IAA6, PDC19
Hypothetical Asteroid striking the Earth
Exercise  April 29- May 03, 2019

IAA-PDC-19-06-15
ROLE OF SPACE TECHNOLOGY IN DISASTER MANAGEMENT :
AGENDA AND ACTION PLANS

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SUMMARY

Space Technology and Disaster Risk Reduction
Space Eco Literate Quest in 600 BC – 2000 AD Philosophical Perspectives
Ability of Space Technology for “Dual use” in Nations
Best Practices in Space Technology for Disaster Risk Reduction

Agenda
Individual and Community Empowerment UNESCO/UNEP/IEEP/1977
Agenda 21 Chapter 36 and UNSDG 2030 Goals
IAWN, SMPAG and Sendai System in position

Action Plan
Community Empowerment leading to Sustainability
National Programmes and District Disaster Management Plans
Lessons from UN APELL

WAY Forward
CONVERGENCE OF HUMAN CONSCIENCE for our Only Home TERRA
• Man’s Future in Space will be determined more by Socio-Cultural Imperatives rather than Science & Technology alone…

• Individual Liberty & Democracy along with deep and active concern for all living beings on Earth are essential features of a Civilized Society…. 
  – Prof. Satish Dhawan

- The world’s first view of Earth taken by a spacecraft from the vicinity of the Moon. The photo was transmitted to Earth by the United States Lunar Orbiter I and received at the NASA tracking station at Robledo De Chavela near Madrid, Spain. This crescent of the Earth was photographed August 23, 1966 at 16:35 GMT when the spacecraft was on its 16th orbit and just about to pass behind the Moon
Significant contributions
1) in 470 BC Socrates : The Dialectic Method: 2) Copernicus 1473 : The Earth Centered Model Changed and 3) Newton 1642 : Culmination of Experiment
The frequency and intensity of natural disasters are also growing rapidly worldwide. 50 per year in 1900 to 200 per year in 2000.

Source: UNEP
Ability of Space Technology for “Dual use”
Arm Race.. A Psychological Disaster
The Winner in Disaster Risk Reduction is Human Conscience

Nuclear War Heads

<table>
<thead>
<tr>
<th>Year</th>
<th>No of War Heads</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td>70,0000</td>
</tr>
<tr>
<td>2014</td>
<td>9000</td>
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</tbody>
</table>

A reduction of 87% in 28 years... Positive Trend

2014 No of War Heads

<table>
<thead>
<tr>
<th>Country</th>
<th>No of War Heads</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>6550</td>
</tr>
<tr>
<td>Russia</td>
<td>6850</td>
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<tr>
<td>France</td>
<td>300</td>
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<tr>
<td>UK</td>
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<td>UK</td>
<td>215</td>
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<td>Pakistan</td>
<td>145</td>
</tr>
<tr>
<td>India</td>
<td>135</td>
</tr>
<tr>
<td>Israel</td>
<td>80</td>
</tr>
<tr>
<td>N Korea</td>
<td>15</td>
</tr>
</tbody>
</table>

(Source: ARMSCONTROL, FAS.ORG.SIPRI)

For the past 40 years, mankind has lived uneasily under the threat of Nuclear War.
Prof Satish Dhawan, ISRO, STAR WARS, 1986
Ability of Space Technology for Self Reliance in Human Development
A case of Indian successful journey

Space Sciences and Social Applications

Milestones

• Demonstration of space applications in communication, broadcasting and remote sensing 1970s.
• Cyclone monitored every 30 min and 1000s life saved, since 1990s.
• Chandrayaan-1 2008,
• http://iaaweb.org/iaa/Summit/IAA_Study-disaster_Management.pdf 2010
• Mars Mission 2013
• ASTROSAT 2017
ERADICATION OF SPACE ILLITERACY IS INDISPENSABLE

The Next 40 years in Space – will be meaningful only if total eradication of illiteracy is achieved by collective national will and International effort.

Prof. U.R. Rao, IAF, Oct 1989
Practices in Space Technology for Disaster Management

- ESCAP, 2013, Sound practices in space technology applications for disaster risk reduction, Dec 2013
- APELL, UNEP, Commemorating 25 Years of Awareness and Preparedness and Emergencies a Local Level (APELL), 2012, www.unep.org/dtie,
- National Cyclone Risk Mitigation Project - http://ncrmp.gov.in/
Practices in Space Technology for Disaster Management  Cont’d


• **IDSR 2009**, Disaster Risk Reduction in the United Nation : Roles, Mandates and areas of work of Key United Nations entities.

• **Rao, A S. 2014**, Space Technology in Disaster Management in India,

• [https://www/researchgate.net/publication/268784607_SPACE_TECHNOLOGY_IN_DISASTER_MANAGEMENT](https://www/researchgate.net/publication/268784607_SPACE_TECHNOLOGY_IN_DISASTER_MANAGEMENT)
Learning for future UN SDG 2030…
Empower Community with Space Governance

ECO SENSE IS COST FREE
What is the use of a beautiful house, if you do not have a decent planet to put it on?
Sir Henry David Thoreau

You must be the change you wish to see in the world.
M K Gandhi

COMMUNITY EMPOWERMENT

• 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.

(Source : A Strategy for Sustainable Living, IUCN, UNEP, WWF-1991)
Agenda 01

Individual and Community Empowerment
UNESCO/UNEP/IEEP/1977

- Objectives of Environmental Education are “To provide AWARENESS, ATTITUDE, KNOWLEDGE, SKILL AND PARTICIPATION and Participation ..
  - This has run through all the UN Statutory Guidelines since 1977 all through in UN
Model 1. EESS

EESS Ecological and Environmental Students by Students

EESS Model: One hour a week for eight months: 32 hours facilitate students reports.

Resources: Community Resource persons, teachers in field and labs facilitate. Result: Cited as one of the 20 best eco education models by Earth Day 2000 and distributed in over
Global Best Practices
Case study

Earth Day Network
Eco-education Guide 2000

- 4500 organizations worldwide, 191 countries
- Almost the population of India networked
- International Citizen day 22 April every year
- www.earthday.net

EESS developed by the first author was cited as one of the best 20 Eco-education Model
In India, Ecological and Environmental Studies by Students (EESS) is a zero or low-cost informal environmental education model for community empowerment. Under the model, students develop and implement a program of environmental studies, with guidance from experts. The EESS model leads to the development of skilled and motivated students, equipped with knowledge of and experience in environmental problem solving. Most recently, students have used the model to assess the adequacy and sanitation of the water supply in an urban village in India.

On Earth Day 2000, the Mysore Environment Trust (MET) will launch the EESS model in schools and colleges in the Mysore region, in collaboration with community experts and academic institutions. MET will also use Earth Day 2000 to launch a program on civic and environmental problems to create effective dialogue on the local Agenda 21 for Mysore and the surrounding region in India.
Community Empowerment
Agenda 21 Chapter 36
Countries should develop a service of locally trained and recruited environmental technicians able to provide local people and communities, particularly in deprived urban and rural areas, with the services they require, starting from primary environmental care
(Source: Agenda 21, Chapter 36)
Further, Agenda 21, Chapter 36, Promoting Education, Public Awareness and Training provides clearly agenda and action plan. The Conference secretariat had estimated the average total annual cost (1993-2000) of implementing the activities of this programme to be about $5 billion, including about $2 billion from the international community on grant or concessional terms. These were indicative and order-of-magnitude estimates only and have not been reviewed by Governments. Actual costs and financial terms, including any that are non-concessional, will depend upon, inter alia, the specific strategies and programmes Governments decide upon for implementation.
ACTION PLAN 02
SENDAI FRAME WORK

• Sendai Frame Work The Seven Global Targets
  • (a) Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality rate in the decade 2020-2030 compared to the period 2005-2015.
  (b) Substantially reduce the number of affected people globally by 2030, aiming to lower average global figure per 100,000 in the decade 2020-2030 compared to the period 2005-2015.
  (c) Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030.
  (d) Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030.
  (e) Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020.
  (f) Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of this Framework by 2030.
  (g) Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to the people by 2030.

• ( Source :Washistrom, 2015 Sendai Frame Work for Disaster, Management)
UNEP APELL
Community Empowering Model

• Prevention of chemical accidents promoting risk communication along the value chain - aimed primarily at SMEs - sectorial approach
http://www.unep.org/responsibleproduction/

• Three decades of APELL
  – Programme launched in 1986
  – Series of publications:
    – Technical guidance (1990s
    – APELL for Mining, Trans APELL, Port Areas, Tourism, and Multi-Hazard Training Kit for Local Authorities, Community Risk Profile Tool (2000s
    – Introduced in 30 countries, and in approx. 80 communities worldwide
Tunnel Effect by Social Synergy for Space Sustainability

THE TUNNEL EFFECT: Once an easier path becomes available change automatically occurs

CHANGE: Is essentially that of getting over a mountain

LINEAR THINKING: Forcing everyone to go over the mountain

CYBERNITIC THINKING: Developing-positive synergy from people working together to amplify efforts—Vaulting over the mountain

TUNNEL EFFECT: A Social, Technological OR Scientific Innovation sweeping away old attitudes and Resistance

USE A SOCIAL CATALYST/TECHNOLOGICAL INNOVATION FOR TUNNEL EFFECT
Case study(3)
Prajavani, 19th Nov’06 Complimenting 250th Week Voluntary Eco-literacy Campaign on the Kukkarahally Lake
Global Best Practices
Case study

Clean up the World
One World, One ecosystem, one humanity

- **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.

People thinking globally, acting locally through environmental action

[Website: www.cleanuptheworld.org]
People Science Forum
a unit of KRVP www.krvp.org
Volunteers Staging a Street Play “Plastic Demon” on 2000 Nov 1st, at Mysuru, Karnataka India
PSF Crossed 348th Sunday Eco Literacy Campaign on March 2019

In the Street Play {cast:
Ms. Sahana J (in Mask), Indusrinath, Uma, Keerthi and Mr. Chidambar
So far and What Next?

• People Science Forum PSF Mysuru, India is a unit of KRVP www.krvp.org which is a state Popular Science organization and the recipient of first popular science organization award 1988 in India. PSF is active since 2000 on weekend eco literacy campaign and completed 348 Sundays voluntary in March 2019.

• Abstract IAA-PDC-19-06-15 is in English, Hindi, Kannada, Telagu and Urdu Languages at www.peoplescienceforum.com hosted.

• Authors of this IAA paper have embarked voluntarily on the informal and formal modes of education in Space technology for Disaster Management.

• Best practices in Community Centered Disaster Risk Reduction programs with technical support and partnership with all stakeholders and awareness on our only home proposed.

• Studies are on for learning from APELL UNEP and information shared both by real training and virtual
Selected Citations

• UNOOSA, IAWN and SMPAG, 2015
• UNISDR Sendai
  https://www.unisdr.org/we/inform/publications/43291
• UNEP APELL
  http://www.unep.org/responsibleproduction
  http://www.apell.eecentre.org/
• Kiran Kumar A S, 2018, Space and Social Application 7th Golden Jubilee Lecture at JSS Vidya Peetha, Mysuru Karnataka, India in Kannada now ready in English
Science is Self Correcting…. While Technology does not posses internal control…therefore human Conscience awakening is vital..

Spirituality with human conscience and COSMIC harmony ………………….Can facilitate .Planetary Security a Reality

..... Be the Change… Gandhi..
Acknowledgement

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• Ar.Sadhana J and Dr. Shobha J and all volunteers for supporting over 300 weekly eco Litercay voluntary campaign under the patronage of Prof V M Parvathamma formerly Syndicate Member, University of Mysore, India.
• Team National Translation Mission, Central Institute of Indian Languages who readily and record time got the abstract of PDC19 paper in to Kannada, Hindi, Telugu and Urdu Languages now hosted at PSF home page.
• Satish Dhawan, Star Wars : The Arms Race In Space, Lecture o Peace Conference July 5th 1986, Bangalore, ISRO, 1986
• Rao U R, The Next 40 Years in Space – A View Point of Developing Countries, 40th IAF, Malaya, Spain 7-13, October 1989
• JSS Spiritual Centre Gaithersburg Maryland USA and Buddhist Vihara Wheaton Maryland for providing support for participation in PDC19