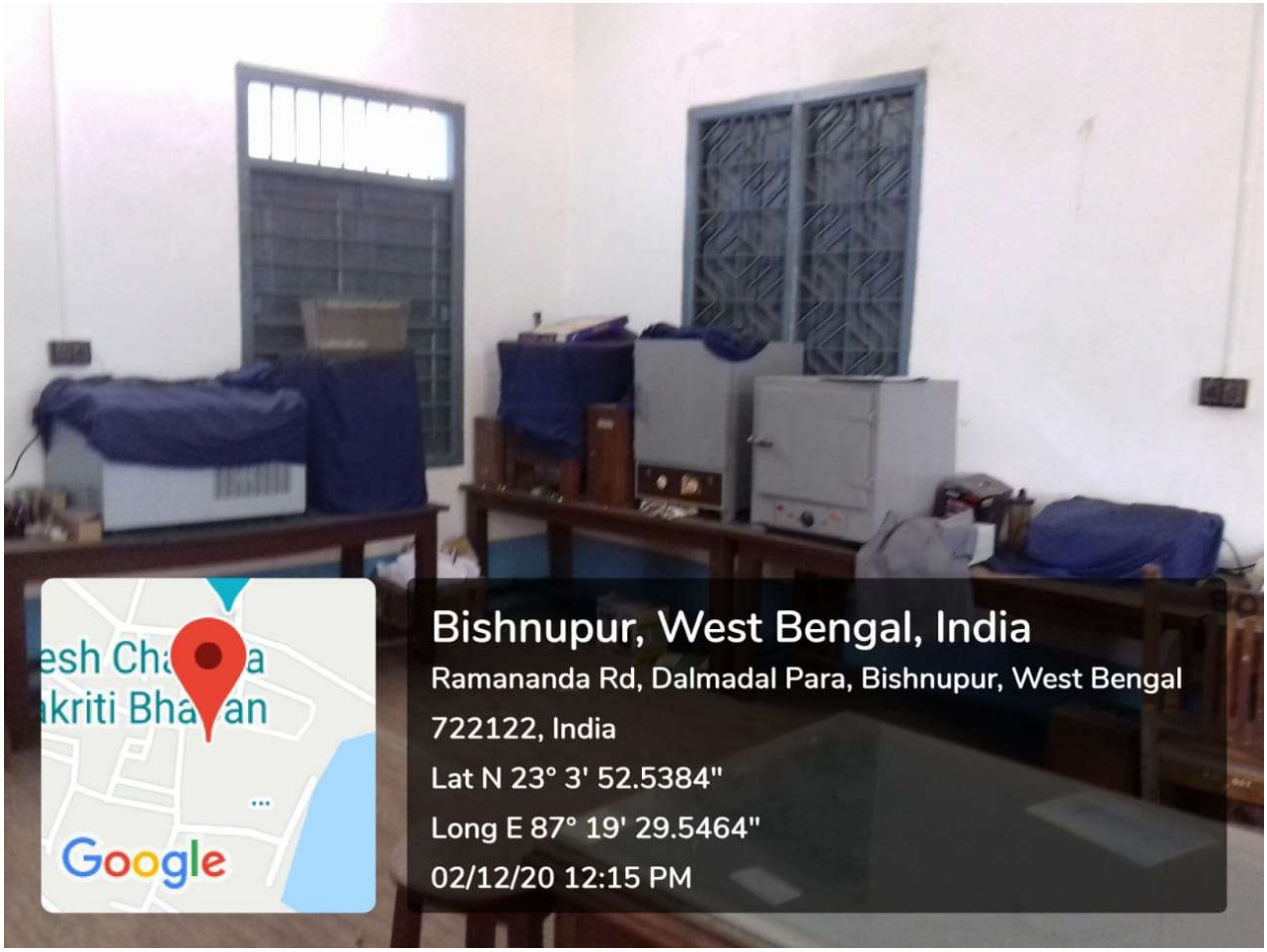
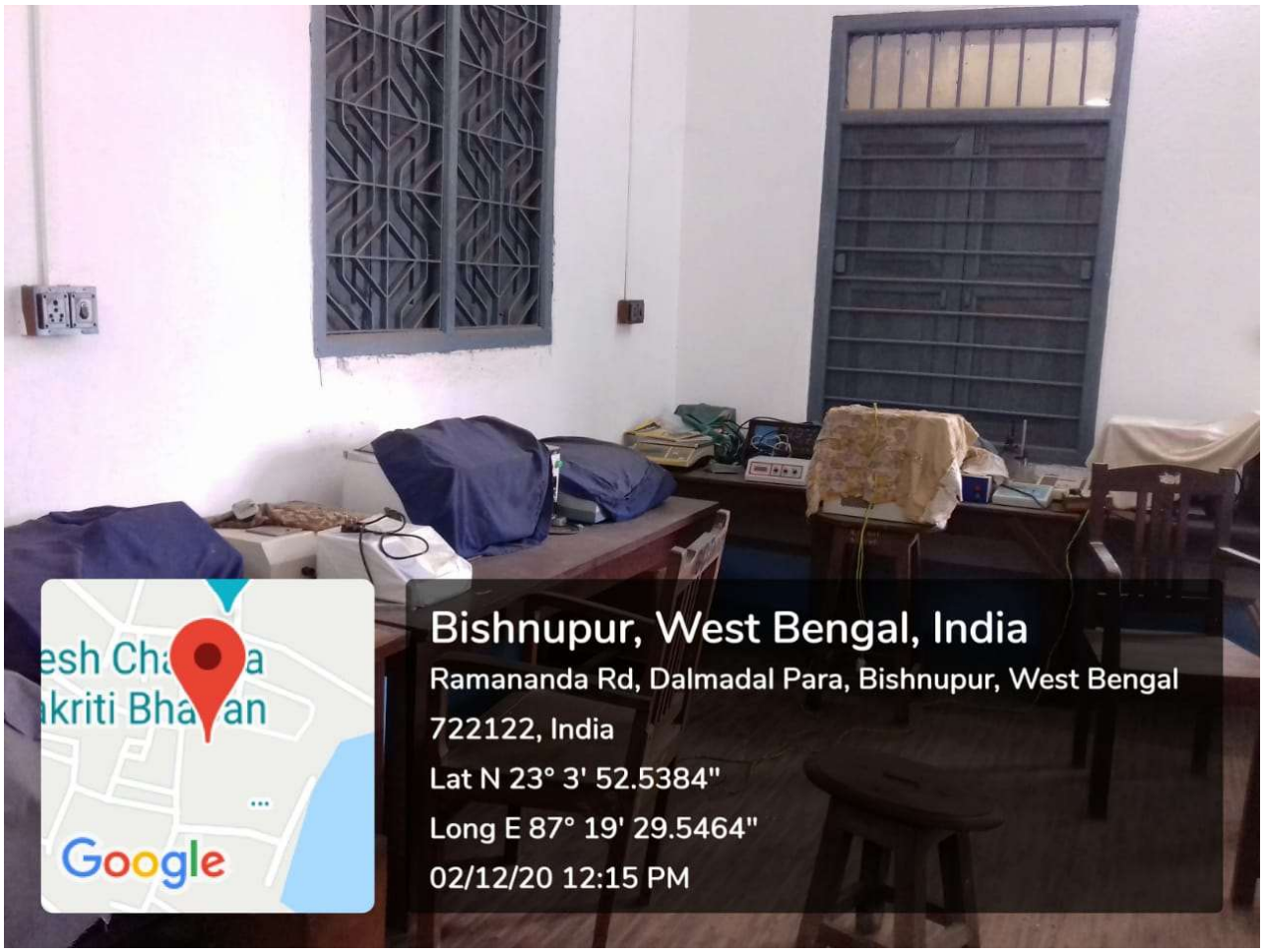
3.2.1

Institution has created an ecosystem for innovations and has initiatives for creation and transfer of knowledge

Central Instrument Facility





RAMANANDA COLLEGE

BISHNUPUR * BANKURA
Pin – 722122, West Bengal
UGC Recognized & State Government Aided Constituent College
Under the Bankura University
(Accredited by NAAC at 'B' Level)

Tel.: (03244) 252059
Tele Fax.: (03244) 254427
Mobile No.: +916297976619
E-mail.: principal@ramanandacollege.org
Website: www.ramanandacollege.org

Central Instrument Facility (CIF)

There is a Central Instrument Facility in the college equipped with several modern instruments which are used for PG courses and research purposes. These have been purchased from PG grants and UGC grants. It is adjacent to Department of Botany and all other departments can avail the facility.

List of Instruments kept in Central Instrumentation Room

Sl No.	Name of the Instruments	Quantity
1	Cooling centrifuge – REMI – C.24 BL	01
2	Hot Air Oven	02
3	Incubator	01
4	Photo Electrical Colorimeter – Chemiline	01
5	UV-VIS Spectrophotometer ELCO SL 159	01
6	Trans Illuminator Biotech Yercaud	01
7	Slide Projection Microscope WES WOX DPTK MO-27872	01
8	Water Bath	01
9	Colony Counter	01
10	Spectrophotometer .106 Systronics	01
11	Autoclave	01
12	Electronic Balance (max 220g, d=0.1mg) BT 2245	04
13	Electronic Balance (max 200g, d=0.01mg) SFE	01
14	Computer	01
15	Glass distillation plant	01
16	Refrigerator	01
17	Chemical Balance	01
18	Cathode Ray Oscilloscope	01
19	pH meter	01
20	Spectrophotometer BL-222 ELICO (Double Beam)	01
21	Photo colorimeter – Labtronics company	01

17/11/2020

Principal,
Ramananda College,
Bishnupur, Bankura

Principal
Ramananda College,
Bishnupur, Bankura

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ISCA Calcutta Chapter Seminar Inauguration



Group Photo of the Seminar



Lecture Delivered by Prof. P. C. Dhara



Poster made by the Students



Characterization of Nanomaterials 22.09.2016-23.09.2016


Hand-on Experiments 21.07.2016-23.07.2016

Meeting of the Research Committee : 05/02/2019
2 pm
Principal's Chamber

Members Present

1) [illegible] 5/2/19
2) Tapas Kr. Sarkar 5/2/19
3) Mousumi Mukhopadhyay (Pervi)
4) [illegible] 5/2/19
5) [illegible] 5/2/19
6) S. Chatterjee 05/02/19
7) Goutam Biswas 5/2/19
8) Baibaswata Bhattacharjee 05/02/19
9) Aparna Sankar 05/02/19
10) Amarnath Shit 05/02/19
11) Parnab Chatterjee 5/2/19
12. Bishnupada Malick 5/2/19
13. Prasanta Das 05/02/19

Honourable principal, Dr. Swapna Ghorai presides over the meeting.

Resolutions

Agenda - 1: Preparing a Programme Plan of Research Cell up to April, 2019

1) To promote research activities of college teachers at all levels (Full Time, Part time and Guest), the committee unanimously resolves that a workshop will be arranged on 26th February (Tuesday), 2019. Honourable retired professor of IIM, Ahmedabad, **Dr. Samar Dutta** has been requested over phone to enrich the workshop as the principal speaker. Dr. Dutta has given his consent. In addition to Dr. Dutta, two or three professors of this college (to be specified on the basis of request and consent later) will deliver their suggestions and advices on 'organised research activities and projects.'

2) A seminar will be held on 14th March (Thursday) 2019 to present the research work and papers of three or four professors (to be specified later)

Agenda 2 :- Collection of information necessary for filling the Format proposed by IQAC.

3) Regarding the filling up of the format for IQAC the honourable IQAC co-ordinator assures that the IQAC will provide all the necessary information in time.

Agenda 3: - Miscellaneous

4) The members of Research Committee have been informed by the IQAC co-ordinator that a grant of Rupees one lakh has been sanctioned by the Governing Body for running expenses of local projects conducted by different Departments individual teachers involving students.

For proper utilisation of this praiseworthy sanction the meeting resolves that a notification seeking applications from teachers of different Departments will be circulated sharp today. The last date of application will be 28/2/2019. The projects should involve at least two students each. The maximum approvable financial sanction per project will be Rs 15,000/- for Science Subjects and Rs 10,000/- for Arts (Humanities and Social Science) and Commerce. The application in suggested format will (in triplicate) have to be submitted to Prof. Baibaswata Bhattacherjee, Department of Physics.

5) Dr. Amarnath Dhit, Department of Zoology has been requested to take the responsibility of collecting information regarding research publications of teachers of different departments (since 1915)

6) As proposed by today's meeting, the instumental room in the department of Botany will be used as the Central Instrumentation centre for laboratory work involved with the research activities/projects.

For proper utilisation of this facility, a committee under the convenorship of Dr. Sabyasachi Chatterjee will supervise the necessary repairing, meaintenance and proper earthing of the said Laboratory Room. The other members of the committee, ~~work~~ as proposed by the meeting are -

1) Prof. Baibaswata Bhattacherjee dept. of Physics
2) Prof. Samir kr. Maji, dept of Chemistry
3) Prof. Gargi Bose, dept. of Nutrition
4) Prof. Sawankari Prasad Chakraborty, dept. of Physiology
5) Prof. Amarnath Dhit, dept. of Zoology.

The meeting ends with vote of thanks to and from the Chair.

5/2/19

A Brief Report of One Day Seminar, 26th February, 2019 (Tuesday)

Speakers : (1) Prof. Dr. Samar k. Datta,
Retd. Prof, IIM, Ahmedabad

(2) Dr. Sabyasachi Chatterjee
Assistant Prof, Botany,
Ramananda College, Bishnupur.

Topics (1) Research Aptitude for Creating Probing, Analytical, Creative & Socially useful Mind

(2) Funding Agency for Research Proposal

The Programme organised by the Research Cel on 26th February, 2019 had its keen focus on promoting academ as well as pragmatic research among teachers and students of this higher education institution situated in backward area. The One Day Seminar was designed with two interrelate deliberations: (1) Research Aptitude for creating Probing, Analyti Creative and Socially Useful Mind, presented by Prof. Dr. Samar k. Datta, eminent retired Professor of IIM, Ahmedab and (2) Funding Agency for Research Proposal: A Guide line, delivered by Dr. Sabyasachi Chatterjee, Assist Prof. of Botany, Ramananda College, Bishnupur.

Prof. Chatterjee, with an elaborate Power Point Presentation discussed the necessity of a Fund for fruitful research work. He gave a vivid guideline for prepari a Research Proposal for organised Research work to be funded by different national / international Funding Agen The power point slides were enriched with exhaustive information regarding Funding Agencies, types of Grants provided and important clues for successful funded research.

In the second Phase, Prof. Datta addressed

the basic issue that, given there is enough scope for funded research, why should ~~there is enough~~ we engage at at all with research work. In his lucidly deliberated scholarly talk, Prof. Datta explained how research aptitute helps creating probing, analytical, creative and socially useful mind. His power point presentation was unique with versatility of illustrations including video clipping from Charlie Chaplin's Movie, Swami Vivekanonda's view of education, modern issues of development, environmental protection and experiences from day-to-day life. Through all these illustrations, Prof. Datta, like an efficient navigator, tried to redirect the younger generation from a mechanistic market-based, competitive and narrower mind-set towards a value-based, peaceful and sovereign mind-set - dynamic enough to rethink and research for a better society for all.

26th Feb 2019

A Brief Report of Researchers' Meet:

Phase 1 - Exploring Different Arenas of Research Work in Ramananda College, Bishnupur

Date - 14/3/2019 Venue - Ramnalini Hall

Research cell of Ramananda College has resolved to organise a forum, Researchers' Meet to discuss and interact over current issues of Research work conducted by teachers and students of different Departments of the college. The first discussion, Researchers' Meet: Phase 1 took place on 14th March, 2019. Three speakers of this day were three veteran researchers of three ~~Departments~~ Departments — Library Science, Zoology and Physics.

The first speaker, Mr. Parnab Chatterjee, Librarian delivered an elaborate presentation on "Bibliometrix Analysis". Mr. Chatterjee is presently conducting elaborate research work in this area for his Ph.D. Dissertation. Starting from ~~the~~ the meaning and origin of the term 'bibliometrics', the speaker explains the importance of bibliometrics and scientometrics to develop a statistical and scientific method for measuring effectiveness of ~~P~~ publications from various scientific disciplines (Pure Science, Biological Science, Medical Science, Social sciences and humanities). On the basis of citation, co-citation, coupling and co-word analysis the science of bibliometrics has been developed as an analytical package (R). Mr. Chatterjee discussed different types of frequently used indices like Impact Factor, H Index, G Index and demonstated the ~~P~~ process of Result Analysis with suitable diagrams.

Dr. Nilanjana chatterjee was the second speaker of the day and she discussed her award-winning research work, "Unveiling the ~~R~~ Reproductive Status of the Medium sized ~~Tenualosa~~ Tenualosa ilisha (Hemilton, 1822) from the Hooghly

Estuarine System."
An Abstract of the Paper is attached below

RAMANANDA COLLEGE RESEARCHERS' MEET
PHASE-1

"Unveiling the reproductive status of the medium sized *Tenualosa ilisha* (Hamilton, 1822) from the Hooghly Estuarine system"

*Nilanjana Chatterjee

Department of Zoology, Ramananda College, Bishnupur, Bankura 722122

*Corresponding author E-mail: nilchat@gmail.com

The reproduction of fish has been an area of special interest in pisciculture and interestingly most of the fresh water fishes inhabiting the water bodies of the Indian subcontinent have been found to follow an annual seasonal reproductive rhythm. However, as far as the interests in the cultivation of the edible fish is concerned most of the attention as well as limelight is being drained towards the cultivation of major edible carps that require a larger cultivable area as water content.

So, in this present research an attempt has been made to study the seasonal reproductive cycle of a highly nutritious cat fish *Mystus vittatus* whose art of cultivation is yet to be mastered for its high yield on a commercial scale. The petite male population of this fish is yet another major reason for its low fertilized rate in spite of high fecundity. The histology and histometrical analysis of the pituitary GTH and TSH hormones and the thyroid hormones during the different annual reproductive phases have clearly revealed the actual proportion of the hormones needed for the initiation as well as completion of a particular reproductive phase, thus creating a fissure for taking initiatives towards its favorable propagation to combat the problem of malnutrition to an optimum extent.

Keywords: Histology, Histometry, *Mystus vittatus,* Pituitary, Thyroid, Testes

Dr. Madhumita Dalal, Assist. Prof., Dept. of Physics discussed the topic, "Nanoparticles of Li-Zn-Co Ferrite as Microwave Absorber and AC Induction Heat Mediator", This scholarly work is her Ph.D Dissertation. In Researchers' Meet, Phase 1, Dr. Dalal tried her best to discuss a highly theoretical and technical topic as a popular presentation to show the use of nanoparticles in Microwave Fielding can control the associated environmental hazards. Application of her technology would reduce the harm of widespread use of mobile phone. An Abstract of the paper is attached below

Title: Nanoparticles of Li-Zn-Co Ferrite as Microwave Absorber and AC Induction Heat Mediator

Abstract: Spinel ferrites are interesting materials for applications in different fields of research. These exhibit unique magnetic, dielectric, optical and electrical properties. Main important thing about spinel ferrites is that those properties could be tuned by a proper choice of composition and stoichiometry. Among the spinel ferrites, Li-Zn ferrite is a soft magnetic material having high initial permeability and high resistivity. Substitution of Co in Li-Zn ferrite increases the anisotropy as well as magnetization which are important while considering various applications of Li-Zn-Co ferrite. The two very recent applications of spinel ferrites considered here are ac induction heating and microwave absorption. For microwave absorption study, ferrites are integrated in multi-walled carbon nanotubes (MWCNT). Nanoparticles of spinel ferrites are prepared by sol-gel technique and different sizes of those are obtained by annealing at different temperatures. Three different compositions viz., $Li_{0.25}Zn_{0.3}Co_{0.15}Fe_{2.3}O_4$, $Li_{0.3}Zn_{0.3}Co_{0.1}Fe_{2.3}O_4$ and $Li_{0.35}Zn_{0.3}Co_{0.05}Fe_{2.3}O_4$ are considered. Nanoparticles having sizes in the range 5 – 20 nm are integrated in MWCNT by means of ultrasonication. Pure phase formation is confirmed by analysing the x-ray diffraction patterns by Rietveld method. Morphology, size distribution of nanoparticles and elemental profile is recorded employing scanning and tunneling electron microscopy. Phase formation is further confirmed by Raman analysis. Hyperfine behaviour is studied by recording the Mössbauer spectra at 300 and 77 K which indicates that at 300 K, nanoparticles of size ~ 5 – 11 nm are superparamagnetic in nature while the larger nanoparticles are ferrimagnetic in nature. Maximum magnetization of ~ 95 emu/g is obtained in case of nanoparticles of $Li_{0.35}Zn_{0.3}Co_{0.05}Fe_{2.3}O_4$ (~67 nm). Hyperthermic temperature (42 °C) is attained shortly (within 5 min) after switching on the external ac magnetic field of strength

associated environmental hazards. Application of her technology would reduce the harm of widespread use of mobile phone. An Abstract of the paper is attached below

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Presented by: Dr. Madhumita Dalal

14/3/2019

Classmate
Date 25/3/19
Page

Urgent Meeting of the Research Cell
(convened by the Principal, Ramananda College)

Members Present

1. [signature]
2. Mousumi Mukhopadhyay (Patra) 25/3/19
3. ~~Deepak~~ Kr. Singh 25/3/19
4. Amarnath Shit 25/3/19
5. Bishnupada Mauk 25/3/19.
6. Rajesh Mukherjee 25/03/19.
7. Narendra Nath Mahi 25/3/19
8. Uday Chand Das, 25/3/19
9. Mohammad Ali Khan 25/3/19

Agenda

i) To discuss about Major Research Projec of Prof Ali

ii) Minor Projects/colleg

iii) Misc.

Today's meeting has been presided by the Principal, Dr. Ghora

Resolutions:

1) Dr. Mohammad Ali Khan, Assistant Professor, dept. of Mathematic has been granted a Major Research Project under D.S.T, Govt. of West Bengal (Science & Technology and Biotechnology Department), titled, "Study of Multistability of Discrete Neuronal model." In this context, the Research Cell resolves to recommend to the College Authority for uploading a proper advertisement for recruiting a Project Assistance satisfying the Guidelines of DST, West Bengal.

Guideline for recruitment is Memo No. 6261-F(Y) dt. 27.06.11.

2) ~~The~~ notification to be uploaded will invite walk-in interview for eligible candidates for the post of Research Assistant [eligibility - M.Sc in Math with at least 55% marks, preferable for NET/SET/GATE candidates]. The emoluments as per guideline will be Rs 18,700/- per month for the first two years and Rs 21,300/-

for the third (final) year.

Date of interview – ~~4th march~~ 04/04/2019

Time of Reporting — 10.30 – 11.30 AM

Time of Interview — 12.00 noon onwards.

3) Out of the total financial grant of Rs 7,60,800/- [Memo No. 232 (Sanc)/ST/P/S&T/16G-32/2018, letter dated, 7th 2019; Financial year – 2018-19, Demand code: 70, Departmental Co the first instalment of Rs 2,44,400/- has been deposited to the College Account. For convenient handling of the Project Fund and smooth running of the Project, it is resolved that a Joint Account (Current A/c) of Dr. Mohammad Ali and the Principal, Ramananda college will be opened and the entire grant of the first instalment will be transferred to that account. All payments will be realised through cheques on ~~that~~ the same Current Joint A/c.

4) The Selection Committee for recruitment of Project Assist will constitute the following members:

1. Principal
2. Subject Expert (Dr. Purna Pal, HOD, Mathematics, Bankura University)
3. Principal Investigator (Dr. Mohammad Ali)
4. ~~Dr. Uday Chand Das~~
4. Dr. Uday Chand Das (Teacher Member, GB)
5. Prof. Bonibrata Mitra (Govt. Nominee, GB)
6. HOD, Dept. of Mathematics (Prof. Prasanta Das)

5) On the basis of resolutions of Research cell's Meeting on 5/2/2019, a total eight Minor Research Projects (college) were to be sanctioned. ~~However, the project proposals submitted by~~

Thus far seven proposals have been submitted (4 from Science Stream and 3 from Arts Stream) and today's meeting resolves to sanction all these projects.

The principal investigators have to apply to the Head of the Institution in the first week of April, 2019. On the basis of this application, the first instalment of the financial grant will be disbursed.

The total grant of Rs 15,000/- for Science Projects (each) will be divided into two instalments as :-

① ₹5000/- + ② ₹3000/- + ③ ₹3000/- + ④ ₹4000/-

The total grant of Rs 10,000/- each for Arts Projects will be divided into two instalments as:

① ₹3000/- + ② ₹2000/- + ③ ₹2000/- + ④ 3000/-

Duration of the projects will be one year (April, 2019 to March, 2020).

Revised **

The meeting ends with vote of thanks to and from the chair.

** Revised structure of disbursement of instalment is as follows :-

① Rs 10,000/- as 1st instalment for Science Projects (each) and the remaining Rs 5000/- after submission of the utilisation of the 1st instalment.

② Rs 7000/- as 1st instalment for Arts & commerce Projects (each) and the remaining Rs 3000/- after submission & utilisation of the 1st instalment.

25/3/2019

Statement of expenditure of Research Cell
(during May, 2018 – April, 2019)

Purpose-One Day Seminar on "Igniting Young Minds-Exploring The Scope of Organised Research" on 26th February,2019

Voucher no.	Description of the item	Expenditure
1)	**A Dokra Saraswati** as a memento	**Rs.700/-**
2)	**A 'Chadar'(Uttariya)**for welcoming Guest	**Rs.325/-**
3)	**Invitation Cards & Flex**	**Rs.480/-**
Total		**Rs.1505/-**

Purpose-Researchers' Meet-Phase-1(Exploring Different Arenas of Current research work in Ramananda College) on 14th March 2019

4)	**Invitation Cards & Flex**	**Rs.380/-**
GRAND TOTAL		**Rs.1885/-**

The sum of money (abovementioned) spent by the convener has been re-imbursed by the College Authority

Mousmi Mukhopadhyay (Patay)
Convener,
Research Cell,
Ramananda College,
Bishnupur

Grew. No. of the Meeting 68/19

Combined Meeting of the Research Cell, In-House Publication Cell and the Seminar Sub-Committee, Ramananda College, Bishnupur.

classmate Date 12/12/2019 Page

Members Present.

1. [illegible]
2. Ajit Kumar Datta.
3. Nagendra Nath Malas
4. Somnath Basu
5. Mohammad Ali Khan 12/12/2019
6. Prasanta Kumar Saha
7. Prakash Kumar Samanta.
8. Rajesh Kr. Ghosh 12/12/19
9. Mrityunjoy Ghosh
10. Tapas Sarkar 12/12/19.
11. Gargi Bose 12/12/2019
12. Moumita Mukhopadhyay (Patra)

Agenda

- Programmes/events to be undertaken upto March/April 2020
- Research Projects (New) from College Fund
- Students involvement in college funded Research Projects
- Seminar/workshop on Research activities
- Seminar/Workshop - Seeking Proposal from various Depts (Budget)
- Publication of next issue of the Journal.
- Publication of Question Bank.
- e-content development
- Misc.

Honourable Principal, Dr. Swapna Ghosh presides over the Meeting.

Resolutions:

1. Research Cell of Ramananda College will organise at least three Seminar/work shop/~~awareness programmes~~ enrichment Programme by April 2020. The first one will be held within January, 2020 involving teachers and PG students of different Departments. The rest of the events will materialise after the beginning of teaching-learning process of Semester II & IV and VI.
2. IQAC Co-ordinator, Dr. N.R. Malas expresses the ~~necessity~~ importance of organising an internation seminar ~~under the initiation of Seminar Comm~~ by March, 2020.
3. The teachers of different Departments who are conducting the on going Minor Research Project funded by the College will be requested to submit a short Progress Report of their Project Work and a list of the students involved within 15th January 2020. On receipt of these reports and lists, the rest of the financial

grant (last instalment) will be sanctioned by the College author

4. The Principal Investigators of the on-going Minor Research Project (College Level) may utilise a part of the Project Fund for the purpose of presenting the Project Result at any Seminar or Workshop outside the college (e.g. Registration Fee, travelling expense) if the ~~total funds~~ amount for ~~travel~~ expense is within the total permissible limit of the financial grant.

5. The Governing Body of the College had sanctioned a total amount of Rs 1,00,000/- for ~~Minor~~ Institutional Level Minor Research Project. Thus far Rs 55,000/- has been ~~disbursed~~ allotted. The rest To utilise the rest of the grant of Rs 45,000/- new application will be invited with Proper notification. The last date for applying for new Minor Research Project (College Level) will be 15th January, 2020.

6. The Joint Convenor of In-House Journal Committe, Dr. Bhattacharjee has informed that the publication of the second issue of the In-House Journal, "Frontiers in Multidisciplinary Research" has been held up due to lack of research papers in adequate numbers. To solve the problm, the principal investigators of the Institutional Level Minor Research Project will be requested to submit a short research Paper related with their Project for publication in the institutional Journal. This will enable our Journal to ~~acquire the ISSN~~ move one step ahead for acquiring ISSN.

7. Besides the internal Minor Research Projects, Research Projects and seminar Proposals funded by different National Funding Agencies are to be sought for.

8. The ~~pre-submitted~~ Seminar proposal of NAAC which had been submitted earlier is to be re-submitted in

the newly prescribed format.

9. Teachers at all levels (Full time, Part-time and Guest) of different Departments are to be requested to develop e-content from the relevant UG/PG syllabus and upload the matter in the College website.

10. Misc. The members of the Central Instrumentation Committee ~~are being re-has~~ are to visit all the laboratories and submit a Report to the IQAC co-ordinator, ~~for~~ suggesting the necessary repairing and development work of the Laboratories. The IQAC co-ordinator will place the Report before Finance Committe Meeting of 17/12/2019 for sanctioning the ~~necessary~~ financial requisite.

The meeting ends with vote of thanks to and from the chair.

12/12/19

NO. 75/19

Combined Meeting of the Research Cell and the Sub-committee for Criterion III (SSR, 3rd cycle NAAC), Ramananda College, Bishnupur

classmate Date 02/01/2020 Page

Members Present

1. [illegible] 2/1/2020
2. Ajit Kumar Datta
3. Narendra Ranjan Malas
4. Moesumi Mukherjee Upadhyay (Patra)
5. Satyasnehi Chatterjee
6. Parnab Chatterjee
7. Baibaswata Bhattacharjee
8. Arpan Bhattacharyya.
9. Gargi Bose 02.01.2020
10. Jayram Ghorai 2.1.2020

Agenda

1. Practical Problem regard the on-going Internal Mino Research Project of Mr. Pa chatterjee and Ms. Sabomi Karak
2. Different issues relate to Criterion III (SSR, 3rd cycle NAAC)
3. Misc.

Today's Meeting has been presided by the Principal, Dr. Swapna Ghorai.

Resolutions:

(1) Mr. Parnab Chatterjee, ~~Joint~~ Principal Investigator of the internal Minor Research Project, "Bibliometric Analysis of the Faculty Publications of Ramananda College during the year 2008-2018," informed the convenor of the Research Cell that the ~~author~~ data for Publication of the teachers could not be availed of in the proper format and series except for only four teachers. In this context, the members of the Research Cell suggest that ~~for~~ it would be suffice for the Project to prepare Analytical Report for the series publications of the four teachers (as data was whose complete informations are available. ~~A brief report should also be made which will be placed~~ Mr. Chatterjee is also requested to prepare a brief & study paper out of this Project and make it available for the publication in the ~~internal~~ in-house journal, "Frontiers in Multidisciplinary Research" by 15th

January, 2020. To fulfil the criterion of students' involvement two PG students from the department of English and Mathematics will have to be mobilised by the concerned departments to help Mr. Chatterjee to take some active part in preparing the Report and presenting it in a Seminar.

(2) The convenor of the Research cell and the convenor of Criterion III (SSR, 3rd cycle NAAC) discussed different issues related to criterion III. It has been resolved that all the required informations will be collected from different departments in due time through individual effort of the members concerned, as well as through proper notification by the IQAC co-ordinator. The convenor of the Research cell proposes to take initiative for writing the part related issues related to Extension Activities of different departments.

The meeting ends with a vote of thanks to and from the Chair.

21/1/2020

classmate
Date
Page

Circular Resolution, Research Cell

21/01/2020

considering the busy schedule and time constraint of teaching faculties of different departments during the present Examination Session (Sem I, Sem III & Sem V, Bankura University, January, 2020), the last date of submission of the first phase Reports of the on-going Minor Research Project (MRP, College) and applications for fresh proposals (MRP, College) is hereby, being extended upto 31.1.2020 January, 2020.

21/1/2020

Principal
Ramananda College,
Bishnupur, Bankura

Members of Research Cell

1. Mousumi Mukhopadhyay (Patwa) 21.1.2020
2. Pinaki Kumar Saha 21.1.2020
3. Baibaswata Bhattacharya 21/01/2020
4.

NO. 16/2020

classmate
Date 15/02/2020
Page

Meeting of the Research Cell

Members Present

1. [signature] 15/2/2020
2. Tapas Kr. Sarkar 15/2/2020
3. Mousumi Mukhopadhyay (Patra)
4. Prasanta Kumar Patra
5. Saroj Ballav 15/02/20
6. Narendra Nyjan Maity
7. Rebeca Ghanta

Agenda

- Discussion of disbursement second instalment of college funded MRP on the basis of Repo
- Sanctioning of fresh MRP
- Conducting Seminars/Workshop on behalf of Research Cell
- Miscellaneous.

Today's meeting has been presided by the Principal, Ramanand College. Following unanimous resolutions have been taken.

1. The members propose to ~~make arrangement~~ sanction the second instalments for the two college-funded MRPs for which Progress Reports have already been submitted by the principal investigators.

2. The principal investigators of the other two on-going projects for which Progress Reports are yet to be submitted, will be requested to produce their brief Reports to the Research Cell so as to enable to grant the second instalments.

3. The three newly submitted project proposals will be sanctioned following proper procedure.

4. As the initial grant of Rs 1,00000/- (one lakh) by the G.B will be exhausted after completion of all the on-going four projects (Botany, Zoology, Physiology and Library Science) and the three new projects (Botany, Zoology and Economics-Nutrition) the members propose to apply for a fresh Project Grant

to the Governing Body. This will enable the Research Cell to continue promoting research activities of different departments in the form of Minor-Research Projects involving students.

5. Semenars/Workshops will be organised by the Research Cell after 15th March, 2020.

The meeting ends with a vote of thanks to a from the chair.

Meeting of the Research Cell

Members Present:

1. 11/3/2020
2. Moumita Mukhopadhyay (Patra)
3. Nilanjana Chatterjee
4. Baibaswata Bhattacharjee
5. Sabyasachi Chatterjee
6. Mrinal Kanti Dhar
7. Rebeca Ghanta
8. Tapas Kr. Sarkar
9. Subhankar Prasad Chakraborty 11/03/2020
10. Parnab Chatterjee 11/3/2020

Agenda:

1. Sanctioning the Institutional Projects at the second Phase
2. Misc.

Today's meeting has been presided by the Principal, Ramananda College.

Today's meeting unanimously proposes the following.

1. The investigators of the first Phase who could not submit the initial report will be requested to inform the college authority of their project progress and submit a brief report shortly.

2. The three projects proposals of the third phase will be sanctioned shortly to utilise the remaining institutional project fund of Rs 45000/-. Institutional projects proposals submitted for 2019-'20 are as follows:

Principal investigators	Dept.	Title of Project Proposal
1) Dr. Saubashya Sur	Botany	Information Driven Study of SNPs from Lipopolysaccharide Binding Protein (LBP) & Toll Receptor-4 (TLR4) using bioinformatics tools.
2) Prof. Anindita Bar	Zoology	Maternal Health factors affecting Congenital Heart Disease in new born and the relation between the two
3) Dr. Moumita Mukhopadhyay (Patra) & Prof. Gargi Bose	Economics, Nutrition	Assessment of socio-economic status, nutritional status and academic performance of female students of Ramananda College, Bishnu

11/3/2020

RAMANANDA COLLEGE

BISHNUPUR * BANKURA

Pin – 722122, West Bengal

UGC Recognized & State Government Aided Constituent College

Under Bankura University

(Accredited by NAAC at 'B' Level)

Tel - (03244)252059

Tele Fax – (03244) 254427

e-mail–principal@ramanandacollege.org

Website-www.ramanandacollege.org

Ref. No. 541 / B / 2019

Date- 08-04-2019

To
Dr. Sabyasachi Chatterjee
Assistant Professor of Botany
Department of Botany
Ramananda College
Bishnupur, Bankura

Sub : Approval of financial assistance to the Principal Investigators of Minor Research Project (College) on "Phytoremediation Of Heavy Metal Pollution In Industrial Soil By Three Different Plants Allium Sativum, Allium Cepa, Brassica Nigra".

Sir,

The Research Committee in its meeting held on 25-03-2019 in the presence of honourable members of the Governing Body has approved your proposal of Minor Research Project (involving students) and has also approved an allocation of Rs. 10,000 (Rupees ten thousand) as the 1st installment of the proposed sanction [total sanction Rs. 15,000 (Rupees fifteen thousand)]. The rest of the financial grant will be disbursed after six months on submission of a brief progress report of the project.

Thanking you

Yours faithfully,

8/4/19

(Dr. Swapna Ghorai)
Principal
Ramananda College
Bishnupur, Bankura

Principal
Ramananda College,
Bishnupur, Bankura

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Website-www.ramanandacollege.org

Ref. No. 540 / B / 2019 **Date- 08-04-2019**

To
Mr. Parnab Chatterjee
Librarian
Central Library
Ramananda College
Bishnupur, Bankura
&
Mrs. Shrabani Karak
Librarian
Central Library
Ramananda College
Bishnupur, Bankura

Sub : Approval of financial assistance to the Principal Investigators of Minor Research Project (College) on "Bibliometric Analysis Of The Faculty Publications Of Ramananda College During The Year 2008-2018".

Sir/Madam,

The Research Committee in its meeting held on 25-03-2019 in the presence of honourable members of the Governing Body has approved your proposal of Minor Research Project (involving students) and has also approved an allocation of Rs. 7,000 (Rupees seven thousand) as the 1st installment of the proposed sanction [total sanction Rs. 10,000 (Rupees ten thousand)]. The rest of the financial grant will be disbursed after six months on submission of a brief progress report of the project.

Thanking you

RAMANANDA COLLEGE ESTD.-1945 (BANKURA) * BISHNUPUR *

Yours faithfully,

8/4/19

(Dr. Swapna Ghorai)
Principal
Ramananda College
Bishnupur, Bankura

Principal
Ramananda College,
Bishnupur, Bankura

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e-mail–principal@ramanandacollege.org

Website-www.ramanandacollege.org

Ref. No. 542 / B / 2019 **Date- 08-04-2019**

To
Dr. Subhankari Prasad Chakroborty
Assistant Professor of Physiology
Department of Physiology
Ramananda College
Bishnupur, Bankura
&
Mrs. Rudrani Mukherjee
Govt. Approve Part-time Teacher
Department of Physiology
Ramananda College
Bishnupur, Bankura

Sub : Approval of financial assistance to the Principal Investigators of Minor Research Project (College) on "In Victro Study Of Possible Protective Role of Catheranthus roseus L. against smokeless tobacco induced toxicity in squamous epithelium cell".

Sir/Madam,

The Research Committee in its meeting held on 25-03-2019 in the presence of honourable members of the Governing Body has approved your proposal of Minor Research Project (involving students) and has also approved an allocation of Rs. 10,000 (Rupees ten thousand) as the 1st installment of the proposed sanction [total sanction Rs. 15,000 (Rupees fifteen thousand)]. The rest of the financial grant will be disbursed after six months on submission of a brief progress report of the project.

Thanking you

Yours faithfully,

8/4/19

(Dr. Swapna Ghorai)
Principal
Ramananda College
Bishnupur, Bankura

Principal
Ramananda College,
Bishnupur, Bankura

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e-mail–principal@ramanandacollege.org

Website-www.ramanandacollege.org

Ref. No. 539 / B / 2019 **Date- 08-04-2019**

To
Dr. Nilanjana Chatterjee
Assistant Professor of Zoology
Department of Zoology
Ramananda College
Bishnupur, Bankura

Sub : Approval of financial assistance to the Principal Investigators of Minor Research Project (College) on "Histological study of the annual reproductive cyclic of an Indian mino carp Labeo bata (Ham-Buchner, 1822) collected from the local water bodies of Bishnupur SUB-Division".

Madam,

The Research Committee in its meeting held on 25-03-2019 in the presence of honourable members of the Governing Body has approved your proposal of Minor Research Project (involving students) and has also approved an allocation of Rs. 10,000 (Rupees ten thousand) as the 1st installment of the proposed sanction [total sanction Rs. 15,000 (Rupees fifteen thousand)]. The rest of the financial grant will be disbursed after six months on submission of a brief progress report of the project.

Thanking you

Yours faithfully,

8/4/19

(Dr. Swapna Ghorai)
Principal
Ramananda College
Bishnupur, Bankura

Principal
Ramananda College,
Bishnupur, Bankura

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e-mail–principal@ramanandacollege.org
Website-www.ramanandacollege.org

Ref. No. 538 / B / 2019 Date- 08-04-2019

To
Prof. Anjan Kumar Bandyapadhyay
Associate Professor of Bengali
Department of Bengali
Ramananda College
Bishnupur, Bankura
&
Dr. Narendra Ranjan Malas
Associate Professor of English
Department of English
Ramananda College
Bishnupur, Bankura

Sub : Approval of financial assistance to the Principal Investigators of Minor Research Project (College) on "Local/Regional Dialects and Endangered languages in Bishnupur Sub-Division : A field Survey".

Sir,

The Research Committee in its meeting held on 25-03-2019 in the presence of honourable members of the Governing Body has approved your proposal of Minor Research Project (involving students) and has also approved an allocation of Rs. 7,000 (Rupees seven thousand) as the 1st installment of the proposed sanction [total sanction Rs. 10,000 (Rupees ten thousand)]. The rest of the financial grant will be disbursed after six months on submission of a brief progress report of the project.

Thanking you

Yours faithfully,

8/4/19
(Dr. Swapna Ghorai)
Principal
Ramananda College
Bishnupur, Bankura

Principal
Ramananda College,
Bishnupur, Bankura

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Phytosociological Analysis of Tree Species in Kuchiakol Forest Area of Bankura District,West Bengal



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Bishnupur, West Bengal

Shyamal Kanti Mallick
Assistant Professor,
Deptt.of Botany,
Ramananda College,
Bishnupur, West Bengal

Abstract

The present investigation provides information about the floristic composition, phytosociological parameters such as frequency, density, basal area and importance value index (IVI) from a forest patch of Kuchiakol forest range, Bankura district. The result indicates that *Shorea robusta* Gaertn. is the most ecologically dominant species in this forest. Phytosociological analysis reveals that diversified vegetation of Kuchiakol forest is *Shorea –Madhuca-Acacia-Eucalyptus* type. Diversity Index (H) and Dominance Index (cd) are 2.63 and 0.078 respectively. This indicates the trend of inverse relationship between diversity and dominance.

Keywords: Phytosociology, Floristic Composition, IVI (Importance Value Index), Diversity Index (H), Dominance Index (Cd), Frequency, Density.

Introduction

Forest occupies roughly 40% of the land. In India, the forest occupy roughly one tenth of the total land area. Forest is a complex community with predominance of the phanerophytes and complete understanding of such community can be revealed through various qualitative and quantitative investigations of its structure and function. The structural property of a community is the quantitative relationship in between the species growing around. The quantitative study of vegetation is called phytosociology and its principle aim is to describe the vegetation, explain or predicts its pattern and classify it in a meaningful way (Ilokar and Khatri, 2003). It indicates species diversity which determines the distribution of individual among the species in a particular habitat with increase in human activity in and around forest ecosystems, biodiversity in terms of number of species may decline (Abdulhadi et. al, 1987).

The Indian subcontinent, with its biodiversity is one of the 12 mega diversity centres of the world. Primary forest of Asia, particularly those of the Western ghat and Eastern ghat of Peninsular India are disappearing at an alarming rate due to anthropogenic activities and are replaced by forest comprising inferior species or their land pattern changed (Bahuguna, 1999). Studies from forest survey of India showed an average of 54.7% of forest is affected by fire and 72% of the forest area is subjected to grazing. Annually 3.73 million hectors of the forest area are burnt resulting in economic losses of approximately 440 cores (MoE, 1999).

Tropical dry deciduous forests are enriched with economically important species; vegetation composition, diversity of species and their habitat are well understood for other tropical forest types compared to dry deciduous forests. Dry deciduous forests are among the most exploited and endangered ecosystem of the biosphere (Murphy and Lugo, Jangen 1988).

Among the forest patches of Bankura district , Kuchiakol forest was chosen for the present study. The present paper deals with the species composition of a dry deciduous forest patch from Bankura district of West Bengal.

Aim of the Study

The study site is a tropical dry deciduous forest , located in Bankura district of West Bengal and situated 22°54´ S to 23°25´S latitude and 87°15´E to 87°46´W to longitude. The elevation above mean sea level of the area is 73 meters seasons; Summer (march-may), Rainy (june-october) and Winter (November-february).During summer period the air

temperature may go up to 44°c to 46°c with maximum relative humidity value around 95%. During raining period ,the area receives an average rain fall of 634.1mm and temperature records to an average of 36^0c.Relative humidity during rainy season varies from 30% to 100%.

During winter average temperature of 12°c to 15°c at night . Occasionally the area experience winter rain (12-15mm) during December to January .The site exhibited november to may period as the dry period.

Methodology

The floristic composition of the woody species of the study area was randomly sampled using quadrate method. Quadrates of suitable sizes 10m x 10m (Cotton and Curtis, 1956) were laid out. The circumference at breast height of the tree species were taken and were analyzed for its quantitative measures. Different quantitative analysis of the vegetation such as Frequency, Density, Dominance and percentage composition etc was made as per Mira (1968)

Determination of Species Diversity Index (H)

Important Value Index (IVI) for different tree species were calculated from following Shannon and Wiener (1963) formula---

$$\overline{H} = \sum (ni/N) \overline{\log_e} (ni/N)$$

Where, ni=IVI of Individual species
N=IVI of all species

Determination Of Dominance Index (cd)

Concentration of Dominance (cd) value was established by Simpson`s index (Simpson, 1943) as---

$$Cd = \sum (ni/N)^2$$

Where, ni = IVI of Individual species
N=Total IVI of all species in the area

Soil Physio-Chemical Characteristics of the Study Area

The soil of the study area belongs to red lateritic soil which is derived from parent pegmatite rock .Texturally classified as loam, sandy loam or clay loam type.

The $_P$H value of the soil varied from 5.4-6.5.Physico-chemical parameter of the soil have been presented in Table No-1

Table No-1

SOIL PROPERTIES	VALUE
⌂Soil Texture	
Sand (%)	43.003±1.4
Silt (%)	32.00±2.5
Clay (%)	18.02±1.2
⌂water holding capacity(%)	54.45±1.01
⌂Total organic carbon (%)	1.2±.02
⌂Total nitrogen	0.16±0.002
⌂Total organic matter	3.26±0.003
⌂Available Phosphorus (ppm)	5.67±.80
⌂$_p$H	5.26±.02

Table-2
Analysis of Tree Vegetation of the Study Area

S. No	Name of Species	Frequency (%)	Density (No/M²)	Mean Basal Area(M²)	Relative Frequency (%)	Relative Density (%)	Relative Dominance (%)	IVI(%)
1	*Shorea robusta* Gaertn	100	4.1	299.14	10.75	22.04	19.83	52.62
2	*Madhuca indica* Gmel.	90	2.2	477.17	9.67	11.82	16.97	38.46
3	*Acacia auriculiformis* A.Cum	80	1.7	410.09	8.6	9.13	11.27	29
4	*Eucalyptus tereticorois* L' Herit	60	1.7	160.79	6.45	13.44	6.49	26.38
5	*Tamarindus indica* L.	60	1.7	388.7	6.45	4.83	5.65	16.93
6	*Azadirachta indica* A.Juss.	60	1.7	243.746	6.45	5.55	3.94	15.94
7	*Terminalia bellirica* Gaertn.	70	1.7	314.99	7.52	3.76	3.56	14.84
8	*Diospyros melanoxylon* Roxb.	50	1.7	454.3	5.37	3.76	5.14	14.27
9	*Terminalia chebula* Retz	50	0.8	350.64	5.37	4.3	4.53	14.2
10	*Terminalia arjuna* Roxb	50	0.6	361.6	5.37	3.22	3.5	12.09
11	*Holarrhena antidysentrica*	40	0.6	296.32	4.3	3.22	2.87	10.39
12	*Strychnos nux-vomica* L	40	0.5	328.2	4.3	2.68	2.65	9.63
13	*Tectona grandis* L.f.	40	0.6	213.83	4.3	3.22	2.07	9.59
14	*Ferronia acidissima* Groff	30	0.5	341.202	3.22	2.68	2.75	8.65
15	*Agele marmelos* Corr. Roxb.	40	0.4	304.112	4.3	2.15	1.96	8.41
16	*Mangifera indica* L.	10	0.2	703.355	1.07	1.07	2.27	4.41
17	*Cassia fistula* Linn.	20	0.2	264.32	2.15	1.07	0.85	4.07
18	*Phoenix sylvestris* (L) Roxb.	20	0.2	214.43	2.15	1.07	0.69	3.91
19	*Dalbergia sissoo*	10	0.1	905.64	1.07	0.54	1.46	3.07

	Roxb.							
20	*Acacia nilotica*	10	0.1	905.64	1.07	0.53	1.46	3.06

Table-3
Species Richness (n), Species diversity (H), Dominance Index (cd), Total Density (no/m^2)

Species richness(n)	20
Species diversity(H)	2.63
Dominance Index(cd)	0.078
Total density(m^2/no)	18.6

Result and Discussion

Phytosociological characters, density, basal area, IVI for tree species were recorded in the forest site.

Shorea robusta and *Madhuca indica* were more frequently and abundantly obserbed tree species.

Basal area analysis revealed the maximum total basal area for *Shorea robusta* . Relative higher frequency and density contributed to the dominance *Shorea robusta*. On the basis of IVI value *Shorea robusta* is the most dominant species in Kuchiakol forest.The IVI value of tree species varied from a minimum 3.06 to a maimum of 52.62.Maximum IVI value was revealed by *Shorea robusta*. It was followed by *Madhuca indica* and *Acacia auriculiformis* .These tree dominant species contributed 49% of total IVI value in Kuchiakol forest .Least IVI value (3.06) was observed in *Acacia nilotica*. Depending on the IVI value, the forest vegetation is classified *Shorea –Madhuca-Acacia-Eucalyptus* type. Diversity index (H) and Dominance Index (cd) calculated for the recorded tree species of the study area have been compiled in TABLE -3 . Perusal of the table indicated maximum Diversity Index in *Shorea robusta* .As the Density was more, basal area observed to be significantly low.This was due to the poor girth size of trees in the forest. Thus from this we can indicate the trend of inverse relationship between Diversity and Dominance. This generalizes that, when the community becomes floristically more and more diverse, Dominance value of the community becomes more dispersed among the existing species for their better mutual establishment. This turn brings stability to the system .We can observed from IVI value that just next to *Shorea robusta* ,*Madhuca indica* ,and *Acacia auriculiformis* occupies the second and third position and fourth *Eucalyptus tereticornis* as a dominant species . And basing on the IVI value , the forest vegetation was classified as a *Shorea – Madhuca -Acacia-Eucalyptus* type .Though such classification of the forest vegetation was done, but *Eucalyptus tereticornis* and *Acacia auruiculiformis* were cultivated plants. This plants were cultivated by the forest Department of West Bengal in the forest areas. This might happened due to deforestation. To reforest the deforest land , forest Department of Kuchiakol forest took this step .Deforestation might have taken place due to increase population of that area. Increase population has forced the mankind to cut the forest for the need of lands for agricultural purpose for growing more food .Urbanization may also be the other cause. One of the other most important cause of deforestation is cutting down of trees on an extensive scale to obtained firewood, wood for timber and other forest products .Thus to overcame this situation, Forest Department had planted these cultivated plants , and thus these plants , *Eucalyptus* and *Acacia* occurs so frequently .It has also been noted that around Eucalyptus plant, the growth of other plants was very low . Which inhibit the other plat to grow in that soil.

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THE UNIVERSITY OF BURWAN



A SOCIAL OUTREACH PROGRAM

ON

A SURVEY WORK ON

MEDICINAL PLANTS

USED BY A TRIBAL FAMILY

SUBMITTED BY

SOMEN DEY

ROLL- BUR BOT

NO: -2014/75

RAMANANDA COLLEGE

BISHNUPUR * BANKURA
Pin – 722122, West Bengal
UGC Recognized & State Government Aided Institution
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email-akbiswas_2001@yahoo.co.in

POST GRADUATE DEPARTMENT OF BOTANY
(A constituent Unit of University of Burdwan)

CERTIFICATE

This is to certify that SOMEN DEY, Roll-BUR BOT No-2014/75 have performed a survey work on medicinal plants used by a tribal family in a village , Shalbagan ,Bishnupur, Bankura,West Bengal for social outreach program.

Dr. Shyamal Kanti Mallick
(Supervisor)
Department of Botany
Ramananda College
Bishnupur, Bankura

TITLE: A SURVEY WORK OF MEDICINAL PLANTS USED BY A TRIBAL FAMILY

SUBMITED BY

SOMEN DEY

ROLL –BUR BOT NO-2014/75

.....

Signature of the Internal Examiner

Signature of the External Examiner

RAMANANDA COLLEGE

BISHNUPUR * BANKURA
Pin – 722122, West Bengal
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Under the Bankura University
(Accredited by NAAC at 'B' Level)

List of Some Visiting Faculty

Date	Department	Name of the faculty	Designation	Institute
16.04.2018	Department of Bengali	Aurabinda Chottopadhyay	Assistant Professor	Bankura University
28.04.2019	Department of Bengali	Aurabinda Chottopadhyay	Assistant Professor	Bankura University
1st July,2018 – 31st December 2018	Department of Botany - PG	Dr. Ashok K. Das	Retired Associate Professor,	Midnapore College
1st July,2018 – 30th June 2019	Department of Botany - PG	Dr. Samit Dutta Roy	Retired Associate Professor	Garbeta College, Midnapore
1st July,2018 – 30th June 2019	Department of Botany - PG	Pradip Kumar Ghosh	Retired Associate Professor	Vivekananda College, Burdwan
1st January ,2019 – 30th June 2019	Department of Botany - PG	Dr. Arun K. Biswas	Ex-Principal	Ramananda College
26/02/2019	Department of Economics	Dr. Samar K. Datta	Prof. of Economics (Retd.)	IIM, Ahmedabad
19.11.2018	Department of English	Dr. Sarbojit Biswas	Associate Professor	Bankura University
24.04.2019	Department of English	Dr. Narugopal Mukherjee	Associate Professor	Bankura Christian College, Bankura
24.04.2019	Department of English	Dr. Sourav Nag	Assistant Professor	Onda Thana Mahavidyalaya, Kalisen
17.01.19	Department of Math	Dr. Sk. Nazmul	Assistant Professor	Bankura University

RAMANANDA COLLEGE ESTD.-1945 (BANKURA) BISHNUPUR

29/11/2020
Principal
Ramananda College,
Bishnupur, Bankura

Resource Persons

Honourable Resource Persons

Key Note Address

PROF. SHYAMAL SANTRA

Minister of State, Dept. of Panchayat and
Rural Development and Public Health Engineering
Govt. of West Bengal
and President of Governing Body

PROF. NIRANJAN BEHERA

School of Life Sciences,
Sambalpur University, Orissa

PROF. PRABIR RANJAN SUR

Scientist
Botanical Survey of India,
Shibpur, West Bengal

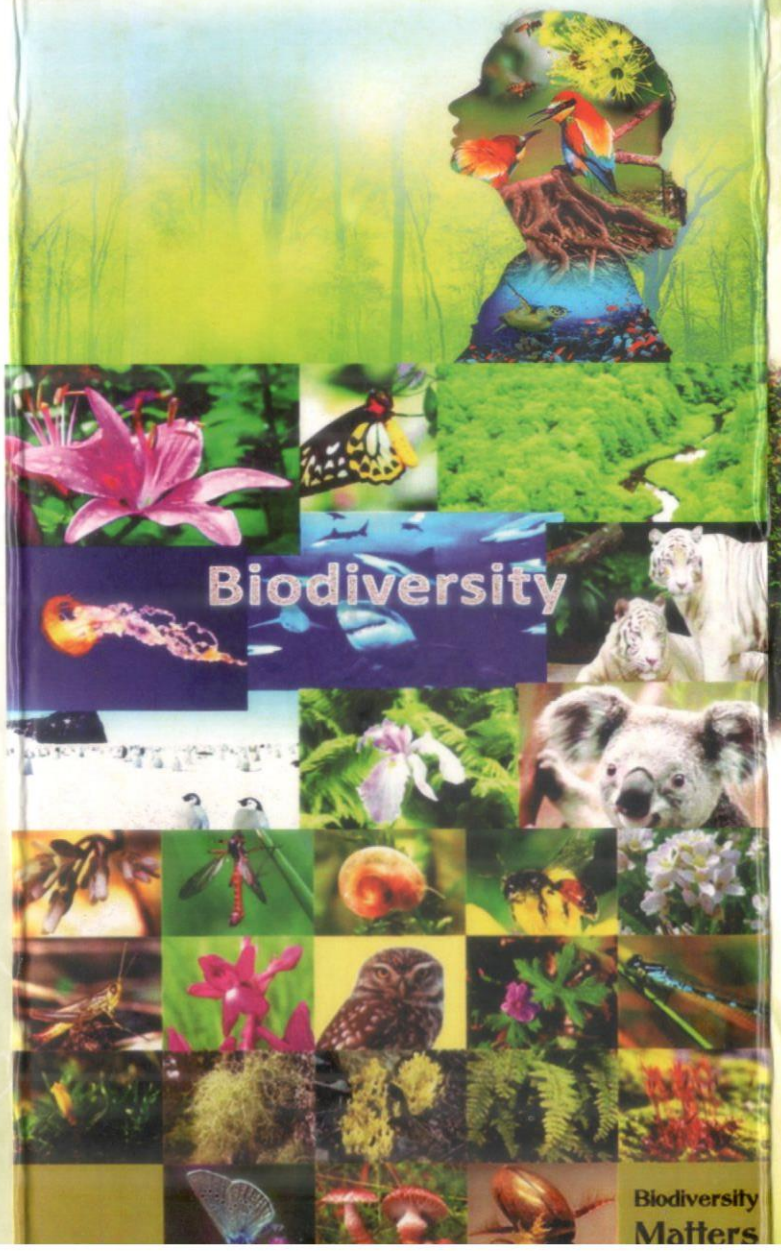
DR. PARTHA PRATIM CHAKRAVORTY

Associate Professor and Head
P.G. department of Zoology
Raja N.L.Khan Women's College (Autonomous)



Registration Fees

Academic delegates Rs.200/-
Students Rs. 100/-



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Estd. - 1945

WBBB

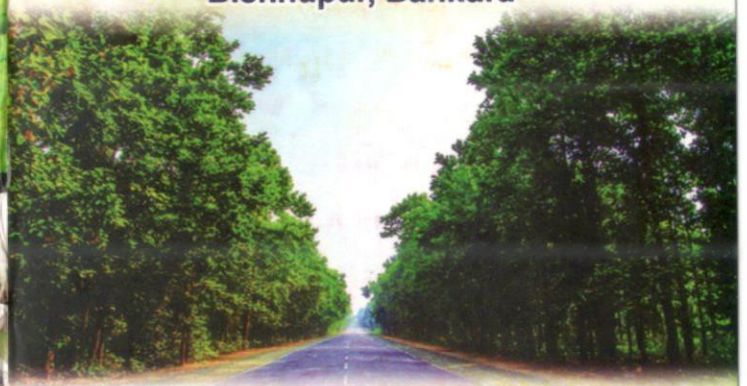
One Day National Seminar on

BIODIVERSITY AND ITS CONSERVATION

Date : 2nd March, 2020

Organized by

Biodiversity Management Committee
Ramananda College
Bishnupur, Bankura



At

RAMANANDA COLLEGE

Estd. - 1945

UGC Recognised & State Government Aided Constituent College
Under the Bankura University
(Accredited by NAAC at B Level)

P.O. - Bishnupur, Dist. - Bankura
Pin - 722122, State - West Bengal
Tel - 6297976619
Website - www.ramanandacollege.org

Ramananda College at a glance

Ramananda College, affiliated to Bankura University, is located in the heritage town of Bishnupur and named after Internationally renowned journalist, editor, social reformer and essayist Ramananda Chattopadhyay. The motto of the college ***Sraddhaban labhate jnanam*** expresses the aims and objectives of the management, teachers, learners and non-teaching staff of this institution. The foundation of this college to a great extent caters the need of the local populace. Since its inception in 1945 the college has been serving for more than 71 years as the Alma Mater of thousands of students coming from rural Bengal. It is the only full-fledged degree college with all the three major conventional streams - B.A., B.Sc. and B.Com (Honours and General course in 19 and 20 subjects respectively) in the entire locality. In addition, our college offers PG courses in Bengali, English, Sanskrit, Mathematics and Botany. The Vision of the college is to provide best academic standards and opportunities to its students and equip them with such skills that will help them to become global citizens.

Biodiversity Management Committee, Ramananda College organizes this international seminar on BIODIVERSITY AND ITS CONSERVATION.



Theme of the Seminar

The biosphere constitutes a vital life support system for man. Its existence in a health and functional state is essential for the existence of human race. It is the complex collection of innumerable organism - the biodiversity which makes our lives both pleasant and possible. Complex beyond understanding and valuable beyond measure biological diversity is the total variety of life on our planet. The fast rate of extinction of life forms which is causing serious concern to us. Before man's appearence our this planet the rate of extinction was one species per thousand years. However the pressure of human activities has drastically changed the picture. In a span of three hundred years between 1650 A.D. to 1950 A.D. about 30 species of high animals here lost and now we are probably losing one species every year. No doubt it is impossible to preserve all of the species but prudence demands that we should intensify our efforts far exsitu as well as in situ conservation.

About Bishnupur

It is located at 23005'N 87019'E. It is located in the Bankura district of West Bengal and is famous for the terracotta temples made from the locally available laterite stones.

Bishnupur was the capital of Malla Kings. Bishnupur's glorious past is emulated in its traditional architecture, monuments and handicrafts such as pottery and weaving. Under the patronage of Malla Kings, Bishnupur developed as a town of several temples with unique terracotta work.

Bishnupur is also known for its traditional handloom saris as well as terrocotta pottery, artifacts and jewelry and the Bishnupur school of painting.

The rich tradition of the Bishnupur Gharana, a school of classical music is kept alive through local music academies.

Communication

Bishnupur is well connected via roads to almost all major places of Bengal. Long distance buses connect Bishnupur to places like Kolkata, Durgapur, Asansol, Midnapur, Kharagpur etc. There are regular and frequent bus services available between Kolkata and Bishnupur. Bishnupur is well connected by rail to the rest of the country via Kharagpur and Adra. Nearest International Airport is Dumdum, Kolkata (Netaji Subhas International Airport) Which is about 140 km from Bishnupur.

Invitation

Ramananda College cordially invites the teachers, students and research scholars to participate in the One Day National Seminar on the topic 'Biodiversity and Its Conservation' which is scheduled to be held on 2nd March, 2020 at the College

Co-operation from all corners is highly solicited.

With thanks

DR. SWAPNA GHORAI
Principal, Ramananda College
DR. AJIT KUMAR DUTTA
Convenor
Associate Professor, Dept. of Botany
Ramananda College
DR. SHYAMAL KANTI MALLICK
Joint Secretary
Assistant Professor, Dept. of Botany
Ramananda College
DR. SUBHANKARI PRASAD CHAKRABORTY
Joint Secretary
Assistant Professor, Dept. of Physiology
Ramananda College

One Day National Seminar on

BIODIVERSITY AND ITS CONSERVATION

Date : 2nd March, 2020

Sponsored by

West Bengal Biodiversity Board
Dept. of Environment
Government of West Bengal

Organized by

Biodiversity Management Committee
Ramananda College
Bishnupur, Bankura

The Organizing Committee cordially invites you to the inaugural ceremony of the One day National Seminar on **"BIODIVERSITY AND ITS CONSERVATION"** *to be held on 2nd March, 2020 at 10 am in the Biram Bhavan, Ramananda College, Bishnupur, Bankura.*

Prof. Shyamal Santra, Minister of State for Panchayat & Rural Development and Public Health Engineering, Govt. of West Bengal and President of governing body, Ramananda College has given his kind consent to inaugurate the seminar. Prof. Niranjan Behera, School of Life Sciences, Sambalpur University, Orissa, Prof. Prabir Ranjan Sur, Scientist, BSI, Shibpur, Dr. Partha Pratim Chakravorty, Associate professor and Head, P.G. Department of Zoology, Raja N.L. Khan Womens' College, Midnapur will deliver their valuable lecture. Dr. Swapna Ghorai, Principal, Ramananda College will preside over the function.

We also invite everybody for heartiest presence in this programme.

Dr. Swapna Ghorai
Principal
Ramananda College, Bishnupur, Bankura

Dr. Ajit Kumar Datta (Convenor)
Dr. Shyamal Kanti Mallick (Jt. Secretary)
Dr. Subhankari Prasad Chakraborty (Jt. Secretary)
Organising Committee, National Seminar

To, Dr. Anindita Bar
Dept of Zoology.

West Bengal Biodiversity Board

(Department of Environment, Government of West Bengal)

Memo No.: /1L(Bio)-1(ii)/2009 Date: 08/01/2018

From: Dr. Anirban Roy
Research Officer

To: The Executive Officer
Bishnupur Municipality,
Office of the Councillors of Bishnupur Municipality,
P.O. Bishnupur, Dist. Bankura, Pin - 722122

Sub: Constitution of Biodiversity Management Committee in Bishnupur Municipality, Bankura district

Sir,

Acknowledging receipt of your letter (vide memo no. 3089/XI – 8 dated 05/12/2017) and express satisfaction to note that Biodiversity Management Committee of Bishnupur Municipality has been officially constituted.

However, under the provision of this Act, a Biodiversity fund is to be maintained by the BMC for the grants and loans to be made by the State and Union Government to the BMC. For this purpose **a dedicated bank account** is to be opened with any nationalized bank for maintaining monetary transactions of the BMC, which may be operated jointly by two designated persons from the BMC.

The concerned BMC will be required to initiate necessary activities for preparation of People's Biodiversity Register (PBR) (documentation of biological diversity and related traditional knowledge) in the selected area in order to facilitate implementation of the provisions of the Biological Diversity Act, 2002 as per the mandate of Sec 41 (1).

Considering above, you are requested to do the needful in the matter by passing necessary instructions to the persons concerned. Should you require any further assistance kindly feel free to contact the undersigned as and when required.

Yours faithfully,

Sd/-
(Anirban Roy)

Memo No.: 32(1)/1L(Bio)-1(ii)/2009 Date: 08/01/2018

Copy forwarded for information to : i) Prof. Dr. Ajit Kr. Datta
Chairman, Biodiversity Management Committee,
Malancha Para, College Road, 3 No. Ward, P.O. Bishnupur,
Dist. Bankura, Pin - 722122

(Anirban Roy)

Office: Prani Sampad Bhavan, 5th floor, LB - II, Sector - III, Salt Lake City, Kolkata - 700106
Ph.: 033 2335 2731; 033 2335 5954 ; 033 2335 2763 (Telafax)
Website: wbbb.gov.in ; Email: biodiversity.wbbb@nic.in, biodiversity.wbbb@gmail.com

BIODIVERSITY MANAGEMENT COMMITTEE
BISHNUPUR MUNICIPALITY
VILL+PO+PS –BISHNUPUR, DIST –BANKURA
PIN- 722122, PHONE-9434520612

Memo No.: - 02/BMC/Bishnupur Municipality Date: 20-12-2018

From :
Sri Dr. Ajit Dutta
Chairman, Biodiversity Management Committee
Bishnupur Municipality
PO: Bishnupur,PS: Bishnupur,
Dist.: Bankura
Pin: 722122, WB

To
Dr. Anirban Roy
Research Officer,
West Bengal Biodiversity Board,
Prani Sampad Bhawan (5th floor), LB-2, Sector- III,
Salt lake City, Kolkata – 700106

Sub.: Letter of Claim for releasing the of Fund Financial assistance for operationalization of constituted BMC

Respected Sir,

With reference to your letter no. 1031/5K(Bio)-11/2017 dated 12-12-2018, I would like to request you to release the sanctioned amount of Rs. 50,000/- (Fifty Thousand) in favour of Biodiversity Management Committee Bishnupur Municipility.

(A/c name and No. & IFSC code) to initiate the work at the earliest.

1	Bank Account Number	426210110013876
2	Bank Name With Branch	BANK OF INDIA, BISHNUPUR
3	IFSC Code	BKID0004262
4	MICR Code	722013501

Thanking you,

Yours faithfully,

Ajit Kumar Dutta

Chairman
Biodiversity Management Committee
Bishnupur Municipality

Chairman

STD Code : 03244
Office : 252073 / 252591
Tourist Complex : 252200
E-mail ID : chairman_bsp@bsnl.in

OFFICE OF THE COUNCILLORS OF BISHNUPUR MUNICIPALITY

Memo No.....3089/XI-8.

Dated, Bishnupur, the ..05-12-2017

To :
To
The Member Secretary
West Bengal Biodiversity Board
Prani Sampad Bhavan, 5th Floor,
B2, Salt Lake City, Sector-III,
Kolkata-700 106

Sub : Through the District Coordinator , Bankura, WBBB.

Sub : Constitution of Biodiversity Management Committee of Bishnupur Municipality.

Ref. :

Sir,

As per provisions of the Biological Diversity Act, 2002 and Biological Diversity Rules, 2004, and as per resolution of Board Meeting on 29.11.2017 of Bishnupur Municipality. Vide resolution no 8 dated 29.11.2017, the Biodiversity Management Committee (BMC) of Bishnupur Municipality has been constituted on with the following members :-

1. Prof. Dr. Ajit Kr. Datta Chairman / Chairperson
2. Prof. Dr. Swapna Ghorai (Member) (Female) Principal — Mob. No.-9733067926
3. Prof. Nilanjana Chatterjee (Member) (Female)
4. Prof. Dr. Shyamal Kr. Mallick (Member) (SC)
5. Prof. Dr. Asish Mandal (Member)
6. Prof. Dr. Debanka Sekhar Misra (Member)
7. Prof. Dr. Subhankari Prasad Chakraborty (Member)

Permanent invitees :

1. Hon'ble MP of the locality
2. Hon'ble MLA of the locality

This is for your information and further necessary action.

Yours Sincerely,

Chairman
Bishnupur Municipality

Chairman
Bishnupur Municipality

05/12/17

Executive Officer
Bishnupur Municipality
Executive Officer
Bishnupur Municipality
Bishnupur, Bankura

BIODIVERSITY MANAGEMENT COMMITTEE
BIHNUPUR MUNICIPALITY
RAMANANDA COLLEGE UNIT
BISHNUPUR MUNICIPALITY.
BANKURA. W.B.

Utilizaation Certificate.

Name of the Organization: Biodiversity management committee.

Fund Inflow (income)	Amount(Rs)	Fund (outflow)	Amount (Rs)
Amount received from West Bengal Biodiversity Board.	50,000/-	Furniture Purchases	11,300/-
		Stationary	3200/-
Bank interest		Signboard and Awarnass materials	11,000/-
Own contribution (if any)	Nil		
	Nil	Participating awareness Programme	14,000/-
		Meeting Expenses	4020/-
		Printing and Publicity Materils	3980/-
		Misc.	2500/-
TOTAL			**500000/-**

Chairman
Biodiversity Management Committee
Bishnupur Municipality
Bishnupur, Bankura

Signature of secretary Signature of DDO Signature of Chairman

Dated:

Our Ref. No.

accepted and Countersigned

COMPETANT AUTHORITY

W.B. BIODIVERSITY BOARD.

BIODIVERSITY MANAGEMENT COMMITTEE
BISHNUPUR MUNICIPALITY
VILL+PO+PS –BISHNUPUR, DIST –BANKURA
PIN- 722122, PHONE-9434520612

Memo No.: - 02/BMC/BIshnupur Municipality

Date: 20-12-2018

MONEY RECEIPT IN ADVANCED

Received with thanks a sum of Rs. 50000/- (fifty thousand only) the sanctioned amount from West Bengal Biodiversity Board (Dept. of Environment, Govt. of West Bengal) in the name of Bishnupur Municipality BMC exclusively for expenditure for the Financial assistance for operationalization of constituted BMC of Bishnupur Municipality under Bankura district".

Ajit Kumar Datta

Chairman,
Biodiversity Management Committee,
Bishnupur Municipality, Bankura

Chairman
Biodiversity Management Committee
Bishnupur Municipality
Bankura

BIODIVERSITY MANAGEMENT COMMITTEE
BISHNUPUR MUNICIPALITY
VILL+PO+PS –BISHNUPUR, DIST –BANKURA
PIN- 722122, PHONE-9434520612

Memo No.: - 02/BMC/Bishnupur Municipality Date: 20-12-2018

From :
Sri Dr. Ajit Dutta
Chairman, Biodiversity Management Committee
Bishnupur Municipality
PO: Bishnupur,PS: Bishnupur,
Dist.: Bankura
Pin: 722122, WB

To
Dr.Anirban Roy
Research Officer,
West Bengal Biodiversity Board,
PraniSampadBhawan (5th floor), LB-2, Sector- III,
Salt Lake City, Kolkata – 700106

Sub.: Acceptance letter

Respected Sir,

Thank you for the approval of the releasing the Fund of Financial assistance for operationalization of constituted BMC of Bishnupur Municipality Biodiversity Management Committee, Bankura district" (vide letter no. 1031/5K(Bio)-11/2017 dated 12-12-2018,) and I am accepting your letter with all terms and conditions of the sanctioned amount of Rs. 50,000/- (Fifty Thousand) only to initiate the work at the earliest.

The advanced money receipt as requested is attached herewith.

Thanking you,

Yours faithfully,

Ajit Kumar Datta 8/1/19
Chairman
Biodiversity Management Committee
Bishnupur Municipality
Bishnupur, Bankura

Chairman
Bishnupur Munucipality
Biodiversity Management Committe

Environmental Audit Report 2019

RAMANANDA COLLEGE, BISHNUPUR BANKURA, W.B.



PREPARED BY

TROPICAL INSTITUTE OF EARTH AND ENVIRONMENTAL RESEARCH (TIEER), MIDNAPUR, W.B.

Environmental Audit Report of Ramananda College, Bishnupur, Bankura has been prepared by Tropical Institute of Earth and Environmental Research (TIEER) based on visit to the college campus, checking records and interactions with faculty, non-teaching staff and students. No intrusive study was conducted during the audit.

The audit was conducted on **5th April, 2019.** The audit report presents green initiatives taken up by the institution, and provides suggestions and recommendations to improve environmental sustainability.

Contributors:

1. Dr. Pranab Sahoo, Assistant Professor & HOD, Dept. of Geography, Seva Bharati Mahavidylaya, and Secretary, TIEER
2. Dr. Misha Roy, Assistant Professor, Dept. of Environmental Science, Vidyasagar University
3. Dr. Sk.Mafijul Haque, Assistant Professor Dept. of Geography, Calcutta University
4. Dr. Pradipta Chandra, Materials Engineering and MBA , llT, Kharagpur
5. Dr. Mrinmoy Ghorai, Assistant Professor, Dept. of Zoology, Panskura Banamali College
6. Dr. Mousam Majumdar, Environmental Researcher



The Enquiry Team with Principal, Ramananda College

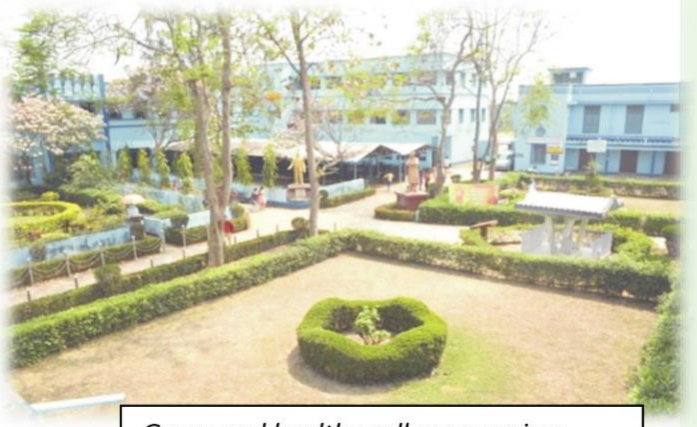
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1. Introduction:

1.1 About the College

The inception of Ramananda College in 1945 was the beginning of providing higher education to the otherwise marginalized youths of this locality. The "Temple Town" Bishnupur, a Sub-Divisional Head Quarter is endowed so far with this only co-educational Degree College, which has been serving for more than 74 years as the Alma Mater of thousands of students coming from rural Bengal.



Green and healthy college premises

The proposal to establish a centre of higher education was initially made by Sri Ramnalini Chakraborty, freedom fighter and social worker of Bishnupur. Initiative was taken by Sri Radhagobinda Roy, founder Principal of this college and Ex-minister, Government of West Bengal and many other eminent personalities of the town and the district. Fund was generated by the contributions of Sri Ramnalani Chakraborty (Rs. 25,000/-), Koley family (Rs. 36,000/-), Sri Anil Kumar Bhattacharya (Rs. 10,000/-), Members of the Friends' Union Club (Rs. 10,000/-) and by the donations of the common people. The college was named after the illustrious son of the district of Bankura, Sri Ramananda Chattopadhyay, noted journalists, editor and scholar.

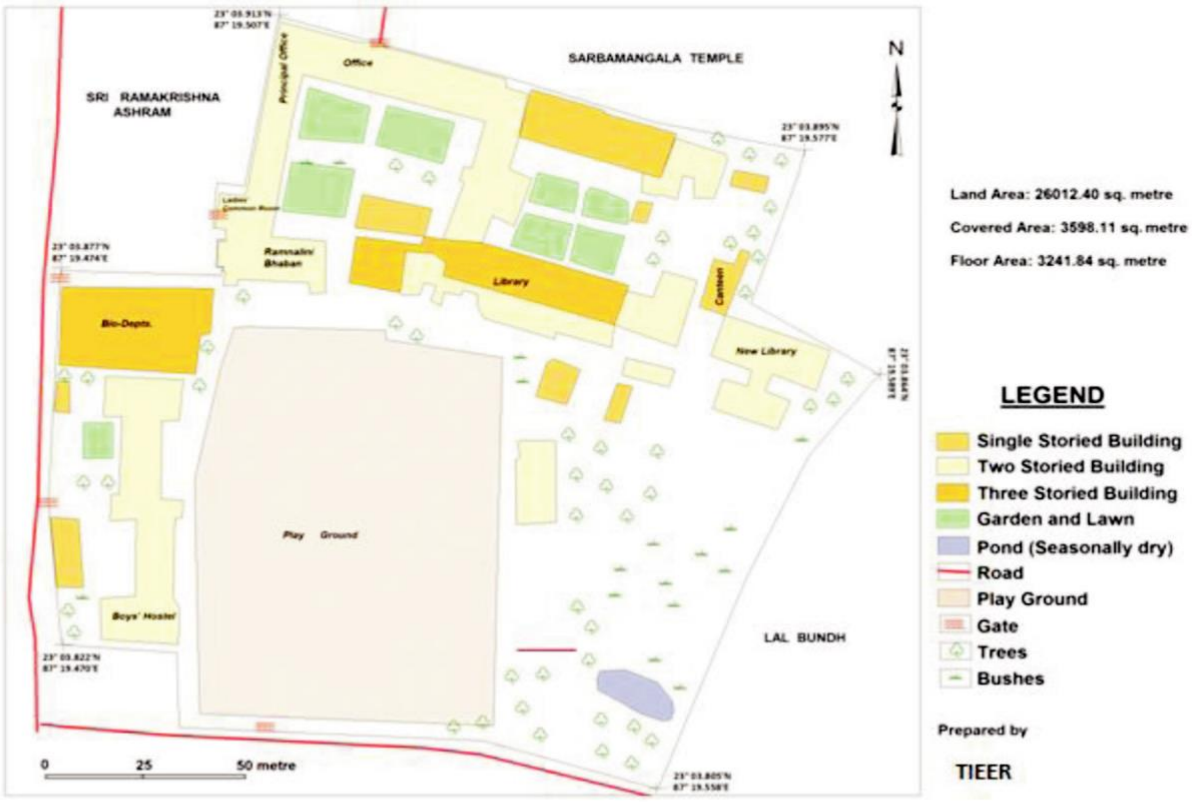
Ramananda Chattopadhyay was the editor, publisher and owner of the Modern Review, a high grade illustrated monthly magazine published in English and Prabasi, a Bengali organ, published in the vernacular. He was pre-eminently an editor although during his useful life he was associated with many reform movements.

The sapling of the past has become the full-grown tree of the present. It fulfils the academic need of the students and nourishes them with the knowledge of real value. The College was initially affiliated to the University of Calcutta and later on to the University of Burdwan and presently to the Bankura University since 1st January, 2017.

The college, with best academic standard, offers Honours & General courses in Bengali, English, Sanskrit, History, Political Science, Philosophy, Geography, Economics, Education, Music, Physical Education, Computer Science, Mathematics, Physics, Chemistry, Botany, Zoology, Physiology and Nutrition. It has separate morning shift for the Commerce section. Every year some students secure ranks in the University Final Examinations. The rate of success in the University Final Examination is more than 90%. Along with this excellent

academic performance the students are involved in social activities like Extension Programme, Adult Education Programme, organizing Health Camp, Plantation Programme, etc. With equal enthusiasm the students serve the nation by being an integral part of N.S.S. & N.C.C. units of the college.

Initially the College was affiliated to the University of Calcutta and later, to the University of Burdwan and now under the affiliation of the Bankura University since 1st January, 2017. The College is recognized by the UGC under Sections 2f and 12B. As the college was established before Independence, it predates both the creations of the UGC and the University of Burdwan. In 2015, the National Assessment and Accreditation Council (NAAC) re-accredited (2nd cycle) the College with 2.75 score. Further, with the introduction of different Post Graduate Courses in Science and Humanities, the College has become a constituent College of the Bankura University. Now the College is complaint with the visions of RUSA.



Location of the College and Land use map

2. Environmental Audit

The Audit covered the following major areas:

2.1. Water Efficiency and Wastewater Management

2.2. Indoor Air Quality

2.3 Energy Efficiency

2.3. Paper Waste Management

2.5. E-Waste Management

2.6. Canteen and Solid Waste Management

2.7. Green Belt

2.1. Water Efficiency and Wastewater Management:

The water is stored in the four storage tanks (Make – Sintex, one of 6 KL, capacity and three of 2Kl capacity each) located on building terrace. Water from bore well is pumped to storage tank around 3 times daily. Stored water is used for drinking, flushing and cleaning. 12 Aquagaurds are provided for drinking water purpose. Water tanks of Hostels are not included.



Polluted water in Unusable tank

No leaking faucets were seen anywhere in washrooms. If water leakage is observed, in-house plumber is called immediately to attend to the complaints. Water conservation faucets in washrooms were not seen. Installation of such faucets can save water and will help in minimising the water footprint of the institute. No signage emphasising water conservation was found in the institute. Sanitary wastewater generated from washrooms is connected to sewerage system. Chemical wastewater generated in chemical labs in the institute is also connected to sewerage system.



Chemical liquid wastage

Waste water recycle is not practiced in the institute as grey water/ sewage treatment /recycle facility is not provided.

Ramananda College is in Bankura region of W.B, which is a water scarce area. Therefore, proper water management practices along with rooftop rain water harvesting system must be installed for recharging ground water and meeting part of the water requirements.

2.2. Indoor Air Quality

Indoor Air Quality (IAQ) refers to the air quality within and around buildings and structures, as it relates to the health and comfort of building occupants. Some common indoor pollutants are listed as below:

• Molds and other allergens – This may arise from water seeping into the building envelope or skin, plumbing leaks, condensation due to improper ventilation, or from ground moisture penetrating a building part.

• Carbon monoxide – Sources of carbon monoxide are incomplete combustion of fossil fuels.

• Volatile organic compounds – VOCs are emitted by paints and lacquers, paint strippers, pesticides, office equipment such as copiers and printers, correction fluids and carbonless copy paper, graphics and craft materials including glues and adhesives, permanent markers, and photographic solutions etc.

• Carbon dioxide – Due to human respiration

• Particulate matter – Due to construction and maintenance activities

Major observations under indoor air quality is as below:

a) Ventilation is achieved by fans in the institute and air conditioners in some places.

b) Heating Ventilation and Air Conditioning (HVAC) system is not installed.

c) Smoke detectors are not provided in the institute.

d) Exhaust fans are only provided in washrooms and chemistry lab.

e) No indoor plants were observed in the entire institute. Indoor plants can be plotted not only for the aesthetic appearance but also for health benefits.

2.3. Energy Efficiency

- Good Daylight Design and Ventilation:

a) All the corridors receive good daylight due to the large windows.

b) Corridors are wide with good ceiling height.

c) Classrooms also have high ceiling with wide doors and large windows. Windows are kept open to receive sunlight.

d) Curtains are provided on some of the windows to avoid glare. Due to the location some classrooms do not receive ample natural light and fresh air. Hence these rooms are provided with tube lights even during day time.



Spacious Laboratories



Conversation with students to
Study of environment in laboratories

- **Electricity:**

07 electricity meters are provided for the entire complex. The monthly average electricity consumption is around 7000 KWh (units) approximately. It is necessary to monitor the electricity consumption and we suggest that institute carries out an energy audit to understand the reasons & take corrective action.

The areas of major consumption of electricity are:

LED lights– 100 approximately

Fans – 250 nos. approximately

Air Conditioners – 2nos. (Not energy rated)



Insufficient day light in Classrooms

Computers -150

Fridge 1 in almost every department

Three generators of 20 capacity and one of 15 capacity each are installed in every department, Office, Library and labs as backup in case of power failure.



LPG gas use for chemistry lab.

It was observed that reflectors are not provided for tube lights which can reduce electricity consumption. Computers are always kept on standby mode with power saving screensavers.

There are no signage encouraging users to switch off light and fans to save electricity. Providing signage through screensavers & posters near electrical switches will help in making students responsible for conservation of electricity.

There is no renewable source of energy used e.g. Solar, Wind.

a) LPG gas cylinders are used in laboratories and in the hostel and canteen building for cooking. Other than this, LPG gas is not used anywhere.

b) There is no dedicated gas storage area. Gas cylinders are refilled as and when required.

c) There are no diesel generators used in the premises.

About waste

Waste (or wastes) are useless or unusable materials or components which are discarded after principal use. Sometimes, it is a defective article and of no use. In modern outlook waste may be a valuable substance subject to an appropriate operation or action on the waste. With the context of waste management RRR (reduce, reuse and recycle) model may be followed in appropriate fashion. Keeping the objective of the audit the following study will be limited to the waste generated in an academic campus and surroundings.

Kinds of waste

The following categories of wastes are generated in the college campus:

a) Solid waste

Nearby the physics department old instruments and furniture cause dump. Waste generated through plastic packaging causes nuisance. Some wastes are generated after various experiments, primarily, chemistry laboratory; broken test tube, glassware are the example.

b) Liquid waste

There are bio-chemical wastes generated through various chemical reactions and biological processes. Generally, these are being drained to nearby pond contaminating water and soil. Appropriate means is suggested to adopt scientific liquid waste management practices. These are neutralization, bacterial control, and natural control through plantation.

2.4. Paper Waste Management:

Being academic institution, waste paper is the main solid waste generated in the premises. The institution has taken steps to minimise and avoid paper usage. Faculty and administration staff uses old papers and envelops for internal usages as rough work, file markers, page separators etc. Paper notices are displayed on the notice boards .The dissertation reports, journals, and answer papers are stored as per the University rules. Most of the storage is in computer laboratory, library and staff room. After couple of years, old submissions and answer papers will be archived and stored in a record room at ground floor. Old publications are still stored in the library. As per the memo, for the disposal of old newspaper scrap dealer is called by central purchase department.



Perception study for paper waste management

2.5. E-Waste Management:

The institute has around 150 PCs and 2 air conditioners in working condition. The data on E-waste generation and its disposal is not available. There is no documented policy for collection, segregation of e-waste.

2.6. Solid Waste Management:

It was observed that:

a) Wet waste and dry waste segregation is not practised in the premises. No separate bins are provided for wet biodegradable and dry recyclable waste.

b) Combined waste is directly handed over to the Municipality



Crisis of solid wastage management

c) Hostel is the main area where biodegradable and non-biodegradable waste is generated. In the back of the girls hostel the sanitary napkins are mostly observed scattered here and there.

e) In other areas like classrooms, it is mostly paper waste and plastic wrappers

Impact of waste on health and environment

Throwing the old furniture here and there is strongly discouraged because it causes the home for spiders, rats, snakes and mosquitoes. Plastics can choke drainage system by causing flood. If get mixed with soil, plastics hinder the growth of root of plants. Generally, bio-chemical wastes are being drained to nearby pond contaminating water and soil.



Inorganic and plastic wastage scattered here and there

2.6.1. Waste management

a) Solid waste

The suggestion is that old instruments may be preserved in a central museum (may be developed if does not exist). The same may be used for demonstration to the new and passionate students and to school children for their project purpose.

Old furniture may be reassembled to make stools, desks, chairs, tables, racks and book shelves with appropriate renovation. Moreover, since cutting of threes is not suggested, whatever timber we have from the ancestors must be preserved and utilize properly.

For plastic three dimensional package-of-practices is suggested. First of all, awareness on plastics material (and its life cycle), its uses and disposal will be there regularly among students. In the second stage, practice of keeping plastics wrapping, packaging, and other plastic-made things in the appropriate bin should be there. For this purpose sufficient numbers of bins will be placed in appropriate locations like students' common room, canteen etc. A mechanism will be there for regular collection by dedicated manpower. At the end, the plastics will recycled by grinding/ chopping instrument and final material is to be dispatched to market. The institution has accepted the suggestion of use of such innovative recycling machine and suggested to design the machine.

Wastes generated from chemical experiments are to be disposed safely maintaining chemical hazard disposal protocol.

b) Liquid waste

Appropriate means is suggested to adopt scientific liquid waste management practices. These are neutralization, bacterial control, and natural control through plantation.

2.6.2 Waste prevention

Since waste demands a cost for recycling, it is better to design such product which takes less recycling cost. So, at the design phase the proper need assessment is to be undertaken to reduce the target cost for disposal.

Major audit issues in management of waste:

The following are being emphasized during audit of waste management:

a) Name of the waste

b) Category of waste

c) Quantity of waste

d) Hazardous effect of the waste

e) Institutional action and mechanism for waste management

Compliance audit of waste issues:

At the present stage the institute is capable in managing their waste. They are complying with the essential requirements of waste management although suggestions are given for future improvements.

6.3 Performance audit of waste issues:

No critical audit issue is there with respect to the waste management.

2.7. Green belt/ Landscaping:



Indigenous plants

The Institute has a sprawling campus of 37,635.82 Sq.m

a). Plantation is needed in the compound in the periphery of the campus. This plantation will also help keep down severe heat and cold. The trees should be planted in such a way that it should not completely obstruct the view of the building from outside and sunlight to room.



Medicinal plants garden

b). Indoor plants can be potted along the corridors and entrance of the building. For enhancing the scenic beauty it is suggested to plant flowering trees, which bloom in different seasons, in front of the large trees along the periphery.

d).Vertical Gardening can be done on the compound wall of the institute.



Famous 'Lalbandh' water bodies



Rain water harvesting area around the college campus



Playground without any Greenary

Table. 1. Summary of Quantitative Environmental Impact Evaluation

Factors	**Weightage**
Water Efficiency and Wastewater Management	M
Indoor Air Quality	L
Energy Efficiency	M
Paper Waste Management	A
E-Waste Management	A
Green Belt	A

Key: Significant Impact – requires assessment and establishment of measures

Impacts of low or non-existent significance (rated as A = High, M = Moderate, L = Low)

2.8. For Improving Energy Consumption:

a) Every classroom and lab with central switch board should have a diagram linking place of tube light, fan etc. with corresponding switch. This will ensure that correct fitting is switched on/ off and can save time & unnecessary operation.

b) Installation of automatic lights with sensors can be considered.

c) Standard Operation Procedures (SOPs) should be prepared and followed for green purchasing wherein equipment's with star rating; those using eco-friendly materials; those with safe disposal policy or return to supplier after defunctioning, can be considered.



Local biodiversity patch

d) For purchasing new electronic appliances, star rating provided by Bureau of Energy Efficiency (BEE) should be considered. The equipment which has maximum star ratings could be purchased, which will consume less energy, ensure environmental sustainability and also operate at low cost.

e) Usage of light reflectors is recommended as the reflectors can spread light to relatively large areas.

f) Notices/ signage can be put up/ displayed near switches and on notice boards, informing students and staff to switch off all electricals when not in use

g) Use of renewable energy should be considered.

2.9. Water Conservation:

a) Encourage efficient water use and reporting by installing water meters at key locations. Provide information on water usage and savings to students/ staff through notices, screen savers in computer labs.

b) Minimize/ reduce water usage by installing water saving faucets such as tap pressmatic taps, tap aerators, jet sprays etc.

c) Dual flushing system can be installed for toilet flushing which saves considerable amount of water.

d) Grey water/ sewage recycling system can be installed for flushing toilets. This will reduce the fresh water footprint.

e) Installation of waterless urinals can be considered to reduce water consumption.

f) Water balance diagram can be prepared to quantify the water consumption by installing water meters at key points. Based on data gathered, appropriate measures can be taken to reduce the water consumption. Encourage efficient water use.



Proposed water recharge site

2.10. Paper and other Solid Waste Reduction:

a) There should be waste segregation practices at source by providing separate bins.

b) Enhance recycling. This can be done by creating a group where students can recycle books, personal clothes and other material to needy students. This can be an initiative under green program.

c) Training as well as awareness programs should be organized on segregation of biodegradable waste and recycling of waste. Efforts should be taken to inform students about recycling options and signs should be posted on appropriate bins indicating what could be dumped in each bin. Biodegradable waste from canteen can be used for composting.

d) Plastic bottles to be handed over to PET recyclers.

e) The college can introduce online medium/ app, which can be useful for conducting internal exams, assignment/ reports submission. This system can also be used for displaying important notices, timetables.

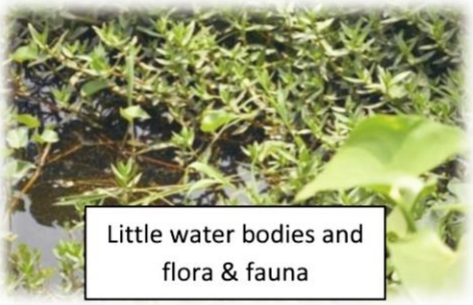


Minimum wastage management methods

f) Paper usage shall be monitored to understand the impact of digitisation in the facility.

2.11. Others

a) Environmental advisory committee could be formed. The discussions and information sharing among different departments can generate lot of ideas and awareness on green issues.


Little water bodies and flora & fauna

b) Maintain minutes of meetings of environmental committees; evaluate the effectiveness of various environmental programs conducted by the institutes. Set annual targets for Green Initiatives & monitor them closely. Create 'Green Champions'.

c) Since each student uses computer lab, the screen savers can be set up for creating environmental awareness. (Ergonomics, water conservation etc). Wallpapers informing students about environment conservation can be created.

d) Adopt environmentally responsible purchasing policy, and work towards creating and implementing a strategy to reduce environmental impact of its purchasing decision.

e) Small composting facility can be provided for canteen to treat the biodegradable waste. Compost generated can be utilised for plants near compound wall.

f) Vertical gardening can be done using indoor plants. Hydroponic garden can be an option where in small space also plants can be planted. Drip irrigation system can be provided for plants.

g) Indoor air quality can be monitored to ensure safe and healthy environment.


Sign of healthy environment

3. Suggestions and Proposal and policy on environment management planning for sustain green and healthy college campus

1. The proper conservation and management of heritage Lalbandh Water bodies should be properly done to protect the ecosystem.
2. An eco- green hub for teachers, students and staffs to sustain healthy environment, and to promote environmental awareness can be setup at premises.
3. A solar power grid can be established for implementation of non conventional energy and eco-friendly campus.
4. A ground water recharge station can be established to balance the GWL for water conservation as it is a drought prone area.
5. A green generator can be established for healthy environment.
6. A weather monitoring station can be set up at the college campus for weather forecasting to aware students and local villagers about natural hazard and for collection of weather and atmospheric data for weather forecasting and Disaster management.
7. Micro water harvesting methods could be applied around the catchment area of low land for Water Park at the north- eastern part of college campus.
8. Grass cover and trees walls can be grown at the play ground.
9. To apply the eco-sustainable organic Kitchen garden for the production of fruits, vegetables, flowers and medicinal plants by organic and biotic methods.
10. A Vermi composed pit can be set up to produce the organic fertilizer.
11. To be established the separate bin for chemical liquid waste, solid waste & e-waste.
12. To be maintained and reformed the water bodies (bandh) and ponds for aquaculture and fish farm.
13. Environment departments and offices can be established for perception of healthy environment.
14. Rules and regulations for the pollution free travel and transport system can be created.
15. To arrange the workshops for promoting tourism and skill development. The seminar, symposium, awareness programme can be organized to create awareness and concern about the bio-diversity and environmental conservation and need for management among students and local communities.

16. Can be a planning design for paradise green and healthy environment in college premises and a model for environmental awareness and beautification.

B.K.Chanda
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P. Sahoo.
(DR. P. SAHOO)
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Dr. Misha Roy
(DR. M. ROY)
Dr. Misha Roy
Assistant Professor in Environmental Science
Coordinator & Convener, Centre for Environmental Studies (CES)
Vidyasagar University



Environmental enquiry team with principal and staff



'Silent Drive to Environment Management'





Bengali Department Field Survey



Botany Department Field Work/Excursion



Geography Department Field Survey/Projects


Educational excursion
RAMANANDA COLLEGE
BISHNUPUR :: BANKURA
DEPARTMENT OF EDUCATION

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No. BKU/IC/2018/21 **Dated, 11th June, 2018**

To
The Principal
Ramananda College
Bishnupur, Bankura-722122.

Sub: Extension of affiliation to Ramananda College, Bishnupur, Bankura in the Certificate Courses Food Processing (Basic and Advance), Cutting and Knitting (Basic and Advance), Modern Handicraft (Basic and Advance) and Computer training course (Basic and Advance) with effect from the academic session 2018-2019.

Sir,

With reference to your letter No. 25/BNKU/2018 dated 22-05-2018 on the above subjects, I am directed to inform you that considering the Governing Body Resolution dated 28.04.2018, the Vice Chancellor has been pleased to grant extension of affiliation to **Ramananda College,** Bishnupur, Bankura in the **Certificate Courses Food Processing (Basic and Advance), Cutting and Knitting (Basic and Advance), Modern Handicraft (Basic and Advance) and Computer training course (Basic and Advance)** with effect from the academic session 2018-2019 subject to fulfilment of the following terms and conditions laid down by the University below:

1. Intake of students for the courses offered:
   Food Processing (Basic and Advance)- 20
   Cutting and Knitting (Basic and Advance)-20
   Modern Handicraft (Basic and Advance) -20
   Computer training course (Basic and Advance)-20
2. Representation of the college on different Boards and participation in the examination process shall be in accordance with the rules and procedures as prescribed by the University in this respect.
3. Fee structure of the Courses will be determined by the college in consultation with the University.
4. The College authority will make necessary arrangements from their own resources for providing instructional and infrastructural facilities and uplift of the existing ones including installation of fire fighting apparatus etc. in keeping with the requirement as per norms/ regulations/ guidelines etc. of the related regulatory bodies including the government in the Higher Education Department presently in vogue and as will be amended from time to time.

5. Engagement of required number of faculty members and / or Guest Faculty is to be arranged by the college concerned and the expenditure arising out of the exercise taken in this regard is to be borne by the college out of its own resources. Considering the socio-economic background of this area, recommendations in relation to the above mentioned subjects, are made on **Self-financing basis** and no additional financial implication should come on H.E department for at least three years.
6. The College authority will furnish before the University a declaration for giving strict adherence to the conditions as laid down serial no. 4 and 5.
7. The Principal of the College shall have to take immediate steps to appoint teachers of the subjects mentioned above.

Regards,



(JAYANTA KUMAR SAHA)