

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

Government of India
Ministry of Environment, Forest & Climate Change
(EI Division)

.....
Annual Progress Report (APR)

Factsheet of 2021-22 (As on 1-Apr-2022) on Activities of ENVIS Resource Partner

1.	Name of Host Organization:	Indian Institute of Tropical Meteorology (IITM), Pune
2.	Assigned Subject Area:	Atmospheric Pollution and Climate Change
3.	Date/Month/Year of establishment Of ENVIS Centre:	10 th Feb 2003
4.	Name and designation of ENVIS Coordinator (2021-22):	Dr. B S Murthy, Scientist-F
5.	Has the Host Organization Constituted an Advisory Committee for guiding the activities of the Centre?	Yes
	<p>Composition of the Advisory Committee:</p> <p>(Select YES or NO: if YES kindly fill the right column space; if NO kindly leave it blank)</p> <p><input type="radio"/> YES <input type="radio"/> NO</p>	<ul style="list-style-type: none"> • Dr. B S Murthy, Scientist-F, Indian Institute of Tropical Meteorology, Pune E-mail: murthy@tropmet.res.in • Dr. Chhemendra Sharma- Committee Member Sr. Principal Scientist, Radio & Atmospheric Sciences Department, National Physical Laboratory(NPL), Delhi E-mail: csharma@nplindia.org, chhemendrasharma@gmail.com • Dr (Mrs.) N. S. Rajurkar –Committee Member, Former Professor & Head Department of Environment Sciences, Savitribai Phule Pune University, Pune E-mail: rnilima@rediffmail.com • Dr. Saroj Kumar Sahu- Committee Member Assistant Professor, Utkal University, Bhubaneswar, Odisha E-mail: saroj.bot@utkaluniversity.ac.in saroj.utkaluni@gmail.com • Dr. Priyank S Nimje Program Officer, ENVIS Indian Institute of Tropical Meteorology, Pune E-mail: priyank.nimje@gmail.com

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

6. Current ENVIS Staff Structure:								
Name	Position held	Qualification and Experience	Joining Date in ENVIS Centre	Joining Date in Current position	Leaving Date(if applicable)	2021-22		
						Emoluments drawn (Rs.)		
						Monthly	Annual	
Mr.Samir Dhapare	Program Officer	M. Sc. Environmental Sciences	06/08/2018	06/08/2018	04/02/2022	46,690/-	4,67,345/-	
Dr. Priyank Nimje	Program Officer	PhD in Ecology	21/02/2022	21/02/2022	NA	46,690/-	60,030/-	
Mr.Gaurav P. Shinde	Information Officer	MBM (CM)	27/01/2014	01/02/2019	NA	38,997/-	4,62,764/-	
Ms.Bhagyashri Katre	I.T. Officer	M. Sc. Environmental Sciences	08/05/2019	08/05/2019	NA	26,066/-	3,09,317/-	
Ms.Darshana Jadhav	Data Entry Operator	B.Sc. Environmental Sciences	11/06/2018	11/06/2018	10/11/ 2021	14,641/-	1,05,415/-	
Ms. Sapna Taral	Data Entry Operator	MCA	21/02/2022	21/02/2022	NA	14,641/-	18,824/-	
TOTAL							14,23,695/-	

7.	Mandate of the Host Organization	Mandate of the ENVIS Centre
	Basic research on Ocean-Atmosphere Climate System for improvement of Weather and Climate Forecasts including hardcore multidimensional interactive earth system modeling and observational experimental measurements; Publishes fundamental research papers.	Systematically collect, compile and disseminate data on "Atmospheric Pollution and Climate Change" which includes data on air pollution, climate change, meteorological parameters, acid rain, extreme events and emissions etc. This data will be of immense use to several research organizations and other stakeholders. To conduct two courses under 'Green Skill Development Program'. To undertake 'National Environment Survey' in various districts of Maharashtra.

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

8. Databases:

8.1. Catalogue of Non-numeric Databases compiled by the ENVIS RP till date:

Name of Database	Description (in brief)	Data type (descriptive/ graphical/ geospatial/ etc.)	Status of Updation/ Periodicity/ Data Points Compiled (including date/month/ year of last data point)	Source(s) of data	Online Availability (Whether uploaded on ENVIS Website)
Air Pollution Hotspot	Air pollution hotspot for Pollutants PM10, PM2.5, CO, NOx, VOC's, BC, OC, SO2 has been shown over Delhi and Ahmadabad region. It also gives contribution of different sectors in the total emission of various pollutants in Delhi, Pune & Ahmadabad.	Geospatial and graph	Last data point: Delhi & Pune- 2010, Ahmadabad - 2018	Special scientific report-SAFAR-Delhi-2010A; Special scientific	Available online
Air Pollution Levels in Metro Cities during Diwali	This section gives the temporal information regarding the level of Air Pollutants PM10, PM2.5 in the major metro cities i.e Delhi, Mumbai, Pune, Ahmadabad during Diwali.	Graphical Information	Yearly	SAFAR Network DATA	Available Online
Case Studies	This section gives the latest and important case studies around the world which are related to adaptation to climate change and global warming.	Information	As Available	Various online sources	Available online
Environmental Calendar/ Days	It gives information about various national and international days celebrated on different environmental themes.	Descriptive	Once in Year / As available	Online sources	Available Online and in an android mobile app
News letters	Till date RP has Published 63 newsletters	Newsletters	Quarterly publication	ENVIS-IITM Centre	Available online

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

Name of Database	Description (in brief)	Data type (descriptive/ graphical/ geospatial/ etc.)	Status of Updation/ Periodicity/ Data Points Compiled (including date/month/ year of last data point)	Source(s)of data	Online Availability (Whether uploaded on ENVIS Website)
Extreme Weather & Air Pollution Events	Compendium of Extreme Weather & Air Pollution Events observed at global As well as national scale (both human induced and natural) has been compiled and categorized under two heading "Atmospheric Pollution" and "Climate Change". It includes name of event, year, its cause and effect.	Descriptive information	Update as Per the occurrence of event Last data point: Dec 2021	Scientific articles, Books, research paper, online sources, Media etc.	Available online
Abstract Service	Compilation of abstracts of research papers published in the field of Atmospheric pollution & climate change and other related topics.	Abstracts Research Articles	Monthly update (Last data point: March 2021)	Various national and international research journal	Available online
Articles in media	The news & other articles publishes in offline and online media are compiled and published	News articles	Daily update (Last data point: March 2022)	News house website and other online portals	Available online
Art Book	This publication is launched this year to inspire young minds through drawings on climate change & Atmospheric pollution	Drawings and Climate Change facts	Yearly	Entries received in various competitions	Available online
Other publications	Till date RP has Published 39 extra publications	Descriptive information	Yearly publication	Online sources, research publications and articles	Available online
Air quality and Health	Information of impact of Various health hazardous pollutants on human health and different body parts has been collected	Graphics/ Animation	One time update. Provided new information is available	Online Sources	Available online

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

Name of Database	Description (in brief)	Data type (descriptive/graphical/geospatial/etc.)	Status of Updation/ Periodicity/ Data Points Compiled (including date/month/year of last data point)	Source(s) of data	Online Availability (Whether uploaded on ENVIS Website)
Important Links	Air Quality Online	Secondary link	-	SAFAR, DPCC, AQICN	Available online
	Links to other organizations working in the field of air pollution	Secondary link	-	National- CPCB, MPCB, NEERI, Physical research Laboratory, Ahmadabad, National Physical Laboratory, New Delhi, International- USEPA, WHO, IPCC, NCAR, WMO	Available online
Basic Scientific Information- Atmospheric Pollution	<p>This section has Information on Earth's atmosphere (troposphere, stratosphere, mesosphere, thermosphere, and exosphere), atmospheric composition, what is air pollution and air pollutants including Particulate Matter, Ground level Ozone(O₃), Carbon Monoxide(CO), Oxides of Sulphur and Nitrogen, Volatile Organic Compounds (VOCs), Lead(Pb), Stratospheric Ozone Depleters (SOD), Green House Gases(GHG)etc..</p> <p>It also covers information On SMOG a type of air pollution which drastically affects visibility.</p>	Descriptive information with explanatory images	Basic scientific information- One time update, provided new findings are observed	Scientific Books, articles, research paper, online sources etc.	Available online

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

Name of Database	Description (in brief)	Data type (descriptive/ graphical/ geospatial/ etc.)	Status of Updation/ Periodicity/ Data Points Compiled (including date/month/ year of last data point)	Source(s) of data	Online Availability (Whether uploaded on ENVIS Website)
Basic Scientific Information- Climate Change	It covers, what is Climate Change, its driving factors, current facts on Climate change, Effects of climate change, challenges on changing earth, adaptation & mitigation to Climate Change, information of GLOBAL WARMING (GW) - What is global warming and its causes, What we can do about GW ? What is GHE, Enhanced GHE, concept of Radiative Forcing, Global Warming Potential, Human contribution and their impacts.	Descriptive information with explanatory images	Basic scientific information- One time update, provided new findings are observed	Scientific Books, articles, research paper, online sources etc.	Available online
Basic Scientific Information- Ozone Layer Depletion	What is good ozone & Bad ozone, Natural formation & destruction of ozone, Causes of depletion, Ozone depleting gases, Effects of ozone depletion, Ozone hole & observed ozone holes (Antarctica, Arctic, Tibet), Current status of Ozone layer, Highlights of UNEP/WMO Executive summary (2014), National & International efforts to protect ozone layer, Discovery of recovery of ozone hole.	Descriptive information with explanatory images	Basic scientific information- One time update, provided new findings are observed	Scientific Books, articles, Research paper, online sources etc.	Available online

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

Name of Database	Description (in brief)	Data type (descriptive/ graphical/ geospatial/ etc.)	Status of Updation/ Periodicity/ Data Points Compiled (including date/month/ year of last data point)	Source(s) of data	Online Availability (Whether uploaded on ENVIS Website)
Basic Scientific Information- Acid Rain	It covers details such as what is Acid Rain, Acid deposition, Discovery of acid rain, Causes of Acid Rain (General/SO ₂ / NO _x), Chemistry of acid rain, effects of Acid Rain, World affected areas, Possible solutions. Acid Rain Status: Indian Scenario	Descriptive information	Basic scientific information- One time update, provided new findings are observed	Scientific Books, articles, research paper, online sources etc.	Available online
Basic Scientific Information- Geographical Scenario of Acid Rain	This section of website gives basic information on Indian scenario of acid rain, acid rain studies in India, acid rain global scenario, spread of acid rain across world, population, emission and acid rain, and critical and target load.	Descriptive information Graphical representation	Basic scientific information- One time update, provided new findings are observed	Scientific Books, articles, research paper, online sources etc.	Available Online
National and Intentional policies	Information on National And international policies developed to tackle air pollution and climate change	Descriptive	Annual or as per availability of new information	Online sources	Available online
Kids Corner	Information of Clouds, Rain, Flood, Wind, Thunderstorms, Lightning, Earthquakes, Volcanoes, Climate, Atmosphere, Optical illusion, Ozone ,Green House Effect, Weather and season	Descriptive information Animations, Videos ,Games for students	Basic scientific information- One time update, provided new findings are observed	Scientific Books, articles, research paper, online sources etc.	Available online
Glossary	It includes alphabetic list of various terms used in the field of air pollution and climate change.	Descriptive	One time update, can be modified as per new available information	Scientific Books, articles, research paper, online sources etc	Available Online

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

Name of Database	Description (in brief)	Data type (descriptive/ graphical/ geospatial/ etc.)	Status of Updation/ Periodicity/ Data Points Compiled (including date/month/ year of last data point)	Source(s) of data	Online Availability (Whether uploaded on ENVIS Website)
Multimedia	Scientific Documentary & Videos on major issues of air pollution, its impact on environment and human being	Documentary & Videos	Yearly update	Various paid And unpaid data sources	Available online
ENVIS Library	<p>Comprises collection of more than 100 books/ magazines/ statistical/ scientific reports related to acid rain, air pollution, climate change, global warming, effect of air pollution and climate change on human health and agriculture etc.</p> <p>Also, a collection of news letters published by the Centre as well as other ENVIS centers during past 10 yrs.</p> <p>Also IITM has one of the Asia's biggest collection of the Books, Scientific journals, Weather records on the Climate change, weather and Atmospheric pollution which is open to all.</p>	Books, Magazines, Bulletins, Journals, Annual Reports etc.	-	-	Available On request
Facebook Page	Dissemination information regarding various public awareness campaigns, training events and interesting infographics by IITM-ENVIS. As well as interesting facts and findings of current research papers about air pollution and climate change.	Descriptive and pictorial infographics	Based on events and availability of news information	ENVIS-IITM, online media channels	Available online
Instagram handle	Dissemination information regarding various public awareness campaigns, training events and interesting info-	Descriptive and pictorial info-	Based on events and availability of new	ENVIS-IITM	Available online

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune “on” Atmospheric Pollution and Climate Change”

	graphics by IITM-ENVIS.	graphics	information		
Twitter handle	Dissemination information regarding various public awareness campaigns, training events and interesting info-graphics by IITM-ENVIS. As well as interesting facts and findings of current research papers about air pollution and climate change.	Descriptive and pictorial info-graphics	Based on events and availability of new information	ENVIS-IITM, online media channels	Available online
Youtube channel	Videos related to air pollution and climate change awareness and outreach, online activities conducted etc.	Multimedia.	Based on events and availability of new information	ENVIS-IITM	Available online

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

Name of Database	Description (in brief)	Data type (descriptive / graphical/ geospatial/ etc.)	Status of Updation/ Periodicity/ Data Points Compiled (including date/month/year of last data point)	Source(s) of data	Online Availability (Whether uploaded on ENVIS Website)
Animation of Climate Change and Air pollution data	Changes in Earth's Surface Temperature Distribution	Graphical in video format	Annual or as per availability	Berkeley Earth	Available Online
	Map of Greenhouse Gas Emissions per Person	Graphical in video format	As per availability	Robert Rohde YouTube	Available Online
	World Temperature Records 2020	Graphical in video format	As per availability	Berkeley Earth	Available Online
	Carbon Dioxide and Global Temperature Visualization	Graphical in video format	As per availability	Berkeley Earth	Available Online
	World Map Climate Stripes Animation	Video format	As per availability	Berkeley Earth	Available Online
	Global Warming by Country and Region 1850-2020 Temp. Anomalies	Video format	As per availability	Berkeley Earth	Available Online
	World's warming temperatures from 1900 - 2021	Video format	As per availability	Berkeley Earth	Available Online
	2021 Record High and Record Low Temperatures Worldwide	Video format	As per availability	Berkeley Earth	Available Online
	2021 Global Temperature Changes Since 1850	Video format	As per availability	Berkeley Earth	Available Online
	Carbon dioxide emissions in 2009 and 2019, by selected country	Graphical	As per availability	Statista	Available Online
	Carbon dioxide emissions in 2010 and 2020, by select country	Graphical	As per availability	Statista	Available Online
	Carbon dioxide (CO ₂) emissions per capita in India from 1970 to 2020	Graphical	As per availability	Statista	Available Online
	Carbon dioxide (CO ₂) emission in India (2001-2016)	Graphical	As per availability	Statista	Available Online
	The average extent of the Antarctic ozone hole during peak ozone depletion season	Graphical	As per availability	NOAA	Available Online

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

	from 1979 to 2021				
	Maximum ozone hole area in the stratosphere over the Antarctic 2020	Graphical	As per availability	European Environment Agency	Available Online
	Global temperatures animation	Video format	As per availability	NASA	Available Online
	State wise Registered Motor Vehicle	Graphical	Annual or as per availability	Road Transport Year Book 2016-17	Available Online
Meteorological Graphs	All India Rainfall actual during selected months / season	Graphical	Daily basis	IMD-Climate Data Service Portal	Available Online
	Seasonal Temperature During different seasons	Graphical	Daily basis	IMD-Climate Data Service Portal	Available Online

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

Name of Database	Description (in brief)	Data type (descriptive / graphical/ geospatial/ etc.)	Status of Updation/ Periodicity/ Data Points Compiled (including date/month/year of last data point)	Source(s) of data	Online Availability (Whether uploaded on ENVIS Website)
Air Pollution Levels in Metro Cities during Diwali	Delhi Air Quality during Diwali Period 2020	Graphical Information	As per availability	SAFAR Network DATA	Available Online
	Mumbai Air Quality during Diwali Period 2020	Graphical Information	As per availability	SAFAR Network DATA	Available Online
	PM2.5 Diwali comparison (2017-2020) in Mumbai	Graphical Information	As per availability	SAFAR Network DATA	Available Online
	Ahmedabad PM2.5 Air Quality during Diwali Period 2020	Graphical Information	As per availability	SAFAR Network DATA	Available Online
	Level of PM2.5 during Diwali for last three years (2015-2019) in Delhi	Graphical Information	As per availability	SAFAR Network DATA	Available Online
	Level of PM10 during Diwali for last five years (2015-2019) in Pune	Graphical Information	As per availability	SAFAR Network DATA	Available Online
	Level of PM2.5 during Diwali for last five years (2015-2019) in Pune	Graphical Information	As per availability	SAFAR Network DATA	Available Online
	Level of PM10 during diwali for last five years (2015-2019) in Mumbai	Graphical Information	As per availability	SAFAR Network DATA	Available Online
	Level of PM2.5 during diwali for last five years (2015-2019) in Mumbai	Graphical Information	As per availability	SAFAR Network DATA	Available Online
	Level of PM10 during diwali for last three years (2017-2019) in Ahmedabad	Graphical Information	As per availability	SAFAR Network DATA	Available Online
	Level of PM2.5 during diwali for last three years (2017-2019) in Ahmedabad	Graphical Information	As per availability	SAFAR Network DATA	Available Online
Live Map	Minimum Temperature Observed during past 24 hrs	Real-Time Map Data	Daily basis	IMD-Climate Data Service Portal	Available Online
	Maximum Temperature Observed during past 24 hrs	Real-Time Map Data	Daily basis	IMD-Climate Data Service Portal	Available Online
	Wind Observed during past 24 hrs & Rainfall Observed during past 24 hrs	Real-Time Map Data	Daily basis	IMD-Climate Data Service Portal	Available Online

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

Name of Database	Description (in brief)	Data type (descriptive/ graphical/ geospatial/ etc.)	Status of Updation/ Periodicity/ Data Points Compiled (including date/month/year of last data point)	Source(s) of data	Online Availability (Whether uploaded on ENVIS Website)
Air Quality Forecast	IMD SILAM Forest for BLH	Real-Time Forest Map	Daily basis	Air Quality Forecast by IMD SILAM model	Available Online
	IMD SILAM Forest for CO gas	Real-Time Forest Map	Daily basis	Air Quality Forecast by IMD SILAM model	Available Online
	IMD SILAM Forest for NO2 gas	Real-Time Forest Map	Daily basis	Air Quality Forecast by IMD SILAM model	Available Online
	IMD SILAM Forest for O3 gas	Real-Time Forest Map	Daily basis	Air Quality Forecast by IMD SILAM model	Available Online
	IMD SILAM Forest for PM10	Real-Time Forest Map	Daily basis	Air Quality Forecast by IMD SILAM model	Available Online
	IMD SILAM Forest for PM2.5	Real-Time Forest Map	Daily basis	Air Quality Forecast by IMD SILAM model	Available Online
	IMD SILAM Forest for SO2 gas	Real-Time Forest Map	Daily basis	Air Quality Forecast by IMD SILAM model	Available Online
	Global Air Quality Forecast	Real-Time Forest Map	Daily basis	Implemented by ECMWF as part of The Copernicus Programme	Available Online

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

8.2. Catalogue of Numeric and Time-series Data bases compiled by the Centre till date:

Name of Database	Description (in brief)	Time Period (Starting year-Ending year) and Periodicity (annual/monthly/other)	Source(s) of data	Online Availability (Whether uploaded on ENVIS Website)
Air Pollution Database	Air Quality Index in Maharashtra	Annual -2019 &2020	MPCB	Available Online
	AQI of Major cities of Maharashtra before-During and After Diwali Festival	Annual -2020	MPCB	Available Online
	India's CO2 emissions have fallen for the First time in four decades	Annual -2019-20	Carbonbrief	Available Online
	Global Annual Total Emission	As per Available-2000-2018	NOAA ESRL	Available Online
	Globally averaged marine surface annual mean data	Annual -2001-2019	NOAA ESRL	Available Online
	Globally averaged marine surface monthly mean monthly data	Annual -2001-2020	NOAA ESRL	Available Online
	Globally averaged marine surface annual mean growth rates	Annual -2001-2019	NOAA ESRL	Available Online
	Carbon dioxide (CO2) Territorial Emissions in 2019	Annual -1960-2010	Global Carbon	Available Online
	National Ambient Air Quality Monitoring Programme (NAMP) Manual Monitoring data	Annual -2013-2019	CPCB	Available Online
	Composition of Vehicle Population	Annual -1951-2017	Office of State Transport Commissioners/UT Administrators	Available Online
	State-wise Number of Cases and Deaths due to Acute Respiratory Infection in India	Annual -2017,2018	Ministry of Health & Family Welfare, Gov. of India	Available Online
	Production of Ozone Depleting Substances in India	Annual – 1998-2017	Ministry of Statistics and Programme Implementation, Govt. of India. (ON1964) & Past Issues.	Available Online

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

Name of Database	Description (in brief)	Time Period (Starting year-Ending year) and Periodicity (annual/monthly/other)	Source(s) of data	Online Availability (Whether uploaded on ENVIS Website)
	World record of annual mean PM10 concentration by city	Annual – 2003-2010	Various scientific and peer review sources	Available Online
	Particulate Matter (PM10): annual mean concentrations in Europe-2013	Annual – 2013	Various scientific and peer review sources	Available Online
	<p>Emission Data:</p> <p>Emission Load of Vehicles in Delhi ,</p> <p>Emission Load of Vehicles under different scenarios in Delhi,</p> <p> Vehicular emission load in 1994,</p> <p>GHG emissions from different sectors in India,</p> <p>SO2 and NOx emissions - US Plants,</p> <p>Total Absolute Emission of CO2 From Power Sector</p>	As available	Transport fuel quality for year 2005 Central pollution Control Board, MoEF&CC, GoI, CPCB, Lok Sabha/ Rajya Sabha Unstarred Questions	Available Online
	Reduction in pollution due to change in fuel quality in India	2000-2005	Online Source	Available Online
	Total Consumption of Ozone Depleting Substances in India	2000-2017	Ministry of Statistics and Programme Implementation , GoI	Available Online
	Delhi Air Pollution Database Graphical View	2000-2006	Online Source	Available Online

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

Name of Database	Description (in brief)	Time Period (Starting year-Ending year) and Periodicity (annual/monthly/other)	Source(s) of data	Online Availability (Whether uploaded on ENVIS Website)
Major Pollution Sources in India	Polluting Industries State wise Distribution of 17 Categories of Industries	Annual	CPCB, MoEF&CC	Available Online
	State-wise Industries Identified as highly polluting under 17 categories	2002-2004	Lok Sabha Unstarred Question	Available Online
	No. of Industrial Units Found Violating Pollution Control Norms in India	2005-2008	Lok Sabha Unstarred Question	Available Online
	Status of Pollution Control in 17 Categories of Industries in India	2009	Lok Sabha Unstarred Question	Available Online
	Transport Sector State wise number of E-Vehicles Registered in India	2018	Lok Sabha Unstarred Question	Available Online
	Category wise number of E-vehicles Registered in India	2018	Lok Sabha Unstarred Question	Available Online
	State-wise Number of Electric/Battery Operated Vehicles in India	2019	Lok Sabha Unstarred Question	Available Online
	Total number of Registered Vehicles in Pune Region	2000-2019	RTO Pune	Available Online
	Total number of Registered Vehicles in PCMC Region	2001-2019	RTO PCMC	Available Online
	State wise Registered Vehicles in India	1995-2015	RTO	Available Online
	Metropolitan city wise Registered Vehicles in India	2012-2015	RTO	Available Online

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

Name of Database	Description (in brief)	Time Period (Starting year-Ending year) and Periodicity (annual/monthly/other)	Source(s) of data	Online Availability (Whether uploaded on ENVIS Website)
	Total Number of Registered Motor Vehicles in India	1951-2017	Ministry of Shipping, Road Transport & Highways, GoI, Ministry of Road Transport & Highway, GoI	Available Online
	Composition of Vehicle Population	Annual -1951-2017	Offices of State Transport Commissioners/UT Administrations	Available Online
	Fuel Consumption Consumption of Selected Petroleum Products (Per Capita) in India	1985-2018	Census of India 2011	Available Online
	Largest driver of overall greenhouse gas emissions are CO2 emissions from fuel combustion in India	Annual -2018	Brown to Green: The G20 Transition Towards A Net-Zero Emissions Economy 2019 report	Available Online
	Consumption of Raw Coal by Industry in India	1970-2018	Ministry of Statistics and Programme Implementation , GoI	Available Online
	Electricity Consumption (Per Capita) in India	1950-2019	Public Electricity Supply, Central Electricity Authority, Ministry of Power	Available Online
	Production of Raw Coal (Coking and Non-Coking) in India	2014-2020	Ministry of Coal, GoI	Available Online
	Consumption of Fuel by Coal Based Thermal Power Units in India	2007-2014	Power & Energy Division, Planning Commission, GoI	Available Online
	Month wise Coal Production in India	1999-2017	Ministry of Commerce and Industry, GoI	Available Online
	State-wise Projected Coal Production in India	2011-2017	Lok Sabha Unstarred Question	Available Online
	Production, Consumption, Import & Export of Coal in India	1995-96 to 2012-13	The Fertilizer Association of India	Available Online

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

Name of Database	Description (in brief)	Time Period (Starting year-Ending year) and Periodicity (annual/monthly/other)	Source(s) of data	Online Availability (Whether uploaded on ENVIS Website)
	Demand and supply of Coal in India	2002-2016	Statics for Iron & Steel Industry in India-2002, Authority of India Ltd., Rajya Sabha Unstarred Question, Lok Sabha Unstarred Question	Available Online
	Consumption of Coal by Different Sectors in India	1991-2012	Centre for Industrial & Economic Research (CIER)	Available Online
	Annual energy demand of oil equivalent in India	1990-2011	CPCB, Ministry of Urban Affairs & Employment, GoI	Available Online
	Coal Based Thermal Power Plants Existing Coal Based TPPs in India	1996-2010	Online Source	Available Online
	Upcoming Coal based TPPs in India up to 2017	-	Online Source	Available Online
Meteorological Data	Meteorological stations in India	-	IMD	Available Online
	Temperature (Min & Max	1998-2018	IMD	Available Online
	Monthly Rainfall in India	2000-2019	IMD	Available Online
	Station-wise highest 24hr rainfall(mm) in India	2008-2018	IMD	Available Online
	Distribution of area according to annual rainfall in India	-	Agriculture Research, Data Book 2002	Available Online
	Season-wise distribution of rainfall in India	1992-2017	Ministry of Agriculture & farmers Welfare, GoI	Available Online
	Monthly wind Speed	2000	IMD	Available Online

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

Name of Database	Description (in brief)	Time Period (Starting year-Ending year) and Periodicity (annual/monthly/other)	Source(s) of data	Online Availability (Whether uploaded on ENVIS Website)
	All India Rainfall Monthly-Actual	Monthly -1901-2020	IMD-Climate Data Service Portal	Available Online
	All India Mean Seasonal Temperature During different seasons	Monthly -1901-2020	IMD-Climate Data Service Portal	Available Online
	Frequency Of Cyclonic Systems In Indian Ocean Region	Monthly -1891-2020	IMD-Climate Data Service Portal	Available Online
Agriculture Database	Area under crops in India State-wise Area under Crops in India	1995 to 2012	Ministry of Agriculture , GoI	Available Online
	Area under crops in India-	1950 to 2009	Ministry of Statics and Program Implementation	Available Online
	Degraded area in India State-wise Area of Degraded Land and Land Affected by Natural Calamities in India	2010-2011	Lok Sabha Unstarred Question	Available Online
	Total Wastelands in India State-wise Total Wastelands in India	2011	Lok Sabha Unstarred Question	Available Online
	State-wise Area of Total Wastelands in India	2010	Lok Sabha Unstarred Question	Available Online
	Cropping Patter Land Use Patterns and Selected Inputs for Agricultural Production in India	1950-1951 to 2008-2009	Reserve bank of India	Available Online

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

Name of Database	Description (in brief)	Time Period (Starting year-Ending year) and Periodicity (annual/monthly/other)	Source(s) of data	Online Availability (Whether uploaded on ENVIS Website)
	Irrigation Selected State-wise Gross Irrigated Area in India Water Requirement of Crop in India	1997-1998 to 2014-2015; 2001	Ministry of Agriculture, GoI	Available Online
	Fertilizer and Pesticides Month-wise Production of Fertilizers in India 2020	2011-2020	Ministry of Commerce & Industry, GoI	Available Online
	Consumption of Fertilizer Products in India	2012-2013	The Fertilizer Association of India	Available Online
	Consumption of Fertilizer Products in India	1990-1991 to 2014-2015	The Fertilizer Association of India	Available Online
	Consumption of Fertilizers in Terms of Nutrients (N, P and K) in India	1951-1952 to 2012-2013	Ministry of Agriculture, GoI	Available Online
	Consumption of Major Fertilizers in India	1999-2000 to 2016-2017	Ministry of Agriculture and Farmer Welfare, GoI	Available Online
	State-wise Consumption of Pesticides (Technical Grade) in India	2000-2001 to 2015-2016	Ministry of Statistics and Program Implementation, Govt. of India	Available Online
	State-wise Estimated Demand of Pesticides in India	2009-2010 to 2012-2013	Lok Sabha Unstarred Question	Available Online
	State-wise Demand of Pesticides in India	1998-1999 to 2007-2008	Ministry of Statics Program, GoI	Available Online
	Fodder for livestock Supply and Demand of Green and Dry Fodder in India	1995-2025	State Planning Board, Govt. of Kerla	Available Online
	State-wise Dry and Green Fodder Production in India	2000-2003	Basic Animal Husbandry 2004, Department of Animal Husbandry and Dairying , Ministry of Agriculture , Govt. of India	Available Online
	Estimates of Annual Requirement of Green Fodder and Dry Fodder for Livestock in India	1996, 2001 and 2006	Forestry Statics India 2000, Indian Council of Forestry Research & Education	Available Online

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

Name of Database	Description (in brief)	Time Period (Starting year-Ending year) and Periodicity (annual/monthly/other)	Source(s) of data	Online Availability (Whether uploaded on ENVIS Website)
Acid Rain Database	<i>pH and alkalinity of 187 global sites (lakes and ponds)</i>	Annual; 2001-2017	Acid Rain Monitoring Project	Availability Online
	Three Year wet Inorganic Nitrogen Deposition	Annual; Geospatia I Data 2012-14, 2013-15	Various paid and Unpaid data sources	Available online
	Three Year Wet Sulfate Deposition	Annual; Geospatia I Data 2012-14, 2013-15	Various paid and Unpaid data sources	Available online
	Trend analysis results for ions and color	Annual; April 1983 – April 2014	Various paid and Unpaid data sources	Available online
	Comparison of percent of sites showing changes in pH and alkalinity	Annual; 2011-2014	Various paid and Unpaid data sources	Available online
	Trend analysis results For pH and alkalinity	Annual; April 1983 – April 2014	Various paid and Unpaid data sources	Available online
Other vital Statistics	<i>Emission factors for different categories of vehicles</i>	Tabular statement 1986-90 to 2006-10	ARAI, Pune reports	Available online
	Population data– district-wise, state- wise <i>total population</i>	Annual; 2011	Online source	Available online

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

Name of Database	Description (in brief)	Time Period (Starting year-Ending year) and Periodicity (annual/monthly/other)	Source(s) of data	Online Availability (Whether uploaded on ENVIS Website)
Other vital Statistics:	Driving cycles and cold start for two and three wheelers except diesel vehicles– Specifications for various test cell conditions like soak temperature ,period, preparatory running before sampling, number of test cycles and break down of cycles	Tabular statement	Environmental standards for ambient air, automobile fuels, industries and noise, CPCB, MoEF&CC	Available online
	Indian states and geographical areas	Tabular statement	Online source	Available online
	Indian state and geographical area	Annual	Various paid and Unpaid data sources	Available online

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

8.3. New Databases developed during the Financial Year (2021-22)

8.3.1. Non - numeric Databases:

Name of Database	Description (in brief)	Data type (descriptive/ graphical/ geospatial/ etc.)	Status of Updation/ Periodicity/Data Points Compiled (including date/month/year of last data point)	Source(s) of data	Online Availability (Whether uploaded on ENVIS Website)
Extreme weather & air pollution events	Extreme weather & air pollution events observed at global as well as national scale (both human induced and natural) has been compiled and categorized under two heading "Climate Change" and "Air Pollution". It includes name of event, year, its cause and effect.	Descriptive information	2021-22	Scientific Books, articles, research paper, Various paid and unpaid data sources etc.	Available online
Article in media	News articles published During last financial year on acid rain, atmospheric pollution, climate change, green solutions etc. has been compiled	News articles /Descriptive	Daily update. 2021-22	Different environmental and news website	Available online
Case Studies	This section gives the latest and important case studies around the world which are related to adaptation to climate change and global warming.	Information	As Available	Various online sources	Available online
Art Book	This publication is designed with the beautiful and meaningful drawings we have received in online competitions we have organized in 2021.	Drawings & facts	Yearly	Online Competition Entries	Available online

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

Name of Database	Description (in brief)	Data type (descriptive/ graphical/ geospatial/ etc.)	Status of Updation/ Periodicity/ Data Points Compiled (including date/month /year of last data point)	Source(s) of data	Online Availability (Whether uploaded on ENVIS Website)
Animation of Climate Change and Air pollution data	World's warming temperatures from 1900 - 2021	Video format	As per availability	Berkeley Earth	Available Online
	2021 Record High and Record Low Temperatures Worldwide	Video format	As per availability	Berkeley Earth	Available Online
	2021 Global Temperature Changes Since 1850	Video format	As per availability	Berkeley Earth	Available Online
	Global temperatures animation	Video format	As per availability	NASA	Available Online
	Carbon dioxide emissions in 2010 and 2020, by select country	Graphical	As per availability	Statista	Available Online
	The average extent of the Antarctic ozone hole during peak ozone depletion season from 1979 to 2021	Graphical	As per availability	NOAA	Available Online
	Maximum ozone hole area in the stratosphere over the Antarctic 2020	Graphical	As per availability	European Environment Agency	Available Online
Meteorological Graphs	All India Rainfall actual during selected months / season	Graphical	Daily basis	IMD-Climate Data Service Portal	Available Online

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

Name of Database	Description (in brief)	Data type (descriptive/ graphical/ geospatial/ etc.)	Status of Updation/ Periodicity/ Data Points Compiled (including date/month /year of last data point)	Source(s) of data	Online Availability (Whether uploaded on ENVIS Website)
Live Map	Minimum Temperature Observed during past 24 hrs	Real-Time Map Data	Daily basis	IMD-Climate Data Service Portal	Available Online
	Maximum Temperature Observed during past 24 hrs	Real-Time Map Data	Daily basis	IMD-Climate Data Service Portal	Available Online
	Wind Observed during past 24 hrs	Real-Time Map Data	Daily basis	IMD-Climate Data Service Portal	Available Online
	Rainfall Observed during past 24 hrs	Real-Time Map Data	Daily basis	IMD-Climate Data Service Portal	Available Online
Name of Database	Description (in brief)	Data type (descriptive/ graphical/ geospatial/ etc.)	Status of Updation/ Periodicity/ Data Points Compiled (including date/month /year of last data point)	Source(s) of data	Online Availability (Whether uploaded on ENVIS Website)
Air Quality Forecast	IMD SILAM Forest for BLH	Real-Time Forest Map	Daily basis	Air Quality Forecast by IMD SILAM model	Available Online
	IMD SILAM Forest for CO gas	Real-Time Forest Map	Daily basis	Air Quality Forecast by IMD SILAM model	Available Online
	IMD SILAM Forest for NO2 gas	Real-Time Forest Map	Daily basis	Air Quality Forecast by IMD SILAM model	Available Online
	IMD SILAM Forest for O3 gas	Real-Time Forest Map	Daily basis	Air Quality Forecast by IMD SILAM	Available Online

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

				model	
	IMD SILAM Forest for PM10	Real-Time Forest Map	Daily basis	Air Quality Forecast by IMD SILAM model	Available Online
	IMD SILAM Forest for PM2.5	Real-Time Forest Map	Daily basis	Air Quality Forecast by IMD SILAM model	Available Online
	IMD SILAM Forest for SO2 gas	Real-Time Forest Map	Daily basis	Air Quality Forecast by IMD SILAM model	Available Online
	Global Air Quality Forecast	Real-Time Forest Map	Daily basis	Implemented by ECMWF as part of The Copernicus Programme	Available Online

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

8.3.2. Numeric and Time-series Databases:

Name of Database	Description (in brief)	Time Period (Starting year-Ending year) and Periodicity (annual/monthly/other)	Source(s) of data	Online Availability (Whether uploaded on ENVIS Website)
Air Pollution Database	Air Quality Index in Maharashtra	Annual -2019 &2020	MPCB	Available Online
	AQI of Major cities of Maharashtra before-During and After Diwali Festival	Annual -2020	MPCB	Available Online
	India's CO2 emissions have fallen for the First time in four decades	Annual -2019-20	Carbon brief	Available Online
	Global Annual Total Emission	As per Available-2000-2018	NOAA ESRL	Available Online
	Globally averaged marine surface annual mean data	Annual -2001-2019	NOAA ESRL	Available Online
	Globally averaged marine surface monthly mean monthly data	Annual -2001-2020	NOAA ESRL	Available Online
	Globally averaged marine surface annual mean growth rates	Annual -2001-2019	NOAA ESRL	Available Online
	Carbon dioxide (CO2) Territorial Emissions in 2019	Annual -1960-2010	Global Carbon	Available Online
	National Ambient Air Quality Monitoring Programme (NAMP) Manual Monitoring data	Annual -2013-2019	CPCB	Available Online
	Composition of Vehicle Population	Annual -1951-2017	Office of State Transport Commissioners/UT Administrators	Available Online
Meteorological Data	All India Rainfall Monthly-Actual	Monthly -1901-2021	IMD-Climate Data Service Portal	Available Online
	All India Mean Seasonal Temperature During different seasons	Monthly -1901-2021	IMD-Climate Data Service Portal	Available Online
	Frequency Of Cyclonic Systems In Indian Ocean Region	Monthly -1891-2021	IMD-Climate Data Service Portal	Available Online
Major Pollution Sources in India	Transport Sector Composition of Vehicle Population	Annual -1951-2017	Offices of State Transport Commissioners/UT Administrations	Available Online
	State wise Registered Motor Vehicle	Annual - 2017	Road Transport Year Book 2016-17	Available Online
	Fuel Consumption Largest driver of overall greenhouse gas emissions are CO2 emissions from fuel combustion in India	Annual -2018	Brown to Green: The G20 Transition Towards A Net-Zero Emissions Economy 2019 report	Available Online

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

9. Information/ Knowledge Products:

9.1. ENVIS Newsletters published during the Financial Year (2021-22)

Cover snapshot	Quarter/ Volume/ Issue/Theme Main Articles	Number of copies Printed and circulated	URL of the PDF file in ENVIS website
	Volume-21, Issue-1, January – March : 2022	100	http://iitmenvis.nic.in/
	Volume-20, Issue-4, October – December : 2021	100	http://iitmenvis.nic.in/
	Volume-20, Issue-3, July – September: 2021	100	http://iitmenvis.nic.in/
	Volume-20, Issue-2, April-June: 2021	100	http://iitmenvis.nic.in/

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

9.2. Other publications/information products prepared during the F.Y. 2021-22 :

Cover snapshot	Publication/ Product Theme(s)/ Subject Area(s)	Number of copies printed and circulated	URL of the PDF file in ENVIS website
	IITM-ENVIS android mobile application	100+ downloads	https://play.google.com/store/apps/details?id=com.iitm.IITMENVIS
	Ozone Day Art Book	Circulated online	http://envis.tropmet.res.in/Extra_Publications.aspx
	Articles in media (National)	2	http://envis.tropmet.res.in/Extra_Publications.aspx
	Articles in media (Global)	2	http://envis.tropmet.res.in/Extra_Publications.aspx

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

	<p>Extreme weather events (global and national)</p>	<p>2</p>	<p>http://envis.tropmet.res.in/Extra_Publications.aspx</p>
	<p>IITM-ENVIS information booklet/Pamphlet</p>	<p>2000</p>	<p>http://envis.tropmet.res.in/Extra_Publications.aspx</p>
	<p>International day of forests infographics</p>	<p>Circulated online</p>	<p>http://envis.tropmet.res.in/Extra_Publications.aspx</p>

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

	<p>World Meteorological Day infographics</p>	<p>Circulated online</p>	<p>http://envis.tropmet.res.in/Extra_Publications.aspx</p>
	<p>Climate Change action pledge information and link to take the pledge.</p>	<p>Distributed in-person during various school visits and circulated to institutes</p>	<p>http://envis.tropmet.res.in/Extra_Publications.aspx</p>
	<p>IITM-ENVIS android mobile app download link information.</p>	<p>Distributed in-person during various school visits and circulated to institutes</p>	<p>http://envis.tropmet.res.in/Extra_Publications.aspx</p>

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

9.3. Information Products published/ released during last 5 years

Cover snapshot	Quarter/ Volume/ Issue/Theme Main Articles	Number of copies Printed and circulated	URL of the PDF file in ENVIS website
	<p>Volume-20, Issue-1, January-March: 2021</p>	<p>100</p>	<p>http://iitmenvis.nic.in/</p>
	<p>Volume-19, Issue-1, January-March-2020</p>	<p>100</p>	<p>http://iitmenvis.nic.in/</p>
	<p>Volume-19, Issue-2, April-June-2020</p>	<p>100</p>	<p>http://iitmenvis.nic.in/</p>

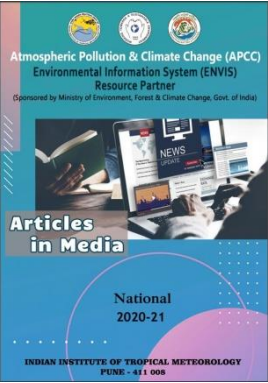
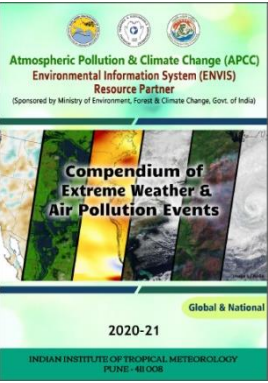

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

	<p>Volume-19, Issue-3, July-September-2020</p>	<p>100</p>	<p>http://iitmenvis.nic.in/</p>
	<p>Volume-19, Issue-4, Oct-Dec -2020</p>	<p>100</p>	<p>http://iitmenvis.nic.in/</p>
	<p>COVID -19 Global & national News Highlights (March-Dec 2020)</p>	<p>2 Available on Website for Download</p>	<p>http://iitmenvis.nic.in/</p>
	<p>COVID 19 & Climate Change : Art Book Part I</p>	<p>50 Available on Website for Download</p>	<p>http://iitmenvis.nic.in/</p>

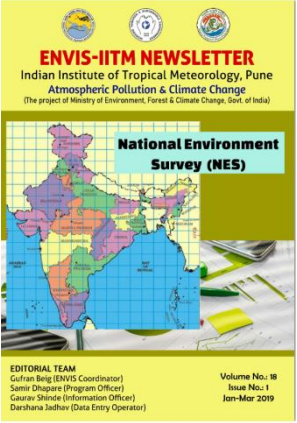
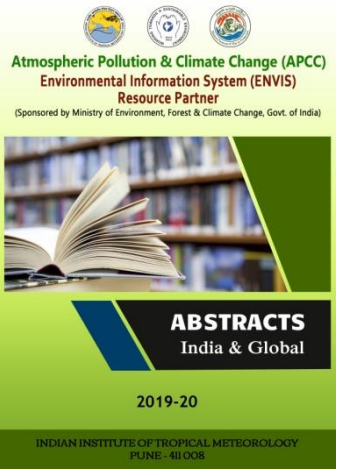
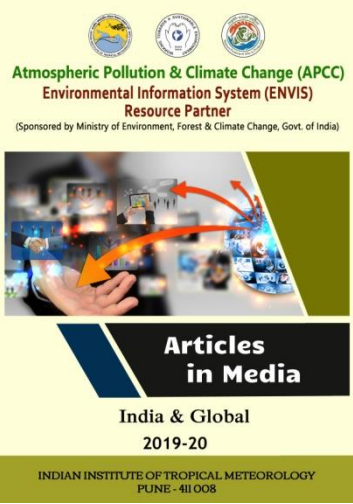
Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"


	<p>Articles in Media :National 2020</p>	<p>2</p> <p>Available on Website for Download</p>	<p>http://iitmenvis.nic.in/</p>
	<p>Compendium of Extreme Event</p>	<p>2</p> <p>Available on Website for Download</p>	<p>http://iitmenvis.nic.in/</p>
	<p>COVID and Climate Change Awareness Calendar 2021</p>	<p>Available on Website for Download</p>	<p>http://iitmenvis.nic.in/</p>

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

	<p>Volume-18, Issue No.1, January –March, 2019</p>	<p>100</p>	<p>http://iitmenvis.nic.in/</p>
	<p>Compilation of abstracts of latest research published during Year 2019-20</p>	<p>2</p>	<p>http://iitmenvis.nic.in/</p>
	<p>Compilation of news articles Published worldwide during Year 2019-20 on Atmospheric Pollution and Climate Change</p>	<p>2</p>	<p>http://iitmenvis.nic.in/</p>

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

 <p>Atmospheric Pollution & Climate Change (APCC) Environmental Information System (ENVIS) Resource Partner (Sponsored by Ministry of Environment, Forest & Climate Change, Govt. of India)</p> <p>Compendium of Extreme Weather & Air Pollution Events</p> <p>Global & National 2019-20</p> <p>INDIAN INSTITUTE OF TROPICAL METEOROLOGY PUNE - 411 008</p>	<p>Compilation of extreme air pollution and weather events recorded worldwide during Year 2019-20</p>	<p>2</p>	<p>http://iitmenvis.nic.in/</p>
 <p>INDIAN INSTITUTE OF TROPICAL METEOROLOGY (IITM), Pune Environmental Information System Resource Partner (ENVIS-APCC) Atmospheric Pollution & Climate Change</p> <p>GREEN SKILL DEVELOPMENT PROGRAMME (GSDP)</p> <p>Sponsored by Ministry of Environment, Forest & Climate Change Government of India</p>	<p>IITM-GSDP 2019 Pamphlet</p>		<p>http://iitmenvis.nic.in/</p>
 <p>INDIAN INSTITUTE OF TROPICAL METEOROLOGY, PUNE IITM-Environmental Information System (ENVIS) Ministry of Environment, Forest & Climate Change, Govt. of India</p> <p>"National Pollution Control Day - 2019"</p>	<p>National Pollution Control day flier 2019</p>		<p>http://iitmenvis.nic.in/</p>
 <p>INDIAN INSTITUTE OF TROPICAL METEOROLOGY, PUNE IITM-Environmental Information System (ENVIS) Ministry of Environment, Forest & Climate Change, Govt. of India</p> <p>"National Pollution Control Day 2019"</p>	<p>National Pollution Control day flier 2019</p>		<p>http://iitmenvis.nic.in/</p>

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

	<p>IITM- Green Skill Development Program 2019 progress Report</p>		<p>http://iitmenvis.nic.in/</p>
	<p>Volume-17, Issue-4, October-December - 2018</p>	<p>100</p>	<p>http://iitmenvis.nic.in/</p>
	<p>Volume-17, Issue-3, July-September-2018</p>	<p>100</p>	<p>http://iitmenvis.nic.in/</p>

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

	<p>Volume-17, Issue-2, April-June -2018</p>	<p>100</p>	<p>http://iitmenvis.nic.in/</p>
	<p>Volume-17, Issue-1, January-March -2018</p>	<p>100</p>	<p>http://iitmenvis.nic.in/</p>
	<p>Compilation of extreme air pollution and weather events recorded worldwide during Year 2018</p>	<p>5 + 100 Copies of CDs</p>	<p>http://iitmenvis.nic.in/</p>
	<p>Compilation of abstracts of latest research published during Year 2018</p>	<p>2</p>	<p>http://iitmenvis.nic.in/</p>

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"



 <p>Atmospheric Pollution & Climate Change (APCC) Environmental Information System (ENVIS) Resource Partner (Sponsored by Ministry of Environment, Forest & Climate Change, Govt. of India)</p> <p>Articles in Media India & Global</p> <p>2018-19</p> <p>INDIAN INSTITUTE OF TROPICAL METEOROLOGY PUNE - 411 008</p>	<p>Compilation of news articles published worldwide during Year 2018 on Atmospheric Pollution and Climate Change</p>	<p>2</p>	<p>http://iitmenvis.nic.in/</p>
 <p>IITM-GSDP Documentery</p> <p>Sponsored by Ministry of Environment, Forest & Climate Change Govt. of India</p> <p>www.iitmenvis.nic.in www.iitmenvis.nic.in +91-20-2590-4250 iitm-env@nic.in Page: ENVISITM</p> <p>ENVIS Resource Partner INDIAN INSTITUTE OF TROPICAL METEOROLOGY (IITM) Dr. Homi Bhabha Road, Pashan, Pune 411 008, Maharashtra, India</p>	<p>IITM-GSDP Documentary video</p>	<p>100</p>	<p>-</p>
 <p>WORLD ENVIRONMENT DAY BEAT PLASTIC POLLUTION</p> <p>WAYS TO REDUCE PLASTIC WASTE</p> <ul style="list-style-type: none"> Just say no to single-use plastic carry Switch to eco-friendly shopping bags Avoid excessive food packaging Reuse glass containers Stop chewing gum Support BMS <p>109% more plastic waste in 2018 65% more plastic waste in 2019 38% more plastic waste in 2020 20% more plastic waste in 2021</p> <p>IITM Environmental Information System Resource Partner Indian Institute of Tropical Meteorology, Pune - 411 008 Ministry of Environment, Forest & Climate Change, Govt. of India</p>	<p>World Environment Day 2018 Pamphlet on Beat Plastic Pollution</p>	<p>1000</p>	<p>http://iitmenvis.nic.in/</p>
 <p>INDIAN INSTITUTE OF TROPICAL METEOROLOGY (IITM), Pune Environmental Information System Resource Partner (ENVIS-Reg) Ministry of Environment, Forest & Climate Change, Govt. of India</p> <p>GREEN SKILL DEVELOPMENT PROGRAMME (GSDP)</p> <p>Sponsored by Ministry of Environment, Forest & Climate Change Government of India</p> <p>The Ministry of Environment, Forest & Climate Change for the first time has taken up an initiative for skill development in the environment and forest sector. The main aim is to provide employment and self-employment to the youth and women in the environment sector.</p> <p>IITM in Pune was established in 2005. It is one of the oldest research organizations in the country. It has a rich repository of knowledge in the field of Atmospheric Pollution, Climate Change and has been able to transfer the knowledge by imparting training and conducting courses in this field to the students, researchers and other stakeholders.</p> <p>As part of GSDP IITM has launched two courses where focus is more on hands-on practical training. The courses are:</p> <ul style="list-style-type: none"> Course 1: Pollution Monitoring, Air & Water Pollution Course 2: Air Quality Monitoring <p>IITM-GSDP 2018 Pamphlet</p>	<p>IITM-GSDP 2018 Pamphlet</p>	<p>1000</p>	<p>http://iitmenvis.nic.in/</p>

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

<p>The pamphlet cover features the title 'हरित कौशल विकास कार्यक्रम (GSDP)' in Marathi. It includes several photographs of people engaged in environmental activities and text in Marathi describing the program's goals and achievements.</p>	<p>IITM-GSDP 2018 Pamphlet in Regional Language (Marathi)</p>	<p>1000</p>	<p>http://iitmenvis.nic.in/</p>
<p>The manual cover is titled 'Manual on Emission Inventory'. It features a central image of a person working at a computer, surrounded by smaller images of various environmental and industrial scenes. Logos of the Ministry of Environment, Forest & Climate Change and IITM are visible at the top.</p>	<p>GSDP Course "Emission Inventory" manual 2018</p>	<p>50</p>	<p>http://iitmenvis.nic.in/</p>
<p>The cover features a large green tree on the left and a person walking on a path on the right. The title 'GREEN SKILL DEVELOPMENT PROGRAMME (GSDP) Success Stories - 2018' is prominently displayed. It also mentions 'Certificate Course on Pollution Monitoring, Air and Water Pollution & Emission Inventory'.</p>	<p>IITM-GSDP certification courses Success Stories -2018</p>	<p>50</p>	<p>http://iitmenvis.nic.in/</p>
<p>The newsletter cover has a blue and white color scheme. It features a photograph of a person in a white coat. The title 'ENVIS-IITM NEWSLETTER' is at the top, followed by 'Indian Institute of Tropical Meteorology, Pune Atmospheric Pollution and Climate Change'. Below that, it says 'Volume No.-16 Issue No.-4 October-December 2017' and 'DELHI SMOG, NOVEMBER 2017'. An editorial team list is provided at the bottom.</p>	<p>Volume-16, Issue-4, October-December - 2017</p>	<p>100</p>	<p>http://iitmenvis.nic.in</p>

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

	<p>Volume-16, Issue-3, July-September -2017</p>	<p>100</p>	<p>http://iitmenvis.nic.in/</p>
	<p>Volume-16, Issue-2, April-June -2017</p>	<p>100</p>	<p>http://iitmenvis.nic.in/</p>
	<p>Volume-11, Issue-1, January-March -2017</p>	<p>100</p>	<p>http://iitmenvis.nic.in/</p>
	<p>Compilation of extreme air pollution and weather events recorded worldwide during Year 2017</p>	<p>2017</p>	<p>http://iitmenvis.nic.in/</p>

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

	<p>Compilation of news articles published worldwide during year 2017 on acid rain, atmospheric pollution and climate change</p>	<p>2017</p>	<p>http://iitmenvis.nic.in /</p>
	<p>Compilation of abstracts of latest research published during year 2017</p>	<p>2017</p>	<p>http://iitmenvis.nic.in /</p>
	<p>ENVIS-IITM Pamphlet</p>	<p>2017-18</p>	<p>http://envis.tropmet.res.in/publications/ENVIS%20Pamphlet2017.pdf</p>

Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

	<p>Pamphlet to create awareness about Swachh Bharat Abhiyan: Our Place... Our Planet... Our responsibility</p>	<p>2016</p>	<p>http://envis.tropmet.res.in/publications/Swachh_bharat_Pamphlet2016.pdf</p>
	<p>Volume-15, Issue-4, October-December-2016</p>	<p>2016</p>	<p>http://iitmenvis.nic.in/</p>
	<p>Volume-15, Issue-3, July-September-2016</p>	<p>2016</p>	<p>http://iitmenvis.nic.in/</p>
	<p>Volume-15, Issue-2, April-June-2016</p>	<p>2016</p>	<p>http://iitmenvis.nic.in/</p>

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

	<p>Volume-15, Issue-1, January-March 2016</p>	<p>2016</p>	<p>http://iitmenvis.nic.in/</p>
	<p>Mobile app-SAFAR-Air</p>	<p>-</p>	<p>http://iitmenvis.nic.in/</p>
	<p>Compilation of news articles published worldwide during year 2016 on acid rain, atmospheric pollution and climate change</p>	<p>2016</p>	<p>http://iitmenvis.nic.in/</p>

"Indian Institute of Tropical Meteorology (IITM), Pune "on" Atmospheric Pollution and Climate Change"

 <p>Acid Rain and Atmospheric Pollution (ARAP) Environmental Information System Centre (ENVIS) (Sponsored by Ministry of Environment, Forest & Climate Change, Govt. of India)</p> <p>COMPENDIUM OF EXTREME WEATHER AND EXTREME AIR POLLUTION EVENTS</p> <p>Global & National 2016-17</p> <p>INDIAN INSTITUTE OF TROPICAL METEOROLOGY PUNE - 411 008</p>	<p>Compilation of extreme air pollution and weather events recorded worldwide during year 2016</p>	<p>2016</p>	<p>http://iitmenvis.nic.in/</p>
 <p>Acid Rain and Atmospheric Pollution (ARAP) Environmental Information System Centre (ENVIS) (Sponsored by Ministry of Environment, Forest & Climate Change, Govt. of India)</p> <p>ABSTRACTS</p> <p>India & Global 2016-17</p> <p>INDIAN INSTITUTE OF TROPICAL METEOROLOGY PUNE - 411 008</p>	<p>Compilation of abstracts of latest research published during year 2016</p>	<p>2016</p>	<p>http://iitmenvis.nic.in/</p>

**Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner
"Indian Institute of Tropical Meteorology (IITM),Pune" on "Atmospheric Pollution and Climate Change"**

10. ENVIS Website (*ENVIS Centres whose Website has been restructured may provide the Performance Report/Graphs generated therein wherever possible*):

10.1. URL: <http://iitmenvis.nic.in/> and <http://envis.tropmet.res.in/>

10.2. Status of restructuring of Website: Not restructured

10.3. Frequency of updating Website 2021-22 (as on Apr-2022): Daily, Monthly, Yearly based on Database type

10.4. Subject-specific database updating (numeric/ others): Daily, Monthly, Yearly based on database type

10.5. Publication uploaded/ updated on Website: 89

11. User Engagement and Interaction

<i>User engagement and interaction</i>	<i>FY 2018-19</i>	<i>FY 2019-20</i>	<i>FY 2020-21</i>	<i>FY 2021-22 (As on 01- Apr-2022)</i>
i. Total number of visits	199195	204850	218471	288188
ii. Number of unique visits	296	278	410	573
iii. Reports Downloaded/Read	-	-	-	-
iv. Total Number of Queries received	520	635	904	1347
v. Number of Queries responded	520	635	904	2250
vi. Grade received				

11.1 Total number of visits on Website (2021-22): 63,637

11.2 Number of unique visits on Website (2021-22): 573

11.3 Number of reports downloaded/ read by stakeholders:-

11.4 Query-Answer Statistics 2021-22: As on Apr-2022

Mode of Query Receipt	Number of Queries Received	Number of Queries Responded	Reasons for shortfalls, if any, and action taken to rectify
Online (CMS based website)	-	-	-
Email (official NIC server)	350	350	-
Postal/Telephonic (incl. hand post)	1250	1250	-
Physical	650	650	-

**Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner
"Indian Institute of Tropical Meteorology (IITM),Pune" on "Atmospheric Pollution and Climate Change"**

12. Implementation of Annual Plan of Activities of the Financial Year (2021-22):

Activity/Target	Achievements	Shortfalls ,if any, and reasons therefore
1. Implementation of GSDP Master trainer courses (Basic & Advance) for two subject areas- 1. 'Air Pollution (Monitoring & Forecasting)' 2. 'Emission inventory'	-	Restriction imposed due to COVID-19 situation at Pune, Maharashtra
2. Expansion of GREENJOBS section to regular update GSDP participants regarding employment and higher education research opportunities to increase the success of GSDP courses.	The IITM-GSDP candidates were updated employment opportunities regularly on GreenJob Section on IITM ENVIS android mobile application.	-
3. Launch of IITM- GSDP web page showcasing detailed information and success of GSDP courses.	The webpage for the IITM-GSDP is successfully launched.	-
4. To conduct environment awareness programs on online platforms by, conducting webinars, live talks and online competitions.	IITM-ENVIS has conducted various online activities, webinars, competitions and conducted TEN major outreach activities in F.Y. 2021-22	-
5. Conducting workshops for skill development of environment students and professionals to take climate change and atmospheric pollution subjects as a career.	Successfully taken a hands-on activity training workshop for school children and informed them to take air pollution and climate change subjects as career option.	-
6. Making Website more user friendly, interactive and more useful content.	Website is redesigned and made more user-friendly, attractive and have added more useful content.	-
7. Development of knowledge based mobile application related to thematic area.	We have successfully launched IITM-ENVIS android mobile application.	-
8. Publishing a newsletter in Marathi language to promote regional language knowledge.	-	We could not publish a newsletter in regional language due to technical challenges.
9. Collection of the data for NES districts	In Process	-
10. Increase the public outreach through social media platforms and possible on field events.	We have increased sharing more useful information on all major social media platforms and have increased our follower count substantially. We have also started to conduct in-person activities and events after the COVID-19 restrictions were removed.	-
11. Regular web based data collection related to thematic area, publication based on regular as well as new concepts.	We have prepared a newsletter on Microplastics as air pollutant which is relatively newer field of research and public health issue.	-

**Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner
"Indian Institute of Tropical Meteorology (IITM),Pune" on "Atmospheric Pollution and Climate Change"**

A. Regular Activities :Web-based Environmental Information		
Collection and Compilation of Information and Data		
Activity/Target	Achievements	Shortfalls ,if any, and reasons therefore
1. Development and regular updation of <i>databases</i> (descriptive, numeric, pictorial, geospatial, etc.) on the assigned subject area and regular uploading of the same in the <i>Subject Area</i> section of the ENVIS Website, after due verification/ authentication, with suitable referencing of data sources.	Done	NIL
2. Compilation of <i>Abstracts, News articles, Events, etc.</i> on the subject area and uploading the same in the relevant section of ENVIS Website.	Done	NIL
3. Identification of data gaps and Formulation of implementation of action plan to fill them.	Data collected on the Live Air quality status, Climate change and other meteorological parameters. The compilation and regular update of the data is ongoing process.	-
Maintenance of ENVIS Website and User Engagement through it		
4.Maintaining the ENVIS Website up-to-date and user-engaging, and as an inventory of authentic and reliable information in the subject area	Done	NIL
5.Query-Response/Referral service to stakeholders.	Service is already in place at ENVIS-IITM RP.	NIL
6.Developing and upgrading a Kids' Corner.	It is already developed by ENVIS-IITM.	NIL
7. Maintaining a disaggregated record of visitors ,including unique visitors ,to the Website.	In process	NIL
Publications and Value-Addition		
8.Publishing 4 <i>Newsletters</i> and uploading the same in the relevant section of ENVIS Website	Done	NIL
9.Processing/analyzing data collected and bring in value-added information Products	Centre is involved in data analysis and has come up with various thematic maps and open data sources	Limited man power

**Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner
"Indian Institute of Tropical Meteorology (IITM),Pune" on "Atmospheric Pollution and Climate Change"**

10. Preparation of infographics that conveys complex technical and scientific information in easy to understand manner for general public.	Done	NIL
--	------	-----

<p>11. Scientific Publications, Awards & recognition</p>	<ol style="list-style-type: none"> 1) Murthy, B.S., Latha, R., Srinivas, R. and Beig, G., 2020. Particulate Matter and Black Carbon in the Brahmaputra Valley of Northeast India: Observations and Model Simulation (October, 10.1007/s00024-020-02590-1, 2020). <i>PURE AND APPLIED GEOPHYSICS</i>, 177(12), pp.6051-6051. 2) Murthy, B.S., Latha, R., Srinivas, R. <i>et al.</i> Correction to: Particulate Matter and Black Carbon in the Brahmaputra Valley of Northeast India: Observations and Model Simulation. <i>Pure Appl. Geophys.</i> 177, 6051 (2020). https://doi.org/10.1007/s00024-020-02610-0 3) Sahu, S.K., Tyagi, B., Beig, G. <i>et al.</i> Significant change in air quality parameters during the year 2020 over 1st smart city of India: Bhubaneswar. <i>SN Appl. Sci.</i> 2, 1990 (2020). https://doi.org/10.1007/s42452-020-03831-7 4) Ravi Yadav, N. Korhale, V. Anand, A. Rathod, S. Bano, R. Shinde, R. Latha, S.K. Sahu, B.S. Murthy, Gufran Beig, COVID-19 lockdown and air quality of SAFAR-India metro cities, Urban Climate, Volume 34, 2020, 100729, ISSN 2212-0955, https://doi.org/10.1016/j.uclim.2020.100729. 5) Murthy, B.S., Latha, R., Srinivas, R. <i>et al.</i> Particulate Matter and Black Carbon in the Brahmaputra Valley of Northeast India: Observations and Model Simulation. <i>Pure Appl. Geophys.</i> 177, 5881–5893 (2020). https://doi.org/10.1007/s00024-020-02590-1 6) Gufran Beig, S. Bano, S.K. Sahu, V. Anand, N. Korhale, A. Rathod, R. Yadav, P. Mangaraj, B.S. Murthy, S. Singh, R. Latha, R. Shinde, COVID-19 and environmental - weather markers: Unfolding baseline levels and veracity of linkages in tropical India, Environmental Research, Volume 191, 2020 , ISSN 0013-9351, https://doi.org/10.1016/j.envres.2020.11012 7) Korhale, N., Anand, V. & Beig, G. Disparity in ozone trends under COVID-19 lockdown in a closely located coastal and hilly metropolis of India. <i>Air Qual Atmos Health</i> 14, 533–542 (2021). https://doi.org/10.1007/s11869-020-00958-9 	
---	---	--

	<p>8) Beig, Gufran; George, Mohan P.; Sahu, Saroj K.; Rathod, Aditi; Singh, Siddhartha; Dole, Shruti; Murthy, B. S.; Latha, R.; Tikle, Suvarna; Trimbake, H. K.; Shinde, Rajanikant ,Towards baseline air pollution under COVID-19: implication for chronic health and policy research for Delhi, India., <i>Current Science</i> (00113891) . 10/10/2020, Vol. 119 Issue 7, p1178-1184. 7p.</p> <p>9) Sandeep, K., Negi, R.S., Panicker, A.S. <i>et al.</i> Characteristics and Variability of Carbonaceous Aerosols over a Semi Urban Location in Garhwal Himalayas. <i>Asia-Pacific J Atmos Sci</i> 56, 455–465 (2020). https://doi.org/10.1007/s13143-019-00158-1</p> <p>10) Madhvi Rana, Susheel K Mittal, Gufran Beig, Assessment and prediction of surface ozone in Northwest Indo-Gangetic Plains using ensemble approach, <i>Environment, Development and Sustainability</i>, 1-24, Springer Netherlands</p> <p>11) Gufran, B., 2020. Air Pollution and Covid-19.</p> <p>12) Devara, Panuganti and Kumar, A. and Sharma, P.B. and Banerjee, Padmakali and Khan, A.A. and Tripathi, A. and Tiwari, S. and Beig, G., Influence of Air Pollution on Coronavirus (COVID-19): Some Evidences from Studies at AUH, Gurugram, India (April 28, 2020). Available at SSRN: https://ssrn.com/abstract=3588060 or http://dx.doi.org/10.2139/ssrn.3588060</p> <p>13) Meng Gao^{1,2,3}, Jinhui Gao⁴, Bin Zhu³, Rajesh Kumar⁵, Xiao Lu², Shaojie Song², Yuzhong Zhang², Beixi Jia¹, Peng Wang⁶, Gufran Beig⁷, Jianlin Hu⁸, Qi Ying⁶, Hongliang Zhang⁹, Peter Sherman¹⁰, and Michael B. McElroy^{2,10} Ozone pollution over China and India: seasonality and sources, <i>Atmos. Chem. Phys.</i>, 20, 4399–4414, 2020, https://doi.org/10.5194/acp-20-4399-2020</p> <p>14) Anand, V., Panicker, A.S. & Beig, G. Gaseous pollutants over different sites in a metropolitan region (Pune) over India. <i>SN Appl. Sci.</i> 2, 682 (2020). https://doi.org/10.1007/s42452-020-2472-2</p>	
--	---	--

	<p>15) Gufran Beig, Saroj K. Sahu, Vikas Singh, Suvarna Tikle, Sandeepan B. Sobhana, Prashant Gargeva, K. Ramakrishna, Aditi Rathod, B.S. Murthy, Objective evaluation of stubble emission of North India and quantifying its impact on air quality of Delhi, Science of The Total Environment, Volume 709, 2020, ISSN 0048-9697</p> <p>16) Bhishma Tyagi, Jyotsna Singh, G. Beig, Seasonal progression of surface ozone and NOx concentrations over three tropical stations in North-East India, Environmental Pollution, Volume 258, 2020, ISSN 0269-7491, https://doi.org/10.1016/j.envpol.2019.113662.</p> <p>17) Sujit Maji, Gufran Beig, Ravi Yadav, Winter VOCs and OVOCs measured with PTR-MS at an urban site of India: Role of emissions, meteorology and photochemical sources, Environmental Pollution, Volume 258, 2020, 113651, ISSN 0269-7491, https://doi.org/10.1016/j.envpol.2019.113651.</p> <p>18) Ying Chen^{1,2}, Oliver Wild^{1,2}, Edmund Ryan^{1,9}, Saroj Kumar Sahu⁴, Douglas Lowe⁵, Scott Archer-Nicholls⁶, Yu Wang⁵, Gordon McFiggans⁵, Tabish Ansari¹, Vikas Singh⁷, Ranjeet S. Sokhi⁸, Alex Archibald⁶, and Gufran Beig³, Mitigation of PM_{2.5} and ozone pollution in Delhi: a sensitivity study during the pre-monsoon period, Atmos. Chem. Phys., 20, 499–514, 2020 https://doi.org/10.5194/acp-20-499-2020</p> <p>19) Latha R., Murthy B.S., Sandeepan B.S., Vinayak Bhanage, Aditi Rathod, Arpit Tiwari, Gufran Beig, Siddhartha Singh, Propagation of cloud base to higher levels during Covid-19-Lockdown, Science of The Total Environment, Volume 759, 2021, 144299, ISSN 0048-9697, https://doi.org/10.1016/j.scitotenv.2020.144299</p> <p>20) Yadav R., Trivedi P., Sahu L.K., Beig G., Tripathi N. (2020) Air Pollution Modeling. In: Saxena P., Srivastava A. (eds) Air Pollution and Environmental Health. Environmental Chemistry for a Sustainable World, vol 20. Springer, Singapore. https://doi.org/10.1007/978-981-15-3481-2_3</p>	
--	--	--

**Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner
"Indian Institute of Tropical Meteorology (IITM),Pune" on "Atmospheric Pollution and Climate Change"**

Reaching-out/Networking Activities		
11. Liaison and coordination with other Relevant ENVIS Centres, both State Centres and Thematic Centres, for providing data/information links in the relevant part of the ENVIS Website (to avoid duplication and conflicts in uploaded information).	Centre is in process to Identify potential research areas which can be done in collaborative mode and Will come up with proposal for join activities for the same.	
12. Build linkages with Other information Sources in the country and abroad. Providing hyperlinks to the information Sources in the relevant part of the ENVIS Website.	Done	NIL
13. Maintaining a list of Experts in the Subject area and uploading the same, along with updated C.V. in the relevant section of ENVIS Website.	Done	-
14. Coordination with the Ministry for Timely dissemination of relevant and adequate information to stakeholders.	Centre is coordinating with ministry and submits information to the ministry regularly.	-
15. Formulate strategic plans to generate sources of funds from corporate sector and/or through subscriptions of Newsletters/other publications	NA(Being Government Organization)	-
B. SPECIAL ACTIVITIES		
16. Focus on database development (numeric and descriptive), with due authentication in consultation with Line Departments/research institutes, etc.	Centre is involved in database development and has robust up-to date data set for air pollution and climate change related information.	Information for acid rain episodes in India is scarce however centre is Compiling and developing data base for the same.
17. Network and undertake outreach Activities with Universities/ Research bodies/researchers in the State, similar to Those of Odisha ENVIS, so that the ENVIS collections/ repositories can be enriched, including with the in contact details/CVs, etc.	Centre is conducting outreach activities with local schools and colleges. Also have organized online environmental awareness event in association with Vigyan Bharati, ICMR-NIREH, TERRE Policy Center- Pune, India Meteorological Department, Pune University & Internal departments of IITM etc. to enhance awareness about the centers activities.	NIL

**Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner
"Indian Institute of Tropical Meteorology (IITM),Pune" on "Atmospheric Pollution and Climate Change"**

Activity/Target	Achievements	Short falls, if any, and reasons
18. Circulate Newsletters and knowledge Products to as many stakeholders as possible in the State, especially policy makers/planners.	Centre is distributing newsletters to relevant stakeholders including universities, schools, and colleges. Centre is also distributing newsletter to local Municipal Corporation i.e. PMC and PCMC.	-
19. Linking website to other government websites; develop the vernacular web site; and undertake other awareness enhancing activities within the State.	Centre's web site is linked With the official website of IITM, Ministry of Earth Sciences. And time to time conduct various awareness activities in the city.	-
20. Maintain a Register for keeping track of queries received and transferred/ answered.	Most of the queries received Are from physical interaction with the visitors and on telephone and has been answered time to time.	-
21. Build institutional repositories of various types of media related to environmental issues.	Done	-
22. Prepare a brochure on environmental issues to spread awareness about World Environment Day, focusing on forestry / mining / climate change / disasters etc.	Centre is publishing brochure to create awareness about major environmental days.	-
23. Outreach activities like rally, skit, song etc.	IITM-ENVIS has conducted many online outreach activities which got overwhelming response from the students and people from various parts of the country.	-
24. Other Activities	IITM-ENVIS has initiated Climate Change Awareness Campaign under which people are encourage to adapt to sustainable life style	-

13. New initiatives taken during the Financial Year (2021-22):

- Organized a webinar on ‘Earth Day 2021’ under ‘Ek Bharat Shreshta Bharat’ and an online quiz competition was also held for which 125+ entries were received.
- Organized a webinar on ‘International Biodiversity Day 2021’ and an online dance competition.
- Organized an Environmental Awareness event– “World Environment Day 2021” in which we had arranged drawing competition, a short video making competition and distributed ayurvedic medicinal plants among the institute.
- Observance of World Ozone Day 2021, in which eminent guest from University of Lancaster had interacted to students from India and solved their doubts regarding Ozone layer protection.
- We had organized an awareness campaign against use of ‘single use plastics’, in collaboration with NGO. We had organized a webinar by experts in the field. We also collected the plastic waste from IITM, Pune campus as well as encouraged IITM staff to bring their plastic waste, segregated it in types and were given to NGO for further processing.
- Observance of National Pollution Control Day 2021 with a webinar and a drawing competition.
- Updated the Climate Change Action Pledge under our Climate Change Awareness Campaign.
- We launched IITM-ENVIS android mobile application to facilitate a user to services provided by IITM-ENVIS RP. This App is developed to maximize the outreach for Atmospheric Pollution and Climate Change education.
- Celebration of National Science Day, 2021 by arranging a webinar about climate change and greenhouse gas emission in Hindi language.
- Observance of World Meteorological Day by arranging a lecture on meteorology, its importance and career prospects. We had also arranged a special hands-on activity training program for school students in collaboration with Box of Science, India.
- We have also initiated making more infographics on important environmental days and have shared it on social media platforms for public dissemination.
- We developed a Climate Action Calendar for the year 2021-22 as a knowledge product where information about the climate change and individual actions taken to mitigate it are depicted.

14. Date of most recent physical verification by the Ministry: 02/04/2015

Recently on 24/09/2019, Dr. Yashveer Singh, Senior Economic Advisor & Mr. Rahul Bhatiya, -ENVIS had visited IITM, Pune. They were satisfied with the facilities present at IITM, Pune for execution of ENVIS activities.

**Factsheet of 2021-22 (As on 01 Apr-2022) on Activities of ENVIS Resource Partner
"Indian Institute of Tropical Meteorology (IITM),Pune" on "Atmospheric Pollution and Climate Change"**

15. Status of existing hardware:

	Hardware item	Specification	Sanction Order with Date	Date of procurement
Procured from ENVIS Grant (2014-15)	Printer	Office Laser Multifunction printer-Print, copy, scan, fax	No.11/27/2004-EI Dated30 th June, 2014	10/02/2015
	Laptop	IntelCorei5-HDTouch screen-4GBRAM-1TBHDD-15.6InchesScreen-Windows 8.1-2GBGraphics	No.11/27/2004-EI Dated30 th June, 2014	10/02/2015

16. Status of utilization of grant during the financial year 2021-22 as on 31-March-2022 and reasons for short falls, if any:

	Head of Expenditure	Sanctioned amount (Rs.)	Received Amount (Rs.)	Actual Expenditure(Rs.)	Reasons for Shortfall/ Excess (ifany)
Recurring Annual	Manpower	15,16,724.00	15,16,724.00	14,23,695.00	Nil
	Others, etc.	4,65,300.00	4,65,300.00	2,75,287.00	Nil
	Travel& Training	1,00,000.0	1,00,000.0	0.0	Due to COVID-19 restriction the travel grant was not utilized.
Non-Recurring	-	-	-	-	Nil

17. Issues/ hurdles faced in undertaking ENVIS activities:

As programs under ENVIS are getting expanded, there is need of scientific staff positions to promote research & to transform research into knowledge, so that general public can be benefited.

.....