

GOVT.KHAWZAWL COLLEGE

QUALITY AUDITS ON ENVIRONMENT & ENERGY



Environmental Management Sub-Committee

Government Khawzawl College

Introduction

About the College

The Govt. Khawzawl College initially named as Khawzawl College Khawzawl is located in the North eastern part of Khawzawl town. It is 40 Kms away from District Headquarters of Champhai District, 160 Kms from Aizawl, the capital of Mizoram and 70 Kms from Myanmar Border. The Khawzawl College is having an area of land 9.30 Bhigas in its own name. The College was established in 1985 as a co-educational institution. The objective of the college is to provide higher education especially to the student of rural area who cannot get facilities of higher education in other educationally advanced places. The college got Provisional Affiliation on the 15th May 1992 from NEHU Vide letter No. CDC/A-75/99-1468 Dated 15.5.1992 and the affiliating university had given permission for conducting Pre- University Examination with effect from 1993 Vide NEHU letter No. F.15-2/Ex/92/350 Dated 31/11/1992 the college was upgraded to Deficit Status with effect from the 1st April 1994 Vide Govt. letter No.B.16013/3/90-EDC/55 Dated 22/7/1994.

Vide letter No.B.16019/3/88-EDC Dated the 9th Nov.1995. NEHU accorded Provisional affiliation for degree classes to this college in General and Honours Courses Vide NEHU letter No.DCD.A.78/95-96/1778 Dated the 16th July 1999. The college was transferred to Mizoram University and a granted permanent affiliation Vide University letter No.MZU/CDC/32/2002 Dated the 27th July 2006 with effect from 1st July 2006. University Grants Commission (UGC) included the college in the list of college prepared under section 2(f)&12(B) of the UGC Act.1956 with effect from the date of issuing of the order Vide UGC letter No.F.8-432/2005(CPP-1) dated the 20th July 2007. The Higher and Technical Education Department, the Government of Mizoram Provincialized this college with effect the date of issuing Notification Vide No.B.16013/1/07-EDC Dated the 11th Oct. 2007 and, faced its first NAAC peer Team in 2017 and was accredited with a CGPA of 1.91 on seven point scale at ' C ' Grade valid up to September11,2022.

Visions Statement of the College

To achieve excellence in teaching, learning, leadership, in-service and any other community services.

To Provide Education to the rural poor students to reduce the discrepancy between the rich and poor in the field of education

To improve infrastructural facilities and teaching method to attain an excellent education
To provide education among the weaker section of the society including minorities, SC/ST/OBC, and socially deprived sections

To inculcate discipline, culture, innovation, creativity, team spirit, entrepreneurial leadership and accountability

Mission and objectives Statement of the college

- 1) To inculcate easy access of higher education to a community of less privileged youths in the area nearby who cannot afford to go elsewhere for further studies
- 2) The college motto “perseverance for success” is the guiding principle of our endeavour in striving for academic excellence in humanitarian services.
- 3) To impart quality knowledge through effective teaching and to produce compact graduate or complete man.
- 4) To work for the improvement of society through social services and other extension programs.
- 5) To promote programs and movements that foster inter connectedness and a sense of unity

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Govt. Khawzawl College Environmental management sub-committee took initiatives on audits related to Green Audit, Air Quality Assessment, Land used Audit, Noise Level Audit, Water Audit and Energy Audit. Reports of the committees are highlighted below;

1. GREEN PROGRAMMES: The institution organizes various environmental programmes through clubs and committees. Activities like cleanliness drive, plantation programme, plantation clearing, paper recycling and nature work were included under these programmes. The institution also observed various environmental days like Earth Day, World Environment Day, Green Mizoram Day, Awareness campaign on Water Conservation etc. Further, Environmental management sub-committee conducted Awareness Campaign on water conservation, Awareness Campaign on water conservation, Identification of Different tree species within the campus, Shrubs in the campus, Climber in the college campus, Climber in the college campus and identified flora and fauna of the campus.



Environmental Management are thoroughly studied and scrutinized. Govt. Khawzawl College has undertaken a lendable and recommendable effort in addressing its environment impact/ effect. The present report shows that there is ample scope for improvement on various grounds and thus, tackling these loopholes can be managed through continuous monitoring and practice of action plans.

Remarkable practices:

1. The institution is plastic free zone
2. The campus runs on solar power and 80 % of its energy consumption is generated from this solar energy plant
3. The street lights installed in and around the campus are all solar energy
4. Rain water is harvested
5. Paper recycling is practiced and promoted among the students.
6. Buildings are built and designed in such a way that is well lit and well ventilated

2. AIR QUALITY ASSESSMENT:

Being a newly created district, Khawzawl District has not yet been included in the list of ambient air quality data of Mizoram. However, Khawzawl is located only 41.5 km away from Champhai and was earlier a part of Champhai District. Therefore, with Champhai (Kahrawt, Vengthlang) having an Ambient Air Quality below the National Standard of 60 $\mu\text{g}/\text{m}^3$ for RSPM, 40 $\mu\text{g}/\text{m}^3$ for NO_2 and 50 $\mu\text{g}/\text{m}^3$ for SO_2 , it is safe and sound to assume that Khawzawl has a negligible amount of air pollutants with a much lesser population and vehicular movements as compared to Champhai.

As per the data reported by the Pollution Control Board of Mizoram, it can be concluded that the institution of Government Khawzawl College have a low SPM, RSPM, NO_2 and SO_2 . Along with the air quality standards given by NAAQS and WHO, the pollutants values obtained are all within the standard level.

Measures taken by the college to improve air quality

- Burning of solid waste is prohibited inside the college campus. Bio -degradable solid waste are collected in vermicomposting pits.
- Use of fuel wood and incinerators are prohibited, which adds to the ambient quality of air in the campus.
- The pollutants released from the vehicles are trapped by the green leaves of the thick shade of the campus, which gradually decreases the pollutants as trees are planted systematically.
- Students and Staffs of the college having a vehicle are requested to have a Pollution Under Control (PUC) Certificate for their vehicles provided by the Mizoram Pollution Control Board.
- Unending these processes, the institution can maintain its air quality and lessen air pollution problems.

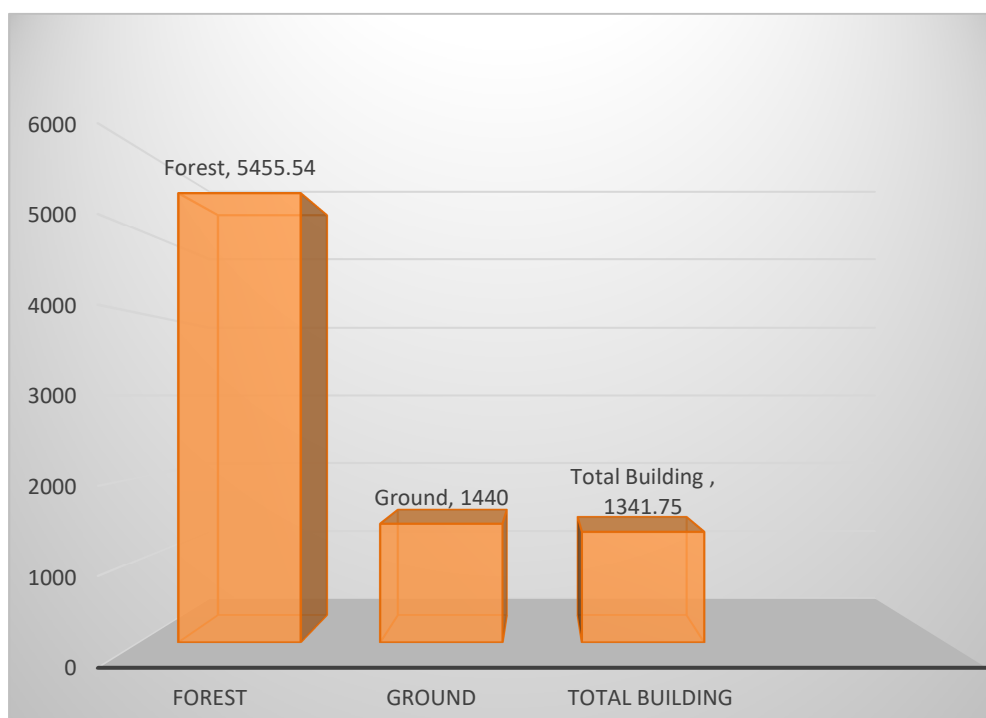
Carbon Foot Print Analysis of the college

- Total number of vehicles used by the stakeholders of the college: **24**
- No: of two wheelers used: **12**
- Average distance travelled: 1km /day
- Average quantity of fuel used: 0.10 litre/vehicle
- No. of cars used: **12**
- Average distance travelled: 1 km / day
- Average quantity of fuel used : 0.20 litre/ day (per car)
- No of persons using public transportation: **4**
- No. of persons using college conveyance: **100**
- No. of generators used per day: none
- No. of LPG cylinders used in canteen/ Labs: **1**
- Use of any other fossil fuels in the college: None

3. LAND USED AUDIT: To acquire the land use data of the institution, GPS points and Google Map data for Geo referencing have been used. Supervised classification was carried out with the aid of ground truth data collected during field survey. Creation of GIS output in the form of land use map showing various land use have been prepared for the land coverage of the institution.

The total area coverage of Govt. Khawzawl College is 18132.63 sq. m. Depending on data analysis Govt. Khawzawl College campus land use can be listed below.

Sl. No	LAND USE	AREA COVER (Sq. meter)
1.	Area of College Land	12444.69
2.	Women Hostel	149
3.	Administrative Building	139.35
4.	Students' Common Room	56
5.	Canteen	67
6.	Ground	1440
7.	Main Building	698
8.	New building coverage	232.4
9	Total Forest Cover	5455.54
	TOTAL AREA COVERAGE (1+8+9)	18132.63



Land use coverage of Govt Khawzawl College

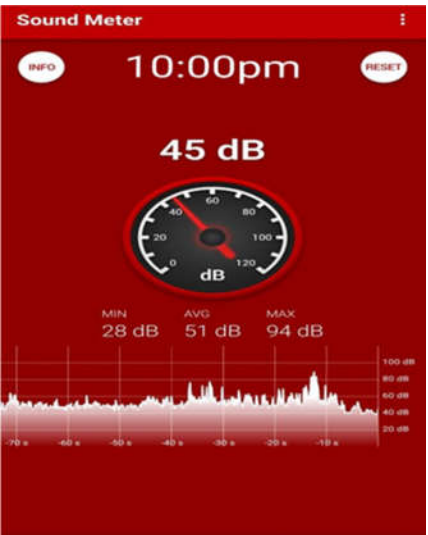
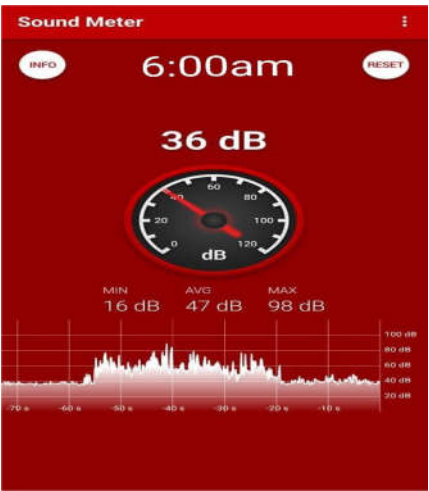


Campus of Govt Khawzawl College (Google Map)

4. NOISE LEVEL AUDIT: Government Khawzawl College is located in an area which is quiet and serene, with limited vehicular movement.

The noise level on the college campus was measured at various time intervals using a sound meter application. The application can detect all the surrounding noise and show the minimum, average and maximum level of the noise recorded. The noise level on the college campus was found to be within safety standards. This shows that the campus is quiet and serene with as little noise disturbance as possible, which makes for a good academic environment.

The sound decibel level of the campus was measured in hourly which is shown below in picture



5. WATER AUDIT: Water audit of the institution has been taken with the supervision and cooperation of Public Health Engineering Department, Khawzawl district.

Water Management Sources of water:

- Water supply from Public Health Engineering Department (Main Source)
- Rainwater

Monthly Consumption:

Average monthly consumption of water – 30,000 litres approx. Average annual consumption of water – 3,60,000 litres approx.

Measures undertaken for the conservation of water:

- Proper maintenance of tanks, taps and faucets used in the administrative buildings and quarters to minimize the leakage of water.
- Rooftop Rainwater harvesting is utilized in the campus on a small scale. Efforts are also being undertaken to make the college self –sufficient on water by upgrading the rainwater harvesting mechanisms through funding and assistance from the government.
- There are large amount of trees inside the college campus that helps to conserve water by preventing the surface run off.

Water Quality Testing

Water supplied by the government through the Public Health Engineering Department is carefully treated, checked and analysed for contaminants by the concerning department and are only supplied for public use after being tested safe for human consumption. Rainwater harvesting are collected on a periodic basis annually to analyse the safety and quality of water available for college consumption. The tested water sample of the College is proved to be potable as drinking water by the Public Health Engineering Department.



**GOVERNMENT OF MIZORAM
PUBLIC HEALTH ENGINEERING DEPARTMENT**

WATER ANALYSIS REPORT

Sample No. : KZL Phed.Lab/2022-2023/535
 Name of Source : Rain Water Harvesting
 Detailed Location : Govt.Khawzawl College
 Type of Source : Rain Water
 Date & Time of Collection : Dt.5.05.2022 (Thursday)
 Name of Collector : K. Lalkuhpuia, Asst.Prof.
 Date of Analysis : Dt.5.05.2022 (Thursday)
 Name of R.D Block : Khawzawl R.D Block

1. Physical Characteristics

		Result of Analysis	I.S.Specification for Drinking IS-10500 :1992	
			Desireable Limit	Permissible limit in the absence of alternate source
1	pH	7.0	6.5 – 8.5	-
2	Odour	Odourless	unobjectionable	-
3	Taste	Tasteless	agreeable	-
4	Colour	Colourless	unobjectionable	-
5	Turbidity (in NTU)	1.10 NTU	5.0	10.0
6	Electrical Conductivity (in micro mhos/cm)	150/26.7°C	500.0	1500.0
7	Total Dissolved Solids (in mg/l)	110	500.0	2000.0

2. Chemical Characteristics (inmg/l) :

1	P.Alkalinity	Nil	-	-
2	M-Alkalinity	20.0	-	-
3	Total Alkalinity	20	200.0	600.0
4	Total Chloride	30.0	250.0	1000.0
5	Total Hardness	75.0	300.0	600.0
6	Total Iron	0.0 ppm	0.3	1.0
7	Residual Chlorine	Absent	(No Colour-A)	(Blue Colour-P)

3. Bacteriological Characteristics :

1	Total Coliform (MPN per 100 ml of Water Sample)	0	3.0	10.0
2	Fecal Coliform (MPN per 100 ml of Water Sample)	-	0.0	-
3	P.A Test	Absent	0.0	-

(VANHIMUNLIANA VARTE)

Chemist
Sub - Divisional Lab, PHED
Khawzawl WATSAN Sub - Division

6. ENERGY AUDIT:

An energy audit is an inspection and analysis of energy flows in a building with the objective of understanding the energy efficiency home or institution being audited. It is an effective tool in defining and pursuing comprehensive energy management programmes. It helps in energy cost optimization, pollution control, environment conservation, safety aspects and suggest the method to improve the operating and maintenance practices of the system.

As a means of saving energy and reducing energy consumption, the college follows the following practices as far as possible.

- Replacing the old filaments bulb, CFL, and tube light by low energy consuming LED bulbs and LED bulbs and bulky high consuming fans by energy efficient fans in order to keep the electricity consumption of the college as low as possible.
- Power consuming CRT monitors are also replaced with energy efficient LCD monitors in all the computers used by the college.
- Used of Sleep mode over screen savers in computers.
- Using electronic devices with high star ratings for smart energy consumption.
- Construction of building with optimum utilization of Natural Light.

Besides these practices, different clubs and committees in the college also takes effort in creating awareness on the importance of saving and conserving energy among the students. The college also installed solar powered street light inside the campus.

Electrical Energy Consumption:

The details of Energy consumption are given in the table below.

Electronic Devices/Items		Nos/quantity	Total Power Output (Watts)
1	LED Bulb	28	226
2	CFLs Bulb	6	95
3	CFLs Tube-light	26	716
4	Desktop Computer	4	100
5	Printer/ Xerox Machine	3	420
6	Projector	2	348
7	Electronic water filter	2	40
8	Coffee Machine	1	25
		TOTAL	1970

From 2019, a solar energy with a generating capacity of 2×10 kwp. (2000 watts) has been installed in the college. So, this enables the college to meet its power demand 24×7

Installation of Solar Energy with a power of 2 X 10 Kilowatt in the College in 2020



7. Waste Management:

A large amount of waste in the surroundings results in health problems. The Institution activities may produce different types of waste which requires proper treatment and disposal to prevent the environment and to increase public health. The institutions prioritize the health of the environment throughout the year, it prioritize the sustainable development for the future generation.

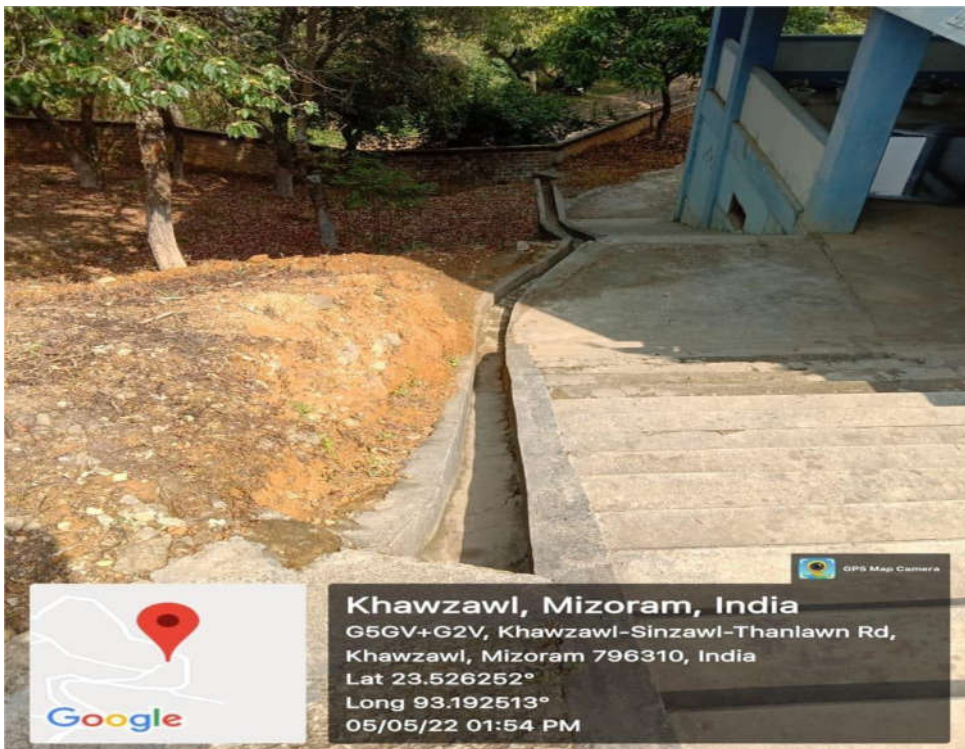
Various steps have been taken by the institution for proper waste management. The wastes produced by the institution are carefully segregated in the institution for proper disposal. Different waste bin for different waste are allocated in the campus. The institution wastes are mainly categorized into solid, liquid and electronic waste. Different methods were applied to dispose these wastes as mentioned below.

Liquid Waste Management:

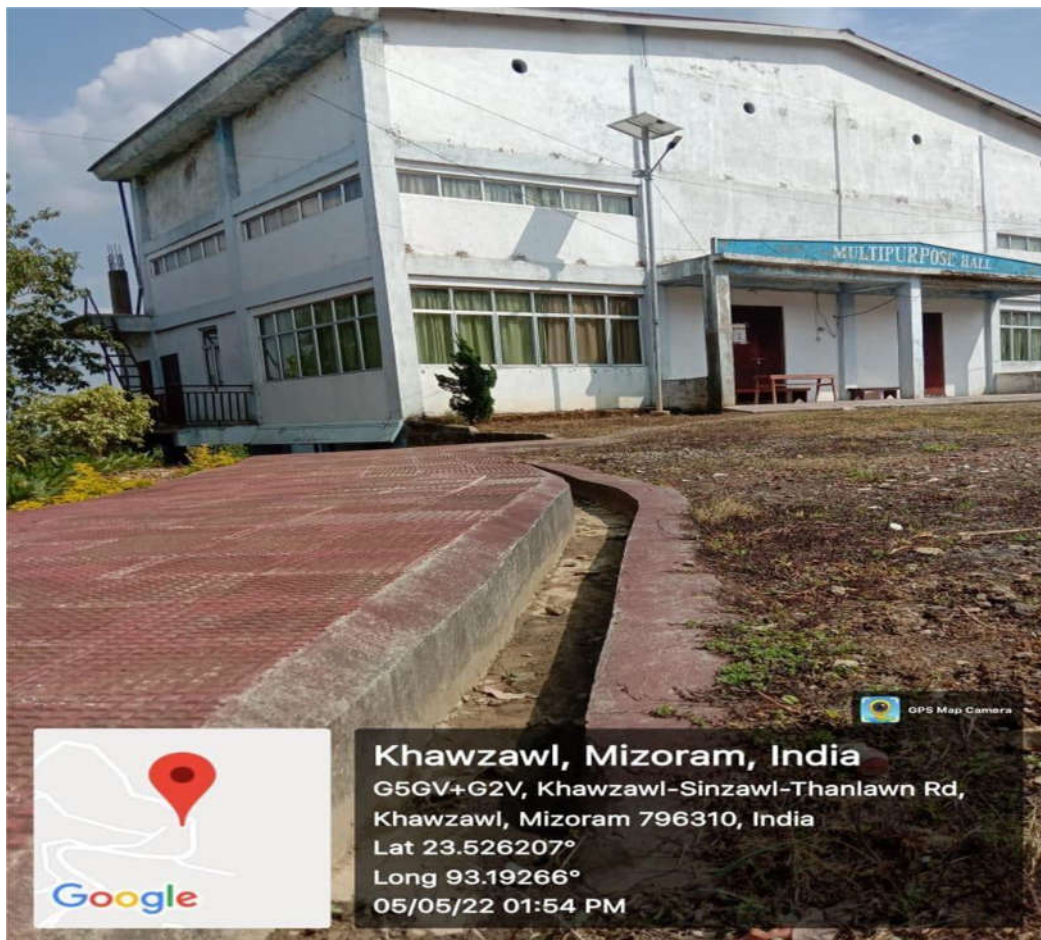
1. The liquid waste generated in the campus is mainly Canteen waste.

Measures taken for liquid waste management:

1. The institution has a drainage system for its sewages.
2. Waste water from the toilet is collected in septic tanks located in various part of the campus.



Side drain



Segregation of waste.

Solid Waste Management:

Solid wastes generated in the institution are mainly Canteen waste, paper waste, toiletry waste, weeds, wrappers, litter and dried tree leaves and trunks.

Measures taken for solid waste management:

1. Campus wastes are separated into Biodegradable and Non- Biodegradable waste.
2. Three types of waste bins are provided at campus for biodegradable, non-biodegradable and electronic waste. These wastes are managed depending on the nature of the waste. Biodegradable waste includes paper, canteen waste, weeds, litter and tree leaves and trunks.
3. Paper wastes are collected and are recycled into Paper Bags which is carried out by the student as NSS and Eco-Club activities.
4. The unused papers of the examination answer sheets are sorted out and bounded as booklets which are further used as answer sheet in the internal or class test.
5. The biodegradable waste like litter, weeds and canteen waste are dumped in an Vermicomposting Pit, which are utilised as an organic fertilizer for plantation within the campus.

6. The food waste generated by the students and staffs are taken back to their home, so that, minimum waste is generated inside the campus.
7. The non-biodegradable waste like plastic, polythene, etc. are collected in separate bins which are disposed to Garbage Truck which visit the institution weekly, and are further segregated by the Department of Sanitation, Government of Mizoram for recycling process.
8. Uses of incinerators are prohibited in the campus to reduce and check the air pollution.
9. The institution is a plastic free campus.



Paper bag making activity





E- Waste Management:

When an electronic device required requires a repair in the institution, the minor ones are done by the teaching and non-teaching staff. The major repairs are handled by the professional. The equipment which cannot be re-use are pack in a garbage bag for disposal.

Measures taken for E-waste management:

1. The institution assures that the E-waste does not end up in a landfill.
2. Wastes from different electronic devices are carefully collected in a separate bin and are marked e-waste and disposed of in the garbage truck of UD&PA for further management.



8. Floral Diversity of GKZC

Government Khawzawl College is an eco-friendly campus which is favored by the topography, moderate rainfall and climatic conditions resulting in high species diversity in the campus. More than 60% area of the campus is green having different species including insects, birds, reptiles and small mammals, trees, shrubs and herbs.



Different tree species within the campus



Shrubs in the campus



Climber in the college campus

The Lists of Flora in the campus is highlighted in the tables given below:

Table 1 : List of trees in the college campus.

Sl No	Botanical Name	Family	Common Name	Local Name	Type
1	Albizia chinensis	Mimosaceae	Chinese Albizia	Vang	Deciduous
2	Alstonia scholaris	Apocynaceae	Devil tree	Thuamriat	Evergreen
3	Anogeissus acuminata	Combretaceae	Yon	Zairum	Deciduous
4	Artocarpus heterophylla	Moraceae	Jack Fruit	Lamkhuang	Evergreen
5	Artocarpus lakoocha	Moraceae	Mankey Jack	Theitat	Deciduous
6	Bischofia javanica	Euphorbiaceae	Bishop wood	Khuangthli	Evergreen
7	Callicarpa arborea	Verbanaceae		Hnahkiah	Evergreen
8	Callophyllum polyanthum	Clusiaceae	Spar Tree	Sentezel	Evergreen
9	Cassia nodosa	Caesalpiniaceae	Pink and white shower	Makpazangkang	Evergreen
10	Castanopsis tribuloides	Fagaceae	Chestnut	Thingsia	Evergreen
11	Cerasus cerasoides	Rosaceae	Wild Himalayan Cherry	Tlaizawng	Deciduous
12	Cordia fragrantissima	Boraginaceae		Muk	Deciduous

13	<i>Delonix regia</i>	Caesaloiniaceae	May Flower	April Par	Decidous
14	<i>Derris robusta</i>	Fabaceae		Thingkha	Decidous
15	<i>Duabanga grandiflora</i>	Sonneratiaceae	Duabanga	Zuang	Semi Evergreen
16	<i>Erythrina stricta</i>	Fabaceae	Indian coral tree	Fartuah	Decidous
17	<i>Eurya acuminata</i>	Theaceae		Sihneh	Evergreen
18	<i>Ficus hirta</i>	Moraceae	Hairy fig	Sazutheipui	Decidous
19	<i>Glochiodion heyneanum</i>	Euphorbiaceae	Velvety melon Feather oil	Thingpawncchia	Evergreen
20	<i>Gmelina arborea</i>	Verbenaceae	Beech wood	Thlanvawng	Decidous
21	<i>Haldina cordifolia</i>	Rubiaceae	Yellow Teak	Lungkhup	Decidous
22	<i>Lithocarpus dealbatus</i>	Fagaceae	Spike Oak	Fah	Evergreen
23	<i>Litsea monopelata</i>	Laraceae	Common Gray Mango Laurel	Nauthak	Evergreen
24	<i>Macaranga indica</i>	Euphorbiaceae	Papri	Hanhkhar	Evergreen
25	<i>Mangifera indica</i>	Anacardiaceae	Mango Tree	Theihai	Evergreen
26	<i>Myrica esculeneta</i>	Myricaceae	Bark flower	Keifang	Evergreen
27	<i>Messua ferrea</i>	Clusiaceae	Iron wood tree	Herhse	Evergreen
28	<i>Oroxylum indicum</i>	Bignoniaceae	Trumpet Folwer	Archangkawm	Decidous
29	<i>Phyllanthus emblica</i>	Phyllanthaceae	Indian Gooseberry	Sunhlu	Decidous
30	<i>Psidium guajava</i>	Myrtaceae	Guava	Kawlthei	Evergreen
31	<i>Quercus helferiana</i>	Fagaceae		Hlai	Evergreen
32	<i>Schima wallichii</i>	Theaceae	Needle Wood	Khiang	Evergreen
33	<i>Semecarpus anacardium</i>	Ancardiaceae	Marking Nut Tree	Kawhtebel	Decidous
34	<i>Syzygium</i>	Myrtaceae		Theichhawl	Evergreen

	<i>cumini</i>				
35	<i>Toona ciliata</i>	Meliaceae	Red cedar	Tei	Evergreen
36	<i>Vitex glabrata</i>	Verbenaceae		Thingkhawilu	Deciduous
37	<i>Wendlandia budleioides</i>	Rubiaceae		Batling	evergreen

Table 2: List of climbers, shrubs, grass and herbs in the College Campus

Sl No	Botanical Name	Family	Common Name	Local Name	Habit
1	<i>Amomum maximum</i>	Zingiberaceae	Java Cardamon	Aidu	Herb
2	<i>Ananas comosus</i>	Bromeliaceae	Pineapple	Lakhuhih	Herb
3	<i>Degonia dioica</i>	Degoniaceae		Sekhupthur	Herb
4	<i>Bidens pillosa</i>	Asteraceae	Spanish niddle	Vawkpuithal	Herb
5	<i>Bougainvillea spectabilis</i>	Nyctaginaceae	Bougainvillea	Saron	Shrub
6	<i>Calocasia esculata</i>	Araceae	Taro	Dawl	Herb
7	<i>Capsicum annuum</i>	Solanaceae	Red pepper	Hmarchate	Shrub
8	<i>Celosia argentea</i>	Amaranthaceae	Cock's comb	Zamzo	Herb
9	<i>Centella asiatica</i>	Apiaceae	Indian Pennywort	Hnahbial	Herb
10	<i>Chromolaena odorata</i>	Asteraceae	Christmass bush	Tlangsam	Shrub
11	<i>Chrysopogon aciculatus</i>	Poaceae	Love Grass	Phul	Grass
12	<i>Clerodendrum wallichii</i>	Verbenaceae	Bridalveil	Phuihnam	Shrub
13	<i>Coniza leucantha</i>	Asteraceae	Fleabane	Buar	Herb
14	<i>Eleagnus pycnantha</i>	Eleagnaceae		Sarzuk	Climber
15	<i>Entada phaseoloides</i>	Mimosaceae	Match box beam	Kawihru	Climber
16	<i>Eryngium foetidum</i>	Apiaceae	Wild coriander	Bahkhawr	Herb
17	<i>Imperata cylindrica</i>	Poaceae	Bloody grass	Di	Grass

18	<i>Justica Adhatoda</i>	Acanthaceae	Malabar Nut	Kawldai	Shrub
19	<i>Lobelia angulata</i>	Campanulaceae	Blue star creeper	Choakthi	Herb
20	<i>Maranta arundinaceae</i>	Marantaceae	Arrowroot	Hnahthial	Herb
21	<i>Melastoma malabathricum</i>	Melastomaceae	Malbar blackmouth	Builukham	Shrub
22	<i>Mikania Micrantha</i>	Asteraceae	Bitter vine	Japanhlo	Climber
23	<i>Mimosa pudica</i>	Mimosaceae	Touch-me-not	Hlonuar	Shrub
24	<i>Paederia foetida</i>	Rubiaceae	Skunk Vine	Vawihuihhru	Climber
25	<i>Pyrostegia venusta</i>	Bignoniaceae	Flamevine		climber
26	<i>Rubus birmanicus</i>	Rosaceae		Sialinuchhu	Shrub
27	<i>Saccharam longisetosum</i>	Poaceae		Luang	Herb
28	<i>Solanum anguivi</i>	Solanaceae	Indian Night Shade	Tawkte	Shrub
29	<i>Tagetes erecta</i>	Asteraceae	African Mangrigold	Derhken	Herb
30	<i>Xanthium strumarium</i>	Asteraceae	Coomon Cocklebur	Chabet	Herb
31	<i>Curcuma astralasica</i>	Zingiberaceae	Native turmeric	Aiengpar	

9. Faunal Diversity of GKZC Campus

A wide variety of wild mammals and bird species are observed which denotes the rich faunal diversity of the institution. The different species of birds and mammals contributed to the rich diversity of fauna in the campus and plays an important role in the ecosystem.

Table 3: Lists of birds in Govt. Khawzawl College

Sl No	Local Name	Common Name	Scientific Name
1	Chawngzawng	House sparrow	<i>Passer domesticus</i>
2	Chipte	Little Bunting	<i>Emberiza pusilla</i>
3	Pitte	White Rumpet Munina	<i>Lonchura striata acuticauda</i>
4	Mitval	Indian white Eye	<i>Zosterops palbrebosa</i>
5	Kireuh	Streaked Spider Hunter	<i>Arachnothera longirosta</i>
6	Vate	Rubby-chheked sunbird	<i>Anthreptes singalensis</i>
7	Tektek	Plain Flowerpecker	<i>Dicaem concolor</i>
8	Chippui	Richards's Pipit	<i>Anthus novaeseelandiae rochardi</i>
9	Chip	Indian tree pipit	<i>Anthus hogdsoni</i>
10	Vainronghak	Blue Rock-Thrush	<i>Monticola solitaries</i>
11	Tawktawkawrsen	White tailed Ruby Throat	<i>Erithacus pectoralis</i>
12	Chinrang	Spotted Fork tail	<i>Enicurus maculates</i>
13	Vate meibul	Slatty-bellied Tesia	<i>Tesia olivea</i>
14	Daikat	Common tailor bird	<i>Orthotomus sutorius</i>
15	Vate	Bush –Warbler	<i>Cettia fortipes</i>
16	Dumdeleng	Pale-blue-Flycatcher	<i>Cyornis unicolor</i>
17	Vapawl	Blue-throated Flycatcher	<i>Cyornis rubeculoides</i>
18	Valeisawt	Spotted-Wren babbler	<i>Spelaeornis formosus</i>
19	Tukkhumvilik	Blackcrested	<i>Pycnonotus melanicterus</i>
20	Phaitlaiberh	Red-whisker Bulbul	<i>Pycnonotus jocosus</i>
21	Zotlaiberh	Red-vented bulbul	<i>Pycnonotus cafer</i>
22	Dawkek	White-throated bulbul	<i>Crinigerflaverous</i>
23	Chhawlhring	Golden- fronted leafbird	<i>Chloropsis aurifrons</i>
24	Bawng	Short billed Minivet	<i>Pericrocotus brevirostris</i>
25	Changkak	North Indian Black Drongo	<i>Decrurus adsimilis albiricus</i>
26	Chhemhur	Brown Shrike	<i>Lanius Cristatus</i>
27	Vamurngumsen	Red –rumpet Swallow	<i>Hirundo daurica</i>
28	Thloh	Bay woodpecker	<i>Blythipicus pyrrhotis</i>
29	Tuklo	Blue-throated Barbet	<i>Megalaima asitica</i>
30	Tlakawrh	Chestnut headed Bee-eater	<i>Merops leschenaultia</i>
31	Vamur	Plam swift	<i>Cypsiurus parvus infamatus</i>
32	Hrangkir	Collared Pigmy outlet	<i>Glaucidium brodiei</i>
33	Ramparva	Emerald Dove	<i>Chalcohaps indica</i>

34	Thangfenpabawp	Indian Cuckoo	Culus Micropterus
35	Chhunagtuar	Hoopoe	Upupa epops
36	Tlakawrh	Bluetailed Bee eater	Arops phillipinused
37	Chingpirinu	Owl	Strigiformes

Table 4: List of wild mammals in Govt. Khawzawl Clollege

Sl No	Local Name	Common Name	Scientific Name
1	Chhimtir	Grey Musk Shrew	<i>Suncus murinus</i>
2	Che-pa	Nothern Tree Shrew	<i>Tupaia belangreri</i>
3	Bak	Insectivorous Bats	<i>Myotis formosus</i>
4	Sazaw (Zawbuang)	Himalyan Palm Civet	<i>Paguma larvata</i>
5	Tlum-pui	Large Indian Civet	<i>Viverra indica</i>
6	Sanghar	Leopart Cat	<i>Felis bengalensis</i>
7	Hlei-kap-sen	Red Bellied Palla's squirrel	<i>Callosciurus erythraeus</i>
8	Hlei-lu-bial	Orange-bellied Himalyan squirrel	<i>Dremomys lokriah</i>
9	Sazu (Zupawl)	Indian mole rat	<i>Bandicota bengalensis</i>
10	Tam-pui	Large Bandicoot rat	<i>Bandicota indica</i>
11	Sazu	House rat / black rat	<i>Rattus rattus</i>
12	Buipui	Red-checked Bamboo rat	<i>Rhizomys erythrogenys</i>
13	Sakuh	Chinese Porcupine	<i>Hystrix brachyuran</i>
14	Sihal	Jackal	<i>Canis aureus</i>
15	Bui-sen	Bay bamboo Rat	<i>Cannomys badius</i>
16	Chimbuang	Long tailed Tree mouse	<i>Vandeleuria oleracea</i>
17	Buikelek	Short tailed Mole	<i>Talpa micrura</i>
18	Sazaw (Zawhang)	Toddy cat	<i>Paradoxurus hermaphrodites</i>
19	Laiking-awr-pawl	Blue Crested Lizard	<i>Calotes mystaceus</i>

Table 5: List of Insects in Government Khawzawl College

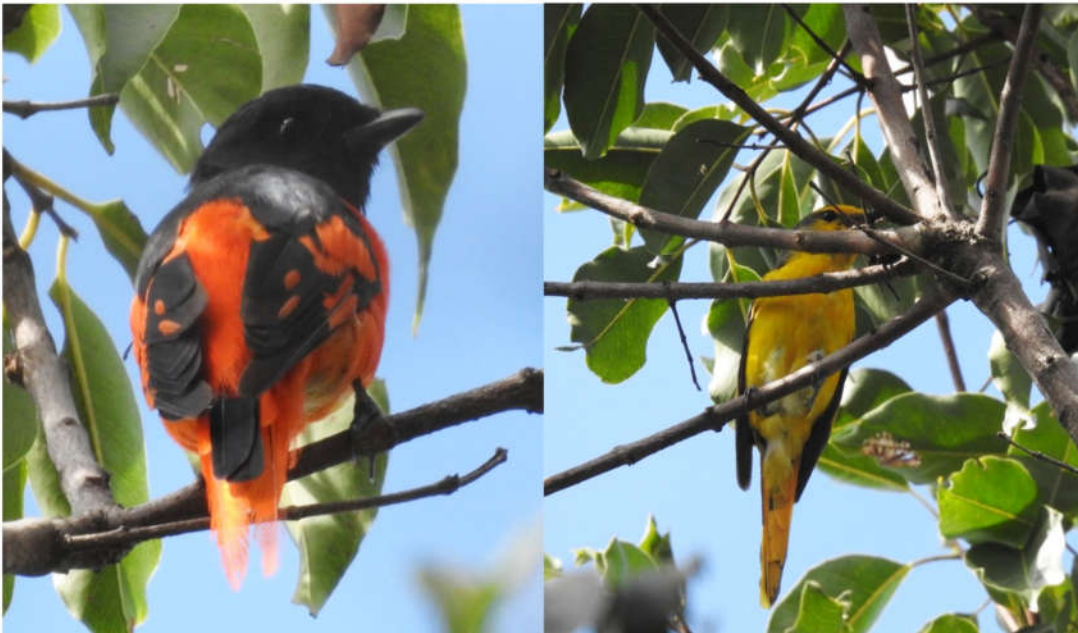
Sl No	Local Name	Scientific Name	Family
1	Khawisanghar	<i>Paraolybia</i>	Vespidae
2	Khawivah	<i>Apis cerana indica</i>	Apidae
3	Losulthereng	<i>Magicicada</i>	Cicadidae
4	Puvana-kawrkilh	<i>Poecilocoris</i>	Sutelleridae
5	Aramawnghawlh	<i>Oreophoetes</i>	Heteronemildae
6	Ching-chip	<i>Ornithoctonus</i>	Theraphosidae
7	Ke-tami-nu	<i>Ommatoiulus</i>	Julidae
8	Khau-chher	<i>Microcentrum Rhombifolium</i>	Tettigonidae
9	Sai-hmar-thur	<i>Oecophylla Smaragdina</i>	Formicidae
10	Rengchal	<i>Cicadidae</i>	
11	Se-phung	<i>Catharsius</i>	Scarabaeidae
12	Tit	<i>Scoloropendra</i>	Scolopendridae
13	Thlangdar	<i>Eusthenes</i>	Tessaratomidae
14	Sam-rawti-nu	<i>Batocera paryyi</i>	Cerambycidae
15	Khawite	<i>Apis florea</i>	Apidae



Blackcrested (Pycnonotus Melanicterus)



Blue Crested Lizard (*Calotes Mystaceus*)



Short billed Minivet (*Pericrocotus brevirostris*)



Hoopoe (*Upupa epops*)



Leopard Cat (*Felis bengalensis*)



Red-whisker Bulbul (*Pycnonotus jocosus*)



Rubby-cheked sunbird (*Anthreptes Singalensis*)



Orange-bellied Himalyan squirrel (*Dremomys lokriah*)



Dwarf honey bee (*Apis florea*)



The India honey bee(*Apis cerana indica*)

Report and Recommendations:

The different points with regard to Green Audit and Environmental Management were thoroughly studied and scrutinized. In this regard, it is noteworthy to say that Govt. Khawzawl College has undertaken a commendable and recommendable effort in addressing its environment impact/ effect, even though it faced many hurdles and obstacle in the process of managing and developing a compact eco-friendly campus.

It is also notable to mention herewith that these steps undertaken will further enhance and help in the development of bringing about a sustainable eco-friendly environment. The present reports shows that there is ample scope for improvement on various grounds and thus, tackling these loopholes can be managed through continuous monitoring and practice of action plans formulated which will help in attaining a better and higher status from the prevailing position or level.

Noteworthy practices:

- The institution is plastic free zone
- The campus runs on solar power and 80 % of its energy consumption is generated from this solar energy plant
- The street lights installed in and around the campus are all solar energy
- Rain water is harvested
- Paper recycling is practiced and promoted among the students.
- Buildings are built and designed in such a way that is well lit and well ventilated

Recommendations:

- Waste water management needs better designed and practice in the campus.
- Centralised Sewage treatment plant which is environment friendly may be set up to reuse all the grey water and avoid fresh water for watering plants.
- Rain garden to be made functional.
- The public lights within the campus may be run with solar panels .
- Fire safety instrument should be installed in all the buildings.
- Vehicles pooling should be encouraged in the institution and use of bicycles can be promoted.

AUDIT CERTIFICATE

This is to certify that
Government Khawzawl College
has conducted
Green Audit

For the session of 2021-2022 to assess the measures, efforts and planning carried out in the college campus. This Green Audit also aims to determine the impact of green initiative for maintenance of an eco-friendly campus.

The actions and measures taken by the college were found to be satisfactory. The initiatives undertaken by the respective faculty, management and students towards the environment and the ecosystem are highly esteemed.

Place : *Khawzawl.*

Date: *27.5.2022.*

(H. VANLALHRUAIA)

Chairman

Environmental Management Sub Committee
(Internal Auditor)

(SAMSON THANRUMA)

Divisional Forest Officer
Khawzawl Forest Division
(External Auditor)

Divisional Forest Officer
Khawzawl Wildlife Division
Khawzawl, Mizoram