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Climate Resilient Planetary Defence : A Case of Cost Free Models



by

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Summary

Space Quest Background:

Scientific Philosophical Perspectives 600 BC to 2000 AD and later

Greek Science, Dark Age, Medieval Science, Scientific Revolution

Climate Change, Disasters and Pandemic : Lesson for Planetary defence

Vision, Agenda and Action Plan

Role of Informal and Non Formal Education and Agenda 21

Indian Popular Science Non Formal People Science Heritage

Action for Community Enabling to Care for Planetary Defence

Way Forward and Results

Four Zero Cost Community Centred Space Eco Literacy Models

- 1. EESS : Ecological and Environmental Studies by Students 1987-88**
- 2. SELC : Community Eco Literacy in the Lake Environs, 2000-2019**
- 3. SEL SF: Space Eco Literacy for Students with Family, 2011**
- 4. SEL SW : Space Eco Literacy Sky Watch Orientation, 2020**

Space Quest evolved since ages:

Scientific Philosophical Perspectives 600 BC to 2000 AD and 21st C

Significant Scientific Perspectives : Key Indicators

Space for Humanity(IAA) : Space Security Enabling(UNIDIR)



Greek Science : 600 BC to 200 AD

- Socrates, 470 BC : **The Dialectic Method** : Discovery by Question and Answer.

Dark Age : 200 AD to 1000 AD

- Avicenna, 980 AD : Preservation and Translation of **Greek Science**.

Medieval Science : 1000 AD to 1600 AD

- Copernicus, 1473 AD : Heliocentric Model of the Universe, **Earth not Centre**.
- Galileo, 1564 AD : Invention of Telescope, Foundation of **modern Astronomy**.

Scientific Revolution : 1600- 1960 AD

- **Rockets** , 1200 AD : 3 to 6 Kg black powder,1000 M Range .
- Kepler , 1571 : Law of **Planetary motion**.
- Newton, 1643 AD: Principles of **Experimentation**.

Space Age, 1960 to 2020

- Yuri Gagarin 1961 : First **Human in Space**
- Neil Armstrong 1969 : First **Man on Moon**
- ISU, 1988 : **Space Education for Changing World**, 5000 Alumnus in 110 countries

Counter Space Time Line, 1960 to 2020

- Space for **Humanity** and **Space Security** Endangered

7th Planetary Defence Conference Space enabled

- **IAA/UNOOSA/ESA, 2021** 900 + Space ecological niche professionals/entities.

Climate Change, Disasters and Pandemic Threats : Take Home for Planetary defence

Climate Change :

- 1972 Earth Day , Millions for Earth. Governor G Nelson.
- 2000 Earth Day Network, 5000 groups in 184 Countries.
- 2015 1.5 deg C target by 2030 : 1 Billion in 193 countries.

www.wedonthavetime.org

Take home : Rich get richer / Inequality challenges well being.

Disaster Risk Reduction:

- Good Practices with Space technology handholding.
- 1988, EM-Dat Weekly Disasters ,Monitoring. WHO.
- 2015-2030 Sendai Frame Work, UNISDR.

<https://www.undrr.org/> <https://www.emdat.be>

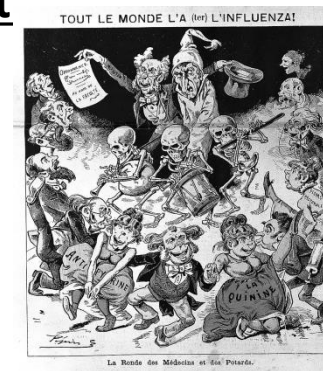
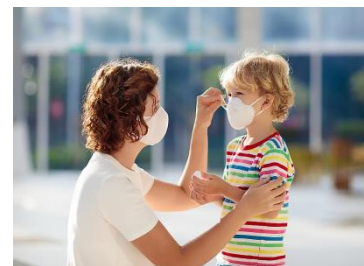
Take home : Community enabling to care its environment

Pandemic :

- Malaria, Pre historic till date.
- Plague, 1346 , 1994.
- H1N1 2009.
- SARS, 2002.
- Covid19, 2019.

<https://covid19.who.int/>

Take home : Public Health Architecture and control over technological abuse.



Design Guidelines for Non Formal Space Education Models

UNEP/UNESCO/IEEP, Tbilisi Conference 1977

- **The world's first intergovernmental conference on environmental education was organized by the United Nations Education, Scientific, and Cultural Organization (UNESCO) in cooperation with the U.N. Environment Programme (UNEP) and was convened in Tbilisi, Georgia (USSR) from October 14-26, 1977.**
- **Delegates from 66 member states and observers from two non-member states participated. Representatives and observers from eight U.N. agencies and programs also participated. Three other intergovernmental organizations and 20 international nongovernmental organizations also were represented. In all, 265 delegates and 65 representatives and observers took part in the conference.**
- **The Tbilisi Declaration was adopted by acclamation at the close of the intergovernmental conference. The declaration noted the unanimous accord in the important role of environmental education in the preservation and improvement of the world's environment, as well as in the sound and balanced development of the world's communities.**

**(Attitude, Awareness, Knowledge, Skill, Participation
for Individual and Community enabling to Care their
environment)**

Vision Agenda and Action Plan

Role of Informal and Non Formal Education and Agenda 21

Informal means for Planetary Defence Awareness



Agenda 21, Chapter 36, UNCED,1992

Promoting Education, Public Awareness And Training :

k. Countries should facilitate and promote non-formal education activities at the local, regional and national levels by cooperating with and supporting the efforts of non-formal educators and other community-based organizations. The appropriate bodies of the United Nations system in cooperation with non-governmental organizations should encourage the development of an international network for the achievement of global educational aims.

At the national and local levels, public and scholastic forums should discuss environmental and development issues, and suggest sustainable alternatives to policy makers;

(<http://un-documents.net/a21-36.htm>)

Counter Space

Planetary Threat Within

- Counter Space Time line since 1960 has been cumulative and qualitative in house threat of few on everybody. The source is known but the action is wanting. Engaging Civic Societies dialogue and Future Generation confidence could be some of the possible efforts to Secure Space for all.

	China	Russia	U.S.	France	India	Iran	Japan	North Korea
LEO Co-Orbital	Y	G	Y	R	R	R	R	R
MEO/GEO Co-Orbital	Y	Y	Y	R	R	R	R	R
LEO Direct Ascent	G	Y	Y	R	Y	R	R	R
MEO/GEO Direct Ascent	Y	Y	Y	R	R	R	R	R
Directed Energy	Y	Y	Y	Y	R	R	R	R
Electronic Warfare	G	G	G	Y	Y	Y	R	Y
Space Situational Awareness	G	G	G	Y	Y	Y	Y	R

Legend: none **R** some **Y** significant **G**

<https://swfound.org/counterspace/>

Science of Non Formal Education

Non Formal Education could be most effective in Planetary Defence

- **Non formal and informal education can contribute to helping people achieve a level of scientific and technological literacy which will allow them to function effectively (P. Morris).**
- **Non formal education may described as a hinge between Science and Culture (Camilie Bonnani).**
- **In the non formal sector the rate of innovations in relatively higher, because non-formal education has not so tight structures as the formal education system(Kurt Prokop).**

(UNESCO, Sep 4-9, 1989)

**Social Dimension of Disasters and Global Warming – A Reality
Way out Space Enabling Communities to live through**



Poverty makes people more vulnerable to climate changes as they lack the resources to adapt to climate changes.

It is ironical that the poor contributes the least to carbon emission but are most vulnerable to climate change.

Planetary Defence Related People Science Movement in India, Late 1980s to date

- **Bharath Jana Vigyan Jatha, BJVJ, 1987 is a watershed in People Science Movement in India. From October 2nd to Nov to 7th 1987. 26 organizations under All India Peoples Science Network conducted a major campaign in science communication aimed at promoting a better understanding of the methods and values of science and the contribution it can make to human progress. This BJVJ consisted of 5 zonal Jathas or mobile groups of scientists, teachers, artists and PSM activists who travelled over 25,000 Kms, held performers at over 500 locations and converged at Bhopal in a rally of over 4000 scientists, teachers and activists on November 7,1987. In addition to these Jathas, extensive local programmes were organized.**
- **KRVP Karanataka Rajya Vigyan Parishat, recipient of first National Council for Science and Technology Communication, Govt India National Award for popularizing science is working for over 3 decades with many science related activities sponsored by Govt of India and Govt of Karnataka. www.krvp.org**
- **Four models focused here have been implemented under KRVP in 1988 and later three models through People Science Forum, a unit of KRVP.**
- **One significant work in the recent past has been publication of a 40 years of Indian Space Programme self reliance saga in a Book : Space Technology and Social Applications by Dr. A S Kiran Kumar, Former Chairman ISRO and posted at PSF Home page. www.oeliusob.com**

**UNCED Rio Earth Summit, 1992 Take Home for Planetary Defence
Enabling communities to care for their own environments**

ACTION POINTS

- **Action : 01 : Provide Communities and individuals with access to resources and an equitable share in managing them.**
- **Action : 02 : Improve exchange of information, skills, and technologies.**
- **Action : 03 : Enhance participation in conservation and development.**
- **Action : 04 : Develop more effective local governments.**
- **Action : 05 : Care for the local environment in every community.**
- **Action : 06 : Provide financial and technical support to community environmental action.**

**Caring for the Earth: A Strategy for Sustainable Living
(IUCN,UNEP/WWF, 1991)**

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**Model : 1 : EESS : Ecological and Environmental
Studies Students, 1988, Bengaluru,India.**

**Over 60 students used one hour a week for
eight months. EESS Model got cited as one of
the best 20 Eco Education Guides by Earth Day
Network 2000 and shared with 1500
organisations in 140 countries**

Summary of the Results of Model 1 : EESS at Bengaluru, 1987-88

Table : 1.1

Case study -01 Ecological and Environmental Studies by Students: EESS at Mount Carmel College, Bangalore, India.

March to Oct 1987

Summary of Activity, methodology, resources, outputs, Important learning and compliance to Li, EL, for UNESCO IEEP.

(LI : Literacy: EL : Eco Literacy : IEEP : International Environment Education Programme)

Sl. No.	Group/ Study Area/ : Students	Activity Focused included	Methodology	Important Resources	Output	Important learning	Compliance to Li, EL, ,IEEP guidelines
1	FIRST Bangalore Urban problems Studies 12 Students	Lakes, water supply, wastes, flora and fauna, transportation, Landuse.. ,	Reading reports, and summary making, reports and discussion.	Gazetteer on Bangalore, Essays on Bangalore KSCST, State of Environment Reports, Depts, Lakes report.	Students Report, Seminars, Exhibition.	Status of Habitat, quality of life and environment and policy and governance of city problems.	Cognition of problems , Ecological Awareness environmental Motivation, Participation
2	SECOND College Campus Studies 12 Students	Land use, soil type, flora, fauna, hydrological water supply , waste ...	Data collection, interpretation, analysis, reporting, seminar	Maps of the college, college library, land use, flora and fauna, material-energy use bills.	Ecological and environmental reports on campus.	Systems understanding, of the college campus. Mapping utilities and energy and materials flow.	Cognition of problems, Ecological , Awareness. Environmental Motivation, Participation
3	THIRD Vasantnagar Neighborhood studies 12 Students	Road side trees, slums, health services, water, waste management	Field visits, data collection; Analysis, household questionnaire	Household, survey maps, Local administration reports survey maps, , analysis.	Reporting on facts of environmental conditions. Quality review.	Exposure to field conditions and identifying problems based on residents response, recording and posting.	Cognition of problems,, Ecological , Awareness, Environmental , Motivation, Participation
4	FOUR Environmental Quality Parameters Monitoring studies 20 Students	Identification Environmental parameters, Physical chemical and Biological	Cost free quality methods, Lichens, Dust fall zoning, Beaufort Scale for Wind,	Existing Physics, Chemistry and Biology labs and Popular Science Books on Quality assessment.	Real time cost free monitoring conducted. Reports presented.	Simple environmental quality assessment reported based on WHO guidelines and Standard methods.	Cognition, Ecology, Awareness , Motivation, Participation

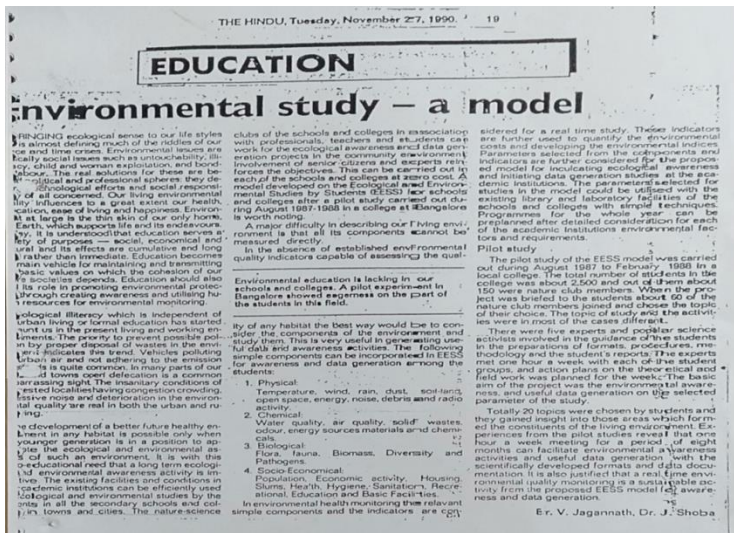
Note 1) A total of 60 Pre University and Undergraduate students in Arts, Science, Commerce areas of study chose a topic of their choice and preferred to work in group or independently. 2) One or two page literature and specific guidelines were handed over once in a week before the morning classes and outputs collected on previous week.. 3) A midterm exhibition and seminar was conducted and students presented their finding. 4) Students were also taken to field visit to Ulsoor Lake, Botanical Garden-Lal Bag and Remote Sensing Lab, ISRO.. 5) A Student from Arts faculty in Pre University was given a certificate for work in EESS for studies abroad.6) A honor by National Institute of Quality Assurance NIQA Bangalore Chapter was given for EESS work in 1987. 6) The Hindu National New Paper reported the EESS Model in its Education forum pages in 1992 .7) EESS model was cited as one of the best 20 Eco Education Guide by Earth Day Network in 2000 and shared in 140 countries. .8) A student participant in EESS 1987-88 , Ms Shalini Susheel is now a successful coordinator of volunteer efforts in the restoration of urban lakes at Bangalore after 3 decades.

Model : 01 : EESS

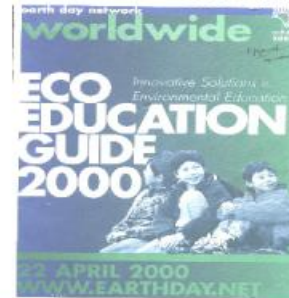
Ecological and Environmental Studies by Students

EESS, 1988 Model based on
UNEP/UNESCO/IEEP 1977 Tbilisi

Cited as one of the 20 best Eco Education
Guide by Earth day Network 2000



Global Best Practice
Earth Day Network
Eco-education Guide 2000



- Reach 4500 Organizations worldwide, 191 countries
- Earth day each year in a population of India networked
- International Citizen day 22 April every year

EESS developed by Scientists from ISRO cited as one of the best 20 Eco-education Model

A Team of Space Scientists from ISRO in 1987-88 create an Informal Environmental Education Model based on UNEP/UNESCO/IEEP, Tbilisi Conference Guidelines. It is one hour a week for 8 months on ecology and environmental studies. It involved scientists, community experts, interface by students which led to EESS model. About 60 students embarked this historical work. Earth day Network 2000 cited EESS as one of the best 20 Eco Education Guide model.

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**Model : 2 : Community Eco Literacy campaign on
Sundays from 2000-2019 at the Kukkarahally
Lake environs, Mysuru.**

**Over 2500 man-days were deployed by students,
youth and citizen, Clean Up the World, Australia
and UNEP honoured this voluntary efforts in
2003 and 2004**

Summary of the Results of Model 2 : Eco literacy on the Banks of Kukkarahally Lake, Mysuru 2000 to 2019

Table 1.2 :

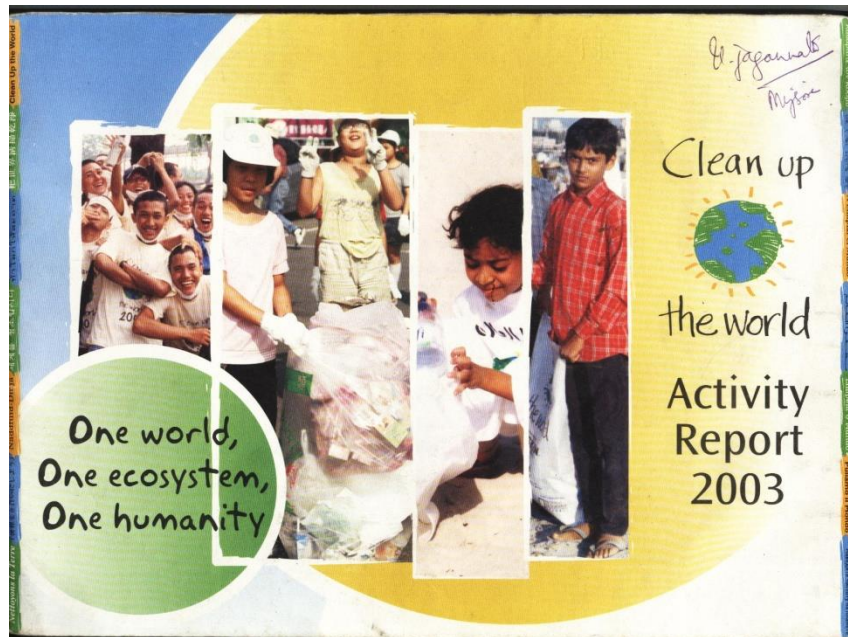
Case Study 02 : Community Eco : literacy at Kukkarahally lake, Mysuru, India 2000-2011
Over 350 Sundays weekend volunteers and experts community eco literacy campaign at Lake Environs and Beyond
Summary of focus, resources, methodology, outputs, Important learning and compliance to Li, EL, for UNESCO IEEP.
(LI : Literacy: EL : Eco Literacy : IEEP : International Environment Education Programme)

Sl. No.	Focus	Resources	Methodology	Outputs of the Campaign	Significant Compliance to Li, EL, IEEP
1	On the shores of Kukkarahally lake	Lake condition deteriorated condition, , volunteer students, teachers popular science experts, lake walkers, artists, journalists, elected representatives,	Picking up plastic waste from the shores, popular science lectures on environment, discussions, feeder canal status survey.	Attitude, awareness, knowledge, skill, participation among participants, reports on ecology and environment, public opinion and feeder canal status survey Reports, papers.	Eco Literacy on Lake environs, knowledge on urban environment, Life Style, Environmental problems understanding, community participation for cleaning the urban lake
2	In the environs beyond Kukkarahally lake	Residents at urban ward level, Fair, Festivals and exhibition, City Corporation, South Western Railways, State Pollution Control Board	House to house visit with pamphlets, street play, folklore songs, water and solid waste literacy pamphlets distribution, Survey of Solid Waste Management in ULBs, Field Survey Report.	Display and sale of popular science and environmental education books in Kannada Counseling for students for further education in space and environment.	Environmental awareness at parts of urban areas using folk lore and other cultural traits, survey of environmental status outside the lake environs, participation in street plays and Year of scientific Awareness

Note: 1. Over 350 Sunday weekend community eco literacy was embarked during 2000 to 2019 2) The activities involved picking plastic waste at lake shores, collecting opinions of lake walkers on lake, organizing lectures on popular science topics on the shores 3) Beyond shores specific activities were house to house campaign on eco-friendly life styles 4) Motivation on segregation of waste at home by house to house pamphlets distribution. 5) Local News Paper Prajavani published a special focus on 250th week in local language.6) People Science Forum Voluntary efforts recognized by Clean Up the World, Australia and UNEP 2003 and 2004 7) Efforts to make voluntary weekly efforts global visibility through home page since 2020. www.oeliusob.com 8) Recognized by Clean up the world, Australia and UNEP and Network 2000. One Street Play of 14 minutes duration using third world theatre methods implemented in a Jatha on 2000. 9) The “ Plastic Demon” street play by PSF was used as a Puppet show during Year of Scientific Awareness 2004 in the state of Karnataka by parent organization KRVP. 10) A special publication of two Professors life time best papers in Local language on Scientific Temperament was published by a private company M/s Rang Sons Pvt Ltd..

Clean up the World

One World, One ecosystem, one humanity



People thinking globally, acting locally through environmental action

- **Main Objective :**
 - To bring together citizens from every corner of globe in a simple activity that positively assist their local environment
 - Since 1993, Clean Up the World has motivated more than 40 million people each year to volunteer and make their environment a cleaner, healthier place to live.

www.cleanuptheworld.org

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**Model : 3: Ten Sundays Space Eco
literacy for 30 children and family,
Albert Einstein Auditorium, DOS in
Physics, University of Mysore in 2011.
Results were reported at COSPAR 2012
Assembly, Mysuru India.**

Table 1.3::**Case study-03: Space Eco-literacy Campaign for family, Mysuru, India****Summary of 9 weeks Sunday morning activity at Albert Einstein Auditorium, Dept of Studies in Physics, University of Mysore, India****April to May 2011****(EL : Eco Literacy : SEL Space Eco Literacy: SSA : Space Situational Awareness IEEP : International Environment Education Programme**

Sl. No.	Week/Day	Focus	Activity	Resources	Methodology	EL, SSA, IIEP Objectives	Targets achieved	Benefits to family level
1	One 13 April 2011	Inaugural & Screening of movie on Eclipse	Yuri Gagarin, 50 years . Screening of Movies	Movies on Space and Yuri Gagarin, Professor in Physics	Film screening Lecture	Attitude Knowledge	50 years of Yuri Gagarin	Children along with parents in the space informal education class
2	Two 17 April 2011	Chandrayan I	Viewing movie on Eclipse	Vice Chancellors Lectures	Lecture and Interaction,. Sky Chart	Knowledge Awareness	Posters and Pamphlets on Chandrayan I	ISRO P & PR education materials reach families
3	Three 24 April 2011	Earth Day	Solid Waste Management	Local Politicians	Movie on SWM	EL, SSA Knowledge Attitude	Presentation by Children	Our only home earth concept introduced
4	Four 1 May 2011	Space and Human development	Introduction to Astronomy	Amateur Astronomer	Lecture And Interaction	SSA Skill Knowledge	Presentation by Amateur Astronomer	Astronomy as a science introduced
5	Five 8 May 2011	International Space Station	Watching movie	ISS movies	Lecture and discussion	SSA Skill Knowledge	Introduction to ISS	Discussions on ISS by children by parents
6	Six 15 May 2011	Apollo Mission and Space Quiz	Watching movie and Quiz	Movies/Space Quiz	Quiz/Movie watching	SSA Knowledge Attitude	Space exploration introduced	Future space quest introduced
7	Seven 22 May 2011	ISRO- Introduction	Presentation on Space Technology	ISRO Scientist	Lecture and Q & A	Knowledge Awareness	Saga of ISRO unfolded	Self reliance in space by India introduced
8	Eight 29 May 2011	Black hole Introduction	Basics of Cosmology	Amateur Astronomer	Lecture and QA	Knowledge Awareness	Deep Space quest	Astronomy Introduced
09	Nine	Valedictory	Space Eco	Participants	Feedback	Participation	Team Learning	Certificates to children

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Upasaki Prof V M Parvathamma Memorial Virtual
Space Eco Literacy and Sky Watch SEL SW Orientation
Program April – Oct 20

Model : 4: A Virtual Space Eco literacy Sky Watch Orientation model was planned, designed and implemented during the Covid19 lockdown April – Oct 20. Over 60 nos of 5th to 9th Std Students were supported with a handhold. Pandemic week two background fliers were translated to French, German, Spanish and Japanese and shared with WHO through press briefing webinars. The weekly topics included Climate Action, Pandemic, Lakes, ISRO, ISS, ISU, Space Explorations, Astrobiology and Sky Watch.

Table: 1.4

**Case : 04 : : -Space Eco-literacy and Sky Watch SEL SW Orientation virtual model
Summary of Ten weeks activity conducted during Lock down April-October 2020
March – Oct 2020**

(LI : Literacy: EL : Eco Literacy :SSA : Space Situational Awareness : IEEP : International Environment Education Programme

I. No.	Week	Focus	Methodology	Resources	LI,EL,SSA,IEEP objectives	Benefits to Family, School and Guardians
1	One	Climate change	Reading of one page article on Climate change	Background Note and Guidelines by e mail	EL, Know ledge	Websites Informed www.wedonthavetime.org
2	Two	Pandemic Resilience since ages	Reading two page flier on Pandemic and warfare since prehistoric time	Link to GOI, WHO information and Action Social Media	SSA, Attitude, Knowledge participation	Notes and Syllabus sent by e mail and posted at PSF home page
3	Three	Eco sense Cost free	Reading two pages notes on Five Eco Actions at Home	Preamble constituting of India Panchasutra	LI,EL Skill Participation	One Engineer from ULB gives the pancha sutra guidelines
4	Four	ISS and ISU	Two pages notes on ISS and ISU for reading	ISS Homepage ISU homepage	SSA, Knowledge	Two Alumnus of IS pen the background material
5	Five	Lakes are Eyes of earth	ILEC Home Page . Case study of lake restoration by NGO.	Notes on Lake, a poem, painting or a note by students a	LI, EL Knowledge Skill	One EESS participant 1987-88 is a resource person.
6	Six	ISRO	Prof. Satish Dhawan, Former Chairman ISRO,	Two page note and Home Pages of ISRO	SSA, Knowledge	Former ISRO scientists provided background notes
7	Seven	Ecological Engineering	IEES Society IETC-UNEP home page visited	IEES, ILEC –UNEP Notes	EL, Skill Knowledge	Ecological engineering introduced
8	Eight	Space Exploration	Reading on Sputnik, man on moon notes,	Space Exploration Movies	Knowledge Participation	NASA,ESA,UNOSA introduced
9	Nine	Astrobiology Sky watch	Reading on Astrobiology 2000 BC to present	NASA Homepage and note on Space quest	Knowledge Participation	Astrobiology introduced
10	Ten	Sky watch	Space quest History of Greek science to present reading	AABA Association of Amateur Bangalore Association note	SSA, Skill Knowledge Participation	AABA Introduced

Note: 1. Over 60 students of 5th -9th standard with a handhold in a parent, teacher or guardian participated in the programme 2) Every week a note and syllabus was sent to each of the 60 students by e mail. 3) The output was in the form of a write up, painting, poem, video on the theme 4) The notes were posted on the People Science Forum home page. 5) Students contributions were documented 6) Few creative contributions are enclosed.

Inferences/Findings

1. **A Zero Cost Space Eco literacy model in Non- Formal mode is sustainable .**
2. **Cultural heritage embedded with space quest in the students is an asset.**
3. **Creative expressions of children is an indication for Secure World civic sense.**
4. **In spite of digital divide enabling students of vulnerable population sustained.**
5. **A minimum e mail communication system is necessary or a snail mail adequate.**
6. **The model can be replicated in any other languages by community groups.**
7. **Planetary Defence is integrated in the ongoing 5th model.**

(NF SSAC 21 reported at 7th PDC ORAL Paper No.78

RECCOMENDATION

- **No Cost Planetary Defence Space Eco Litercay Education models are sustainable.**
- **The models are based on UNEP/UNESCO/IEEP 1977 Guidelines .**
- **The four Eco Education models have lived thorough resources.**
- **The models use indigenous resources involving the most vulnerable populations also.**
- **The models have used the best form of omnipotent Space Sciences for community enabling to care for their environment.**
- **Non Formal Virtual Courses one hour a week ongoing by People Science Forum, KRVP Unit Mysuru, India www.oeliusob.com in PANDEMIC new norm be deployed in different cultural settings.**
- **These models validated to local environmental conditions can be considered for global deployment in Space Education Out Reach by UNOSSA/IAA/ESA and others Space domain Organisations.**

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Ar. Sadhana J, Ph.D. Scholar, Environmental Psychology, UoS, UK

And

Mentors, Teachers, Students and Volunteers

in the development of EESS Model 1988 at MCC Bengaluru , Community Eco Literacy over 350 Sundays from 2000 at Kukkarahally Lake Mysuru, Ten Sundays Family Space Eco Literacy at University of Mysuru, 2011, along with Young Students 5 to 9 std with a handhold in Space Eco Literacy and Sky Watch Orientation Program March – Oct 2020 : Virtual Model : LOCKDOWN Output

now

Non Formal Space Situational Awareness for Students with a handhold for Planetary Defence Life Style

NF-SSAC 21

Sincere thanks are also to Teachers at International Space University, since SHSP 2011 at UoSA Adelaide Australia. And colleagues at Indian Space Research Organization, since 1984.

and

UNOOSA/IAA/ESA

**7th PDC April 21, UOOSA/IAA/ESA
A Space Eco Literacy Tribute to a Teacher**



Photo : P. Eranna,2016

**Submitted with rich Space heritage
tribute to a mentor Padmashri
Prof U R Rao, Formerly Chairman ISRO**

Sincere thanks for your attention..
.... Pl share your response at
< jagsiobbindia@gmail.com >

**Mindfulness is Convergence for Community Enabling to Care for its
Planetary Defence**



Photo: Shobha.J, 2018

Eco Sense is Cost Free, and has been a real Cultural Heritage of any sustainable community.
. JV, Mysuru, India