

Green Audit



Sonamukhi College

Sonamukhi, Bankura

Academic Session 2021-22

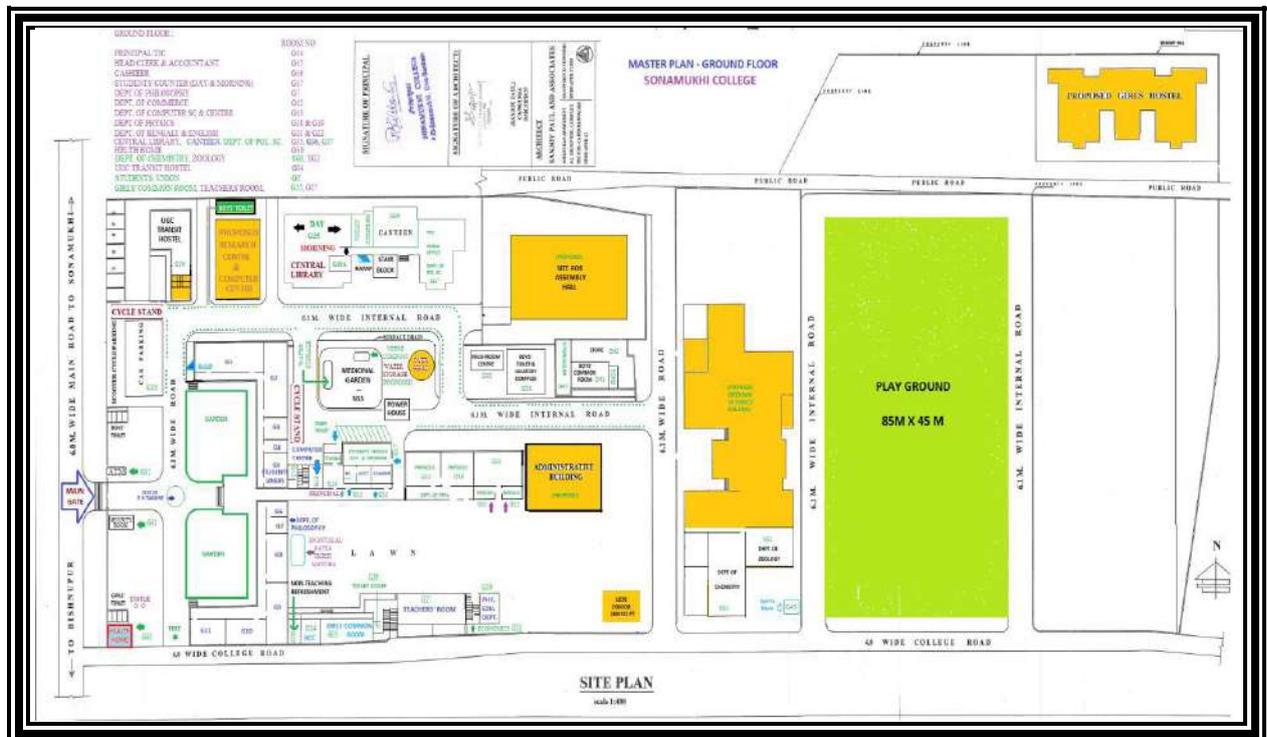
Sonamukhi is a municipality town and in Bankura District of West Bengal and located at 23°18'N latitude and 87°25'E longitude. It has an average elevation of 66 msl (217 ft). Temperature of Sonamukhi ranges from 11°C to 42°C with average rainfall of 109 mm, tropical climatic condition, the soil mainly belong to laterite group, pH 5-6.9 which favour green vegetation in Sonamukhi. Sonamukhi college is situated beside the forest of Sonamukhi Range. It is a tropical dry deciduous forest under Bankura North Forest Division, West Bengal.

The forest is dominated by plants like *Shorea robusta* Gaertn. (**sal**), admixed with several *Madhuca latifolia* (Roxb.) J.F. Macbr., *Diospyros melanoxylon* Roxb., *Phoenix acaulis* Roxb., *Ziziphus oenopolia*(L.) Mill., some climbers and lianas. Some forest plants are remain in college campus like *Madhuca latifolia* (Roxb.) J.F. Macbr., *Diospyros melanoxylon* Roxb. etc.

Different types of plants (trees, shrubs and herbs) are present in college campus. Some medicinal plants are preserved in medicinal garden under human care. Some plants are grown naturally, some are planted by plantation programme by NSS volunteers.

Campus Area:

Sonamukhi College has 29056.42 sq.mts areas with green fields, gardens in front side and a medicinal plant garden in the central position. The campus is decorated with flowering plants and harbor many large trees. Moreover, the campus is green having perfect match with adjacent deep forests.



Map of the Campus of Sonamukhi College

To maintain eco-friendly ambience 12 point programmed is followed within college campus:

- Green building for quality living.
- Know green and think green is promoted on the campus.
- Water conservation and prevention of water wastage.
- Use CFL/LED bulbs instead florescent bulbs.
- New solar panel is set up on the roof top of administrative building.
- 20 KVA & 10 KVA generators are used to save diesel.
- Usage of recycled paper bags was promoted among students .
- Reduce – reuse – recycle methods are followed
- Biodegradable wastes are used in vermicomposting unit.
- Carbon dioxide neutrality is maintained on the campus by developing greenery.
- Turning off monitors after the work.
- Global warming, bio-diversity and pollution incorporated in the curriculum.

The initiatives taken by the college to make the campus ecofriendly

1. Energy conservation :

Best practice of our college is use of **solar energy** to produce electricity. Actually solar energy system converts the sun's energy into another form of energy, like electricity. Although, we have installed fewer panels to reach a desired power target. This plan was to reduce the cost of electric bills. 5 years back, we have installed these solar panels and hope it will last for another 26 years. This energy source is now very essential for our college; as it is a renewable source of energy. Moreover, it is environment friendly. In this year (2021-22) we have installed another solar panel on the roof top of administrative building.

Electric lights are rarely switched on during the day. Sunlight is our principle source of lighting .

We have replaced with **LED bulbs** all the previously installed filament lights scattered around the college campus. As these bulbs use more than 75% less energy than the early installed bulbs. LED stands for light emitting diode. 95% of the energy in LEDs is converted into light and only 5% is wasted as heat. However, the inner workings of LED bulbs are quite a bit different from other standard bulbs of the market. It is now the most efficient lights on the market. Replacing the other standard bulbs like CFL in our college campus we found energy efficient light which has lessened our consumed electricity bills. Show the lesson we have learnt by using this LED bulbs that it produce bright light while using very little electricity consumption. Moreover, LED has thermal management capacity and has configuration to manage heats. LED bulb emits light in a specific direction. Actually, we found LED produce light up to 90% more efficiently than the earlier installed CFL bulbs.

2. Use of renewable energy :

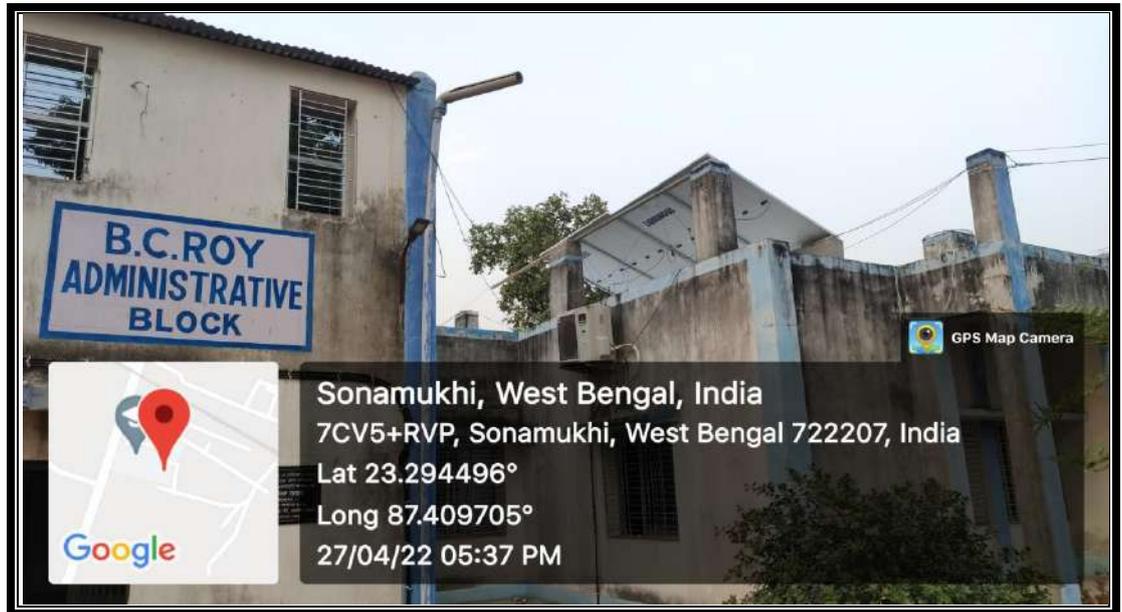
Renewable energy is **useful energy that is collected from renewable resources**, which are naturally replenished on a human timescale, including carbon neutral sources like sunlight, wind, rain, tides, waves, and geothermal heat energy. Sunlight is one of our planet's most abundant and freely available energy resources. By using photovoltaic cells to capture and convert the sun's rays into electricity, solar panels transform light into usable energy. College has set up solar plant to light up the college campus and the area in front of the college building .



SOLAR LIGHT FOR CAMPUS LIGHTENING



SOLAR PANEL (3 KILOWATT) ON ROOF TOP



New set up of Solar Panel



Use of LED bulbs in Laboratory

3. Water harvesting :

Rain water is harvested in two tanks located in medicinal garden. The college has roof top harvesting method by directing rain water into a large storage tank in medicinal garden, which has capacity around 4000 liter. This water is used mainly to irrigate plants in medicinal garden.

Some portion of roof top water is directed through pipe towards the garden in front of our college to irrigate garden plants specially in summer season when small precipitation occur due to summer depression.

Some portion of roof top water is directed to open well through water recharge point.

To create awareness on conservation of water to the public NSS volunteers campaign about the importance of water in daily life in their adopted village.

Water leakages are continuously checked to prevent wastage of water by the employee.



Sonamukhi, West Bengal, India

7CV5+XQ7 College Botanical Garden, Sonamukhi, West Bengal 722207, India
Lat 23.294864°
Long 87.409606°
26/02/22 01:44 PM

BOREWELL /OPEN WELL RECHARGE



Sonamukhi, West Bengal, India

7CV5+XQ7 College Botanical Garden, Sonamukhi, West Bengal 722207, India
Lat 23.294959°
Long 87.409369°
26/02/22 01:43 PM

RAIN WATER HARVESTING

4. **Plantation :**

The college has trees and plants that make the college campus green. The college campus has around 100 trees and many herbs including medicinal plants.



LANDSCAPING WITH TREES AND PLANTS



LANDSCAPING WITH TREES AND PLANTS

Different types of plants found in college campus are given below:

PLANTS IN COLLEGE CAMPUS

BOTANICAL NAME	FAMILY
1. <i>Polyalthia longifolia</i>	Anonaceae
2. <i>Tectona grandis</i>	Verbenaceae
3. <i>Roystonea regia</i>	Arecaceae
4. <i>Mangifera indica</i>	Anacardiaceae
5. <i>Mussandus frondus</i>	Rubiaceae
6. <i>Acacia moliniformis</i>	Mimosaceae
7. <i>Croton bonplandianum</i>	Euphorbiaceae
8. <i>Cycas circinalis</i>	Cycadaceae
9. <i>Duranta pulmieri</i>	Verbenaceae
10. <i>Gardenia latifolia</i>	Rubiaceae
11. <i>Hibiscus rosa-sinensis</i>	Malvaceae
12. <i>Ixora parviflora</i>	Rubiaceae
13. <i>Thuja oxidentalis</i>	Cupressaceae
14. <i>Rosa indica</i>	Rosaceae
15. <i>Euphorbia hirta</i>	Euphorbiaceae
16. <i>Caesalpinia pulcherima</i>	Caesalpinaceae
17. <i>Canna indica</i>	Cannaceae
18. <i>Melia azadirachta</i>	Meliaceae
19. <i>Araucaria excelsa</i>	Araucariaceae
20. <i>Chrysanthemum sp.</i>	Asteraceae
21. <i>Switenia mehagini</i>	Meliaceae
22. <i>Sida cordifolia</i>	Malvaceae
23. <i>Madhuca indica</i>	Sapotaceae
24. <i>Borassus flabelifer</i>	Arecaceae
25. <i>Leucus aspera</i>	Lamiaceae
26. <i>Zymnema sylvestris</i>	Apocynaceae
27. <i>Datura metel</i>	Solanaceae
28. <i>Oldenlandia corymbosa</i>	Rubiaceae
29. <i>Adhatoda vasica</i>	Acanthaceae
30. <i>Bacopa moneri</i>	Scrophulariaceae
31. <i>Lindernia sp</i>	Scrophulariaceae

32. <i>Ficus religiosa</i>	Moraceae
33. <i>Peltoforum sp.</i>	Fabaceae
34. <i>Eupatorium sp.</i>	Asteraceae
35. <i>Michenia sp.</i>	Asteraceae
36. <i>Spermacoce hispida</i>	Rubiaceae
37. <i>Clerodendron sp.</i>	Acanthaceae
38. <i>Achyranthus aspera</i>	Amaranthaceae
39. <i>Spilanthus sp.</i>	Asteraceae
40. <i>Cassia sophera</i>	Caesalpiaceae
41. <i>Cassia oxidentalis</i>	Caesalpiaceae
42. <i>Cassia tora</i>	Caesalpiaceae
43. <i>Vernonia sp.</i>	Asteraceae
44. <i>Blumia sp.</i>	Asteraceae
45. <i>Paperomia sp.</i>	Piperaceae
46. <i>Scoparia dulcis</i>	Scrophulariaceae
47. <i>Sida cordifolia</i>	Malvaceae
48. <i>Cyperus sp.</i>	Cyperaceae
49. <i>Cynodon sp.</i>	Cyperaceae
50. <i>Cephalandra indica</i>	Cucurbitaceae
51. <i>Tephrosia purpurea</i>	Fabaceae
52. <i>Crotalaria pallida</i>	Fabaceae
53. <i>Jatropha sp.</i>	Euphorbiaceae
54. <i>Calotropis procera</i>	Asclepiadaceae
55. <i>Eragrostis sp.</i>	Poaceae
56. <i>Vitex negundo</i>	Verbenaceae

57. <i>Ruellia prostrata</i>	Acanthaceae
58. <i>Eclipta alba</i>	Asteraceae
59. <i>Centella asiatica</i>	Apiaceae
60. <i>Aloe vera</i>	Asphodelaceae
61. <i>Rhoeo discolor</i>	Commelinaceae
62. <i>Curcuma longa</i>	Zingiberaceae
63. <i>Curcuma amada</i>	Zingiberaceae
64. <i>Mentha spicata</i>	Lamiaceae
65. <i>Dryospyros melanoxylon</i>	Ebenaceae
66. <i>Syzygium aromaticum</i>	Myrtaceae
67. <i>Gmelina arborea</i>	Verbenaceae

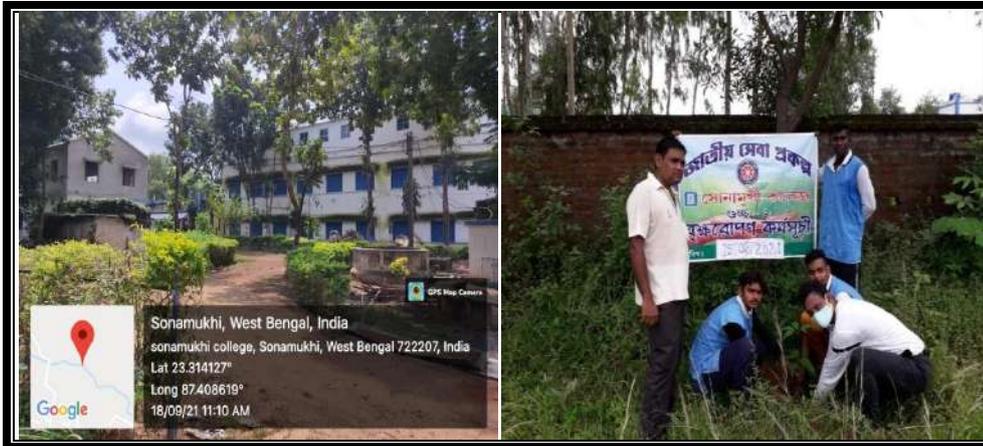
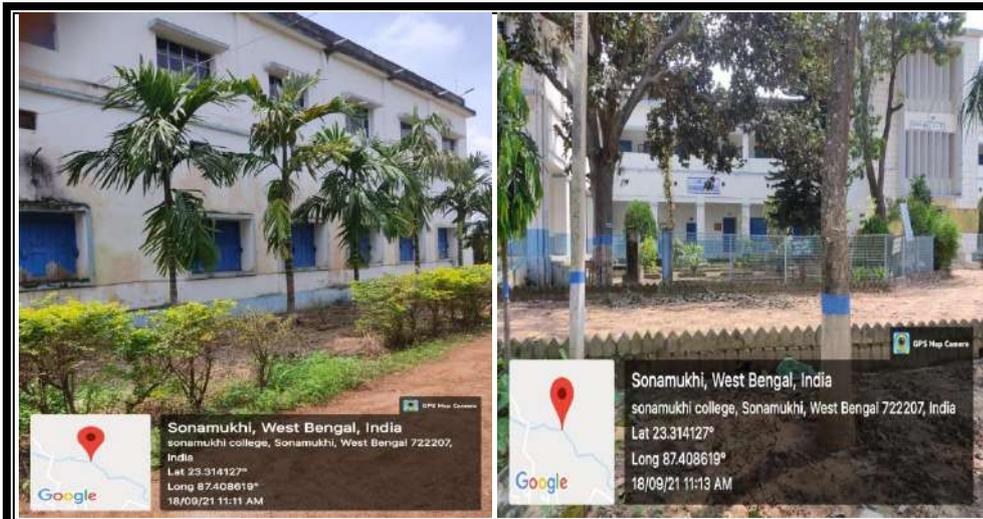
A special days like environment day/banomahotsab we celebrate it by new plantation in our campus mainly by the NSS volunteers, staff and teachers.

We wel come of our guests by giving sapling .

The college employs persons for periodic pruning of trees and plants.

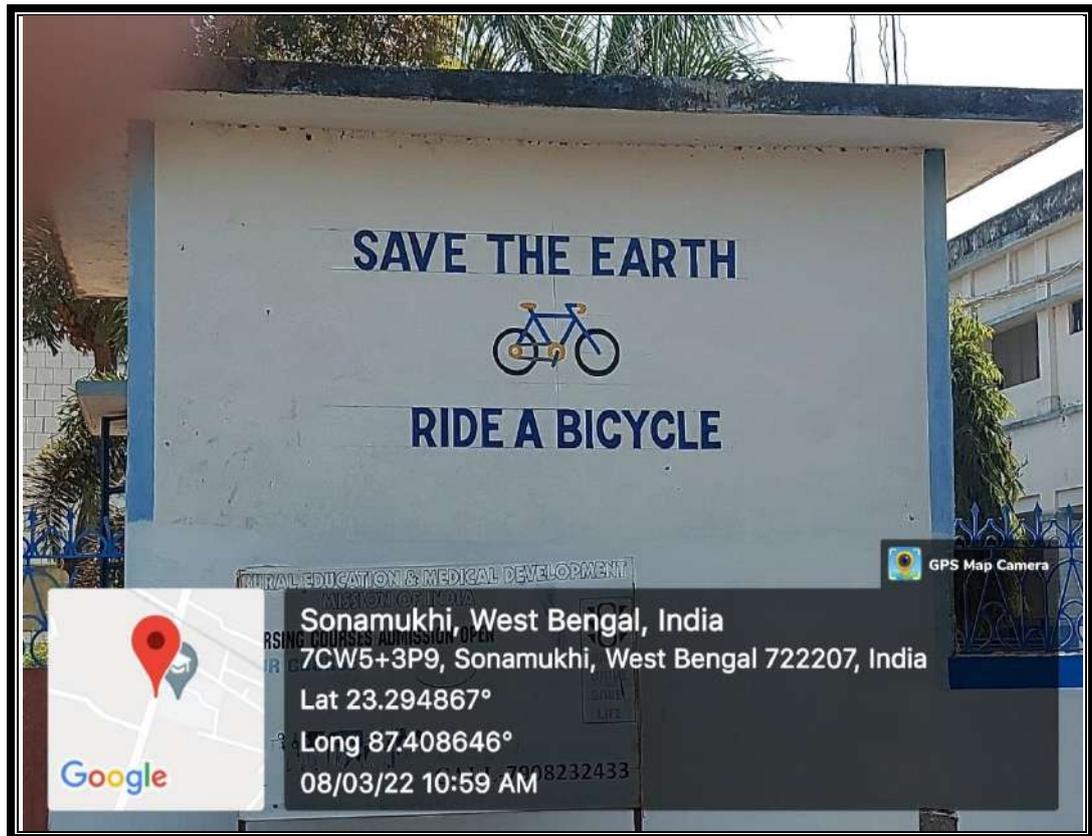
As an effort towards creating awareness on plantation, our students are encouraged to plant saplings in their homes following the policy of 'one house, five trees'.

Newly appointed teachers and staffs plant a sapling within the campus on his or her date of joining. Teacher or staff also plant a sapling on his/her date of retirement.

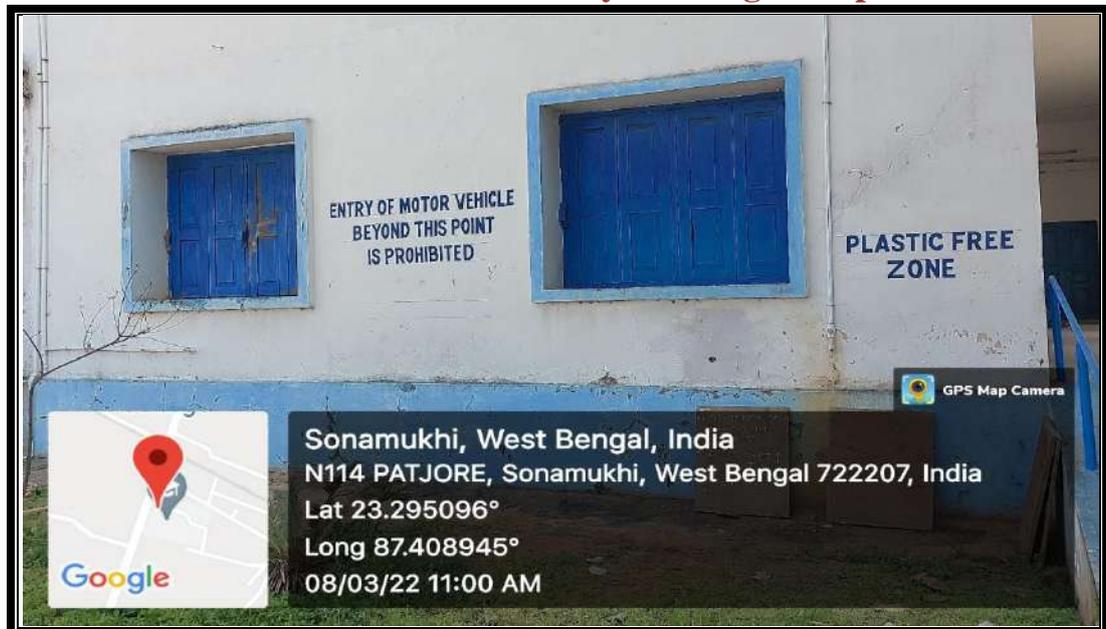




Plantation Programme by NSS volunteers in college campus



USE OF BICYCLES/ BATTERY POWERED VEHICLES
To maintain the carbon neutrality in college campus



RESTRICTED ENTRY OF AUTOMOBILES
To maintain the carbon neutrality in college campus

5. **waste management :**

The functioning of the college exerts negligible stress on waste management. This has been achieved owing to the consciousness programmes arranged periodically for the students and staff. These programmes have highlighted the influence of anthropogenic activities on the environment. Moreover, a number of practices have been initiated to reduce the generation of wastes.

1. **Solid Waste:**

Biodegradable waste products originate from college canteen are store in small pit for composting which are later used as compost fertilizer in garden plant. Soft weeds and waste from canteen are sometimes dipose in a digesting chamber for use in vermicomposting .. Our college has set up a Mushroom cultivation unit and vermicomposting unit mainly for teaching purpose. Mushroom Culture Technology is a SEC paper(**SHBOT/405/SEC-2 and SPBOT/604/SEC-4**) in Botany UG curriculum of Bankura University and vermicomposting process is included in another SEC paper(**Biofertilizer- Course Code: SHBOT/305/SEC-1 and SPBOT/304/SEC-1**) in Botany UG curriculum. Another purpose of vermicomposting unit is to manage biodegradable wastes generated in college campus and from college canteen.

Botany Department in collaboration with IQAC of Sonamukhi College organised a two days workshop on “**Mushroom Cultivation and Vermicomposting**” in our college premises on **10th and 11th March 2022**. Students of Bio science of our college participated in this workshop and learn about technique of vermicomposting and mushroom culture.

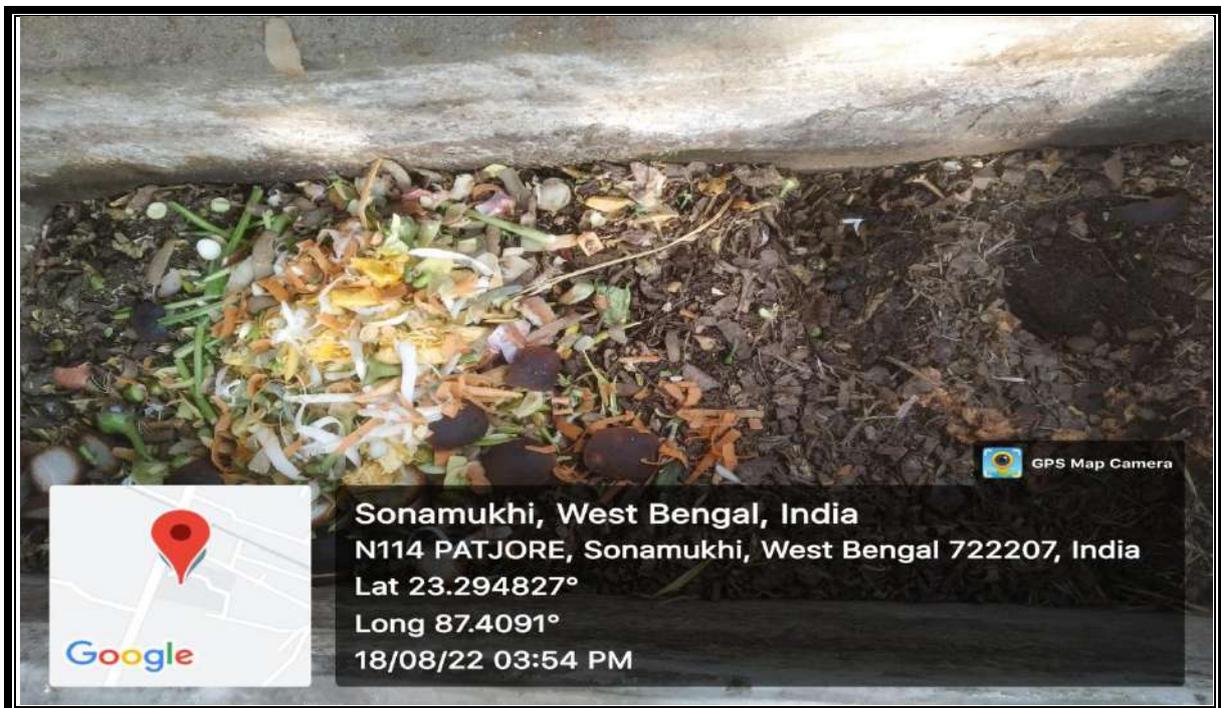


Inaugural Function of Workshop

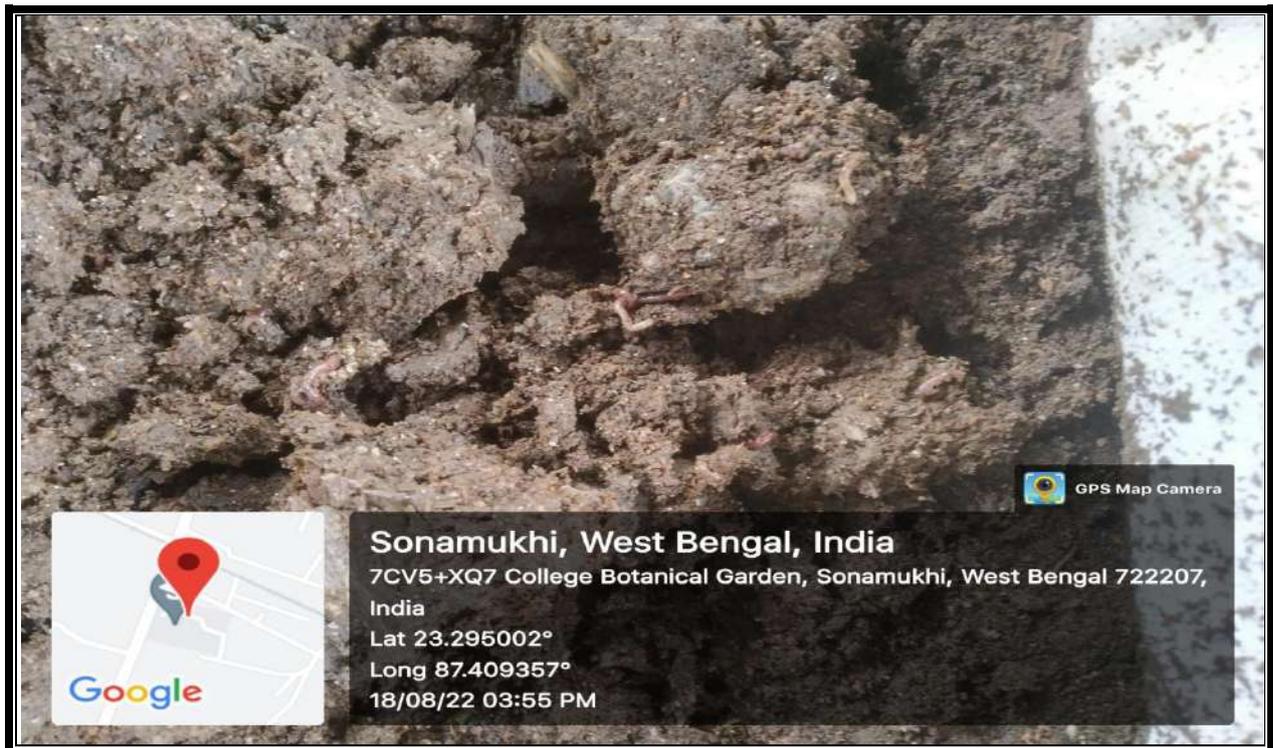




Vermicompost Preparation



Kitchen wastes in Vermicomposting pit



Vermi present in pit

Nondegradable solid wastes are produced through routine activities includes paper, plastics, glass, metals and packaging materials etc. The wastes are collected and segregated properly at each level and source. The care taker of the college has the responsibility of overseeing the timely collection of waste at each floor.

The sweepers collect the solid waste, segregate it and gather it in separate dustbins based on the recyclability and biodegradability. Cleanliness drives organized by also NSS units regularly. The institution discourages plastic use in the campus.

2. E-waste

There are electronic wastes as well. Outdated /damaged electronic wastes which include computers, printers, routers, mouse, UPS. photocopiers etc. are store in separate room and mostly disposed of and or sometimes reparable for reuse.



SONAMUKHI COLLEGE

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NAAC : B(2.37) 2016 - 1st Cycle

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sonamukhi02@gmail.com
(91)93244-275251

AISHE :: C-44762

Criteria 7.1.2 ,7.1.3 ,7.1.4

Waste management, Energy Source, Water Harvesting, Mushroom Culture technology and Vermicomposting are integrated in UG Curriculum

Programme	SÉM	Course Code	Course Title	Remark
ENVS	I	AECC-1	Environmental Studies	Waste management, Energy source, Water management etc. in syllabus
Botany H	IV	SHBOT/405/SEC-2	Mushroom Culture Technology	Full paper
Botany P	VI	SPBOT/604/SEC-4	Mushroom Culture Technology	Full paper
Botany H	III	SHBOT/305/SEC-1	Biofertilizer	Vermicomposting in syllabus
Botany P	III	SPBOT/304/SEC-1	Biofertilizer	Vermicomposting in syllabus
Botany H	V	SHBOT/503/DSE-1	Natural Resource Management	Waste management, Energy source, Water management carbon footprint etc in syllabus
Geography H	IV	SHGEO/403/C-10	Environmental Geography	Waste Management in syllabus
Physics H	III	SHPHS/305/SEC-1	Renewable Energy & Energy Harvesting	Full Paper
Physics P	III	SPPHS/304 SEC-1	Renewable Energy & Energy Harvesting	Full paper
Zoology H	III	SHZOO/304/GE-3	Environment and Public Health	Waste Management in syllabus
Geography H	V	SHGEO/503/DSE-1	Hydrology and Oceanology	Water Harvesting and Management in syllabus

Signature



Signature 2.10.21

Principal
Sonamukhi College

Sonamukhi College
D: Sonamukhi, Dt- Bankura

GREEN AUDIT RESULT

SL No	Environmental Aspect	Compliance		Comment	Remarks
		Yes	No		
1	Energy Conservation	✓		Modern equipment installed and good housekeeping practices followed.	CO ₂ consumption and O ₂ emission should be properly mentioned in respect of total full grown plant, half grown plants, Bushes and green lawn within the college campus area.
2	Water quality management	✓		Amount of waste water insignificant, Water harvesting tank in college campus	Pre-treatment of chemical wastes bio-medical wastes (through autoclaving) should be made before final disposal to the drainage system.
3	Plantation	✓		Greenery and plantation satisfactory	
4	Waste Management	✓		Insignificant generation of solid waste. Composting of biodegradable waste with vermicomposting unit	Different coloured dustbins may be used for disposal of bio-degradable, non-degradable, chemical and bio-medical wastes.
5	Air Quality Management	✓		Negligible amount	
6	Disaster Management	✓		College is equipped with adequate emergency fire extinguishers	
7	Risk Management	✓		Good housekeeping. No accident reported	
8	Environmental Aesthetics	✓		College campus with green cover	
9	Noise	✓		Entry to vehicles with loud sound is strictly prohibited	
10	Drinking water provision	✓		Deep tube wel, aqua guard machines are installed for drinking water	
11	Sanitary Waste Management	✓		Insignificant quantity generated, which is disposed of through proper sanitation	

Audited by

 Principal

(Dr. Samir Kumar Mukherjee)
 Bankura Sammilani College
 Bankura

PRINCIPAL
 Bankura Sammilani College
 Konduadihi, Bankura





Bankura Sammilani College

P.O. - KENDUADIHI • DIST - BANKURA - 722102

ESTD. - 1948

(NAAC ACCREDITED B+)

Ref. No.

Dated the.

From : **Principal**

This is to certify that Sonamukhi College performed different activities to maintain the green environment within college campus in 2021-22 academic session. Different committees and units such as NSS, NCC , Antiragging cell etc. Show their good gesture in this field. Different departments such as Botany, Zoology and Geography also were actively involved in this field and helped to make the environment green within the campus.

After verification of all documents regarding the green audit in Sonamukhi College GREEN AUDIT RESULTS are shown in the tabular form

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Audited by

SK Mukherjee

Principal

22/4/22

(Dr. Samir Kumar Mukherjee)

Bankura Sammilani College

Bankura



PRINCIPAL
Bankura Sammilani College
Kenduadihi, Bankura