

THE UNIVERSITY OF BURDWAN
BURDWAN, PURBA BARDHAMAN

ESTD. 1960

CONSOLIDATED
REPORT ON
GREEN/ENVIRONMENTAL AUDIT
[ACADEMIC PERIODS: 2022-'23 & 2023-'24]

Prepared by
The Green Audit Team
ON
6th of July 2024

The University of Burdwan

Schedule for Environmental/Green Audit

July 6, 2024 Time	Schedule	Venue		
10:30 AM	Introductory Meeting	Vice Chancellor		
11:00 NOON	Meeting with Coordinator IQAC and Members	IQAC Office, Golapbag		
11:30 NOON	Presentation by Convener of Green Audit Committee	IQAC Office, Golapbag		
Interaction & Physical visit with Jt. Convener & Committee Members				
12.00 Noon	Physical visit	Team A	Team B	Team C
02:30 PM	Lunch	At Guest House, Tarabag		
03.00 PM	Visit to Campus	Physical facility in and around the campus		
04.00 PM	Report Preparation	At IQAC, Golapbag		
05:30 PM	Exit Meeting	At Seminar Hall, Academic Building		
05:45 PM	Tea			



Prof. S C Santra
Former Professor
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Nadia



Dr Subrata Kr Dey
Professor in Chemistry &
Former Dean &
Head-in-Charge of Environmental Sc.
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Purulia



Dr Asok Kanti Sanyal
Ex-Chairman
West Bengal Biodiversity Board
Kolkata

I. Introduction

The University of Burdwan, established by the West Bengal Act xxix of 1959 as a teaching and affiliating University on 15th June, 1960, is one of the premier institutions of higher education in India with its motto of '*Sa vidya ya vimuktaye*' - 'learning leads to emancipation' creating an ideal sphere of higher education. Presently, it houses thirty nine postgraduate departments and has given affiliation to seventy-four colleges in the districts of Bankura, Birbhum, Burdwan and Hooghly. The University has currently more than 4000 P. G. students on roll and 1245 registered Ph.D. candidates apart from 119 M.Phil. students (upto 2022).

Present University curriculum is based on a set of common principles underpinned by the best educational and assessment practice as per UGC norms. Need-assessment is a continuous process, involving experts from industry, teachers and students; national needs and international trends are taken into account when designing curricula. Students' feedback is an important and indispensable part of curriculum design and implementation at Burdwan University.

New courses in emerging areas have been introduced, including Yoga Therapy, Performing Art and Music, Computer Technology, Microwave, Psychology, Nutrition, Women's studies, Physical Education, Molecular Biology & Human Genetics, Santhali, Urdu, Arabic, Nanoscience, Biochemistry at the Masters level.

Remarkably, the University has achieved NIRF ranking of 87. Teaching, learning and evaluation systems of the University are instrumental in bringing about a marked ability among the students to become job oriented, adapt, compete in and contribute to the advancement of society in general. University being on a rural setup, has so many non-traditional resources like museum and art gallery, planetarium, fields, tracks, courts, 'crop research and seed multiplication farm' and others.

University offers several schemes and programmes specifically aimed at affirmative action *vis-à-vis* the economically & rural disadvantaged students, such as free-studentships, scholarships, priority for places in university hostels, direct financial support, special facilities for differently-abled students and provision for remedial classes. Additionally, the University also offers foreign languages (French and Russian) and other courses (*e.g.*, PG Diploma in Guidance and Counseling, Yoga Therapy, Special Education courses under the Lifelong Learning, WBCS and NET coaching), beyond regular class hours.

University accommodates a number of rural & distant students in Boys and Girls hostels. Students are organizing seminars and symposia, student festivals (Muktohdhara, Interhostel tournaments and many more), involving students in all important decision making bodies.

Twenty three Departments out of 34 departments (2021), are endowed with several special assistance (*e.g.*, UGC-CAS, DSA, DRS, DST-FIST grant and so on) for their research

activities. Total research funding for 2019-2023, including the PURSE, CAS, DSA, FIST grant for research, amounted to more than Rs. 21 Crores. The University earmarks an amount out of its own funds as seed money every year to support research activities and promotion of research by academic staff.

Unique facilities:

Central library has more than 2,67,542 books with title books of 1,06,518 including 8 Titles from OXFORD reference Collection, 600-Year-old manuscripts of 2780 in number to the latest electronic articles; Library subscribes journals, e-Shodhsindhu 68,841, University subscription of 3960 (including 37 modules from ITS database) from 11 titles. University has got e-resources to access South Asia Archives from eSS. Central Library is a member of DELNET consortia and recently became the member of the prestigious NDLI Club (National Digital Library Club) through which it can access to millions of e-resources for readers. Central Library, so far scanned by PDS under Shodhsuddhi project of INFLIBNET (An IUC of UGC) till date 2090 and total number of awarded PhD theses uploaded to SHODHGANGA till date is 3079.

USIC: The University Science Instrumentation Centre (USIC) provides state-of-the-art instruments (TEM, Single Crystal XRD, Fluorescence Microscopy, FE-SEM, etc.) helping to build research capacity. USIC organizes training programs for all concerned in order to ensure smooth operationalization.

The CRSMF covering 23 acres of cultivated land diversely attracted lots of research activities funded by different funding agencies; also is conducting training programmes/lectures/seminars for creation of knowledge and services that enrich the life of the rural community and promote the uses of high-yielding varieties of rice, potato, etc.,

The Meghnad Saha Planetarium, is first of its kind in any Indian University where one can travel through our solar system and galaxy, off to other galaxies far beyond catering the need of school children/students.

The University's campuses have 24x7 internet connectivity and Wi-Fi; its Central Library has improved resources and holdings, increased working hours, created beyond-campus access for its digital resources and built more floor space. The computational facility is robust in terms of hardware and software. Each department has its own LAN, which is in turn connected to the University LAN. The University network is connected to the national knowledge network.

Burdwan University has 11 hostels for its students and researchers supported with internet/Wi-Fi, Gymnasium.

University organizes blood donation camps, various health camps, AIDS awareness programmes, law and social awareness camps and other socially relevant activities with the

help of NSS, Law, Geography, MBA, Lifelong Learning, etc.).

The University has an Industry Institute Partnership Cell (IIPC), CIESD for synergic interaction with the industry for the benefit of the faculty and students. The alumni of the university include civil servants, judges, academicians, scientists, business leaders, national leaders, entrepreneurs and more.

II. Audit Committee

The authority of the University of Burdwan, Burdwan has constituted a three members committee approved by the EC of the University to conduct Environmental/Green Audit of the University of Burdwan. The Audit Committee comprises the following members:

- Dr Asok Kanti Sanyal, Ex-Chairman, West Bengal Biodiversity Board, Kolkata
- Prof. S C Santra, Former Professor Environmental Science, University of Kalyani, Nadia
- Dr Subrata Kr Dey, Professor in Chemistry & Former Dean, Head-in-Charge of Environmental Sc., Sidho-Kanho-Birsha University, Purulia

III. Methodology

The Environmental Audit or Green Audit is a systematic identification, quantification, recording, reporting and analysis of the different components of environmental diversity. The 'Environmental Audit'/'Green Audit' aims to assess the various parameters involved in environmental practices in and around the University campus, actually, it means to impress the congenial and environment-friendly atmosphere for the all stakeholders. It is formulated with an objective of looking after the practices performed by the authority within the institution, otherwise which may cause risk to the health of dwellers and the environment. Under the present format of AQAR and SSR Environmental Audit/Green audit is a mandatory parameter as per requirement of National Assessment and Accreditation Council (NAAC) which is a self-governing organization of India which declares the Institutional Grade.

This audit is performed on 6th of July, 2024. The purpose of the audit was to ensure that the green practices followed in the campus are in accordance with the Green Policy & Management practices adopted by the University. With this in mind, the specific objectives of the audit were to evaluate the adequacy of the management control framework of Environment Sustainability as well as the degree to which the different departments are in compliance with the applicable regulations, policies and standards.

The analysis was based upon a physical examination of the different sectors including labs *etc.*, and standards that govern the environmental sustainability, on data analysis, and on the results of preliminary interviews with personnel considered key in the environmental management in the campus.

The methodology used included the physical inspection of the campus, review of the relevant documentation and interviews.

IV. Objectives & Scope of the Audit

Members along with the Vice Chancellor, Prof. Goutam Chandra in presence of Director, IQAC and Jt. Conveners of the Green Audit Committee and members at a preliminary meeting, held on 06-07-2024 at 11.00 am, outlines the broad objectives of the environmental audit as an assessment of the University. Accordingly, the audit team members decided to look into the prevailing situation at the University along the following aspects in course of the audit.

The team is empowered and expected to express their views and give suggestions for the improvement of the systems being followed by the University.

V. Executive Summary

1. University accreditation status

1st Cycle: 22/03/2001: 71.5 with 4 Star

2nd Cycle: 31/03/2007: 80.5 B++

3rd Cycle: 05/11/2016: 3.11 A

2. CRSMF

3. RTC

4. RWH

5. Biodiversity mapping

6. Solar Panel

7. Watershed management

VI. Observations

a. General

The University has a total campus area of 356.48 acres, built up area 20.40 acres (5.72%) open space 166.91 acres (46.82%), total green area of 103.06 acres (28.91%), and total body inside the campus is of 66.12 acres (18.55). University has taken some efforts for sustainable development in the College campus and to maintain greenery.

1. The University has constituted a team members to help the Audit Team members.

2. Some of the best practices such as maintaining tree plantation, introducing plastic free zone, celebration of World Environment Day, Earth Day, World Animal Welfare Day, etc., are followed in the campus organized by the different departments and NSS.
3. The University organises Tree Plantation Programs on regular basis; entire campus is divided into different plots for maintain the greenery as well as giving exposure to the students about biodiversity index.
4. The University has storing-cum-dumping pit. Disposal of all degradable and non-degradable solid wastes be followed through local panchayat.
5. E-waste disposal mechanism is going to follow through Govt. authorized License holder.
6. The University has conducted Environmental Awareness programmes on regular basis for faculty and students, and involved the students in maintaining the cleanliness of the campus.
7. The University maintains the ecological balance in the campus through maintaining gardens.
8. Rainwater is collected in specific water tank and used for cleaning and gardening purposes.
9. The University has taken initiative for preparation of composting pit/vermicomposting pit.
10. Proposal of preparation of definite Butter Fly Garden is initiated.
11. WB-PCB has installed weather monitoring station for monitoring ambient air quality measurement, etc.
12. The University has organised workshop on Mushroom Cultivation and vermicomposting techniques.
13. The University has installed solar panels of 100 KVA lamp; The University has procured few Green Generator for uninterrupted power supply.

On detailed review, it was observed that the college has already taken some measurements constitute "Green Audit Committee" to implement the Green Policy with applicable standards. In addition, the University is taking care of to improve their efficiency, fairness and consistency.

VII. Suggestions

1. The University has constituted the "Environmental Committee" as per guidelines and has prepared a "Green/Environmental Policy" documents. During formation of "Environmental Committee" the University has followed the composition.
2. The University is requested to maintain the gardens at different locations through students of different departments.
3. Medicinal Garden be maintained properly and may serve the local needs.
4. Butterfly Garden be initiated in order for proper maintenance.

5. Students should be trained to handle the PBR through workshop *etc.*, mapping of plants be done accordingly.
6. Safe disposal methods should be adopted for solid, liquid, wooden wastes, electrical wastes, etc., through proper disposal methods.
7. Existing composting be managed properly.
8. Formal MoU with Local municipalities be maintained for long-term basis and periodical monitoring.
9. The University may maintain 'Green Budget' for the said purposes.
10. Plantation program be monitored and periodical maintenance of plants be followed.

AUDIT FRAMEWORK AND DETAILED ANALYSIS

V. Detailed findings & Analysis

The following audit framework is used for conducting Green Audit during the periods of 2022-'23 and 2023-24. The framework also lists the findings and observations for every criterion.

Control objectives	Control(s)	Audit Observations
Maximize the proportion of waste that is recycled & minimize the quantity of non-recyclable refuse	Reduce the absolute amount of waste that it produces from the Institute & Staff offices.	The University has used some control measures to reduce the waste that it produces from the departments, staff offices, inside Campus, <i>etc.</i> Segregation method is followed.
	Make full use of all recycling facilities provided by City Municipality and private suppliers, including glass, cans, white, coloured and brown paper, plastic bottles, batteries, print cartridges, cardboard and furniture.	<i>University should dispose all wastes through local Municipality.</i>
	Compost, or cause to be composted, all organic waste, green waste and un-recycled cardboard produced in or collected from kitchens, gardens, offices and rooms.	The University uses different bins for disposal of different types of wastes. <i>The fallen dead leaves from the garden be managed properly in the vermicomposting/composting/cistern pit.</i>
	Recycle or safely dispose of white goods, computers and electrical appliances.	University has started the process. <i>Safe disposal methods should be adopted for electrical wastes, printer cartridges, etc., through proper disposal methods.</i>
	Use reusable resources and containers and avoid unnecessary packaging where possible	University has proposed some steps for management of vegetable, food wastes produced from canteen.
	Provide sufficient, accessible and well-publicized collection points for recyclable waste, with responsibility for recycling clearly allocated	The University has limited scope of accessible and well-publicized collection points for recyclable waste.
Minimize the quantity of wastes during special events/occasions	Make specific arrangements for events, such as cultural Events, internal and external seminars and conferences, where significant recyclable waste is likely to be produced, in order to both minimize the waste produced and maximize what is recycled/reused	Amount of wastes generated during special events or occasions, such as Cultural Events, International and National seminars and Conferences, <i>etc.</i> , be disposed through own system

Control objectives	Control(s)	Audit Observations
	Promote reuse of items and waste recycling among staff, students and conference guests through training, posters and incentives	The University has limited scope of reuse of items and waste recycling among staff, students and conference guests through some incentives.
	Dispose all waste, whether solid or otherwise, in a scientific manner and ensure that it is not released directly to the environment	Yes, the University follows environment friendly disposal management system and ensures that it is not released directly to the environment.
Reduce energy consumption, especially of energy derived from fossil fuels	Support renewable and carbon-neutral electricity options on any energy-purchasing consortium, with the aim of supplying all university properties with electricity that can be attributed to renewable and carbon-neutral sources.	University follows paper-less communications through using digital media like Website notice, Whatsapp, generate e-notice for academic/administrative purposes.
	Appreciate that it is preferable to purchase electricity from a company that invests in new sources of renewable and carbon-neutral electricity	University has maintained sources of renewable energy and carbon-neutral electricity like solar panels.
	Look into the possibility of on-site micro-generation of renewable electricity.	University has planned to install more SOLAR PANNELS.
	Give preference to the most energy efficient and environmentally sound appliances available, this includes only using energy-saving light bulbs	The University is using LED light.
Effective energy consumption and management practices	Encourage staff, students and conference guests to save energy through visible reminders, incentives and information to increase awareness. This particularly concerns turning off electrical appliances when not in use in both communal and residential rooms	University has a mechanism to reduce the misuse of electricity by turning off the appliances when not required through MCP. All the stakeholders are aware and doing their bests and practices to save electricity.
	Ensure that all electronic and electrical equipment's, such as computers, are switched off when not in use, and is generally configured in power saving mode when such option is available	Students and all the members are used to follow this practice.
	Ensure that the equipment's running on standby mode, reduce the energy consumption on standby mode or minimize the running of equipment's on standby mode	Maintaining energy saving mechanism for most of the instruments; some of the equipment's are running on standby mode.

Control objectives	Control(s)	Audit Observations
	Purchase efficient and environmentally sound appliances and consider replacing old stock with 'greener', more efficient alternatives.	Presently, University is using environmental-friendly appliances as much as possible and taking initiative replacing all the tube lights with LEDs, etc., as effective alternatives.
Minimize the use of unsustainable transport	Make available information about bicycle and pedestrian routes, public transport services and car share schemes to staff and students.	The University is connected through bus services; usually, most of them avail bus services. Earlier University used to provide bus service for students, faculty & staff.
	Reduce the proportion of travel on the University/Institute business carried out in private transport and eliminate unnecessary and inefficient use of the University/Institute vehicles	Presently, University does not have any common bus services to all stakeholders. University has cycle stands in different places.
	Promote car sharing / car pool among the students and faculty members	No, the University does not promote car sharing/car pool among the students and faculty members.
Minimize consumption of water	Repair sources of water leakage, such as dripping taps and showers as quickly as possible.	University should follow regular checking and maintenance of pipelines to control the water wastage through dedicated personnel.
	Install appliances which reduce water consumption	Practised as much as possible.
	Encourage a decrease in water usage among staff, students and conference guests	All the stakeholders of the University are encouraged in judicious use of water.
	Use an efficient and hygienic water storage mechanism is to minimize the loss of water during storage	University is taking some steps to aware about use of hygienic water, proper storage of water. <i>Advanced Sensor-based system be introduced to minimize the loss of water during storage, as well as in some places for effective saving of electricity.</i>
	Minimize wastage of water and use of electricity during water filtration process, if used, such as RO filtration process and ensure that the equipment's used for such usage, are regularly serviced, and the wastage of water is not below the industry average for such equipment's used in similar capacity	Water Cooler/Aquaguards are installed in every department in sufficient. University maintains AMC with the company.
	Install Water recycling mechanism, such as rain water harvesting system	Rainwater harvesting system is used for gardening and cleaning; University may develop groundwater recharge system.

Control objectives	Control(s)	Audit Observations
Minimize the risk of environmental health	Ensure that all cleaning products used by the University/Institute staff have a minimal detrimental impact on the environment. i.e., are biodegradable and non-toxic, even where this exceeds the Control of Substances Hazardous to Health (COSHH) regulations	Negligible amount of cleaning/washing liquids are used in the University. University maintains 'Green Budget' for the said purposes.
	Minimize the use of fertilizers and pesticides in the University/Institutional gardens, opting for the use of compost produced on site wherever possible	University uses mostly organic fertilizers in their Medicinal gardens, Farm, etc., for maintenance. Pesticides are used for infected plants as and when required basis.
	Dispose the chemical waste generated from the laboratories in a scientific manner	Disposal of solid wastes are managed. <i>Drainage of liquid wastes from wash rooms, labs and other similar sources be managed properly.</i>
	Reduce the practice of burning plastic and other materials that emit the harmful gas on burning is prevented in the campus.	No such burning.
Maintenance of green campus	Ensure the green environment	University is positive about increasing greenery. Tree plantation programmes are followed in different occasions on year-wise.
	Establish a Garden in the campus	<i>Students should be trained to handle People Biodiversity Register (PBR).</i>
	Encourage the faculties and students to plant trees in the garden	University conducts tree plantation programmes through students and staff members on year-wise. <i>Choice-plantation and fruit-plantations be followed on regular basis considering the suitability of the region.</i>
	Reviews periodically the list of trees planted in the garden periodically	<i>Periodical maintenance of gardens/plants be followed through student members.</i>
Ensure that environmental awareness is created	Conduct environmental awareness workshops as a part of the program.	Departments/University celebrate World Environment Day, Earth Day, World Animal Welfare Day, Ozone Day, etc.
	Create awareness of environmental sustainability and takes actions to ensure environmental sustainability.	University conducts environmental awareness programmes to ensure environmental sustainability.
	Reduce the rate at which the University/Institute contributes to the depletion and degradation of natural resources	University is not directly or indirectly responsible in depletion and/or degradation of natural resources.

Control objectives x	Control(s)	Audit Observations
	Promote environmental awareness as a part of course work in various curricular areas, independent research projects, and community service	University follows Green Policy.
Ensure that the buildings conform to green standards	Review architecture of existing buildings and reviews ways, in consultation with experts, to reduce usage of energy for such buildings, offering greatest efficiency for energy and water usage, and reducing carbon emission	Presently, there is no proposal of new construction.
Ensure that the Environmental Policy is enacted, enforced and reviewed	Establish the University/Institute Environmental Committee that will hold responsibility for the enactment, enforcement and review of the Environmental Policy. The Environmental Committee shall be the source of advice and guidance to staff and students on how to implement this Policy	<i>University should pay more attention to follow/implement the Green Policy.</i>
	Ensure that on the Nature Club/Environmental Committee there will be appropriate representatives of the relevant university departments and authorities – such as catering, gardening, maintenance, cleaning and finance	<i>University may constitute one Eco Club for better functioning.</i>
Ensure that the Environmental Policy is enacted, enforced and reviewed	Ensure that on the Environmental Committee there will be the Green Officer from an external agency who is engaged in the profession of providing guidance on environmental impact	<i>University is required to strengthen the Committee, one Green Officer may be included in this Committee for maintaining budget.</i>
	Ensure that the Environmental Committee will review the Environmental Policy on an annual basis, and will monitor progress and set measurable targets wherever possible	University campus is declared as 'Plastic Free Zone'.
	Ensure that the Environmental Policy is enforced regardless of whether its requirements exceed the mandate of the law	<i>Beautification and cleanliness be maintained involving students; existing khari/channel be maintained properly.</i>
	Require that every staff and student member recognizes their responsibility to ensure that the commitments in the Environmental Policy are properly put into practice	Members of the team constituted by the University authority are actively engaged in maintaining green practices.
	Ensure that an audit is conducted annually and action is taken on the basis of audit report, recommendation and findings	First 'Green Audit' is conducted on 6 th of July, 2024 based on the report of year 2022-'23 and 2023-'24.

VI. Recommendations

Considering the audit, following recommendations were made to the management.

Criteria	Recommendations
Publication of Audit Report	<ol style="list-style-type: none"> 1. Formation of Eco Club for better functioning. 2. Resolutions of the "Institutional Green Committee" along with audit report be published in the University website.
Maximize the proportion of waste that is recycled & minimize the quantity of non-recyclable refuse	<ol style="list-style-type: none"> 1. Product of Vermicomposting/Composting system be enhanced and may serve the local people. 2. University may go for partnership with <i>Local Municipality</i> in monitoring the disposal of solid wastes through sharing some outreach programs also.
Reduce energy consumption, especially of energy derived from fossil fuels.	<ol style="list-style-type: none"> 1. Maintenance of Ecological street may be developed in and around the campus. 2. The control switch, MCP for monitoring of energy and sensor-based system for water consumption building wise/department wise be maintained properly.
Maintenance of Campus and biodiversity	<ol style="list-style-type: none"> 1. PUC (Pollution under control) certificate for all the vehicles entering the campus to be made mandatory and to be checked by security. 2. Students be aware importance of Medicinal Gardens and PBR for different locations. Proper training, workshop on maintenance of PBR for local adopted villages and different locations as an outreach program be initiated. 3. Choice-plantation, fruit-plantation, artificial nesting, <i>etc.</i>, be followed. 4. Records of flora and fauna inside the campus be continued through involvement of the students. 5. Proposal of Butterfly Garden may be initiated.
Proper cleaning of water storage Tanks	<ol style="list-style-type: none"> 1. Regular cleaning of the water tanks be followed; management of dead leaves, litters of trees inside the campus be taken care off on regular basis. 2. Sensor-based system be maintained for checking of wastage of tank water.
Project-based learning on Environment related subjects	<ol style="list-style-type: none"> 1. Creation of opportunity to start with technical, skill-oriented and hands-on-training programmes for environmental monitoring.

VII. Objectives and Scope

The purpose of this audit was to ensure that the Green Management Practices are followed and implemented in the campus, across all departments, administrative bodies and students.

VIII. Methodology

The methodology includes - preparation and filling up of questionnaire, screening of the report, physical interaction with the members in presence of ~~Vice-Chancellor~~ and the Members of the ~~University~~ Environmental Committee as well as Members of IQAC, record checking and review of the submitted documentations, interviewing key persons and data analysis, measurements and recommendations. It works on the several aspects of 'Green Audit' including Water Conservation, Tree Plantation, Waste Management, Paperless Work, Alternative Energy and Mapping of Biodiversity.

a. In order to meet these objectives, this audit was based on report submitted by the University authority and reviewing of relevant documents as far as possible and interviews with authority, Coordinator and staff members physically.

b. Review of the Documentations

c. For the purpose of this audit the Green Policy of the institute was reviewed. Other relevant standards, Green audit framework *etc.*, was also considered.

Interviews

Interviews were conducted with the Deans of FC of Science and Arts, Commerce, etc., Institutional Green Committee and IQAC Coordinator and also members of the Committee.

Physical Inspection

Physical inspection was made on 6th of July, 2024 and this audit report was prepared based on the physical verification and validation and interaction with the members of the University.

IX. Declaration

I agree with all the recommendation and observations mentioned in this report.

Date: 06/07/2024

Place: The University of Burdwan
Burdwan, Purba Bardhaman



Signed by
Vice Chancellor with Seal

Vice-Chancellor
The University of Burdwan
Burdwan, West Bengal



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