

# GREEN AUDIT – 2021



## SAHRDAYA COLLEGE OF ADVANCED STUDIES (SCAS) KODAKARA THRISSUR

**KERALA**

*EXECUTED BY*



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## PREFACE

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Every institution should be imparting knowledge about the campus environment and its surroundings through activities that follows the principles of sustainability. Hence an evaluation is needed to understand where it stands in the path to be an environment friendly, talent nurturing educational institution. This Green Audit was done with the aim to assess and rate the sustainable nature of the campus. The college vision to mould a new generation in integrity of virtues and in maturity of values and to form them in true wisdom according to their God-given talents for the good of the human beings by means of the noblest activity of study and by way of the most gracious quality of friendship. And in the **social goals, “to make the students aware of the pressing global issues and the moral responsibility to handover to the coming generation an eco-friendly life style and an earth free from pollution, filth, bigotry and corruption”**. It was observed by us from the students’ participation during the green audit.

This report is compiled by the BEE certified energy auditor and A GRIHA Certificate holder along with the project engineers who are experienced in the field of energy, environment and management. The student volunteers made a mammoth contribution with data collection and preparing an initial skeleton for the report.

## ACKNOWLEDGEMENTS

We express our sincere gratitude to the management of M/s Sahrdaya College of advanced studies (SCAS) Thrissur for giving us an opportunity to carry out the project of Green Audit. We are extremely thankful to all the staffs for their support to carry out the studies and for input data, and measurements related to the project of Green audit.

- |   |                       |                  |
|---|-----------------------|------------------|
| 1 | Dr. Mathew Paul Ukken | Principal        |
| 2 | Dr. Karuna K          | NAAC Coordinator |
| 3 | Ms. Sheena Sara Winny | IQAC Coordinator |

Also congratulating our Green audit team members for successfully completing the assignment in time and making their best efforts to add value.

## GREEN AUDIT TEAM

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Yours faithfully



Managing Director  
Athul Energy Consultants Pvt Ltd

**GENERAL DETAILS**

The general details of the Sahrdaya College of advanced studies are given below in table.

**Table 1 GENERAL DETAILS**

| SL. NO | PARTICULARS                         | DETAILS   |
|--------|-------------------------------------|---|
| 1      | Name & Address of college           | Sahrdaya college of advanced studies (SCAS)<br>Kodakara, PB No: 17, Thrissur<br>0480-2713713, 09497233713<br>info@sahrdayacas.ac.in |
| 2      | Contact person                      | Mr. Ajish Paul George<br>Ph: 9656955371   |
| 3      | Location: Latitude & Longitude      |   |
| 4      | No. of Teaching staff               | 122   |
| 5      | No. of Non-Teaching staff           | 40  |
| 6      | No of students                      | 2337  |
| 7      | Building area                       | 1,92,819 Sq. Ft.  |
| 8      | Land area                           | 8.61 acres  |
| 9      | Average annual working days         | 250 days  |
| 10     | DG Set                              | 125 kVA and 20kVA   |
| 11     | Transformer                         | 250 kVA (1 No)  |
| 12     | No : of well                        | 02  |
| 13     | Rain water harvesting               | Yes   |
| 14     | No: of variety of trees and species | 97 Species with 902 plants  |
| 15     | Details of Herbal garden            | Herbal garden, 41 Variety species and 136 plants  |
| 16     | Sports                              | Have Indoor Volly ball and badminton indoor courts , Football ground , Gymnasium  |
| 17     | Miscellaneous                       | Ornamental plants included indoor plants have 16 major varieties of 1296 plants during audit  |



## **EXECUTIVE SUMMARY**

- ❖ Sahrdaya college of Advanced studies taken considerable effort for maintaining the green and sustainable campus.
- ❖ Varieties of living eco systems such as trees of varies varieties, gardens, are present in the campus. There is
- ❖ Staff and student's collaboration of NSS is held responsible for maintenance of greenery inculcating a sustainable culture among the student's community.
- ❖ By recognizing the importance of making healthy youth, management taken initiatives and built a badminton and volleyball courts , food ball ground and
- ❖ Rain water collection from roof are made in the campus for as ground water recharging through well.
- ❖ Leisure space, oxygen bench, herbal garden, silent zone etc are well developed and maintained in the college.

## **Suggestions for improvement**

- ❖ Display boards are to be placed in the, herbal, botanical garden areas with name of trees in that areas.
- ❖ Cordoned area to be provided with suitable plants in the herbal garden area
- ❖ Water meter to be installed for measuring water consumption per day.
- ❖ Practice Institutional Ecology- Set an example of environmental responsibility by establishing institutional ecology policies and practices of resource conservation.
- ❖ Road map for the tree plantation to be done along with the master plan of the college. Gave importance for the oxygen generating plants and lush green trees.



## **ABOUT SAHRDAYA COLLEGE**

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Sahrdaya College of Advanced Studies is yet another prestigious undertaking of Irinjalakuda Diocesan Educational Trust (IDET) managed by Syro- Malabar Catholic Diocese of Irinjalakuda. It has Mar Pauly Kannookadan, Bishop of the Diocese as its Chairman, and functions with the blessings of the Founder Chairman Mar James Pazhayattil, Premier Bishop of the Diocese of Irinjalakuda. To mould a new generation in integrity of virtues and in maturity of values and to form them in true wisdom according to their God-given talents for the good of the human beings by means of the noblest activity of study and by way of the most gracious quality of friendship.”

Sahrdaya College of Advanced Studies was formally inaugurated on Saturday 31 December, 2011 by Honourable Chief Minister of Kerala Shri. Oommen Chandy. At the initial year Sahrdaya had just 4 courses to her credit. She is proud of having all courses advanced which are such as Bsc Psychology, BCA, BCOM Finance & BBA In the year next was equally eventful, with the addition of three more advanced courses viz Bsc.CS, BCOM CA & BA English The strength of the students soared into 302 from 110 Virtually SCAS celebrates her third year with two more advanced courses added to the list of seven thus having nine courses running at present. To mention, they are BSc. Mathematics and BCOM Banking -which necessitated teaching faculty strength of 38 and a corresponding supporting staff, not to mention. A four storey research building adjacent to the existing, is fast coming up in order to accommodate the growing requirements of design expansions .In order to equip the students with greater capabilities major programmes like SEEP(Sahrdaya Employability Enhancement Programme), Add on Courses on soft skills, personality development etc are regularly conducted with no fail and determination.





Figure 1 FRONT VIEW OF COLLEGE

### Programmes offered by SCAS

TABLE 2 PROGRAMMES OFFERED BY SCAS

|   |
|---|
| <i>B.Com Professional with Chartered Accountancy, B.Com Finance with ACCA (UK), B.Com Finance with CMA (USA) B.Com Banking with Company Secretary ship, B.Com Taxation with CMA (IND) B.Com Computer Application With CAT</i> |
| <i>B.Sc. Physics, B.Sc. Chemistry, B.Sc. Mathematics, B.Sc. Computer Science, B.Sc. Geology, B.Sc. Psychology</i>   |
| <i>BBA with ICWIM, BA English Language &amp; Literature, BA Malayalam Language &amp; Literature</i>   |
| <i>M.Com Finance, M.Sc. Psychology, M.Sc. Clinical Psychology, M.Sc. Computer Science MA English</i>  |

It envisages at endowing to the Nation, a zealous group of dedicated and industrious citizens.



## GREEN AUDIT

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The whole world is on the road to a sustainable development, and the environment conservation is the top priority among the list as every human activity has its effect on their surroundings, which is the environment. Hence be it a house, a commercial building, an industrial building, or any other construction will disturb the balance of the environment. It is very important to do a detailed study about the effects on the environment. This is conducted under the name of *Green Audit*, which can be defined as *the official examination of the effects a company or other organization has on the environment, especially the damage that it causes*. The objectives of the green audit can be listed as follows:

- Including participants from every section of the organization in the auditing process..
- Identifying the activities in the premises and listing them.
- Calculating the resource consumption like the land and water.
- Assessing the waste management and disposal.
- Study the energy usage pattern.
- Identify the good practices.
- Suggest the viable solutions to improve the sustainable nature of the organization.
- Compile the report with the above-mentioned details.
- Conduct a walkthrough audit to check the suggestions implemented by the institution and suggest for further improvements
- Verify all the points with actual measurements is it is meeting the performance and gave suggestions for improvement



## CAMPUS ENVIRONMENT

The environment in and around the college campus plays an important part in maintaining a healthy atmosphere in nurturing talents. Trees are the major source of the oxygen we breathe, and receiver of the carbon dioxide we exhale. The sustainability of an ecosystem depends on the number of plants and trees in and around the surroundings. The open space in the college is used for gardening and maintain a botanical garden, herbal garden, Leisure space, large open garden, oxygen park etc.

Ultimately the campus is maintaining natural equilibrium with trees, birds and water bodies along with human interactions.



**FIGURE 2: CAMPUS VIEW**

Scientific studies are proved that the nature can able to cure any diseases and this will reduce the stress among students during theirs studies and also increase the compassion among them and to nature. Ultimately the campus is maintaining natural equilibrium trees, birds and water bodies with human beings. Gardens and landscape are an aesthetic delight and it promotes attentiveness of students. Persons exposed to plants have higher level of positive feelings (pleasant, calm) as opposed to negative feelings (anger, fear).



## SUSTAINABLE CONSTRUCTION OF BUILDINGS

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Energy consuming devices installed to achieve the comfort levels for the occupants of the building gives rise to heat generation which adversely affects the environment within the building and in the surrounding. Buildings are thus the major pollutants that affect the urban air quality and contribute to climate change. Buildings are the major consumers of energy during their construction, operation and maintenance.

Sahrdaya College of Advanced studies has developed an ecological design in their buildings and adopted minimum negative impact on ecosystem. Their approach to the constructional activities consciously is to conserve energy and ecology and avoid the adverse effects of ecological damage.

Sahrdaya College of Advanced studies management constructed the building to optimum utilisation of land and classrooms and with abundant light and natural ventilation. Maximum day light ingress and natural ventilation increases the indoor air quality and avoid the sick building syndrome. The whole facility and buildings are designed to maximum and optimum utilisation of land without affecting the nature.



**FIGURE 3: BUILDING VIEW**



## 1. MAIN BUILDINGS

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### ADMINISTRATIVE BLOCK



**Figure 4 ADMINISTRATIVE BLOCK**

Main block Consists office, class rooms, of Physics, Chemistry and its laboratories and conference hall. This block is constructed with projected centre which will be gave maximum ventilation and natural lights into the building class rooms. This aesthetic and sustainable design and the off white colour of the college gave an extraordinary and peaceful look for the college.

### PG BLOCK



**Figure 5 PG BLOCK**



PG Block consists of class rooms, of Commerce section, BA literature , Bsc Geology and its lab and PG courses of MCom, MA English , and MSc applied and Clinical psychology , computer lab library, indoor courts and open stage.

## 2. CARBON DIOXIDE LEVELS

Air quality is a major area of concern inside a building. The percentage share of oxygen and carbon dioxide should be such that the occupants are able to perform their tasks without any discomfort. This is generally done through a provision of fresh air duct for the air conditioning systems or by providing windows. Numerous factors need to be considered for the design and fabrication of the fresh air supply system like the number of occupants, weather pattern and air quality of the location, and so on. For the human comfort, production of carbon-dioxide (CO<sub>2</sub>) within a building space is the prime area of consideration. This is associated with respiration which produces CO<sub>2</sub>. As a result, the carbon-dioxide levels will increase if ventilations are not provided.

As per various standards (like the ASHRAE Standard 62.1-2016), indoor CO<sub>2</sub> concentrations up to 1200 ppm is considered acceptable. For a typical outdoor condition, this value may change from 300 to 500 ppm.

The measurements were recorded along different locations inside the campus and the peak values are given in the following sections. The key concentration was on the study of carbon dioxide levels.

**TABLE 3: CARBON DIOXIDE LEVELS**

| Sl. No.           | AREA                | Measured CO <sub>2</sub> | Standard CO <sub>2</sub> level (Range) | Remarks     |
|-------------------|---------------------|--------------------------|--|-------------|
| <b>Main Block</b> |                     |                          |  |             |
| <b>1</b>          | Class room          | 600                      | 300-500                                | <b>Good</b> |
| <b>2</b>          | Corridor            | 425                      | 300-500                                | <b>Good</b> |
| <b>3</b>          | Laboratory          | 600                      | 300-500                                | <b>Good</b> |
| <b>4</b>          | HOD room            | 650                      | 300-500                                | <b>Good</b> |
| <b>5</b>          | Front Office        | 340                      | 300-500                                | <b>Good</b> |
| <b>1</b>          | Class room          | 560                      | 300-500                                | <b>Good</b> |
| <b>2</b>          | Corridor            | 450                      | 300-500                                | <b>Good</b> |
| <b>3</b>          | Laboratory          | 550                      | 300-500                                | <b>Good</b> |
| <b>4</b>          | HOD room            | 550                      | 300-500                                | <b>Good</b> |
| <b>5</b>          | <b>Computer lab</b> | <b>360</b>               | <b>300-500</b>                         | <b>Good</b> |

**Figure 6 NATURE VENTILATION IN BUILDING**

### 3. HERBAL GARDEN

The literal meaning of Ayurveda is “science of life,” because ancient Indian system of health care focused on views of man and his illness. It has been pointed out that the positive health means metabolically well-balanced human beings. Ayurveda is also called the “science of longevity” because it offers a complete system to live a long healthy life. It is an interactive system that is user-friendly and educational. It teaches the patient to become responsible and self-empowered. It is a system for empowerment, a system of freedom, and long life. A significant part of knowledge and tradition is currently being eroded due to modernization, acculturation and availability of alternatives. Therefore, it is urgent to inculcate young minds to realize the fascinating knowledge and tradition associated with these resources, and help them understand the immense potentials the Kerala medicinal plants possess for the future.

The “Promoting Herbal Gardens in Schools and colleges” has been a fun-filled learning activity for the students where they got the opportunity to learn about the medicinal plants by actually planting the medicinal herbs and watching them grow in their gardens, and by exploring information about them from various sources.

**Table 4 HERBAL PLANTS IN SCAS**

| Sl.no. | Name of trees      | Botanical Name         | Quantity |
|--------|--------------------|------------------------|----------|
| 1      | Yasank             | Azima tetracantha      | 1        |
| 2      | Aaduthinnapai      | Aristolochia bracteata | 1        |
| 3      | Agastya tulsi      | Sesbania grandiflora   | 1        |
| 4      | Bridal bouquet     | Stephanotis floribunda | 1        |
| 5      | Changalamparanda   | Cissus quadrangularis  | 7        |
| 6      | Change Rose        | Hibiscus mutabilis     | 2        |
| 7      | Cheriya Adalodakam | Justicia adhatoda      | 8        |
| 8      | Chethikoduveli     | Plumbago indica        | 2        |



| Sl.no. | Name of trees        | Botanical Name             | Quantity |
|--------|----------------------|----------------------------|----------|
| 9      | Churakalli           | Cactus                     | 7        |
| 10     | Danthapala           | Wrightia tinctoria         | 5        |
| 11     | Elamulachi           | Bryophyllum pinnatum       | 9        |
| 12     | Eluppai tree         | Madhuca longifolia         | 2        |
| 13     | Erukku               | Calotropis gigantea        | 1        |
| 14     | Garuda Pacha         | Aristolochia indica        | 1        |
| 15     | Kalyana sougandhikam | Hedychium coronarium       | 8        |
| 16     | Karimaram            | Diospyros ebenum           | 1        |
| 17     | Karimkurinji         | Strobilanthes heiniyanus   | 1        |
| 18     | Karinjotta           | Quassia indica             | 1        |
| 19     | Karinochi            | Vitex negundo              | 3        |
| 20     | Kattarvazha          | Aloe vera                  | 15       |
| 21     | Kattuambazham        | Spondias mombin            | 1        |
| 22     | Kattuthippali        | Piper longum               | 1        |
| 23     | Korkurathu           | Catharanthus roseus        | 2        |
| 24     | Kurunthotti          | Sida cordifolia            | 1        |
| 25     | Maramanjil           | Coscinium fenestratum      | 2        |
| 26     | Maravuri             | Antiaris toxicaria         | 1        |
| 27     | Moovila              | Pseudarthria viscida       | 3        |
| 28     | Mussaenda            | Mussaenda erythrophylla    | 2        |
| 29     | Mustard              | Terminalia Chebula         | 1        |
| 30     | Nagavalli            | Rhinacanthus acanthaceae   | 1        |
| 31     | Nandyarvattam        | Tabernaemontana divaricata | 1        |
| 32     | Neyvalli             | Morinda umbellata          | 1        |
| 33     | Nithyakalyani        | Vinca rosea                | 5        |
| 34     | Orila                | Desmodium gangeticum       | 1        |
| 35     | Panikoorka           | Plectranthus barbatus      | 20       |
| 36     | Pudina               | Mentha piperita            | 1        |
| 37     | Shatavari            | Asparagus racemosus        | 1        |
| 38     | Thippili             | Piper longum               | 2        |
| 39     | Thulasi              | Ocimum sanctum             | 10       |
| 40     | Vathamkolli          | Justicia gendarussa        | 1        |
| 41     | Vishamooli           | Crinum asiaticum           | 1        |

The task of making the garden itself has been enriching in terms of making students realize the importance of teamwork such as detailed planning, and allocation of tasks within a team. For the teachers, herbal garden project has been useful in terms of ease with which they could integrate the concept with other subject matter activities, such as writing essays, poems and stories, making



posters, drawing and painting, making herbariums, and even preparing food recipe using some of the culinary herbs students have planted in their gardens. Kerala Government is also making lot of initiatives to developing and inculcating the herbal gardens in schools and colleges.

## ORNAMENTAL PLANTS

In Sahrdaya college planted lot of ornamental plants in the college Ornamental plants are those plants which are grown for their aesthetic features in home gardens or in public places like parks. These plants have plant parts like leaves, flowers, stem, fruit or stem and foliage texture which are attractive to the students. Ornamental plants provide the best visual effect in any garden or space where they are placed. Apart from increasing the aesthetic value of the property, these plants also improve the quality of the space by acting as wind barriers, providing shade, cleaning up the pollutants in the air, reducing soil erosion and providing the habitat for animals and birds. SCAS planted many indoor plants in the college which will increase the oxygen level and pleasant atmosphere in the class rooms.

**Table 5 LIST OF ORNAMENTAL PLANTS IN SCAS**

| Sl.no. | Name of trees | Botanical Name             | Quantity |
|--------|---------------|----------------------------|----------|
| 1      | Adam          | Yucca filamentosa          | 1        |
| 2      | Bougainvillea | Bougainvillea glabra       | 55       |
| 3      | Chethi        | Ixora coccinea             | 30       |
| 4      | Dahlia        | Dahlia pinnata             | 14       |
| 5      | Ground orchid | Spathoglottis plicata      | 20       |
| 6      | Horn Plant    | ferns                      | 2        |
| 7      | Indoor Plants | Indoor Plants              | 870      |
| 8      | Jamanthi      | Chrysanthemum morifolium   | 40       |
| 9      | Kolambi       | Allamanda cathartica       | 60       |
| 10     | Mani Plant    | Epipremnum aureum          | 60       |
| 11     | Nandyarvattam | Tabernaemontana divaricata | 60       |
| 12     | Red Palm      | Cyrtostachys renda         | 19       |
| 13     | Rose          | Rosa                       | 20       |
| 14     | Snake Plant   | Dracaena trifasciata       | 15       |
| 15     | Thiruhridaya  | Coleus scutellarioides     | 30       |
| 16     | Thuja         | Thuja pilicata             | 8        |

The ornamental plants placed indoors provide a good and pleasant ambience and also purifies the air. There are many perfumes made using the fragrance of the flowers. Attractive looking flowers and plants can influence you psychologically and keeps you happy. You can achieve a calm mind and healthy body by indulging in ornamental plants gardening.



#### 4. GYM

The decline in physical activity is resulting in huge increases in physical disability and disease and a rising number of cases of mental ill-health. Doing exercise open and nature feel easier and results in increased energy levels and happiness followed by a better mood and a healthy lifestyle also reduces the risk of heart diseases, increases strength and flexibility, improves self-confidence and memory. Numerous pieces of research show that body exercise activities are great for the mind.

#### 5. LEISURE PARK

Open atmosphere with water bodies will reduce the academic stress developed among the students which will well understand by SCAS management and they develop few natural open space in the college. This open ventilated space is useful for open debate and fruitful discussion and developed an informal education among students.



Figure 7 LEISURE PARK

#### 1. OXYGEN BENCH

Sahrdya College developed nurtured and marinated a garden sitting bench in the front side of main building. This area is one of best place for relieving stress to the students by the free ventilation under the roof of tree.



Figure 8 OXYGEN BENCH



## 2. VEGETABLE GARDEN

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It is a garden that exists to grow vegetables and other plants useful for human consumption. Gardening can provide students with hands-on learning opportunities while increasing environmental awareness and vital experience in problem-solving. The school gardens are changing the eating habits of the students

Gardens are a wonderful way to use the college campus as a classroom, reconnect students with the natural world and the true source of their food, and teach them valuable gardening and agriculture concepts and skills that integrate with several subjects, such as math, science, art, health and physical education, and social studies, as well as several educational goals, including personal and social responsibility. They gain self-confidence and a sense of "capableness" along with new skills and knowledge in food growing — soon-to-be-vital for the 21st century students become more fit and healthy as they spend more time active in the outdoors and start choosing healthy foods over junk food.

### **Suggestion**

Develop and nurture vegetable garden in the college behind the main building.

## 3. SILENT ZONE

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Nowadays, silent zones are getting important in academic institutions. Noise pollution leads to stress and other medical and neurotic problems in children. Besides, creativity and knowledge absorption capacity is also going down. For reduction of academic stress level there is palace for complete relaxation. This is the importance of silence zone. Sahrdaya College has aerated certain silent zones in the college itself. Natural silence zones are also crated in the college campus where there is no sound other than natural sound



**Figure 9 SILENT ZONE**



#### 4. LIST OF TREES IN THE CAMPUS

Trees release oxygen when they use energy from sunlight to make glucose from carbon dioxide and water. Like all plants, trees also use oxygen when they split glucose back down to release energy to power their metabolisms. Averaged over a 24-hour period, they produce more oxygen than they use up; otherwise there would be no net gain in growth.

The college campus is divided into various locations for listing out the trees. The college campus contains 902 Plants in 97 various species. Most of the trees are Rubber, Mahagani, coconut, etc.

**Table 6 LIST OF TREES IN THE CAMPUS**

| Sl.no. | Name of trees  | Botanical Name           | Quantity |
|--------|----------------|--------------------------|----------|
| 1      | Ambazham       | Spondias mombin          | 1        |
| 2      | Aranamaram     | Monoon longifolium       | 1        |
| 3      | Arecanut       | Areca catechu            | 20       |
| 4      | Ashokam        | Saraca asoca             | 5        |
| 5      | Atthi maram    | Ficus benjamina          | 2        |
| 6      | Bamboo         | Bamboos Bambooseae       | 3        |
| 7      | Banana Plant   | Musa acuminata           | 140      |
| 8      | Bottle Palm    | Roystonea Regia          | 10       |
| 9      | Carambola      | Averrhoa carambola       | 1        |
| 10     | chamba         | Syzygium samarangense    | 1        |
| 11     | Chembu Plant   | Colocasia                | 6        |
| 12     | Cherunarakam   | Citrus limon             | 10       |
| 13     | Cheruteak      | Tectona grandis          | 1        |
| 14     | Coconut Tree   | Cocos nucifera           | 84       |
| 15     | Divi divi      | caesalpinia coriaria     | 10       |
| 16     | Eenthappana    | Phoenix dactylifera.     | 19       |
| 17     | Eetti maram    | Dalbergia latifolia      | 11       |
| 18     | Elanji         | Mimusops elengi          | 7        |
| 19     | Ficus          | Ficus                    | 4        |
| 20     | Ficus Palm     | Ficus Palm               | 5        |
| 21     | Gooseberry     | Phyllanthus emblica      | 1        |
| 22     | Green Chilli   | Capsicum annum           | 36       |
| 23     | Guava Tree     | Psidium guajava          | 1        |
| 24     | Jackfruit Tree | Artocarpus heterophyllus | 1        |
| 25     | kanikonna      | Cassia fistula           | 1        |
| 26     | Kanjiram       | Strychnos nux-vomica     | 2        |
| 27     | karithechi     | Vitex negundo            | 1        |



| Sl.no. | Name of trees   | Botanical Name         | Quantity |
|--------|-----------------|------------------------|----------|
| 28     | Karpooram plant | Cinnamomum camphora    | 1        |
| 29     | Koonampala      | Tabernaemontana crassa | 1        |
| 30     | Kudampuli       | Garcinia gummi-gutta   | 4        |
| 31     | kumil           | Gmelina arborea        | 3        |
| 32     | Lakshmi taru    | Simarouba glauca       | 1        |
| 33     | Mahogany        | Swietenia Macrophylla  | 35       |
| 34     | Mandaram        | Bauhinia acuminata     | 3        |
| 35     | Mango Tree      | Mangifera indica       | 14       |
| 36     | Mangosteen      | Garcinia mangostana    | 1        |
| 37     | Manimaruth      | Terminalia chebula     | 2        |
| 38     | Mullatha        | Annona muricata        | 1        |
| 39     | Neem            | Azadirachta indica     | 2        |
| 40     | Neermaruthu     | Terminalia arjuna      | 5        |
| 41     | Nenthra vazha   | Musa acuminata         | 7        |
| 42     | Njaval          | Syzygium cumini        | 2        |
| 43     | Noni            | Morinda citrifolia     | 1        |
| 44     | Papaya          | Carica papaya          | 7        |
| 45     | Pathiri         | Stereospermum colais   | 1        |
| 46     | Peraal          | Ficus benghalensis     | 1        |
| 47     | Pomegranate     | Punica granatum        | 5        |
| 48     | Rambutan        | Nephelium lappaceum    | 4        |
| 49     | Rubber          | Hevea brasiliensis     | 250      |
| 50     | Seethapazham    | Annona squamosa        | 1        |
| 51     | Silver Palm     | Coccothrinax argentata | 2        |
| 52     | SiriFicus       | Ficus amplissima       | 1        |
| 53     | Sweet Ambazham  | Spondias mombin        | 1        |
| 54     | Sweet Lubica    | Flacourtia jangomas    | 2        |
| 55     | Thanni          | Baheda Terminalia      | 1        |
| 56     | Ung plant       | Pongamia pinnata.      | 5        |
| 57     | Uruvanchi       | Sapindus trifoliatus   | 4        |
| 58     | Venga           | Pterocarpus marsupium  | 4        |
| 59     | Yellow Palm     | Dypsis lutescens       | 10       |



## Advantages of trees

1. Maintain the equilibrium of air and food: Humans and animals need food and oxygen and excrete carbon dioxide and water. The plants, algae, etc, in the forest use carbon dioxide and water and release or produce oxygen and food.
2. Filter and store water, and drastically reduce storm-water runoff: Forests filter and regulate the flow of water. The litter over the forest floor acts as a sponge which filters, stores and gradually releases the water to natural channels and ground water.
3. Conserve valuable topsoil and reduce soil erosion: A forest is like a protective green cloth over Mother Earth's fragile body.
4. Conserve biodiversity and balance ecology: In a natural environment, the populations of species are balanced to an optimum minimum level
5. Reduce pollution: Plants can remove and/or Phyto remediate pollutants and contaminants from soil and water.
6. Arrest or reverse global warming: Global warming can cause extinction of species, tropical cyclones, extreme weather, tsunamis, abrupt climatic change, sea level rise, increased human stress resulting in violence, etc. These are just a few of its catastrophic effects. Plants can lock CO<sub>2</sub> in their bodies to save our planet and the life on it.
7. Acoustics of the college will give comfort zone for academic purpose. : Green coverage around the building reduces the sound by absorption by leaves thus the echo and reverberation of sound will come down.

## 5. OPEN AUDITORIUM AND INDOOR COURTS

Open stage on side of the main b building can accommodate more than 1000 persons. The stage is located in the PG Block Nature playing a vital role in the is stage because it will create only sound not echo or noise during the show.. Due to the stage is designed in such a way that having abundant natural light from top and have accommodate larger viewers from its surroundings sides of the building. The same place is also used as volley ball courts, badminton courts etc.



**Figure 10 OPEN STAGE AND INDOOR STADIU**

## 6. PETS AND BIRDS

Animals play an important role in people’s lives. Many studies indicate that pets reduce anxiety and blood pressure. Findings suggest that the social support to a pet makes a person feel more relaxed and reduces stress. Pet help to develop great empathy, higher self-esteem, and increases participation in social and physical activities. This promotes students' emotional development.



**Figure 11 PETS AND BIRDS**



## 7. SPECIAL INITIATIVES OF COLLEGE

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### ***I. DISABLED FRIENDLY:***

Disability is only disabling when it prevents someone from doing what they want or need to do. Government of India signed the UNCRPD (United Nations Convention on the Right Of Persons with Disabilities) on 1st October 2007. In this article 9 says about the requirements of disabled persons on accessibility to buildings. As per the signed UNCRPD Indian Parliament passed an act as RPD (Right to Persons Disability) act on March 2016. As per new act, all buildings should have ramps at the entry, exit, lifts for higher floors, separate toilet with suitable arrangements such as hand rails etc.

### ***II. PARKING BAY FOR VEHICLES”***

To avoid the air pollution the vehicles are not allowed in the campus, but they are parked in the parking area, reasonably away from college buildings.



## WATER RESOURCES AND CONSERVATION

The requirement of water for the college, canteen and gardening etc are met by supply from two big wells in the college boundary. The water is collected in one main tanks and it is located in main block. The water thus collected is supplied through gravity to other tanks of located in main building, hostels, canteen, etc.

The water from wells are checked in an accredited laboratory in time to time to ensure its portability.

### 1. WATER RESOURCES

There are three wells in the college, one well is located near the chapel which is not use at present.

Well located outside of campus is the main source of water for college and hostel

Water from the main well which is located just outside of boundary wall is pumped into sand filter and carbon filters and then UV treated stored in the 3KL 4 tanks in the main building.

### 2. WATER UTILITIES

The labs have the highest tap points whereas the toilet accounts for the major consumption.

The water outlet points in the college campus and hostel are listed in the following table.

**TABLE 7: DETAILS OF TOILETS, URINALS AND WASH BASINS**

| Floors                      | Bath room | Wash Room | Urinals |
|-----------------------------|-----------|-----------|---------|
| <b>Administrative block</b> |           |           |         |
| G- Floor                    | 10        | 9         | 0       |
| I floor                     | 10        | 9         | 0       |
| II floor                    | 5         | 5         | 0       |
| III floor                   | 5         | 5         | 0       |
| <b>PG Block</b>             |           |           |         |
| G- Floor                    | 6         | 5         | 0       |
| I floor                     | 6         | 5         | 0       |
| II floor                    | 6         | 5         | 5       |
| III floor                   | 6         | 5         | 5       |
| <b>Staff bath rooms</b>     |           |           |         |
| G- Floor                    | 1         | 1         | 0       |
| I floor                     | 1         | 1         | 0       |
| II floor                    | 1         | 1         | 0       |
| III floor                   | 1         | 1         | 0       |
| Principal s room            | 1         | 1         | 0       |
| Admin Room                  | 1         | 1         | 0       |
| Green room                  | 2         | 2         |         |
| Chemistry lab               | 0         | 1         | 0       |

### 3. RAIN WATER HARVESTIN

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The average rain fall in Thrissur for the last few years is 3000mm means 3lacs of liters of water from 1000Ft<sup>2</sup> area of roof or as 1.2 Lacs liters of water from 1 cent land .The Sahrdaya College campus itself is 8 acres of land availing the average rain fall of 960 Lacs of litres of water . This is more than sufficient for meeting the water requirements. Sahrdaya College taken many initiatives for collecting th rain water and use of them and also recharging of ground water.

Rainwater harvesting (RWH) is a technique of collection and storage of rainwater into natural reservoirs or tanks, or the infiltration of surface water into subsurface aquifers (before it is lost as surface runoff). One method of rainwater harvesting is rooftop harvesting. With rooftop harvesting, most any surface — tiles, metal sheets, plastics, but not grass or palm leaf can be used to intercept the flow of rainwater and provide a household with high-quality drinking water and year-round storage. Other uses include water for gardens, livestock, and irrigation, etc.

#### **Rainwater harvesting for ground water recharge.**

Aim and Objectives:

- Conservation of rainwater for future use
- To use rainwater for gardening Activity: Conservation of rainwater in soil or in a container is known as rainwater harvesting.

The rainwater from entire college campus and roof top of building is collected through PVC pipe s and feed into ground at four locations in the campus and details are given below table. These three natural sites are selected for rainwater harvesting, ground water recharge, and bore well recharge



**FIGURE 12 GROUND WATER RECHARGING WELL**

## PROGRAMMES OF SCAS

### ENVIRON 2021 – INTERNATIONAL ONLINE LECTURE SERIES

Department of Geology, Sahrdaya College of Advanced Studies Kodakara in association with Internal Quality Assurance Cell has organized a lecture series “**ENVIRON 2021 – INTERNATIONAL ONLINE LECTURE SERIES**” from 26<sup>th</sup> to 30<sup>th</sup> July 2021. The event was inaugurated by Rev. Dr. Devis Chenginiyaden, (Executive Director, Sahrdaya College) on the 26<sup>th</sup> followed by Prof. Davis K J, (HOD, Dept. of Geology) welcomed the gathering. Dr. Mathew Paul Ukken (Principal, Sahrdaya College) delivered felicitation. & Dr. Jomon Joseph (Dy. Director, CIFNET (Rtd)) gave the keynote address. The Guest speakers were, Dr. D S Suresh Babu (Scientist F, NCESS Trivandrum), Dr. P.S. Sunil (Head, Dept. of Marine Geology & Geophysics, CUSAT), Dr. A P Pradeepkumar (Professor, Department of Geology, University of Kerala, Trivandrum), Dr. John Joseph (Consultant Geoscientist, Morley, W. A 6062) and Mr. Ratheesh Ramakrishnan (Scientist – SF, SAC-ISRO Ahmedabad). On the final day, 30<sup>th</sup> the entire lecture series was concluded by Dr. K P Thrivikramji (Director, CED, Trivandrum) gave an outline about all the lecture topics. The objective of the lecture series was to consolidate the various concepts of Geology and their applications in the current scenario



FIGURE 13 PHOTOGRAPH OF WEBINAR PROGRAMME



## CONCLUSION:

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Green Audit is the most efficient & ecological way to solve such an environmental problem. Green Audit is one kind of professional care which is the responsibility of each individual who are the part of economic, financial, social, environmental factor. Green audits can “add value” to the management approaches being taken by the college and is a way of identifying, evaluating and managing environmental risks (known and unknown). The green audit reports assist in the process of attaining an eco-friendly approach to the development of the college.

The auditors observed during the campus visit and after the conversation with the staff and students of M/s Sahrdaya college that they have taken continuous and considerable effort in several years for nurturing and maintaining the green coverage over the campus which is being well appreciated by us. There is still opportunity to attain the perfection some of the identified suggestions are listed in the executive summary.



## ANNEXURE - 1

