Key Indicator - 7.3 Institutional Distinctiveness (20)

(Portray the performance of the Institution in one area distinctive to its priority and thrust within 1000 words)

Biodiversity Conservation and Carbon Sink

1. Background and Historical Interventions

Vivekananda Institute of Technology (VKIT) involves in the development of sub- urban physical, socio-cultural, environmental and economic dimensions of the region. Bangalore region was classified as dry deciduous forest to thorn scrub (Champion andSeth, 1968). VKIT is situated in the outskirts of Bangalore Metropolitan City enriched with sandalwood reserve historically and was used as an elephant corridor between Bannerghatta National Park and Savanadurga State Forest.

College Initiatives on Biodiversity Conservation

Vivekananda Institute of Technology (VKIT) has been considered as one of the oldest engineering college affiliated to Visvesvaraya Technological University, Government of Karnataka. VKIT constructed several check dams and rain water harvesting structures, which helps in groundwater recharge and improved microclimate of the campus. With its wide range of biodiversity, VKIT houses diversity of plants, trees and herbs which has attracted a variety of birds, butterflies, reptiles etc. The rich ecological services and carbon sink provided by this urban forest has turned it into very good lung space for the students and staff of the college. Other than that, it has a key role in carbon sequestration and regulate regional climate. The green space of the college provides numerous ecological services to the local population. Apart from this, it has a key role in combating pollution and regulating local climatic conditions

2. Outcome of the Conservation Initiatives

As per the records around 1270 trees belonging to 61 plant species were planted and nurtured in the campus. Further Bamboo plantation was developed in several locations of the college, which is a very good habitat for Avi-fauna. The overall goal of the forest is to improve

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the quality environment, clear air, water and aesthetic values. In addition, the migration and breeding of birds and animals including insects and butterflies could be a strategic outcome of the programme.

VKIT trust has undertaken systematic afforestation in 23 acres 6 guntas of area by integrating the buildings and other infrastructure facility. The college authorities have appointed dedicated workers for nurturing the gardens.

3. Research Documentation by University Students

Estimation of tree biomass can be done with the help of indirect non-destructive method using allometric equations with measurable parameters are used for quantifying the biomassof a tree. The method uses Diameter at Breast Height (DBH) for the estimation of the above-ground, below ground biomass for its strong correlations with the tree diameter. Additionally, a simple model which needs only the diameter as input has also been accepted as an effective method for the purpose of determining above-ground biomass.

The expert team has conducted a study on biodiversity and carbon stock of the college. Total carbon stock of vegetation for last five years is found to be **20963t in five blocks of 23 acres' area.** The campus climate and soil condition supporting the regeneration of *Santalum album* and other medicinal plants, belong to endangered species. VKIT campus witnessing two type of termite mounds namely, cathedral and lenticular mounds with five termite species. Termites being the bio indicator of the ground water are the natural proof for the rich ground water table in the campus.

On the other hand, VKIT has huge potential for Rainwater harvesting. The College is a part of Vrishabhavathi valley, playing important role in ground water recharge. Several checkdams in college giving scope for harvesting surface water as well as groundwater. The abandoned bore well around the college were recharged.

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Overall Biodiversity patterns of across the blocks in Vivekananda Institute of Technology

Characteristics	Block 1	Block 2	Block 3	Block 4	Block 5	Total/Average
Shannon Diversity index (H)	2.73	2.74	2.73	2.08	2.25	2.51
Simpson Dominance Index	0.13	0.1	0.07	0.2	0.17	0.14
Poilu Evenness index	1.25	1.14	1.8	0.96	0.96	1.22
No. of Species	41	34	18	21	27	61
Basal area	478.4	514.93	33.98	80	104.69	1212.01
Total trees	290	298	87	193	402	1270
Carbon content(t)	2277.97	2450.3	153.96	364.37	470.62	5717.198
Carbon EQ(t)	8352.55	8984.4	564.52	1336	1725.6	20963

The above data indicates that college campus sinking significant carbon and regulatingregional climate.

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