

Taking sustainable development to commanding heights

No other industry interacts so closely and so frequently with Earth's atmosphere than aviation industry. And no other industry has done so much of passionate and path-breaking efforts to enhance fuel efficiency of engines as aviation sector. Indeed, aviation industry has done extraordinary efforts to reduce its carbon footprint even though it has so little to contribute to the climate change and Ozone Layer depletion. Currently aviation represents less than 2% of global Green House Gas emissions, and is expected to grow only up to 3% by 2050.

Use of Renewable Energy

In addition to building more fuel-efficient aircraft engines, changing the fuel source to renewable energy is the activity that aviation industry has pursued fervidly for reducing its carbon footprint. Solar propelled mono-flight (just one passenger who is also pilot) completed long flight (including 9 hours in night when there was no sun in the sky) only on solar energy in mid 2010. However, the real fuel-revolution has been led by use of Biofuels in commercial flights. Demonstration flights with biofuels have already been conducted by nearly ten commercial airlines. Eight airlines have operated commercial flights over the last two years on bio-fuels. The first ever use of biofuel (20 percent of Coconut and



Rajendra Shende
Chairman, TERRE

Babassu blended with normal fuel) was in commercial flight in 2008 by Virgin Airlines. Now weekly biofuel flights are



Sir Richard Branson of Virgin Atlantic, Pioneer of biofuels in Aviation Industry

operated by KLM between New York and Amsterdam. What more, the biofuels used in aircrafts is second generation and do not compete with food production. There are expectations that small carbon footprints of aviation industry will further diminish through such developments.

Related efforts by Aviation Industry

Alternate fuel source is not the only way to minimize the carbon footprint in aviation industry. The operation of the airports, ground level flight management, optimum taxing time, reducing the weight of accessories like fork and spoons used for in-flight food service are the area where aviation industry is making gallant efforts.

UNEP efforts

In 2007, when I was working for UNEP on communication and awareness strategy for the environmental protection, I realized that there is no other industry that can provide such intense captured attention of its clients than aviation industry. Such captured audience is excellent setting for creating environmental awareness. Presently 3 billion passengers travel annually by air. Though number of them may be travelling more than once, it represents substantive number of captured audience for short duration of 30 minutes to long

continued on page 3

Twitter Goes Silent

Veteran ornithologist and economist Prakash Gole (75) passed away on 27 Nov 2013. A passionate ecologist, Dr. Prakash Gole



Dr. Prakash Gole

was a wild life enthusiast and bird watcher par excellence. He was well known for his contribution to some of the best restoration projects in India and was involved in number of ecological planning projects in association with the Government of Maharashtra.

Dr. Gole had also contributed to river water management projects in Maharashtra. A professor of Economics, Dr. Gole pursued his avid interest in ecology and conservation with dedicated work spanning five decades during which he endeavored to rope in younger generation to promote the cause of preservation of natural environment.

The restoration project in the Panshet catchment area near Pune, had been acclaimed as one of the pioneering restoration efforts in developing countries. His passion for birds brought him in association with the Late Dr Salim Ali-world renowned ornithologist. His hobby of studying birds turned in to a scientific pursuit. Dr. Gole set up Ecological Society to work in the field of ecological research and education.

Dr. Gole held masters degree in economics and had worked for Gokhale Institute of Politics and Economics for sometime after his graduation. He had also written a book on Indian history during the same period. In 1963, he started a group Outward Bound Pioneers

continued on page 4

Impact of Aviation on Environment

In the age of advancement in the field of science and technology, new inventions and experiments in the sphere of aviation technology pose a greater threat to our environment. Preservation of environment and a check on the emission of green house gases and noise pollution are probably the biggest challenges for the environmentalists around the world. Global Warming is on the rise and reducing environmental impacts of aviation are a matter of concern. As such, there is no single operational solution to resolve the conflict between goals for aviation and environment.

Effective metrics and tools are being developed to assess aviation's environmental effects and these metrics have a direct bearing on the human health and welfare. Methods are

being initiated by environmentalists to evolve a balanced approach towards development of operational, technological and policy options to reduce the unfavorable impacts of aviation. The threat to the environment exists not only from the emission of gases but also from various out sources related to aviation to include noise generated by aircrafts. Despite modern day state of the art technology and improvement in the field of science and technology, the number of people dependent on the aviation industry is ever growing.

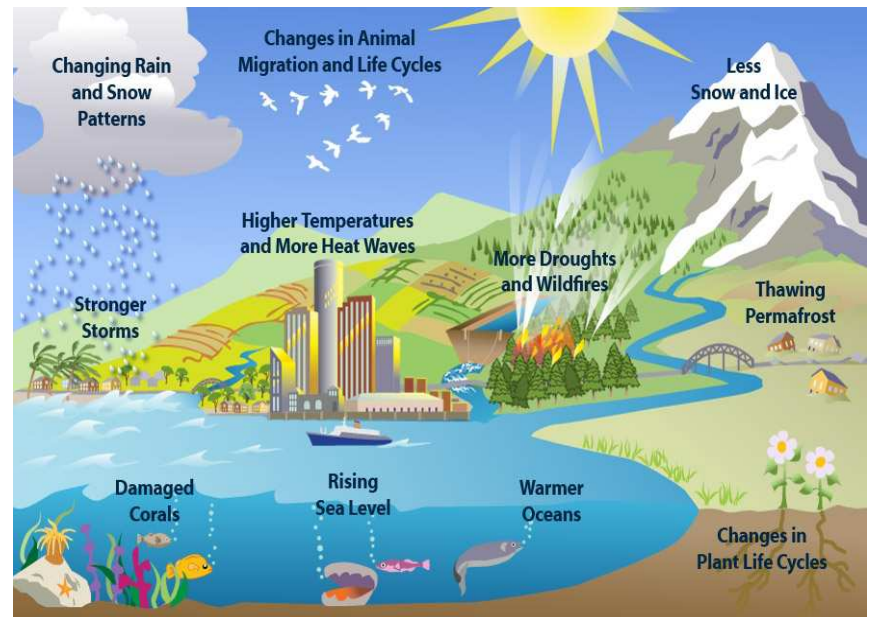
In the field of aviation, efforts are being made to develop supersonic jets with sonic boom signatures that may be acceptable for flight over populated areas.

Aviation and Environment



There is a compelling need to address the environmental effects with regard to air transportation. Aviation is critical part of economy of all nations of the world, providing for movement of people and goods throughout the world, enabling economic growth. Despite efforts to reduce the environmental effects of aviation, the relatively small amounts of emission that aviation makes to the environment add to the overall release of emission gases and to the overall threat to the environment.

Climate Change



It is a fact that aircrafts emit chemical gases and produce physical effects like condensation trails or contrails which have been proven by scientists around the world, to be harmful to the environment. Scientific assessments also suggest that the resulting chemical and physical effects due to aviation are such that aviation may have a disproportionate effect on climate per unit of fuel burned when compared to terrestrial sources.

By : **Rajesh Bakhshi**

Impact of Aviation on Environment



As all human activities have certain effect over our Mother Earth, in the same way there is an high impact over environment due to the various fleets or man made flying objects. The human activity that surrounds aircraft is called aviation. To enlist a few, are as follows:

- ✦ Crewed Aircrafts, for commercial / private use.
- ✦ Unmanned Aerial Vehicles.
- ✦ Small hot-air balloons called sky lanterns.
- ✦ Rockets
- ✦ Satellites
- ✦ Helicopters

The environmental impact of aviation occurs because aircraft engines emit noise, and particulates and gases which contribute to climate change and global dimming. Despite emission reductions from automobiles and more fuel-efficient and less polluting turbofan and turboprop engines, the rapid growth of air travel in recent years contributes to an increase in total pollution attributable to aviation.

Aviation is a critical part of our national economy, providing for the movement of people and goods throughout the world, enabling our

economic growth. In the last 35 years there has been a six-fold increase in the mobility provided by the U.S. air transportation system. At the same time there has been a 60% improvement in aircraft fuel efficiency and a 95% reduction in the number of people impacted by aircraft noise. Despite this progress, and despite aviation's relatively small environmental impact in the United States, there is a compelling and urgent need to address the environmental effects of air transportation.

Millions of people are adversely affected by these side effects of aviation like, aviation noise, local air quality and climate impacts. As a result of these factors and the rising value being placed on environmental quality, there are increasing constraints on the mobility, economic vitality and security of the nation.

The benefits of aviation, as well as its effects on the environment, result from a complex system of interdependent technologies, operations, policies and market conditions. In addition, there is great uncertainty in evaluating potential impacts, particularly the health effects of some aviation emissions and the role of aviation in climate change.



Taking sustainable development

From page no. 1... duration of 11 hours at one place sitting in row and columns looking at the same direction. My programme initiated awareness programme with airlines industry on ozone layer protection and climate change. The environmental films during flights, on-board painting competition for children, special issues of airlines news magazine were initiated on all routes of Air India and some other air lines. It is not mere coincidence that use of biofuels and reducing carbon footprints by aviation industry in 2008 started immediately after UNEP's awareness campaigns of 2007. After all awareness and communication are the first step towards alteration and conversion for the transformation to better future. Airplanes travel up to 10 KMs above earth, but I think that aviation industry could really take the sustainable development to higher 'commanding heights'.



Quick Question

What percentage of carbon dioxide that is emitted into the atmosphere is absorbed by the ocean?

- 40%
- 35%
- 70%
- 50%

Last Issue's Answer

According to Red Data Book of International Union for Conservation of Nature (IUCN) 2012, 132 species of plants and animals in India have been listed as 'Critically Endangered'.

Quick Answer

Mr. Thomas Williams, Student
(Twilli@gmail.com)

If you know the answer, send in your entry to us at :

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Twitter Goes Silent...

From page no. 1...

Club, from where he started his work in the field of environment conservation and education.

Prof. S D Mahajan, a botanist and environmentalist remembered him as a friend, genius and a visionary. "No one would now believe that an economist by training later ventured into ornithology and became respected across the world. Prof. Mahajan said, "A very rare bird, Black Necked Crane, which was declared extinct from India by Dr. Salim Ali was found by Dr. Gole in Arunachal Pradesh late 1980s. His work on Sarus Cranes, Siberian Cranes, and Wetland conservation is respected world over."

Dr. Gole was associated with many national and international institutions working in the field of ornithology. His research work on Wetland conservation was acknowledged at various international forums. Even in small village like Rahimatpur in Satara district Dr. Gole guided TERRE Policy Centre for restoration of rivulet Kamandalu, a tributary of Krishna River.

I am sure the birds must have paid tribute to Dr. Prakash Gole through the poem:

***I yearn to run through scented fields
to chase a squirrel that can't be caught
To earn a love that can't be bought***

***but the darkest days have a light
in the quiet mornings that follow night
You come to visit every day
Without a motive, without a pay
You carried me when I was weak
Brought trust I was too pained to seek
you healed my wounds and rescued my soul
You saved me with your tender heart***

***and now I am dying to listen for your voice
Nothing are left not even little noise...***



written by Dr. Vinitaa Apte

USA National Recommendation on Aviation and Environment



Recommendation 1:

Coordination & Communication

A federal interagency group should be established for coordinating governmental action to reduce the negative impacts of aviation on local air quality, noise, and climate change.

Recommendation 2:

Tools and Metrics

The nation should develop more effective metrics and tools to assess and communicate aviation's environmental effects. The metrics should better represent the human health and welfare impacts.

Recommendation 3

Technology, Operations & Policy

The nation should vigorously pursue a balanced approach towards the development of operational, technological and policy options to reduce the unfavorable impacts of aviation. Priority should be given to developing and implementing improved operational procedures for both noise and emissions reduction that satisfy safety requirements.

Ref; USA Congress , National Vision Statement'

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