BIO-MASS MONITORING IN OUR SCHOOL

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ENVIRONMENT MONITORING

It is essential for evaluating environmental planning. Long term monitoring helps in identifying areas for improvement . It also provides a vital scientific insight apart from new knowledge and understanding.

Our school

Study area


LA 12°56'0.29"N LO 77°44'27.84"E
LA 12°55'58.90"N LO 77°44'32
LA 12°55'56.15"N LO 77°44'26.77"E
LA 12°55'55.40"N Lo 77°44'30
Image © 2014 CNES / Astrium
Google earth
2002
Imagery Date: 2/26/2014 12°55'57.21" N 77°44'33.68" E elev 887 m eye alt 1.08 km

Change in our school's green cover over the years (2002 to 2014)

2002

2007

2010

2012

2013


Image © 2014 DigitalGlobe
Imagery Date: 1/11/2013 12°55'57.92" N 77°44'2

Carbon sequestration

- Carbon sequestration is the process of capture and long-term storage of atmospheric carbon dioxide and may refer specifically to: "The process of removing carbon from the atmosphere and depositing it in a reservoir.
- Carbon dioxide capture and sequestration could play an important role in reducing greenhouse gas emissions.

Numbering the trees

Measuring the height and girth

BIO-MASS MONITORING

- Final calculation.xlsx

Formula

Basal Area = $3.14*r^2$

Above ground Biomass (ton/ha) = -2.81+6.78* Basal Area (cm2/ha)

Below ground Biomass (ton/ha) = 0.26*Above ground Biomass (ton/ha)

Total Biomass = Above ground Biomass + Below ground Biomass

Carbon sequestration = Total Biomass/2

Total area (m2) =192.1605

Area of the School =1.94 hectares

1.94 hectare = 192.160 m2

So 1 hectare = 99.05 basal area

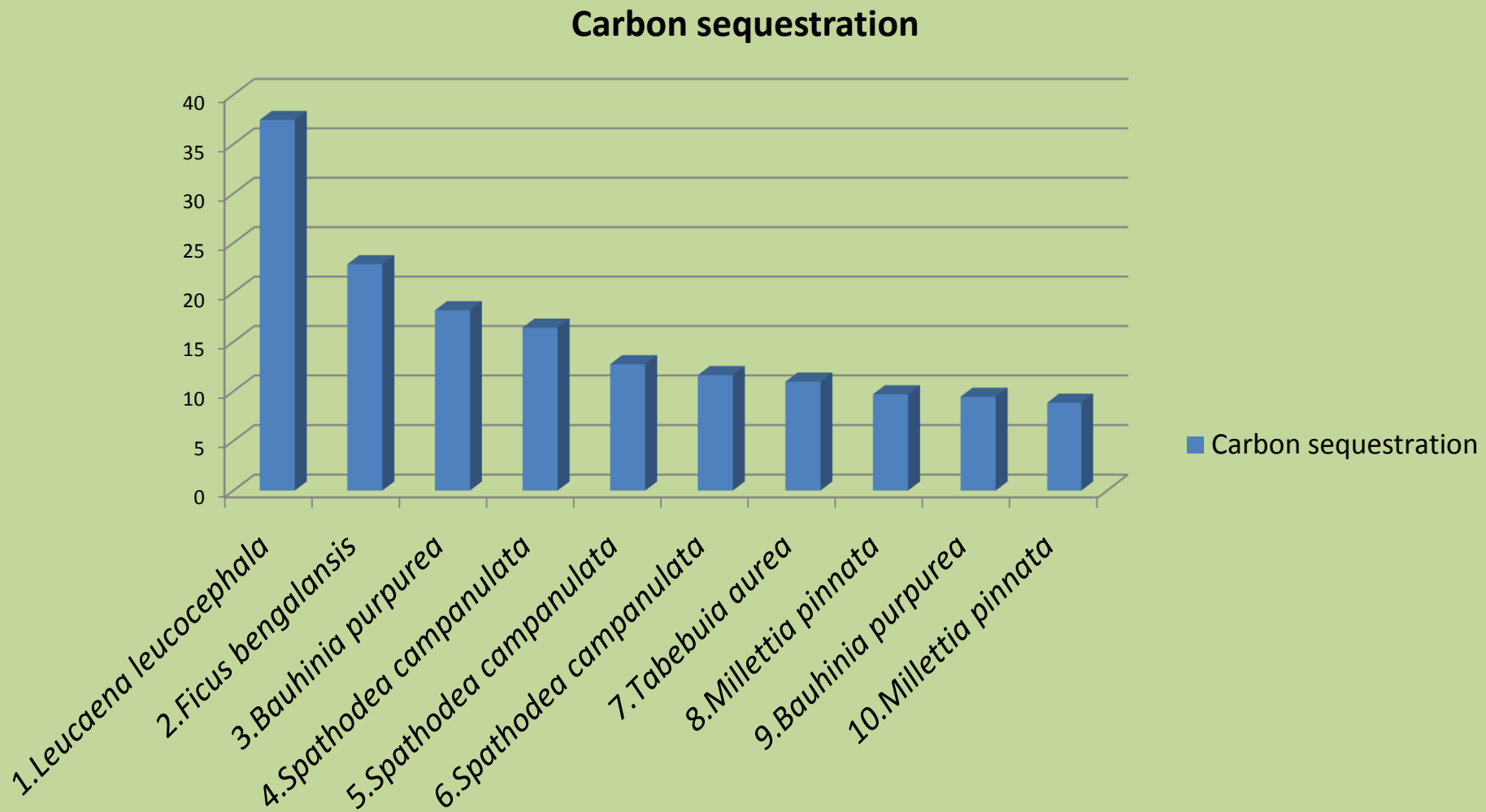
Above ground Biomass (ton/ha) = 668.749

Below ground Biomass (ton/ha) = 173.87474

Total Biomass = 842.62374

Carbon sequestration = 421.31187 (ton/ha)

Maximum carbon sequestrated trees



Maximum carbon sequestrated trees

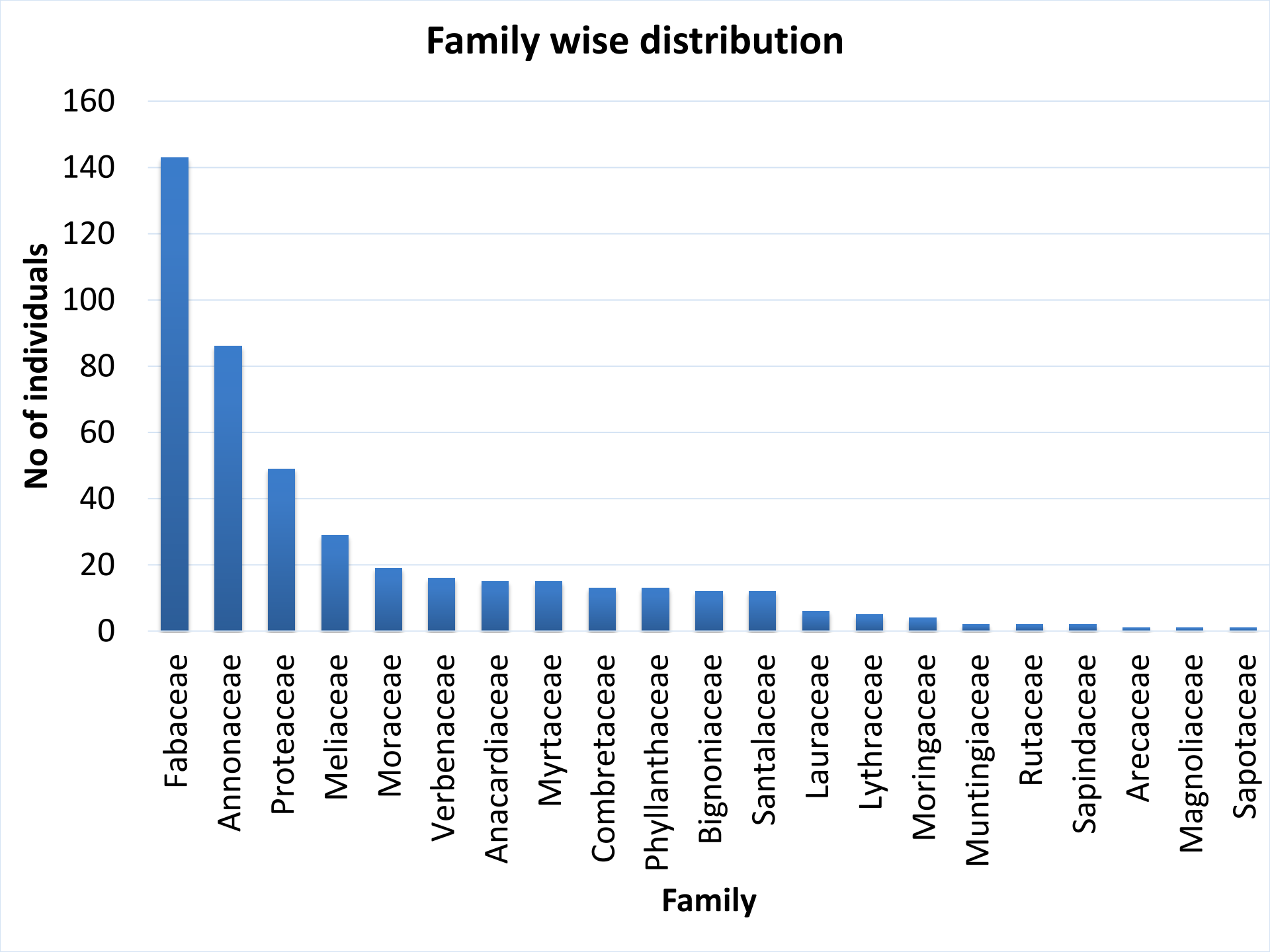
Scientific name	*Carbon sequestrated(ton)*
1.Leucaena leucocephala	*37.4483*
2.Ficus bengalansis	*22.85483*
3.Bauhinia purpurea	*18.19241*
4.Spathodea campanulata	16.43307
5.Spathodea campanulata	12.73633
6.Spathodea campanulata	11.6419
7.Tabebuia aurea	10.97967
8.Millettia pinnata	9.70551
9.Bauhinia purpurea	9.458776
10.Millettia pinnata	8.8535

Table 1: List of Species found in K K High School, Varthur, Bangalore

Sl.No	Botanical name	No of Individuals	Family	Native	Common name
1	*Polyalthia longifolia*	81	Annonaceae	India	Mast Tree
2	*Grevillea robusta C*	49	Proteaceae	Australia	Silver oak
3	*Leucaena leucocephala*	45	Fabaceae	Mexico and northern Central America	Subabul
4	*Bauhinia purpurea*	43	Fabaceae	Tropical Asia	Purple Orchid Tree
5	*Azadirachta indica*	29	Meliaceae	India	Neem tree
6	*Millettia pinnata*	25	Fabaceae	India	Indian Beech
7	*Albizia saman*	21	Fabaceae	Tropical America	Rain tree
8	*Tectona grandis*	15	Verbenaceae	South-east Asia	Teak wood
9	*Mangifera indica*	15	Anacardiaceae	India	Mango tree
10	*Terminalia catappa*	13	Combretaceae	South east Asia	Country almond

11	*Santalum album*	12	Santalaceae	India	Sandalwood
12	*Artocarpus heterophyllus*	10	Moraceae	India	Jack Fruit Tree
13	*Phyllanthus acidus*	10	Phyllanthaceae	Brazil	Star Gooseberry
14	*Tamarindus indica*	9	Fabaceae	Tropical Africa and India	Tamarind tree
15	*Spathodea campanulata*	8	Bignoniaceae	Tropical forests of Africa	Fountain Tree
16	*Psidium guajava*	7	Myrtaceae	Tropical America	Guava Tree
17	*Syzygium hemisphericum*	6	Myrtaceae	South-east Asia	Hemispheric Rose-Apple
18	*Persea americana*	6	Lauraceae	Central America	Butter fruit Tree
19	*Annona reticulata*	5	Annonaceae	Neotropics	Custard Apple
20	*Ficus racemosa*	5	Moraceae	India	Country Fig
21	*Punica granatum*	5	Lythraceae	Iran to the Himalayas in northern India	Pomegranate tree

22	*Tabebuia aurea*	4	Bignoniaceae	Caribbean	Caribbean Trumpet Tree
23	*Moringa oleifera*	4	Moringaceae	northwestern India	Drumstick Tree
24	*Phyllanthus emblica*	3	Phyllanthaceae	India, South-east Asia	Indian Gooseberry
25	*Sapindus laurifolia*	2	Sapindaceae	South India	Soapnut
26	*Ficus religiosa*	2	Moraceae	India, Burma	Peepal Tree
27	*Syzygium cumini*	2	Myrtaceae	South east Asia	Jamun
28	*Muntingia calabura*	2	Muntingiaceae	Central America	Strawberry tree
29	*Citrus limonum*	2	Rutaceae	Asia	Lemon tree
30	*Duranta erecta*	1	Verbenaceae	South America	Skyflower
31	*Phoenix dactylifera*	1	Arecaceae	Arabia and N.Africa	Date palm
32	*Ficus drupacea*	1	Moraceae	India	Mysore Fig
33	*Ficus benghalensis*	1	Moraceae	India	Banyan Tree
34	*Manilkara zapota*	1	Sopataceae	Southern Mexico, Central America and the Caribbean	Sapodilla
35	*Michelia champaca*	1	Magnoliaceae	Tropical and subtropical south and southeast Asia	Joy of perfume
36	*Not identified*	50			


Family wise distribution
No of individuals
160
140
120
100
80
60
40
20
0
Fabaceae
Annonaceae
Proteaceae
Meliaceae
Moraceae
Verbenaceae
Anacardiaceae
Myrtaceae
Combretaceae
Phyllanthaceae
Bignoniaceae
Santalaceae
Lauraceae
Lythraceae
Moringaceae
Muntingiaceae
Rutaceae
Sapindaceae
Arecaceae
Magnoliaceae
Sapotaceae
Family

Present image of our school

Area of green cover

- Google pro.
- 14 polygons
- Total green cover 0.82352042 hectares = 42.44%
- Our school total area = 1.94 hectares

Image of 2002 and 2014

Importance of the species to the environment

Polyalthia longifolia

Polyalthia seeds which are easily available have a potential to be used as a low-cost and eco-friendly bio-sorbent and can be used as an alternative to the current expensive methods of removing dyes from textile effluents.

Azadarichta indica

- Neem cake is a very good bio-fertilizer.
- It is a key ingedient in non-pesticidal management.
- It is of great importance for its anti-desertification properties and possibly as a good **carbon dioxide** sink.

Sapindus laurifolia

- Soapnut fruit do not contain any synthetic materials,fragrances,pigments,preservatives and other chemicals.
- They are pure natural product and 100% bio-degradable , there is no body or environmentally harmful residue, even when used long term.

Conclusion

- Approximately 421.31187 (ton/ha) of carbon sequestered by our school trees from the atmosphere over the years.
- Minimizing global warming and increased urban green cover.
- Protection of ozone layer.

Our message

- Sow the seeds of conservation in the minds of school children.
- Plant more trees if you want to breathe in future.
- After planting saplings ,please nurture them for at least three years.

THANK YOU