2022-2023

GREEN AUDIT

SADIYA COLLEGE

Prepared by
IQAC, Sadiya College

Audited by
Principcal, PDUAM Dalgaon

GREEN AUDIT

Name of College: Sadiya College

Address: P.O. - Chapakhowa
Dist.-Tinsukia, Assam
Pin: 786157

Year of establishment: 1982

Background

All living things and their behaviors are largely controlled by their environment. Our environment's preservation and sustainability are a global problem. As a higher educational institution, Sadiya College is also responsible for environmental upliftment/restoration/ sustainability of entire catchment area. The college has 63 employees and 1432 students of under graduate program. Rapid unplanned development works in the region is posing threats to the environment which is sensitively addressed by the institution. On principle, the college is always advocating judicious exploitation of available natural resources keeping the view of sustainability. Therefore, being a leader of our society, we the higher educational institutions must have to have some scientific approach for sustainability of our environment as well as to educate our students and other stack holders.

An evaluation of all naturally occurring resources that were endowed by birth, their current state of exploitation, and future plans for the remaining resources while keeping environmental sustainability in mind is the main goal of the Sadiya College's environment audit. To create a budget for such a crucial issue, we must first assess the environmental resources that are accessible, then analyze their current management techniques, and last, analyze their future consumption strategy while keeping the RRR (Reduce, Reuse, and Recycle) concept in mind. The motto "Think Globally, Act Locally" has also been incorporated into the preparation of the current audit. The different heads of the present environmental audit of our college are as follows:

1. Land use pattern and its management
2. Water resource and its management
3. Biodiversity resources and its conservation
4. Waste and its management
5. Emission and its management

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Dalgaon, Darrang

1. Land Use Pattern and its Management

Sadiya College is situated at the extreme eastern part of the state of Assam with latitude 27.9222° N and longitude 95.7637°. The soil is basically sand to loamy in texture and acidic in reaction with medium to high in organic carbon and low in phosphorus and potassium. The college has endowed a total land resource of 56187.76 sq. mtrs., out of which 10% of land has been used for different constructions (buildings) and 2% of land has been used for internal roads. Approximately, 22% of total land area is being used for playground covered with natural grass. Till now only 7% of the total unused open area has been utilized for plantation. Water bodies cover 3% of the total area of the college. The land use pattern of Sadiya College is depicted in Figure 1.

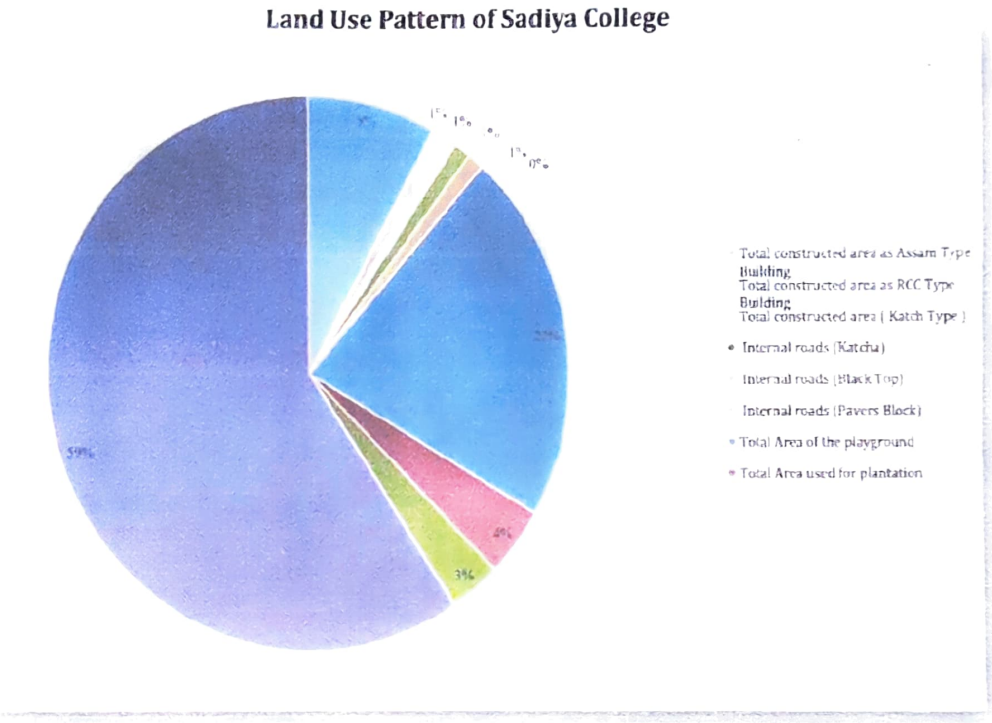

Figure 1. Land use pattern of Sadiya College

Audit suggestions

Existing plantation area is only covering 7% of the total unused area which is not satisfactory. As there is enough open space in the college campus, it is suggested to enhance the plantation area keeping the priority of environmental sustainability in mind. Geographically, entire catchment area is an eco-sensitive zone as an integral part of eastern Himalayan biodiversity hotspot. Vertical extension of college building is advisable to have more or more open space area in near future.

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2. Water Resource and its Management

From the available data, the average annual rainfall in and around college area of Tinsukia district is about 2323 mm (Source). The college has been receiving approximately 13,05,24,166.48 liters of water annually through precipitation. It has been revealed that a major portion of the said amount has been evaporating and goes waste as surface runoff. The open grass land of the college has recharging ground water a lot. The available roof area of the college buildings may be used for harvesting of rain water. The college having the opportunity to harvest as much as 1,24,38,143.44 liters of water from rooftops. The estimation so far regarding water consumption, it has revealed that the college is exploiting 10,80,000 liters (Considering 6000 liters/day for 180 class days) of ground water annually. The 100% of the said amount till now have been exploited from ground water resources.

Audit suggestions

As college is enjoying 13,05,24,166.48 liters of rainwater annually, which is not yet being used. Therefore, it is advisable that to conserve ground water resources, college have to take initiative for rainwater harvesting immediately. By constructing a water reservoir in the college campus, surface runoff of rainwater may be conserved in near future, parallelly the said water reservoir may be used for effective surface water conservation as well as resource generation by the college.

3. Biodiversity Resources and its Conservation

This section presents the floral and faunal biodiversity status of Sadiya College collected by IQAC, Sadiya College.

Table 1: Floral diversity of the college

Floral Diversity				
Herbs	**Shrubs**	**Trees**	**Epiphytes**	**Hydrophytes**
9 species	5 species	32 species	2 species	4 species

Annexure I: Floral Biodiversity register

Table 2: Faunal diversity of the college

Faunal Diversity					
Mammals	**Birds**	**Reptiles**	**Amphibians**	**Fishes**	**Invertebrates**
7 species	13 species	3 species	3 species	9 species	15 species

Annexure II: Faunal Biodiversity register

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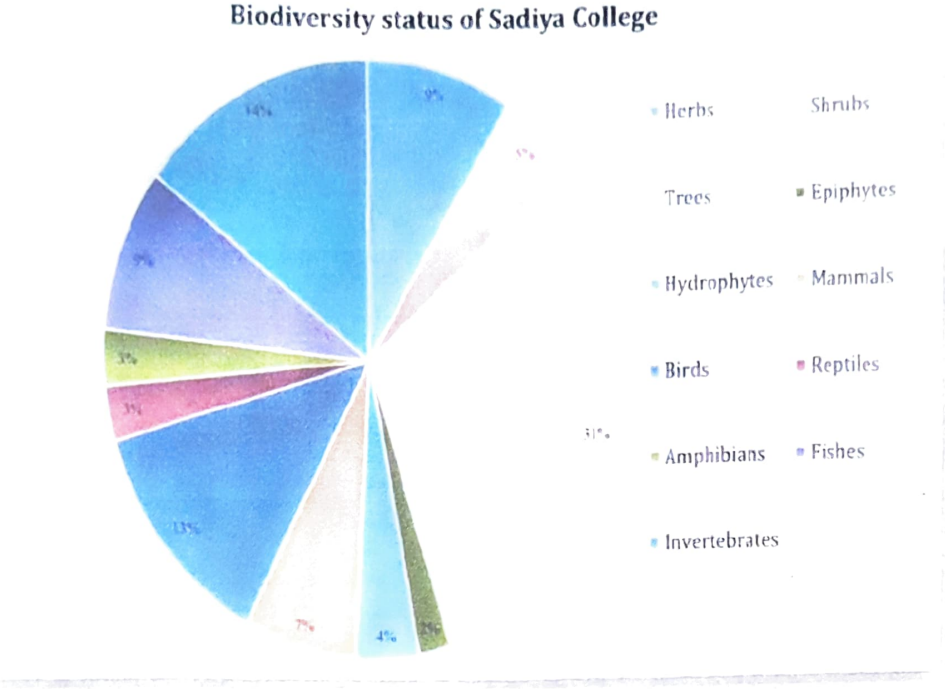

Figure 2: Biodiversity status of the college

From the data of biodiversity register and bio-geographical position of the college, the college needs a more extensive study in order to have a vivid picture of the same. In context to floral biodiversity, richness is shown by trees followed by herbs, shrubs, hydrophytes, and epiphytes respectively. While in faunal diversity, highest richness is observed in invertebrates followed by birds, fish, mammals reptiles, and amphibians respectively. A total of 33 plants with medicinal properties has been reported. Also, 173 plants in the college provide food for wild birds and mammals in the campus. As reported, only one species of birds preferring the campus as their nesting site.

Audit suggestions

Considering the biodiversity audit of Sadiya College, it is suggested that college may give priority to enhance the percentage of plantation area as well as plant biodiversity. Medicinal plants and orchids may be given privilege for conservation. Regarding animal diversity, the data seems to be inadequate to suggest any upliftment of the animal diversity.

4. Waste and its Management

From the estimation of the solid waste generated from the different sources of the institution, reveals that as many as 3391.96 Kg per year. Out of which 45.99% are bio-degradable solid waste. Majority of non-biodegradable solid waste are being sold as scrap

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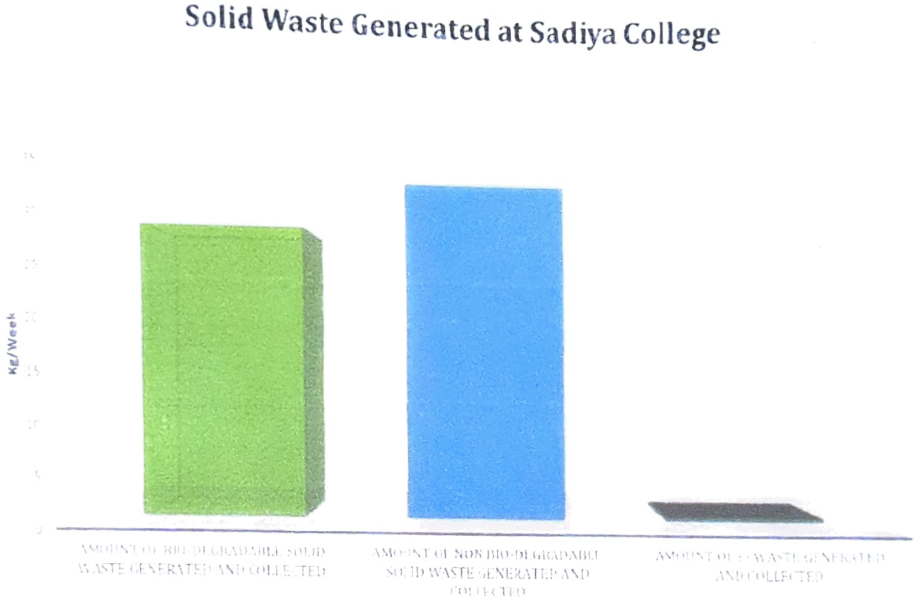
for recycling. *Figure 3* presents the amount of solid and liquid waste generated in the college from various activities.

Bio-degradable solid waste generated and collected (Kg/Week)	Non Bio-degradable solid waste generated and collected (Kg/Week)	E- waste generated and collected in the college (Kg/Month)	Reusable liquid waste generated and collected in the college (Ltr/Week)	Non-Reusable liquid waste generated and collected (Ltr/Week)	Any other chemical waste to be kept /disposed in proper safety measure. (in Ltr/Week)
30	35	7	40000	13	0



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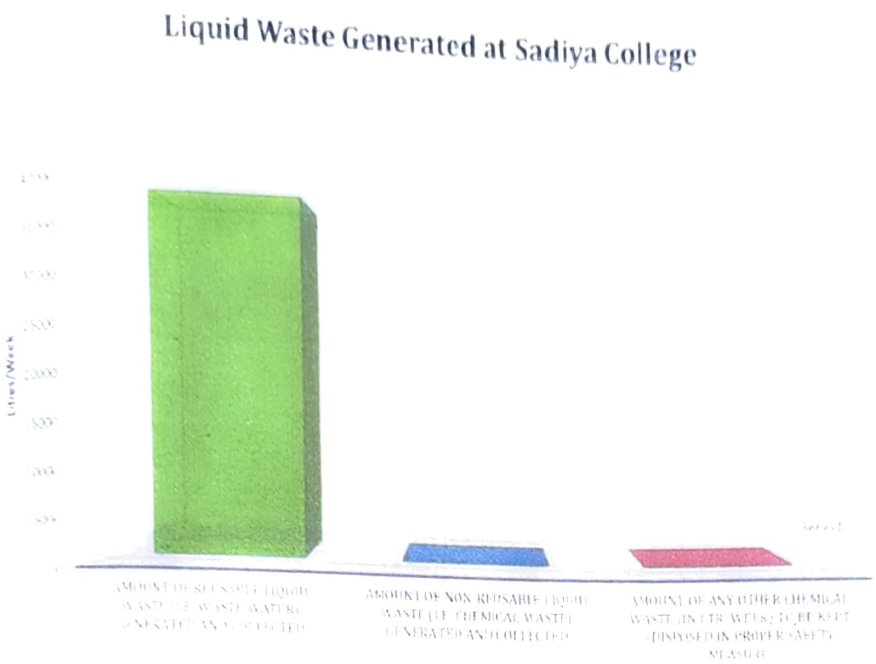

Figure 3: Amount of solid and liquid waste generated in college

5. EMISSION AND ITS MANAGEMENT

The Sadiya College's green audit also took into account gracious emission, in particular carbon emission from the college's readily accessible sources, including the vehicles used by students and teachers. The college's estimated value in relation to carbon emission is close to 3292.47 gm per day; however, students' use of public transportation was excluded due to certain restrictions. The available parameter shows that carbon emission is about 2.20 gm per day per person in the college.

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Emission Audit			
Source of emission	**Four Wheeler**	**Two wheeler**	**Kitchen/Canteen**
Carbon emission rate	1.87 gm/km/vehicle	1.22gm/km/vehicle	2.983gm/kg of LPG
Average usage / consumption per day	100 km	6 km	2.84 kg
Average no. vehicles used per day	16	40	N/A
Estimated Carbon emission per day	2992 gm	292 gm	8.47 gm
Total estimate emission	3292.47 gm/day		
Per capital carbon emission	**2.20 gm/day**		

Audit suggestions

- To minimize the emission rate from the vehicles, it is advisable that a thorough checking of vehicles to keep their minimum standard of emission is necessary.
- Sharing of vehicles should also be encouraged among the students and teachers.
- General awareness regarding carbon footprint is also advisable.

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Annexure I

FLORAL DIVERSITY:

The college has rich diversity of flora which is listed below:

Sl. No.	Local name	Scientific name	Family
1	Debodaru	*Monoon longifolium*	Annonaceae
2	Nahar	*Mesua ferrea*	Callophyllacea
3	Jamuk	*Syzygium cumini*	Myrtaceae
4	Sotiana	*Alostonia scholaris*	Apocynaceae
5	Kordoi	*Averrhoa carambola*	oxalidaeceae
6	Naspoti	*Pyrus communis*	Rosaceae
7	Sonaru	*Casia fistula*	Fabaceae
8	Leteku	*Baccurea motaleyana*	Phyllanthaceae
9	Bokul	*Mimusopes elengi*	Sapotaceae
10	Arjun	*Terminalia arjuna*	Combretaceae
11	Amla	*Phyllanthus embilica*	Phyllanthaceae
12	Jolphai	*Elaeocarpus serratus*	Elaeocarpaceae
13	Krishnasura	*Delonis regia*	Fabaceae
14	Madhuri	*Psidium guajava*	Myrthaceae
15	Mohaneem	*Azadirachta indica*	Meliaceae
16	Komola	*Citrus sinensis*	Rutaceae
17	Nuni	*Morus indica*	Moraceae
18	Sewali	*Nycthanthus arbor-tritis*	Oleaceae
19	Monisal	*Sapindus saponarea*	Sapindaceae
20	Korobi	*Nerium indicum*	Apocynaceae
21	Bogori	*Ziziphus jujuba*	Rhymnaceae
22	Azar	*Lagerstromia speciocae*	Lyranthaceae
23	Syzygium	*Syzygium australe*	Myrataceae
24	Bougainvillea	*Bougainvillea*	Nyctaginaceae
25	Val gos	*Millettia pinnata*	fabaceae
26	Tulsi	*Ocimum sanctum*	Lamiaceae
27	Gulap	*Rosa indica*	Rosaceae
28	Omita	*Carica papaya*	Caricaceae
29	Simalu	*Bombax cebia*	Bombacaceae
30	Aam	*Mangifera indica*	Anacardaceae
31	Litchi	*Litchi chinensis*	Sapindaceae
32	Borial	*Sida aquata*	Malvaceae
33	Kothal	*Artocarpus heterophyllus*	Moraceae
34	Kol	*Musa paradisica*	Musaceae
35	Joba	*Hibiscus rosa - sinensis*	Malvaceae
36	Areaca	*Areca palm*	Araceae
37	Firecracker bush	*Hamelia patens*	Rubiaceae
38	Atlas	*Annona cherimola*	Annonaceae
39	Bamboo grass	*Axonopus compresus*	Poaceae
40	Dubori grass	*Cynodon dactylon*	Poaceae
41	Bobosa grass	*Frimbystylis sp.*	Poaceae
42		*Azaratum conijoides*	Poaceae
43		*Chrysopogon aciculatus*	Poaceae
44	Bihlogoni	*Polygonum sp.*	

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45	Ulu kher	*Impereta cylindrica*	
46	Short leaf spike sedge	*Kyllinga brevifolia*	
47	Foxtail orchid	*Rhynchostylis retusa*	
48	Foxtail orchid (white)	*Rhynchostylis alba*	
49		*Ipomoea aquatica*	
50		*Eichhornia crassipes*	
51		*Lemna minor*	
52		*Lemna major*	

Annexure II

FAUNAL DIVERSITY:

The college has rich diversity of fauna which is listed below:

Sl. No.	Local name	Scientific name	Category
1	Ant	*Lasius niger*	Invertebrate
2	Butterfly	*Xylocopa sp.*	Invertebrate
3	Wasp	*Polistes gallicus*	Invertebrate
4	Carpenter Bee	*Xylocopa sp.*	Invertebrate
5	Grasshopper	*Omocestus viridulus*	Invertebrate
6	Common five ring butterfly	*Ypthima bladus*	Invertebrate
7	Chequered blue butterfly	*Scolitantides orion*	Invertebrate
8	Lemon butterfly	*Papilio demoleus*	Invertebrate
9	Common jezebel	*Delias eucharis*	Invertebrate
10	Common darter	*Sympetrum striolatum*	Invertebrate
11	Leech	*Hirudinaria sp.*	Invertebrate
12	Earthworm	*Pheretima posthuma*	Invertebrate
13	Dragonfly	*Sympetrum sp.*	Invertebrate
14	Skimmer dragonfly	*Pantala Flavescens*	Invertebrate
15	Land Snail	*Cornu sp.*	Invertebrate
16	Honeybee	*Apis sp.*	Invertebrate
17	Frog	*Rana tigrina*	Amphibian
18	Toad	*Bufo duttaphrynus*	Amphibian
19	Myna	*Acridotheres sp.*	Bird
20	Pond Heron	*Ardeola sp.*	Bird
21	Bulbul	*Pycnonotus cafer*	Bird
22	Kingfishers	*Alcedo sp.*	Bird
23	House Sparrow	*Passer domesticus*	Bird
24	Cuckoo	*Eudynamys sp.*	Bird
25	Crow	*Crovus sp.*	Bird
26	Pigeon	*Columba livia*	Bird
27	Spotted Dove	*Spilopelia chinensis*	Bird
28	Owl	*Otus sp.*	Bird
29	White egret	*Ardea alba*	Bird
30	Woodpecker	*Picus sp.*	Bird

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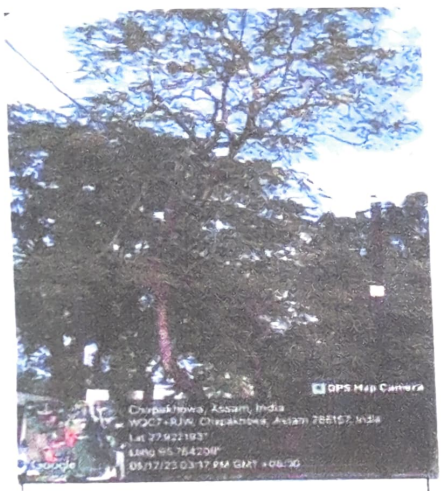
31	Common garden skink	*Lampropholis sp.*	Bird
32	House lizard	*Hemidactylus frenatus*	Reptile
33	Garden Lizard	*Calotes sp.*	Reptile
34	Snake	*Naja naja*	Reptile
35	Dog	*Canis lupus familiaris*	Mammal
36	Cat	*Felis domesticus*	Mammal
37	Cow	*Bos indicus*	Mammal
38	Goat	*Capra hircus*	Mammal
39	Squirrel	*Funanbulus sp.*	Mammal
40	Rabbit	*Oryctolagus sp.*	Mammal
41	Bat	*Scotophilus sp.*	Mammal
42	Segeli	*Channa sp.*	Fish
43	Dorikona	*Esomus dandricus*	Fish
44	Goroi	*Channa Punctatus*	Fish
45	Mystus/Singhi	*Mystus tengra*	Fish
46	Cheniputhi	*Puntius sp.*	Fish
47	Kholihona	*Trichogaster sp.*	Fish
48	Kawoi /koi	*Anabas testudineus*	Fish
49	Rohu	*Labeo rohita*	Fish
50	Puthi	*Puntius sp.*	Fish

PHOTOGRAPHS OF FEW PLANT SPECIES PRESENT IN THE COLLEGE CAMPUS



Delonis regia

Monoon longifolium

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Averrhoa carambola

Casia fistula

Annona cherimola

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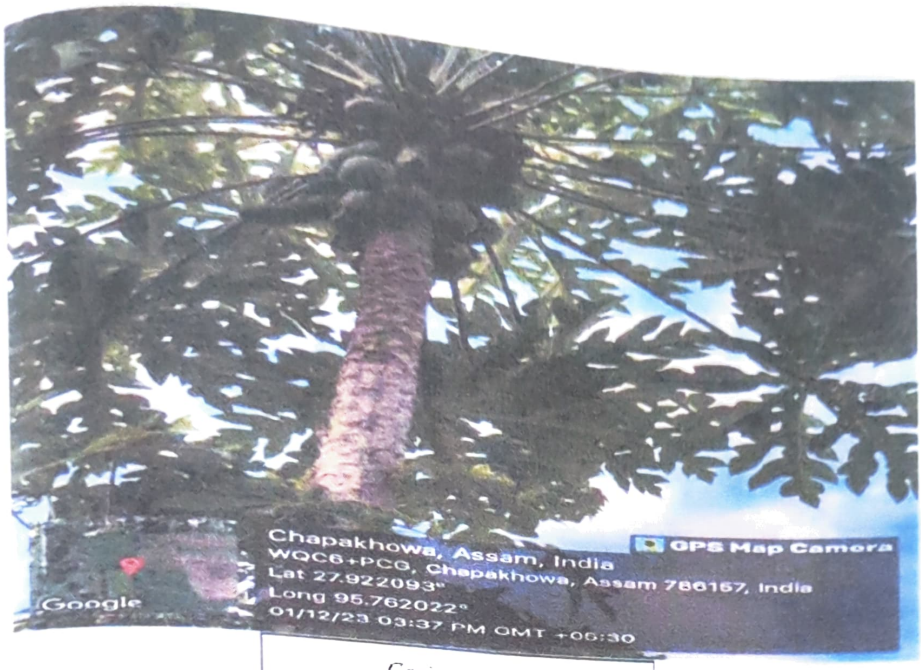

Carica papaya

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