that researchers understand the importance of integrity and ethics and comply with ethical codes of research and publishing practices at institutional, national, and global levels. Needless to say, research integrity is important to build trust upon which research activity may be carried out. According to the United States National Academy of Sciences (NAS 2002) "For individuals, research integrity is an aspect of moral character and experience. It involves more than anything of a commitment to intellectual honesty and responsibility for the actions of self and a variety of practices that illustrate conscientious research conduct. These practices include—honest and fair research writing; being fair and truthful towards contributions to research proposals and reports; skilful and impartial peer review process; behaving like peers in knowledge exchanges, interactions, and sharing of resources; disclosure of conflicts of interest; safeguarding people and animals in research; abidance to joint responsibilities of mentors and mentees." To emphasize ethics in research, RKMVERI has designed its own course apart from and in addition to the mandatory course prescribed by UGC, which is a two-credit course on General Ethics (including both Western and Indian Ethics) in addition to the UGC-prescribed two-credit course on Research and Publication Ethics. RKMVERI lays special emphasis on Indian Ethics as it is indigenous to Bharatiya Samskriti (Indian Culture) and therefore easily appreciable by our research scholars and faculty.

25.2. A standard plagiarism check is mandatorily implemented and the requisite software in this regard made accessible to all researchers. The main objective of UGC Regulation 2018 being the raising of awareness among the academic fraternity about plagiarism, RKMVERI teaches its research scholars, as per UGC Regulations, a two-credit course on Research and Publication Ethics wherein plagiarism check is an essential part. Researchers are taught to make plagiarism check of research papers, thesis, book-chapters etc. RKMVERI subscribes for the Urkund anti-plagiarism software, as Urkund is user-friendly, accurate in its delivery of reports and quick in generating the reports. In addition to Urkund, researchers are also made aware of the other paid softwares such as Turnitin, Grammarly and other free ones like Plagscan, Duplichecker, Plagtracker to name a few. In addition, the researchers are sensitized about the dangers of dubious research, unethical publishing practices and predatory journals.

26. Capacity Building in RKMVERI

- 26.1.** Following the UGC guidelines in this regard, RDC is designed to play a crucial role in building the capacity of faculty and students and continuously encourage them to undertake research, solving problems in line with the latest advances in diverse disciplines to push the boundaries of knowledge through publications and contribute to technological developments relevant to societal needs.
- 26.2.** RDC also tries to encourage the researchers to apply for and pursue research funding from various Governmental and non-Governmental agencies under norm-based funding, improve its accreditation ranking and enhance its brand image. Regular events such as refresher courses, workshops, trainings/internships, group discussions and seminars/conferences are organized for capacity building.
- 26.3.** RDC also tries to play a pivotal role in creating central R&D facilities with the provisioning of associated training/internship thereon.

27. Research Monitoring in RKMVERI

- 27.1.** In tune with the current policy environment in India that encourages HEIs to be responsible and accountable for research development and innovation activities through the creation of infrastructure, generation of resources, promotion of business, and facilitation of policy framework to nurture the

culture of quality research by adhering to ethical practices, RKMVERI's RDC tries, as part of its standard functions, to monitor and oversee research progress, coordinate the various programmes, manage and facilitate optimizing resources, timely review of research activities for completion of the projects as per schedule.

- 27.2.** RKMVERI has set for itself quality benchmarks for research (that may, however, vary from Department to Department depending upon the nature of the subject of research) and the RCD is systematizing the formulation of such specific quality benchmarks for research to meet the global/international standards and ensuring that these are met and adhered to. Mechanism for quality review such as SWOC Analysis or internal evaluation of the research papers is being evolved by the various Departments so as to suggest, for example in the science faculties, Scopus Indexed, Web of Science (WoS), or in others, UGC-CARE recognized journals for appropriate publications.
- 27.3.** Special care is being taken to ensure that all the Research Labs in RKMVERI fulfil the norms of Good Laboratory Practices (GLP) and Safety (Bio- and Chemical) Measures, recognized as QIP centre and by the National Accreditation Board of Laboratories (NABL). FabLabs (Fabrication and Innovation Labs), as developed in RKMVERI's Physics Lab, encourages the student to perform open-ended experiments wherein exploration and innovation are the watchwords rather than performing experiments that are stereo-typed and based on text-book driven protocols.
