

Estd Year -1967

Adarsh Education Society's



ARTS, COMMERCE & SCIENCE COLLEGE, HINGOLI

Akola Road, Hingoli Dist. Hingoli - 431513 (Maharashtra)

(Affiliated to Swami Ramanand Teerth Marathwada University, Nanded)

Accredited By NAAC (B⁺)

Shri. Kamalkishorji Kabra
President

Shri. Ramchandrajji Kayal
Secretary

Dr. Vilas Aghav
Principal

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Ref.No. AES/20

Date :- / /20

DOCUMENTS

CRITERION – VII INSTITUTIONAL VALUES AND BEST PRACTICES

7.1 INSTITUTIONAL VALUES AND SOCIAL RESPONSIBILITIES (50)

7.1.3 Quality audits on environment and energy regularly undertaken by the Institution. The institutional environment and energy initiatives are confirmed through the following -

1. Green audit / Environment audit
2. Energy audit
3. Clean and green campus initiatives
4. Beyond the campus environmental promotion and sustainability activities

POLICY DOCUMENT ON ENVIRONMENT AND ENERGY USAGE

A Campus Environmental & Energy Audit Report (2022-2023)

**Adarsh Education Society's Arts,
Commerce and Science College,
Hingoli, Maharashtra**




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**Campus Environmental & Energy (Green Audit) Assessment
Committee**

INTERNAL MEMBERS	EXTERNAL MEMBER
<p>Dr. S. S. Nagarkar Assist. Professor & Head, Department of Botany, Adarsh College, Hingoli. (Coordinator)</p> <p>Dr. P. P. Joshi Asso. Professor, Department of Zoology, Adarsh College, Hingoli.</p> <p>Mr. A. K. Pathan Assist. Professor, Department of Chemistry, Adarsh College, Hingoli.</p>	<p>Dr. A. A. Waghmare Assist. Prof. & Head, Department of Botany, Toshniwal College, Sengaon.</p>

An Environmental & Energy Audit (Green Audit) is an examination of measures taken by an institute to prevent the harm may be caused to the environment by the institutional activities

Introduction:

Colleges and Universities have a wide impact on their surroundings. Colleges also play a unique role in pursuing environmentally sustainable solutions. Adarsh College, Hingoli has taken a number of positive steps to reduce the adverse environmental impact. This report serves to highlight the institutional efforts to maintain the environmental integrity. The report was prepared by Dr. S. S. Nagarkar, Assistant Professor & Head, Department of Botany, Dr. P. P. Joshi, Associate Professor, Department of Zoology and Mr. A. K. Pathan, Assistant Professor, Department of Chemistry, Adarsh College, Hingoli under the supervision of In-charge Principal Dr. V. B. Aghav. with the help of External member Dr. A. A. Waghmare, Assist. Prof. & Head, Department of Botany, Toshniwal College, Sengaon.

A Green Audit is a process of systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of institute. It aims to analyse environmental practices within and outside of the concerned place, which will have an impact on the eco-friendly atmosphere. Green audit is a valuable means for a college to determine how and where they are using the most energy or water or other resources; the college can then consider how to implement changes and make savings. It can create health consciousness and promote environmental awareness, values and ethics. It provides staff and students better understanding of green impact on campus. Thus, it is imperative that the college evaluate its own contributions toward a sustainable future.

The rapid urbanization and economic development at local, regional and global level has led to several environmental and ecological crises. On this background it becomes essential to adopt the system of the Green Campus for the institutes which will lead for sustainable development and at the same time reduce a sizable amount of atmospheric CO₂ from the environment. The National Assessment and Accreditation Council, New Delhi (NAAC) has made

it mandatory that all Higher Educational Institutions should submit an annual Green Audit Report. Moreover, it is part of Corporate Social Responsibility of the Higher Educational Institutions to ensure that they contribute towards the reduction of global warming through carbon footprint reduction measures.

Objectives:

In recent time, the Environmental and Energy Audit of an institution has become essential for self-assessment of the institution. The college has been putting efforts to keep our environment clean since its inception. The report presents the findings of an environmental audit conducted at college. The purpose of this audit was to assess the college's environmental performance, identify areas of improvement, and provide recommendations for sustainable practices. The audit covered various aspects, including energy consumption, waste management, and water usage. The main objectives of carrying out the Audit are:

- > To identify the Geographical Location of the college
- > To document the botanical and animal life variance of the college
- > To record the atmospheric specifications of Hingoli where college is situated
- > To document the ambient environmental conditions of weather, air, water and noise of the college
- > To document the waste disposal system of the college
- > To estimate the energy consumption in the college

Methodology:

The purpose of the Environmental and Energy Audit is to ensure that the activities performed in the campus are in accordance with the Green Policy of the country.

The methodology includes:

- Collection of data

- Physical inspection of the campus
- Observation and review of the documentation
- Data analysis

Introduction of the College:

Adarsh Education Society came into existence on 07th November 1966 at a townlet called Hingoli. A group of socially-committed, well-educated, visionary and philanthropic minds charged with the feelings of patriotism, compassion, social welfare and humanitarianism led the foundation stone of this institute in the form of Adarsh Education Society. Emerging as a heroic torch-bearers in the area, Hon. Shri. Ghanshyamdasji Motilal Kabra, Shri. Nagnath Appa Irannappa Saraf, Adv. Shyamrao Madhavrao Naik, Adv. Uttamraoji Rode, Shri. D. R. Choudhari enunciated this education society, believing in the noble message from the **“Dnyaneshwari”** implying that *‘lack of knowledge born of pure mind is the mother of all evils and miseries: and thought is the seed of all actions and noble actions can only come from noble knowledge’*. As a result of this, they founded a college named Adarsh Education Society’s Arts, and Commerce College on 06th June 1967.

Started as a small and ambitious enterprise somewhere 55 years back, with 224 students and 08 faculties, the Knowledge Tree of Adarsh College has now emerged as the best of its kind institute in the region with the enrolment of 2006 students (including 881 girls) and 28 well qualified faculty positions. The college has its own spacious and beautiful campus of 43 acres at present with 04 double-storied building and 02 Play Grounds covering an area of 5980.48 Sq. Mtrs. At the outset, it was affiliated to Marathwada University, Aurangabad till 1994 and later on it is affiliated to Swami Ramanand Teerth Marathwada University, Hingoli from 1994 till to date. The college is permanently affiliated to the S.R.T.M. University, Nanded. It has been recognized under 2(F) in 1983 and 12(B) in 1995 of the UGC Act. So, the college is proud to state that it represents, perhaps, the only pioneer institute that showed courage to go for NAAC accreditation in Marathwada region in 2003. It is also a special delight for the institute to communicate that it was

accredited with “B++” grade in 2003 and reaccredited with B+ grade in II cycle of NAAC in 2016.

The college offers 18 academic programmes consisting of 05 UG level (B. A., B. Com., B. Sc., BCA and BCS) courses, 09 PG courses (Marathi, Hindi, Sociology, Political Science, Computer Science, Botany, Zoology, Chemistry and M. Com.) with 01 PG diploma course (DBM), 03 Research centers for Ph.D. (Botany, Zoology and Hindi), among which 02 UG and 09 PG courses are self-financed. All these programmes have semester CBCS pattern introduced by Parent University. Along with affiliated courses, the college also conducted certificate and value-added courses in 19 subjects from the last two years.

Vision:

To foster and intensify the desire of knowledge among the students hailing from rural area and to achieve their sustainable multi-dimensional development.

Mission:

1. The focus of college is on integrated and multidimensional development of students' personality.
2. Propagation / inculcation of values enshrined in the constitution of India.
3. Excellence in education with social relevance, dissemination of knowledge keeping pace with time.

Green Initiatives by the College:

- Tree Plantation – NSS and NCC departments of the institute have taken the initiatives to plant different kinds of trees in the college campus. Each faculty takes care of the trees planted. Faculties also used to plant trees on their occasion of birthday.
- Solar System – Institute has planted the solar panel in the administrative building in 2021.

efficient land use strategies, and sustainable infrastructure, the college can create a campus that supports academic excellence, student well-being, and environmental stewardship. It is crucial for the college administration, planners, and stakeholders to collaborate in implementing this land use concept, ensuring a vibrant and sustainable future for the college.

Remote sensing and Geographic Information System (GIS) techniques provide an advanced land use mapping and planning. GIS is a powerful technology that integrates geographic data, spatial analysis, and visualization capabilities, enabling users to gather, manage, analyze, and present geospatial information.

Methodology Adopted for Land Use Mapping:

Google map, field survey data and Google earth data have been used in this study. Land use map of the study area have been prepared using the above data.

Data Processing and Analysis:

Land use map preparation is executed through the following steps:

Acquisition of data (Location: 19.73396 N 77.14989 E), Geo-coding (P4MX+GX7, Akola Road, Sawarkar Nagar, Hingoli) and Geo referencing of satellite imageries by extracting the ground control points. The data collected during field visit and the GIS data and Google map data were correlated and compared.

The land use for the college with a view to detect the land consumption in the built-up land area using both remote sensing and GIS techniques.

Geographical Location with Campus Map in Scale:

The college has a **vast pollution-free campus spread over 43 acres** of land in the middle of Hingoli. Hingoli is known for the agro-industries for processing cotton, oilseeds, pulses and sugar. Hingoli is situated on the banks of River Kayadhu and well-known for the Jyotirlinga Aundha Nagnath.

Scaled image of college campus is shown in Google Map Image which is representing green area of the campus.

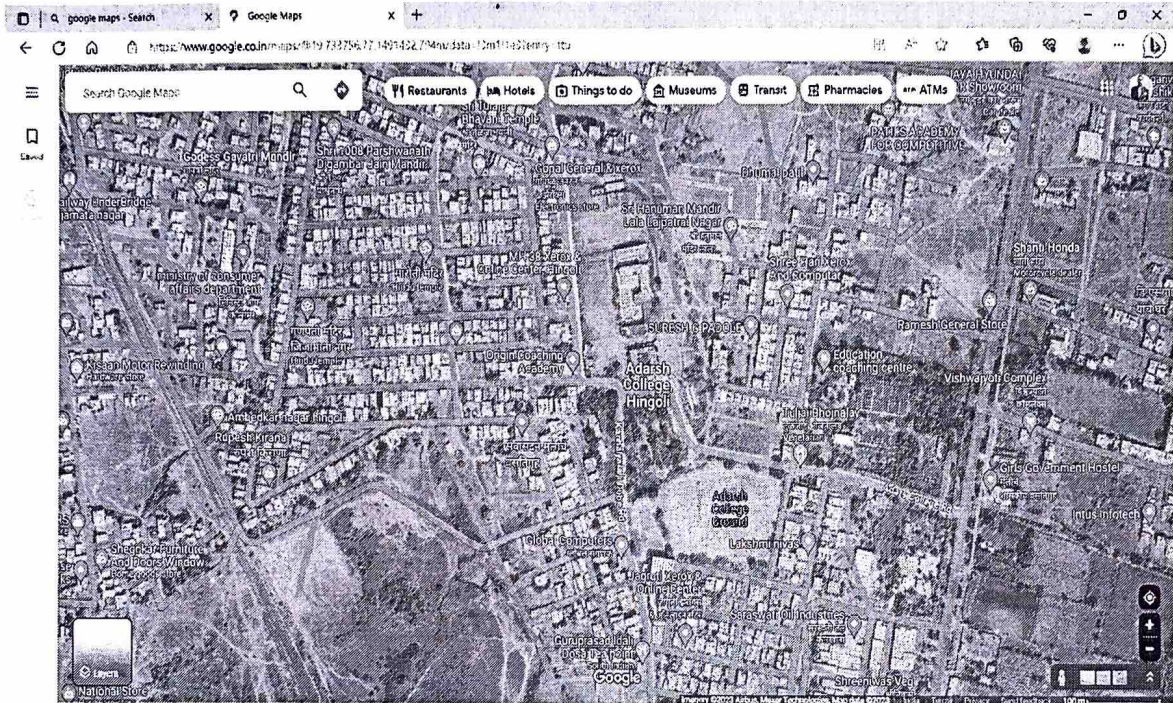


Photo 1: Aerial View of College Campus
(Source: Google Map)

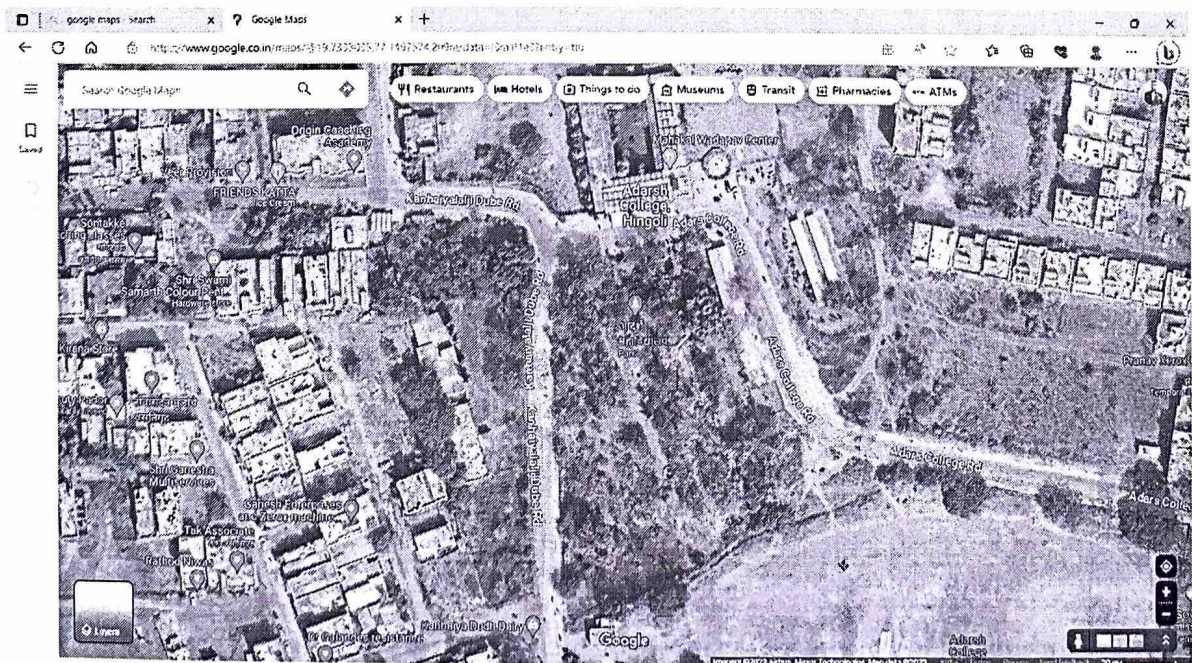


Photo 2: Aerial View of College Campus
(Source: Google Earth)

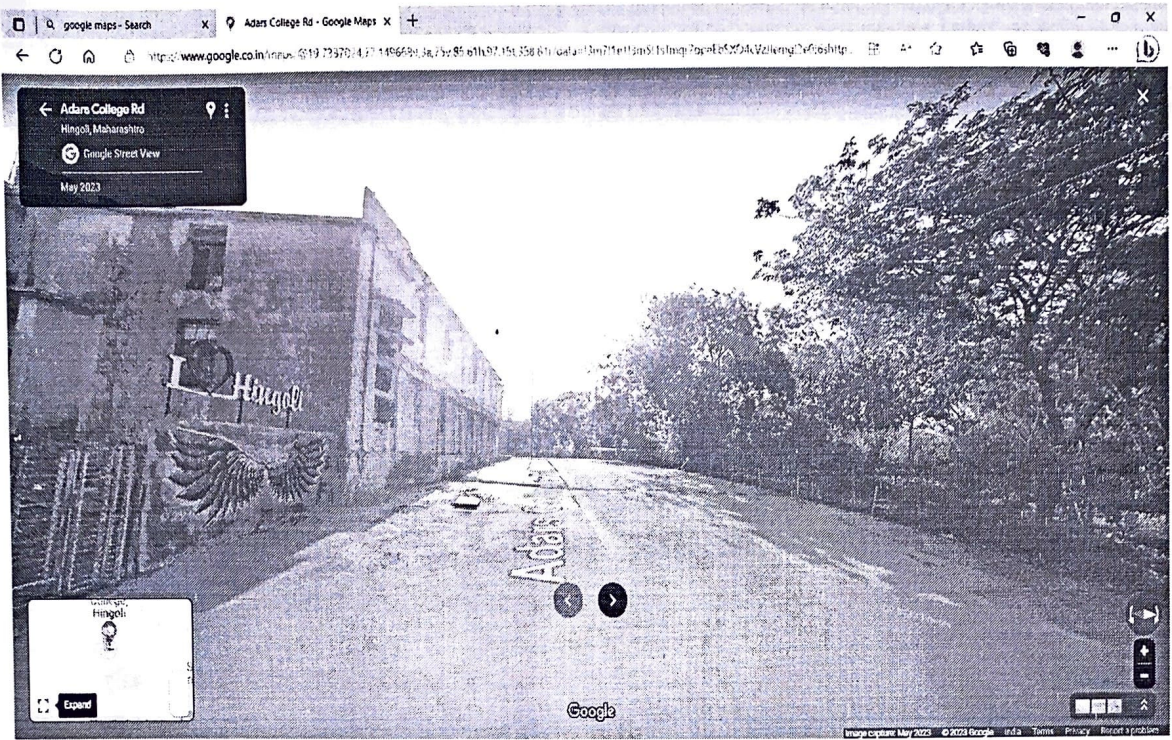


Photo 3: Roadside Entrance of College Campus

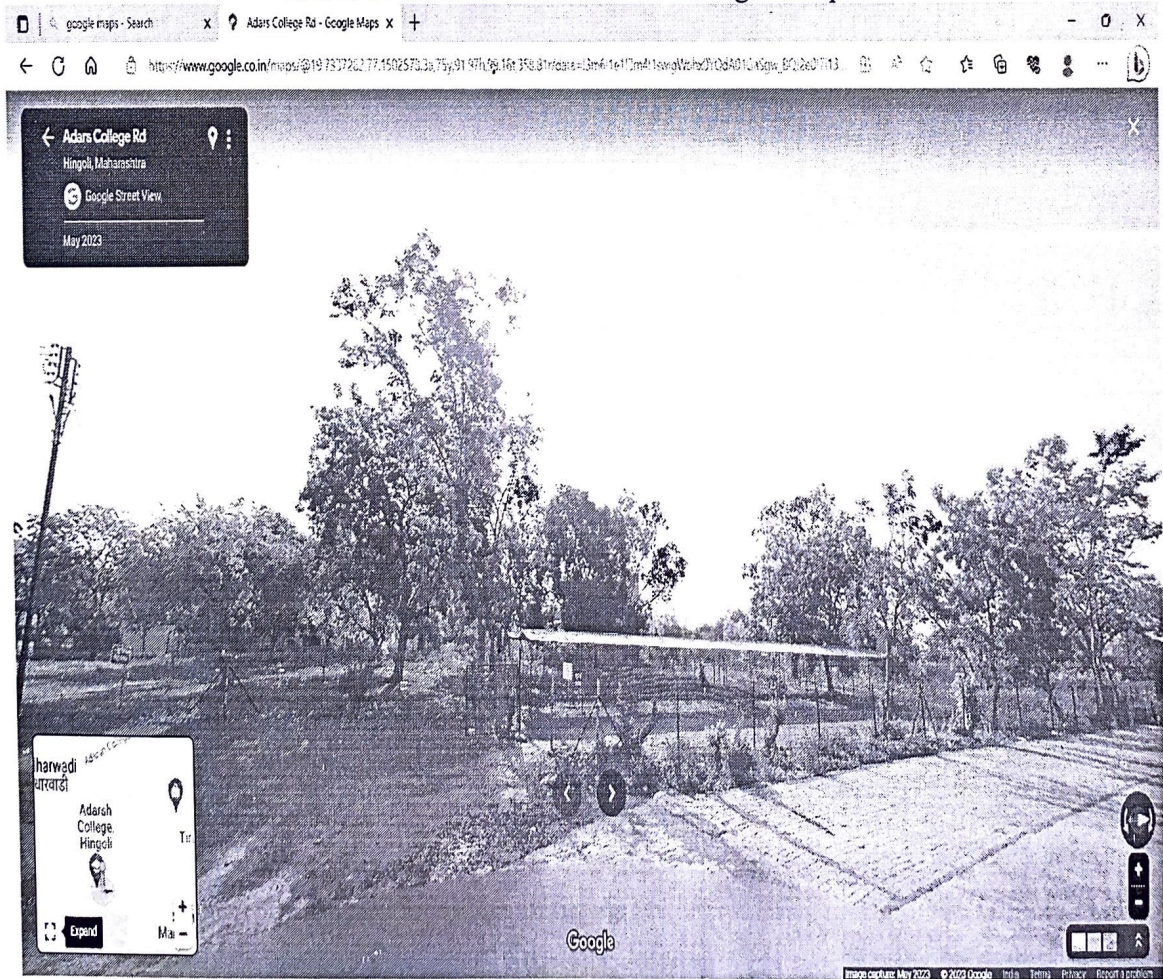


Photo 4: Greenary of the College Campus

Land Use Data of college:

Table 1: Land Use of college

Categories of Land Use	Area (m²)
Plantation area	Approx. 60904.90
Built up area (Includes Roads)	Approx. 36752.72
Total Area	174014.82

Land Analysis:

The area of campus is distributed from Master Plan Map and Google Mapping into eight different regions such as;

- (1) Administrative and Science Building
- (2) College Canteen and Surrounding Area
- (3) Library and Classroom Area
- (4) College Parking and Surrounding Area
- (5) Plant Garden
- (6) Boys Hostel Surrounding
- (7) Girls Hostel Surrounding
- (8) Indoor & Outdoor Sports Stadium

Green Area Cover:

An average percentage of green cover is 35%.

- (1) Administrative and Science Building: -

This is second most green cover area after Plant Garden. The building is surrounded by both sides of Avenue tree plantation. These not only control pollution but also control noise pollution. The lawn inside the building and surrounded by plants, maintained plants in pots is made this area green.

- (2) College Canteen and Surrounding Area: -

This is poor area of vegetation, have lots of scope for plantation. The NSS, NCC and Botany department planted some tree species. But due to lack of water facility in this area, it is not maintained.

- (3) Library and Classroom Area: -

Plantation to favour blocks surrounding is nice area of green cover. The *Alistonia* sp. and Members of *Caesalpiniaceae* plantation adding a lot of greenery.

- (4) College Parking and Surrounding Area: -

This area is good cover of plantation. The ornamental as well as avenue tree plantation increase the green area cover. A road side plantation by NSS and NCC Department make this area with good green cover.

(5) Plant Garden: -

The Plant Garden is highest in area of green cover and it should be. The lots of tree species including huge tree, avenue tree, medicinal plants, ornamental and flowering plants, bamboo plantation make this area rich and diversified. The aquatic plants have also established in water tanks in the area.

(6) Boys Hostel Surrounding: -

The hostel building is surrounded by tree species. The area is silent and pollution free. The front area has few scopes for plantation.

(7) Girls Hostel Surrounding: -

The hostel building surrounding has very limited plantation. This area is connected by running road so this area has much scope for plantation.

(8) Indoor & Outdoor Sports Stadium: -

This is third area of most green cover. The ground is surrounded by tree plantation with number of species. As this area is always utilized for sport purpose, the green cover to the surrounding should be more.

Administrative Area

Sr. No.	Name of Infrastructure	Required (Sq.Ft.)	Available (Sq.Ft.)
01	Principal's Chamber	15 x 25	15 x 25
02	Vice Principal Office	20 x 10	20 x 11
03	Administrative Office	35 x 25	47 x 25
04	Record Room	20 x 25	24 x 25

Institutional Area

Sr. No.	Name of Infrastructure	Required (Sq. Ft.)	Available (Sq. Ft.)
1.	Auditorium Hall (Room No. 1)	--	32 x 27
2.	Room No. 2	20 x 24	43 x 27
3.	Room No. 3	20 x 24	42 x 27
4.	Room No. 4	20 x 24	31 x 27
5.	Room No. 5	20 x 24	21 x 27
6.	Room No. 6	20 x 24	32 x 27

7.	Room No. 7	20 x 24	43 x 27
8.	Room No. 8	20 x 24	41 x 27
9.	Room No. 9	20 x 24	31 x 27
10.	Room No. 10	20 x 24	27 x 23
11.	Room No. 11	20 x 24	27 x 23
12.	Room No. 12	20 x 24	33 x 27
13.	Room No. 13	20 x 24	43 x 27
14.	Room No. 14	20 x 24	27 x 20
15.	Room No. 15	20 x 24	41 x 27
16.	Room No. 16	20 x 24	31 x 27
17.	Room No. 17	20 x 24	35 x 27
18.	Room No. 18	20 x 24	31 x 29
19.	Room No. 19	20 x 24	31 x 29
20.	Room No. 20	20 x 24	31 x 29
21.	Room No. 21	20 x 24	32 x 27
22.	Room No. 22	20 x 24	32 x 27
23.	Room No. 23	20 x 24	32 x 27
24.	Room No. 24	20 x 24	27 x 25
25.	Room No. 25	20 x 24	27 x 25
26.	Room No. 26	20 x 24	27 x 25
27.	Room No. 27	20 x 24	27 x 27
28.	Library including reading room halls	--	37 x 64
29.	Staff Room	--	38 x 21
30.	Chemistry Lab 1	35 x 25	47 x 25
31.	Chemistry Lab 2	35 x 25	47 x 25
32.	Chemistry Lab 3	35 x 25	47 x 25
33.	Botany Lab 1	35 x 25	35 x 25
34.	Botany Lab 2	35 x 25	35 x 25
35.	Botany Lab 3	35 x 25	35 x 25
36.	Zoology Lab 1	35 x 25	35 x 25
37.	Zoology Lab 2	35 x 25	35 x 25
38.	Dairy Sci. Lab.	35 x 25	36 x 33
39.	Electronics Lab.	35 x 25	33 x 32
40.	Computer Lab 1	35 x 25	47 x 25
41.	Computer Lab 2	35 x 25	47 x 25
42.	Computer Lab 2	35 x 25	47 x 25
43.	Mathematics Lab	35 x 25	35 x 25
44.	Physics Lab 1	35 x 25	31 x 25
45.	Physics Lab 2	35 x 25	35 x 25
46.	Physics Lab (Dark Room)	---	15 x 25
47.	NCC Office	20 x 10	20 x 10
48.	NSS Office	20 x 10	20 x 11
49.	Sports Room and Utility	32 x 24	47 x 36
50.	Indoor Hall	---	80 x 120

51.	Exam Department	20 x 10	37 x 20
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Student's Facility & Amenities Area

Sr. No.	Name of Infrastructure	Required (Sq. mts)	Available (Sq. mts)
01	Girls Common Room	35 x 20	35 x 20
02	Toilet for Girls	20 x 10	20 x 12
03	Toilet for Boys	20 x 10	20 x 12
04	Toilet for Staff	20 x 10	20 x 12
05	Canteen/Cafeteria	50 x 40	54 x 43
07	Sahitya Mandir (Multipurpose Hall)	--	64 x 38
08	Boys Hostel	30 Intake	269 x 190
09	Girls Hostel	30 Intake	269 x 190
10	Gathering Stage	---	32 x 32
11	Parking area for staff & students	--	Adequate

Outcomes:

The college was established in the year 1967, has an eco-friendly environment. It has a long inheritance of healthy environmental practices including periodic plantation, their preservation and maintenance. Its land use is such that about 78% of the total area is occupied by open land and plantation that generates a better and sustainable campus environment.

Botanical Variance of College Campus:

The college is within the geo-position between latitude 19.73396 N and longitude 77.14989 E in Hingoli, Maharashtra, India. It encompasses an area of about 43 Acres. The area has many varieties of tree species with different characteristics. Most of the plants are planted in different periods of time through various plantation programs organized by the college and have become an integral part of the college. The trees of the college have increased the quality of life, not only of the college students and staff members but also of the people around of the college in terms of contributing to the environment

by providing oxygen, improving air quality, climate betterment, conservation of water, preserving soil, and supporting birds and insects, controlling excessive summer heats. Leaves absorb and filter the sun's radiant energy, keeping things cool in summer. Many species of birds are dependent on these trees mainly for food and shelter. Nectar of flowers and plants is a favorite of birds and many insects. Leaf - covered branches keep many animals, such as birds and squirrels, out of reach of predators. Different species display a seemingly endless variety of shapes, forms, texture and vibrant colours. Even individual trees vary their appearance throughout the course of the year as the seasons change. The strength and appearance of the different trees provides a glorious and beautiful appearance to the institute. The trees have found to be bringing down noise and cut down dust and storms.

List of Audited Plant Species:

Tree Species:

S.N.	Scientific Name	Family	Common (Marathi) Name
1.	Cassia fistula	Fabaceae	Bahava/Amaltash
2.	Peltophorum pterocarpum	Fabaceae	Tamrashimbi
3.	Azadirachata indica	Meliaceae	Kadunimb
4.	Delonix regia	Fabaceae	Gulmohar
5.	Bauhinia purpurea	Fabaceae	Kanchan
6.	Acacia catechu	Leguminosae	Khair/kat
7.	Acacia arabica	Leguminosae	Babhul
8.	Butea monosperma	Fabaceae	Palas
9.	Ficus religiosa	Moraceae	Pimpal
10.	Bombax ceiba	Bombacaceae	Kat shevari
11.	Bombax mori	Bombacaceae	Tuti
12.	Tectona grandis	Verbenaceae	Sag
13.	Moringa oleifera	Moringaceae	Shevaga
14.	Ficus benghalensis	Moraceae	Vad
15.	Gliricidia sepium	Fabaceae	Undirmari
16.	Leucaena leucocephala	Mimosaceae	Subabhul
17.	Mangifera indica	Anacardiaceae	Amba
18.	Zizyphus zuzuba	Ramnaceae	Bor/Bori
19.	Psidium guajava	Myrtaceae	Peru
20.	Embllica officinalis	Euphorbiaceae	Avala
21.	Pithecolobium dulce	Fabaceae	Ingraji Chinch
22.	Annona squamosa	Annonaceae	Sitaphal

23.	Bambusa dendrocalmus	Poaceae	Bamboo
24.	Alstonia scholaris	Apocynaceae	Saptparni
25.	Eucalyptus indica	Myrtaceae	Nilgiri

Flowering and Ornamental Plants:

S.N.	Scientific Name	Family	Common (Marathi) Name
1.	Catharanthus roseus	Apocynaceae	Sadafuli/Nayantara
2.	Jasminum sambac	Oleaceae	Mogara
3.	Quisqualis indica	Combretaceae	Madhumalati
4.	Ipomoea sp.	Convolvulaceae	Ganeshvel
5.	Lantana camera	Verbenaceae	Haladikunku/Ghaneri
6.	Hedychium flavescens	Zingiberaceae	Sontakka/Sonchafa
7.	Ixora sp.	Rubiaceae	Scarlet Ixora
8.	Canna indica	Cannaceae	Kardali
9.	Bixa orelina	Bixaceae	Kunku
10.	Rosa sp.	Rosaceae	Gulab

Medicinal Plants:

S.N.	Scientific Name	Family	Common (Marathi) Name
1.	Abrus precatorius	Fabaceae	Gunj
2.	Achyranthus aspera	Amaranthaceae	Aghada
3.	Adathoda vesica	Acanthaceae	Adulsa
4.	Andrographis paniculata	Acanthaceae	Kalmegh
5.	Bombax ceiba	Bombacaceae	Katesawar
6.	Emblica officinalis	Euphobiaceae	Awala
7.	Ficus religiosa	Moraceae	Pimpal
8.	Ficus bengalensis	Moraceae	Wad
9.	Ocimum sanctum	Lamiaceae	Tulas
10.	Ocimum basilicum	Lamiaceae	Sabja
11.	Mimosa pudica	Mimosaceae	Lajalu
12.	Michelia champaca	Magnoliaceae	Sonchafa
13.	Morus alba	Moraceae	Tuti
14.	Pongamia pinnata	Fabaceae	Karanji
15.	Santalum album	Santalaceae	Chandan

Other Herb and Shrub Species:

S.N.	Scientific Name	Family	Common (Marathi) Name
1.	<i>Solanum virginianum</i>	Solanaceae	Bhuiringani
2.	<i>Ricinis communis</i>	Euphorbiaceae	Erandel/Erand
3.	<i>Parthenium hysterophorus</i>	Asteraceae	Ganjargavat
4.	<i>Calotropis gigantea</i>	Asclepiadaceae	Rui/Ruchki/Mandar



Botanical Garden



Garden Greenery – A view



Garden Covers a Roadside Area

Animal Life in College Campus:

The college is located in Hingoli District of Maharashtra. Hingoli is a city known for educational institutes, commercial development and ginning and pressing industries. It has got extreme climates. The highest temperature recorded is 43°C just prior to the onset of monsoon (around May- early June). Rainfall is normal, and is principally caused from late July to August by the moisture-laden South-West Monsoon. The climatic condition of the Hingoli district as a whole and the college campus in particular is very suitable for a wide variety of flora and fauna to support its rich biodiversity. The Faunal Diversity of college campus has been studied and documented as below:

Common and Scientific names of birds and animals

Sr. No.	Common Name	Scientific Name
1.	Common Myna	<i>Acridotheres tristis</i>
2.	Bank Myna	<i>Acridotheres ginginianus</i>
3.	House Sparrow	<i>Passer domesticus</i>
4.	House Crow	<i>Corvus splendens</i>
5.	Cuckoo	<i>Cuculidae</i>
7.	Yellow Wasp	<i>Ropalidia marginata</i>
8.	Butter Fly	<i>Danaus genutia</i>
9.	Common Woodshrike	<i>Tephrodornis pondicerianus</i>
10.	Pied Myna	<i>Gracupica contra</i>
11.	Red-Vented Bulbul	<i>Pycnonotus cafer</i>
12.	Skylark	<i>Aluda gulgula</i>
13.	Indian Rat Snake (Dhaman)	<i>Ptyas mucosa</i>
14.	Little Owl	<i>Athene brama</i>
15.	Oleander Moth	<i>Syntomeida epilais</i>
16.	Slender Skimmer	<i>Orthetrum sabina</i>
17.	Pigeon	<i>Columbidae</i>

Meteorological Data of Hingoli and College Campus:

Location: Latitude 19.73396 N and Longitude 77.14989 E

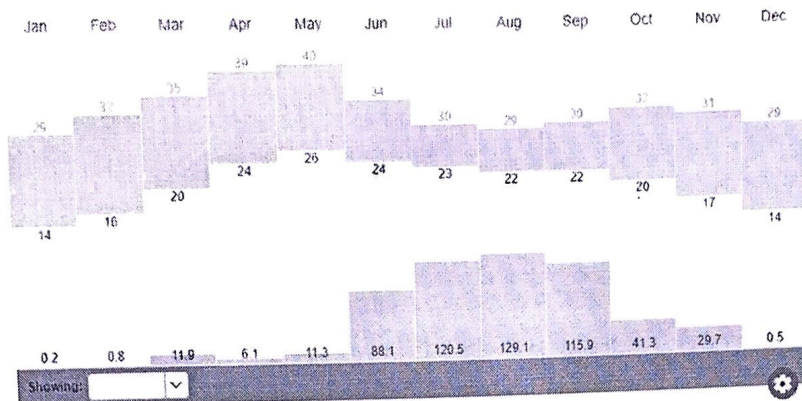
In Hingoli, the climate is warm and temperate. The summers are much hot. The average annual temperature in Hingoli is 31.2°C and precipitation level is about 895 mm.

The driest month is generally December. The greatest amount of precipitation occurs in August and September, with an average of 370 mm. With an average of 43.5°C, May is the warmest month. The lowest average temperatures in the year occur in January, when it is around 13°C. The precipitation varies 332 mm between the driest month and the wettest month. The variation in temperatures throughout the year is 18.44°C.

The riverine soil is a characteristic of the city of Hingoli and its surroundings. The city is situated on the banks of the river Kayadhu. The city has an average altitude of 1188 feet or 362 meters from the average sea level. The land of Hingoli is very much feasible for soyabean, Jowar and cotton cultivation.

The climatic conditions bear a strong resemblance with the other cities in the Maharashtra. The summers are usually very hot and the winters are very cold. The summers are prevalent during the months of March to June with April and May being the hottest months. The winter is prevalent from the month of November till the month of February. There is onset of Monsoon in June and from mid of June till October one experiences the transitional weather and belongs to semi-arid zone of Maharashtra.

Annual Weather Averages



Quick Climate Info

- Hottest Month** May (33 °C avg)
- Colest Month** January (21 °C avg)
- Wettest Month** August (129.1 mm avg)
- Windiest Month** June (10 km/h avg)
- Annual precip.** 555.2 mm (per year)

Weather by CustomWeather. © 2023

Climate & Weather Averages in Hingoli

High Temp: 39 °C
 Low Temp: 21 °C
 Mean Temp: 31 °C

WEATHER DATA MONTH WISE Hingoli (Source: Google)

Air Quality of College Campus:

The ambient air quality data for Hingoli and college campus for the last one year shows that there are very less polluted particles in ambient air within the range of Indian living standards. There are a number of factors responsible for this like cleanliness, calmness and serenity in this area. The ambient air quality of Hingoli Area falls in between moderate to rich quality state.

Air Pollution Level	Air Quality Index	Main Pollutant
Moderate	70* US AQI	PM 2.5

* AQI Modelled Using Satellite Data

PM – Particulate Matter as per WHO should below 2.0

(Source – Google).

Water Analysis:

Water quality testing is necessary because it determines contaminants and prevents waterborne diseases. Drinking or using contaminated water can result in severe health issues. Therefore, it is important to ensure that drinking water is safe, clean and free from microorganisms. The parameters for water quality are determined by the intended use. Work in the area of

water quality tends to be focused on water that is treated for human consumption, or in the environment.

Aquifer wise ranges of chemical constituents in Hingoli district

Constituents	Shallow aquifer		Deeper aquifer	
	Min	Max	Min	Max
pH	7.0	8.5	7.3	8.5
EC ($\mu\text{S/cm}$)	233	4380	404	2200
TDS (mg/l)	151	2840	263	1378
TH (mg/l)	76	664	30	560
Ca (mg/l)	18	240	2	114
Mg (mg/l)	5	112	1	140
Na (mg/l)	16	121	2	426
K (mg/l)	0.9	23.4	0.8	4
HCO ₃ (mg/l)	137	416	49	299
Cl (mg/l)	14	580	28	521
SO ₄ (mg/l)	7	398	1	305
NO ₃ (mg/l)	1.83	150	3.52	60

(Source: Central Ground Water Board, Ministry of Jal Shakti, Department of Water Resources, Government of India Report March 2021)

Noise Level of Campus Surroundings:

The WHO has fixed 45 dB as the safe noise level for a city. For international standards a noise level up to 65 dB is considered tolerate. The campus is surrounded by huge greenery. The noise level is minimized by planting road side trees. The college is far away from Industries, connecting highways etc. So, noise level is optimum and below to permissible high limit.

No Use of Plastic Policy:

The college has adopted and implemented the 'No Plastic Use Policy' on the campus. Students and staff members are advised to avoid the use of any kind of plastic material not only in the college but also during their routine activities.

Electrical Power Consumption:

The college consumes on an average 5052 Units/year of electricity which is nearabout equal to 18.22 KW/Hr to conduct various activities throughout the year. As a policy decision, the old filament bulbs, CFL bulbs and tube lights are replaced by low energy consuming LED bulbs in order to keep the electricity consumption of the college as low as possible.

The college has Environmental Sciences as a vital subject in the syllabus, which helps making students aware of conserving and restoring energy resources. The college has already implemented the solar power supply system for contributing the electricity requirement of the institute. The energy from this solar installation supports partially the institute's electricity demand from the grid.

On an average 5052 Units/year of electricity is consumed by the college (Data reference: Monthly electricity bills). The college has taken many power saving initiatives such as displaying electricity saving stickers in the classrooms, library, laboratories and administrative section, and the staff members and students are instructed to switch of the fans, bulbs, tubes, exhaust fans etc. when not in use.

Green Audit Report

Academic Year 2022-23

Introduction and Background:

The Green Audit is systematic identification, quantification and analysis of green practices and green area cover of the campus. This also called Environmental Audit in large area of extent. As NAAC and higher government agencies demands for green practices, the Green Audit Committee analyses the green cover of campus. The green practices such as using Plantation, Solar Energy, Water Management, Water Harvesting, Waste Disposal Management, Environmental Awareness, Save Energy Consumption, Control Noise and Air Pollution etc. should be come under in Green Audit.

The Adarsh Education Society's Arts, Commerce and Science College, Hingoli establish in 1967 in the rural area of Marathwada of Maharashtra. Naturally the campus is covered by greenery. But from last two decades heavy constructions to the surrounding of the college results into decrease in green cover of the locality. The campus has huge area of 67 Acres of Land with-in between the Administrative Building, Library and Classrooms, College Canteen, Plant Garden, Vehicle Parking & Consumer Forum Building, Boys Hostel, Girls Hostel, Indoor Sports Stadium & Outdoor Play Ground. The roads are connected to each side of campus.

Faculties from Environmental Committee, NSS, NCC Units, and Botany Department have taken lots of efforts to maintain green practices from last few years. With the changing time, the Vehicle and Noise Pollution increase day by day in the campus. So it is necessary to go for Green Audit and recommend the green practices.

Aims and Objectives:

- (1) Plantation of diversified species.
- (2) Identification of plant species.
- (3) Promote for Green Practices.
- (4) Environmental Awareness.

Methodology and Observations:

The area of campus is distributed from Master Plan Map and Google Mapping into eight different regions such as;

- (1) Administrative and Science Building
- (2) College Canteen and Surrounding Area

- (3) Library and Classroom Area
- (4) College Parking and Surrounding Area
- (5) Plant Garden
- (6) Boys Hostel Surrounding
- (7) Girls Hostel Surrounding
- (8) Indoor & Outdoor Sports Stadium

Green Area Cover:

An average percentage of green cover is 30%.

- (1) Administrative and Science Building:-

This is second most green cover area after Plant Garden. The building is surrounded by both sides of Avenue tree plantation. These not only control pollution but also control noise pollution. The lawn inside the building and surrounded by plants, maintained plants in pots is made this area green.

- (2) College Canteen and Surrounding Area:-

This is poor area of vegetation, have lots of scope for plantation. The NSS, NCC and Botany department planted some tree species. But due to lack of water facility in this area, it is not maintained.

- (3) Library and Classroom Area:-

Plantation to favor blocks surrounding is nice area of green cover. The *Alistonia* sp. and Members of Caesalpiniaceae plantation adding a lot of greenery.

- (4) College Parking and Surrounding Area:-

This area is good cover of plantation. The ornamental as well as avenue tree plantation increase the green area cover. A road side plantation by NSS and NCC Department make this area with good green cover.

- (5) Plant Garden:-

The Plant Garden is highest in area of green cover and it should be. The lots of tree species including huge tree, avenue tree, medicinal plants, ornamental and flowering plants, bamboo plantation make this area rich and diversified. The aquatic plants have also established in water tanks in the area.

(6) Boys Hostel Surrounding:-

The hostel building is surrounded by tree species. The area is silent and pollution free. The front area has few scopes for plantation.

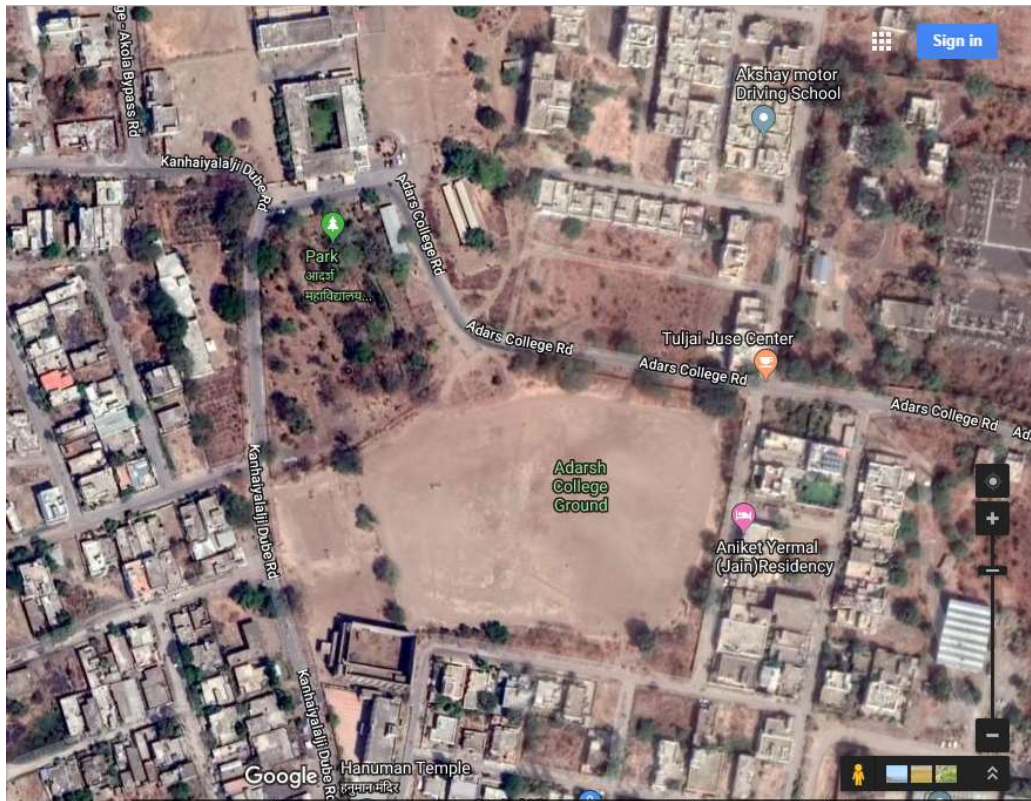
(7) Girls Hostel Surrounding:-

The hostel building surrounding has very limited plantation. This area is connected by running road so this area has much scope for plantation.

(8) Indoor & Outdoor Sports Stadium:-

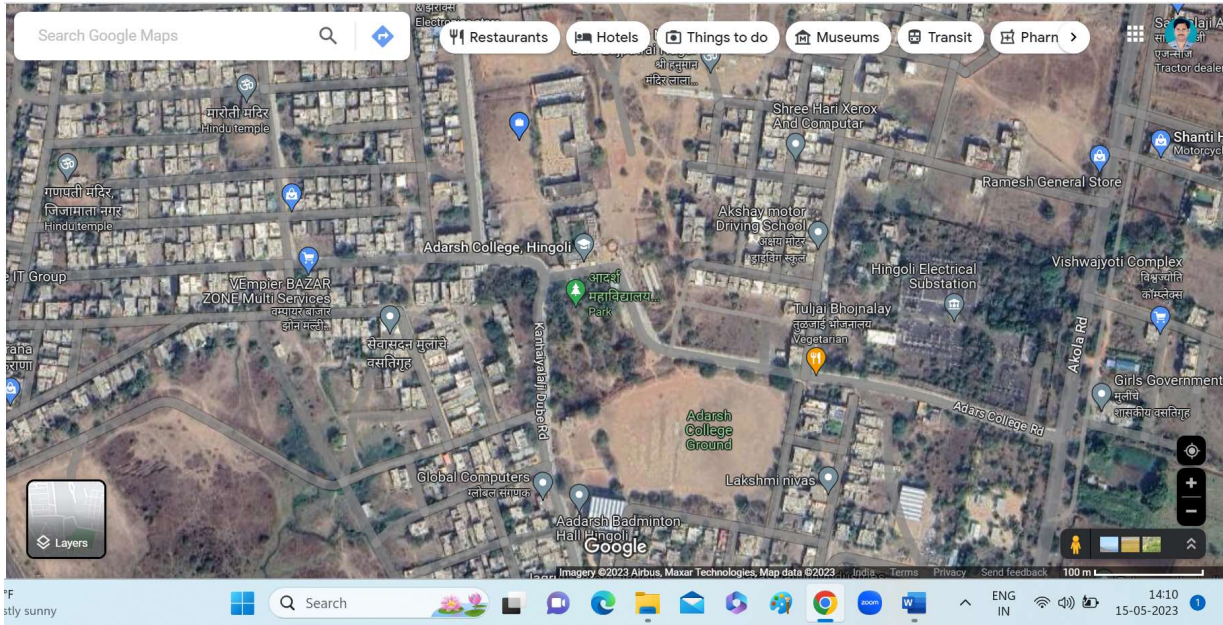
This is third area of most green cover. The ground is surrounded by tree plantation with number of species. As this area is always utilized for sport purpose, the green cover to the surrounding should be more.

Images of 2018: Green cover was 20%

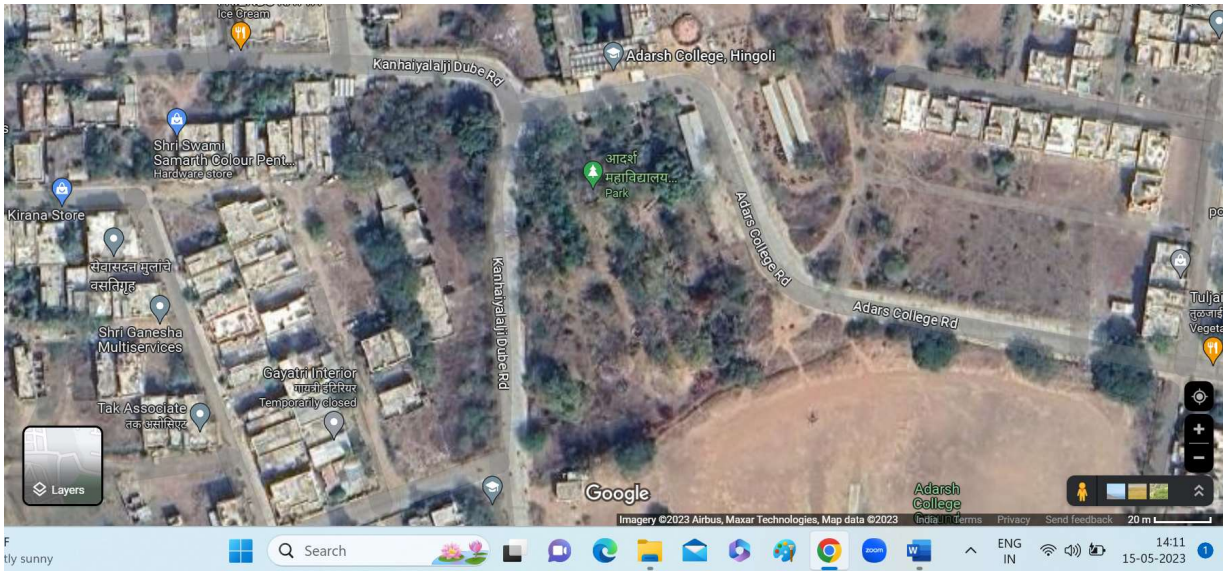


Images in 2023: Green cover increased up to 30%

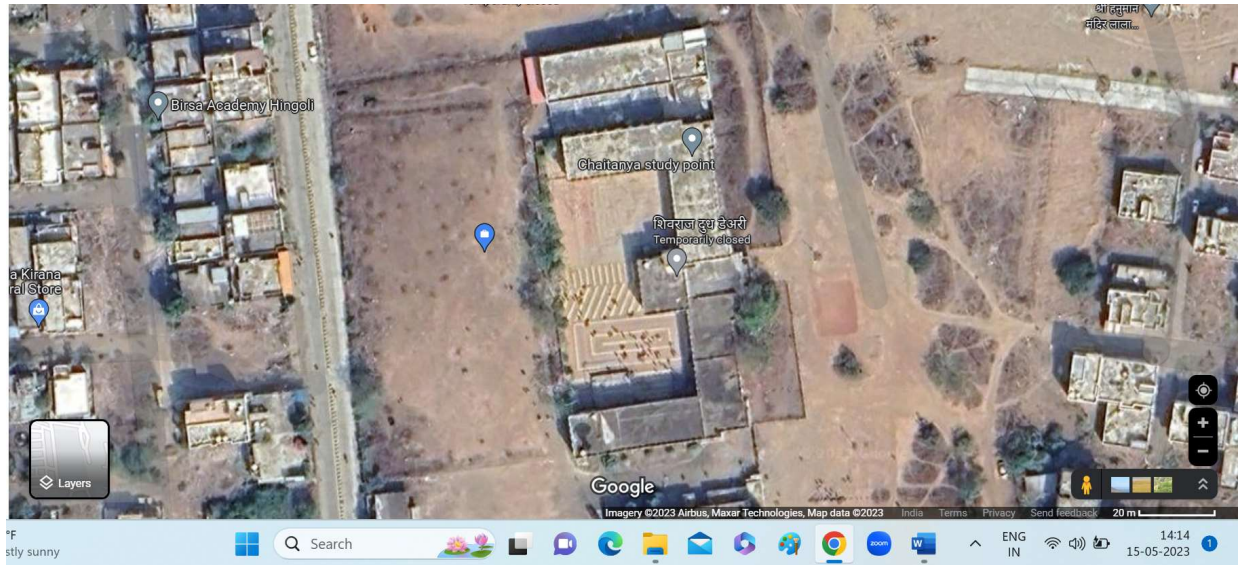
1) College Overview:



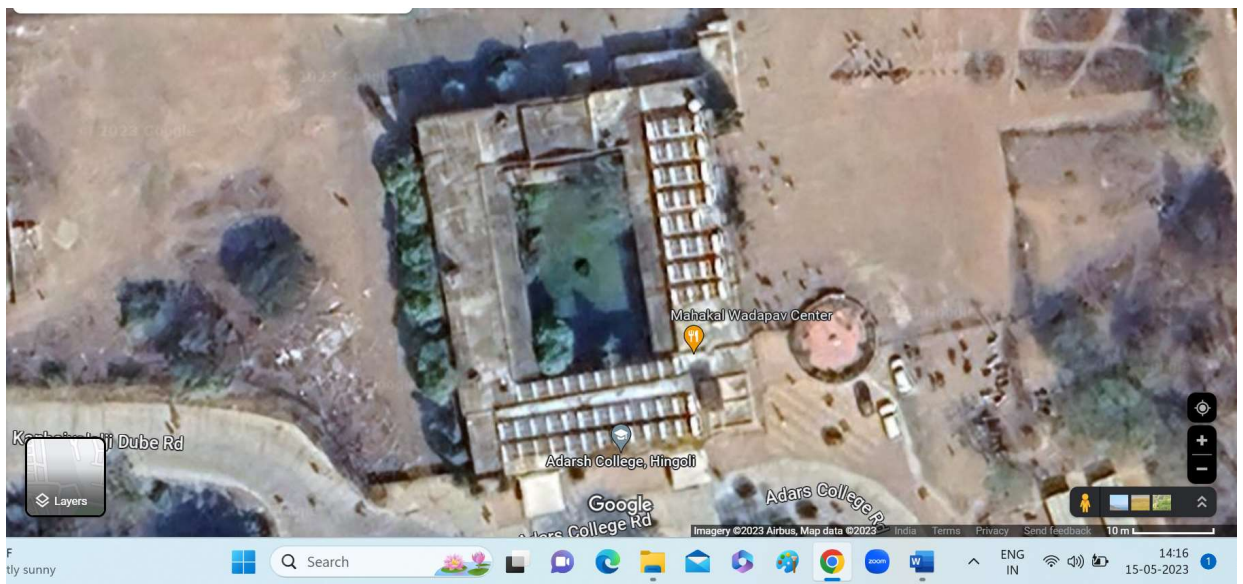
2) Garden Overview:



3) Classroom Building Overview:



4) Science Building Overview:



List of Audited Plant Species:

Tree Species:

S.N.	Scientific Name	Family	Common (Marathi) Name
1.	<i>Cassia fistula</i>	Fabaceae	Bahava/Amaltash
2.	<i>Peltophorum pterocarpum</i>	Fabaceae	Tamrashimbi
3.	<i>Azadirachata indica</i>	Meliaceae	Kadunimb
4.	<i>Delonix regia</i>	Fabaceae	Gulmohar
5.	<i>Bauhinia purpurea</i>	Fabaceae	Kanchan
6.	<i>Acacia catechu</i>	Leguminosae	Khair/kat
7.	<i>Acacia arabica</i>	Leguminosae	Babhul
8.	<i>Butea monosperma</i>	Fabaceae	Palas
9.	<i>Ficus religiosa</i>	Moraceae	Pimpal
10.	<i>Bombax ceiba</i>	Bombacaceae	Kat shevari
11.	<i>Bombax mori</i>	Bombacaceae	Tuti
12.	<i>Tectona grandis</i>	Verbenaceae	Sag
13.	<i>Moringa oleifera</i>	Moringaceae	Shevaga
14.	<i>Ficus benghalensis</i>	Moraceae	Vad
15.	<i>Gliricidia sepium</i>	Fabaceae	Undirmari
16.	<i>Leucaena leucocephala</i>	Mimosaceae	Subabhul
17.	<i>Mangifera indica</i>	Anacardiaceae	Amba
18.	<i>Zizyphus zuzuba</i>	Ramnaceae	Bor/Bori
19.	<i>Psidium guajava</i>	Myrtaceae	Peru
20.	<i>Embllica officinalis</i>	Euphorbiaceae	Avala
21.	<i>Pithecolobium dulce</i>	Fabaceae	Ingraji Chinch
22.	<i>Annona squamosa</i>	Annonaceae	Sitaphal
23.	<i>Bambusa dendrocalmus</i>	Poaceae	Bamboo
24.	<i>Alstonia scolaris</i>	Apocynaceae	Saptparni
25.	<i>Eucalyptus indica</i>	Myrtaceae	Nilgiri

Flowering and Ornamental Plants:

S.N.	Scientific Name	Family	Common (Marathi) Name
1.	<i>Catharanthus roseus</i>	Apocynaceae	Sadafuli/Nayantara
2.	<i>Jasminum sambac</i>	Oleaceae	Mogara
3.	<i>Quisqualis indica</i>	Combretaceae	Madhumalati
4.	<i>Ipomoea sp.</i>	Convolvulaceae	Ganeshvel
5.	<i>Lantana camera</i>	Verbenaceae	Haladikunku/Ghaneri
6.	<i>Hedychium flavescens</i>	Zingiberaceae	Sontakka/Sonchafa
7.	<i>Ixora sp.</i>	Rubiaceae	Scarlet Ixora
8.	<i>Canna indica</i>	Cannaceae	Kardali

9.	<i>Bixa orelina</i>	Bixaceae	Kunku
10.	<i>Rosa sp.</i>	Rosaceae	Gulab

Medicinal Plants:

S.N.	Scientific Name	Family	Common (Marathi) Name
1.	<i>Abrus precatorius</i>	Fabaceae	Gunj
2.	<i>Achyranthus aspera</i>	Amaranthaceae	Aghada
3.	<i>Adathoda vesica</i>	Acanthaceae	Adulsa
4.	<i>Andrographis paniculata</i>	Acanthaceae	Kalmegh
5.	<i>Bombax ceiba</i>	Bombacaceae	Katesawar
6.	<i>Emblica officinalis</i>	Euphobiaceae	Awala
7.	<i>Ficus religiosa</i>	Moraceae	Pimpal
8.	<i>Ficus bengalensis</i>	Moraceae	Wad
9.	<i>Ocimum sanctum</i>	Lamiaceae	Tulas
10.	<i>Ocimum basilicum</i>	Lamiaceae	Sabja
11.	<i>Mimosa pudica</i>	Mimosaceae	Lajalu
12.	<i>Michelia champaca</i>	Magnoliaceae	Sonchafa
13.	<i>Morus alba</i>	Moraceae	Tuti
14.	<i>Pongamia pinnata</i>	Fabaceae	Karanji
15.	<i>Santalum album</i>	Santalaceae	Chandan

Other Herb and Shrub Species:

S.N.	Scientific Name	Family	Common (Marathi) Name
1.	<i>Solanum virginianum</i>	Solanaceae	Bhuringani
2.	<i>Ricinis communis</i>	Euphorbiaceae	Erandel/Erand
3.	<i>Parthenium hysterophorus</i>	Asteraceae	Ganjargavat
4.	<i>Calotropis gigantea</i>	Asclepiadaceae	Rui/Ruchki/Mandar



Botanical Garden



Garden Greenery – A view



Garden Covers a Roadside Area

Recommended Green Practices:

- (1) Plantation as a regular practice and caring of plants by adopting plants by faculty and NSS and NCC students.
- (2) Water management by preparing Farm Ponds, Ground Water Recharging, Water harvesting, Water conservation, Surface water collection etc.
- (3) Waste management by processing and composting waste disposal.
- (4) Environmental Awareness for vehicle free day, minimize noise pollution by assigning sign boards.



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