Index

Source : www.thehindu.com Date : 2020-03-01

INCINERATION PROS AND CONS

Relevant for: Environment | Topic: Environmental Conservation, Sustainable Development, and EIA

Incineration is a way to treat waste through controlled burning. Waste is shredded and heated to over 1025 degree Celsius in a furnace Incineration has several benefits.

The process has mainly three by-products:

1) **Pavers bricks**

One tonne of incinerated waste will yield 20-30 kg of ash which can be converted into paved bricks. One tonne of waste will yield **60 kg** of bricks

2) **Fly ash with carbon**

Fly ash with O.1% to 0.2% carbon content and weighing 2 kg will be produced by a tonne of waste. The fly ash can be used in agriculture.

3) **Activated carbon**

Approximately one kg of activated carbon will be produced in the plant. This can be used in sewage treatment, metal extraction, gold purification and medicine.

The incineration process doesn't use external fuel. The passage of exhaust is through a pollution control unit which releases only water vapour into the atmosphere. It reduces level of groundwater pollution in residential areas near dump yards.

But the process has its negatives too. Many of the waste items incinerated, especially plastic, contain toxins which produce carbon dioxide and nitrous oxide when burned. Such pollutants can contribute to the development of asthma, cancer and endocrine disruption.

The government has set an ambitious target of eliminating single-use plastics by 2022.

END

Source : www.thehindu.com Date : 2020-03-02

INDIA IS HOST TO 457 MIGRATORY FAUNA, SHOWS LATEST CMS LIST

Relevant for: Environment | Topic: Biodiversity, Ecology, and Wildlife Related Issues

With new additions to the wildlife list put out by the Convention on the Conservation of Migratory Species (CMS), scientists say that the total number of migratory fauna from India comes to 457 species. Birds comprise 83% (380 species) of this figure.

The Zoological Survey of India (ZSI) had for the first time compiled the list of migratory species of India under the CMS before the Conference of Parties (COP 13) held in Gujarat recently. It had put the number at 451. Six species were added later. They are the Asian elephant, great Indian bustard, Bengal florican, oceanic white-tip shark, urial and smooth hammerhead shark.

India’s role

“We had compiled a list of the 451 species of migratory animals found in India. With the addition of new species to the CMS Appendices, the number is now 457,” said Kailash Chandra, ZSI director.

Globally, more than 650 species are listed under the CMS appendices and India, with over 450 species, plays a very important role in their conservation, Mr. Chandra said.

Gopinathan Maheshwaran, who heads the avian section of the ZSI, said that birds make up the bulk of migratory species. Before COP 13, the number of migratory bird species stood at 378 and now it has reached 380.

According to Mr. Maheshwaran, the bird family Muscicapidae has the highest number of migratory species. “The next highest group of migratory birds is raptors or birds of prey, such as eagles, owls, vultures and kites which are from the family Accipitridae,” he added.

Mr. Maheshwaran said that the country has three flyways (flight paths used by birds): the Central Asian flyway, East Asian flyway and East Asian–Australasian flyway. Another group of birds that migrate in large numbers are waders or shore birds. In India, their migratory species number 41, followed by ducks (38) belonging to the family Anatidae.

The estimate of 44 migratory mammal species in India has risen to 46 after COP 13, said Lalit Sharma, who heads the wildlife section of the ZSI. The Asian elephant was added to Appendix I and the urial to Appendix II.

“The largest group of mammals is definitely bats belonging to the family Vespertilionidae. Dolphins are the second highest group of mammals with nine migratory species of dolphins listed,” he added.

Mr. Sharma pointed out that COP 13 has focussed on transboundary species and corridor conservation.

Fish make up another important group of migratory species. Before COP 13, the ZSI had compiled 22 species, including 12 sharks and 10 ray fish. The oceanic white-tip shark and smooth hammerhead shark were then added, said K.K. Bineesh, a ZSI scientist. The total number of migratory fish species from India under CMS now stands at 24.

Seven reptiles, which include five species of turtles and the Indian gharial and salt water crocodile, are among the CMS species found in India. There was no addition to the reptiles list.

END

Source : www.thehindu.com Date : 2020-03-04

BLACK CARBON LEVELS SPIKE AT HIMALAYAN GLACIERS

Relevant for: Environment | Topic: Environmental Degradation - GHGs, Ozone Depletion and Climate Change

Forest fires and stubble burning are major factors behind the rise.

Black carbon concentrations near the Gangotri glacier rose 400 times in summer due to forest fires and stubble burning from agricultural waste, and triggered glacial melt, says a study by scientists at the Wadia Institute of Himalayan Geology (WIHG).

The team of scientists from WIHG, led by P.S. Negi, measured variations of black carbon concentration at Chirbasa, near the Gangotri glacier in the Indian Himalaya, located at an altitude of 3,600 metres, during the year 2016. “The monthly mean concentration of EBC (equivalent black carbon) was found to be minimum in August and maximum in the month of May. The observed seasonal mean concentrations of EBC indicated a pristine glacial source and an absence of EBC sources in the locality,” a press statement noted.

Black carbon results from the incomplete combustion of fossil fuels and biomass. The fine particles absorb light and about a million times more energy than carbon dioxide. It is said to be the second largest contributor to climate change after CO2. But unlike CO2, which can stay in the atmosphere for years together, black carbon is short-lived and remains in the atmosphere only for days to weeks, before it descends as rain or snow.

Second largest emitter

The concentration varied from a minimum of 0.01g/cubic metre in winter to 4.62g/cubic metre during summer.

India is the second largest emitter of black carbon in the world, with emissions expected to increase dramatically in the coming decades, says an April 2019 study in the journal *Atmospheric Research* , with the Indo Gangetic plains said to be the largest contributor.

END

Source : www.pib.nic.in Date : 2020-03-04

BIOMETHANATION OF RICE STRAW TO SOLVE STUBBLE BURNING

Relevant for: Environment | Topic: Environmental Pollution - Air, Water, Soil & E-waste

Ministry of Science & Technology

Biomethanation of rice straw to solve stubble burning

Posted On: 03 MAR 2020 3:10PM by PIB Delhi

The following steps are being taken to solve the problem of stubble burning, namely:-

1. In an all India coordinated project, efforts are on to produce bio-gas for kitchen use and quality manure for fields using bio-methanation of rice straw by anaerobic digestion method. Six domestic level paddy straw based bio-gas plants have been installed in Punjab for field trials and further study is in progress.

2. R&D project has been supported on refinement and demonstration of an integrated process technology for conversion of crop residues into ethanol and methane for use as transport fuels.

3. A major focus on agriculture waste/stubble management (waste to wealth), alternative to burning, has been taken up under waste management technologies programme and proposals are being considered.

This was stated by Minister of Science and Technology, Health and Family Welfare, and Earth Sciences, Dr. Harsh Vardhan in a written reply to a question in the Rajya Sabha today.

*****

SNC/KGS(RS QUESTION NO. 1426)

(Release ID: 1604967) Visitor Counter : 301

END

Source : www.pib.nic.in Date : 2020-03-04

BLACK CARBON FROM AGRICULTURAL BURNING & FOREST FIRE MAY INFLUENCE MELTING OF GANGOTRI GLACIER

Relevant for: Environment | Topic: Environmental Degradation - GHGs, Ozone Depletion and Climate Change

Ministry of Science & Technology

Black carbon from agricultural burning & forest fire may influence melting of Gangotri Glacier

Posted On: 02 MAR 2020 6:58PM by PIB Delhi

The already receding Gangotri glacier seems to have more bad news in store. Black carbon concentration in the region increases by 400 times during summer, according to a study. The study suggests agricultural burning and forest fire as the reason behind this seasonal increase. This can trigger glacial melt because of the light-absorbing nature of black carbon.

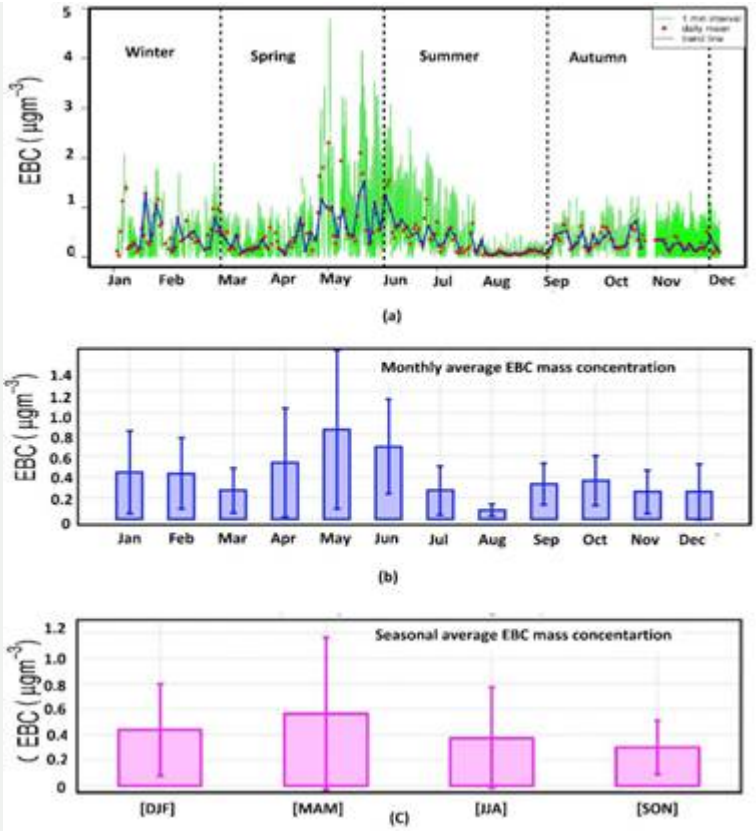
Scientists from Wadia Institute of Himalayan Geology, (WIHG), an autonomous institution under Department of Science & Technology, in a study conducted at Chirbasa station near Gangotri Glacier, for the Year 2016, found that black carbon (BC) concentration in this region has changed drastically during summer.

It was revealed by investigating the occasional high values of black carbon extricated, that the seasonal cycle of increase was significantly influenced by the emissions resulting from agriculture burning (in western part of the country), forest fires (along the Himalayan slopes) in summer, and to some extent by the contribution from long-range transport of pollutants in winter, depending the prevailing meteorological conditions.

The research led by Dr. P.S. Negi from WIHG was published in the scientific journal Atmospheric Environment.

The Equivalent Black Carbon (EBC) aerosols contribute significantly towards global warming due to its light-absorbing nature. Their presence in the eco-sensitive zone, such as the Himalayan glacier valleys, is a matter of serious concern and needs to be meticulously monitored. However, baseline data on BC is rarely available from most of the glaciated Himalayan region.

For the first time, the team of Scientists from WIHG carried out measurements on ambient EBC mass concentration at a high altitude site Chirbasa (3600 m), near Gangotri Glacier in the Indian Himalaya, during the year 2016. The monthly mean concentration of EBC was found to be minimum in August and maximum in the month of May. The observed seasonal mean concentrations of EBC indicated a pristine glacial source and absence of EBC sources in the locality.



Daily, monthly, and seasonal variation of BC mass concentration during 2016at Chirbasa station near Gangotri Glacier.

*****

SNC/KGS

(Release ID: 1604908) Visitor Counter : 380

Read this release in: Hindi

END

Source : www.pib.nic.in Date : 2020-03-04

CLIMATE CHANGE AND WATER CONTAMINATION

Relevant for: Environment | Topic: Environmental Degradation - GHGs, Ozone Depletion and Climate Change

Ministry of Jal Shakti

Climate Change and Water Contamination

Posted On: 02 MAR 2020 5:41PM by PIB Delhi

Climate model simulation studies done by various agencies including Intergovernmental Panel on Climate Change (IPCC) project possible linkages of climate change with frequency and intensity of weather related events. However, any direct link between climate change and flooding resulting in water contamination has not been established.

The flow in rivers is dynamic and depends on many parameters such as rainfall, its distribution and intensity in the catchment, catchment characteristics and withdrawals/utilisations of water basins. Central Water Commission (CWC), Ministry of Jal Shakti monitors important/major rivers. Considering annual average flow of last 20 years of terminal sites of major rivers, no appreciable increasing/decreasing trend in total water availability in the country including the State of Bihar has been observed.

Ministry of Jal Shakti has drafted bills namely National Water Framework Bill, River Basin Management (RBM) Bill and Model Bill to ‘Regulate and Control the Development and Management of Ground Water’ for bringing reforms in water sector.

The draft RBM Bill proposes optimum development of inter-State rivers by facilitating inter-State coordination ensuring scientific planning of land and water resources taking basin/sub-basin as unit with unified perspectives of water in all its forms (including soil moisture, ground and surface water). The draft RBM Bill has been circulated to all States/Union Territories, concerned Central Government’s Ministries/Departments for pre-legislative consultations.

The National Water Framework Bill provides an overarching national legal framework based on principles for protection, conservation, regulation and management of water as a vital and stressed natural resource, under which legislation and executive action on water can take place at all levels of governance. The draft National Water Framework Bill has been circulated to States/UTs and the concerned Central Ministries for obtaining their views/comments.

Ministry has also circulated a Model Bill to ‘Regulate and Control the Development and Management of Ground Water’ to all the States/UTs to enable them to enact suitable ground water legislation for regulation for its development which includes provision of rain water harvesting. So far, 15 States/UTs have adopted and implemented the ground water legislation on the lines of Model Bill.

This information was given by the Union Minister of State for Jal Shakti & Social Justice and Empowerment, Shri Rattan Lal Kataria in a written reply in Rajya Sabha today.

*****

APS/PK

END

Source : www.thehindu.com Date : 2020-03-05

E-WASTE RECYCLING HAS DOUBLED, SAYS CENTRE

Relevant for: Environment | Topic: Environmental Pollution - Air, Water, Soil & E-waste

The Centre said it doubled the electronic waste (e-waste) it recycled in 2018-19 over 2017-18, according to a response to a question in the Rajya Sabha this week.

In 2017, the Centre passed the E-Waste Management Rules, which require companies to collect a certain percentage of e-waste generated from their goods once they have reached their “end-of-life”.

In FY 2017-2018, 7,08,445 tonnes of waste was generated, of which 69,414 tonnes were recycled, compared to 1,64,663 tonnes of recycled waste from 7,71,215 tonnes in FY 2018-2019— meaning a 10% recycling rate in 2017-18 rising to a little over 20% in 2018-19.

END

Source : www.thehindu.com Date : 2020-03-09

THOUGH HUNTERS LOSE INTEREST IN RED PANDA, TRAPS STILL SNARE ENDANGERED MAMMAL

Relevant for: Environment | Topic: Biodiversity, Ecology, and Wildlife Related Issues

At risk:The species has been hunted for meat and fur, besides illegal capture for pet trade.file photo

The iconic and endangered Red Panda *(ailurus fulgens)* has fewer hunters because of younger generation of people across its Himalayan habitat are losing interest in animal products, a new study by wildlife trade monitoring network TRAFFIC has found.

However, the reddish-brown arboreal mammal, not closely related to the iconic black-and-white giant panda, is falling to traps laid for other animals such as the musk deer and wild pigs, the report said.

“The news is both good and bad for the red panda, whose survival is crucial for the eastern and north-eastern Himalayan subalpine conifer forests and the eastern Himalayan broadleaf forests,” Saket Badola, the head of TRAFFIC’s India office, told *The Hindu* on Sunday.

The only living member of the genus Ailurus, the Red Panda is listed as ‘endangered’ on the IUCN Red List of threatened species. The animal has been hunted for meat and fur besides illegal capture for the pet trade. An estimated 14,500 individuals are left in the wild across Nepal, Bhutan, India, China and Myanmar.

The report titled “Assessment of illegal trade-related threats to Red Panda in India and selected neighbouring range countries” has looked at a ten-year period from July 2010 to June 2019, and analysed poaching and illegal trade of the species. Other than seizures, the researchers carried out market surveys, surveys of e-commerce websites and village level surveys where they spoke to hundreds of people in Red Panda habitat (only in India) to look into poaching.

During the study the researchers and authors found neither India nor Bhutan had reported any incidences of poaching or illegal trade in Red Pandas. “But in Nepal a total of 13 seizure records were reported between 2016 and 2019, accounting for a total of 29 pelts. All except two took place in Kathmandu,” the study said.

Mr. Badola, said that there was no evidence of targeted poaching in India and Bhutan during the study but there was accidental poaching reported due to traps laid out for Musk deer and other wild animals.

“Consultations with experts revealed a similar low-level incidence of Red Panda trade in Bhutan and India with one case of accidental trapping in a snare in Jigme Dorjee National Park from Bhutan and six incidents of poaching accounting for six individual animals in India, aside from a 1999 case involving more than 20 pelts,” the study said.

In contrast to India and Bhutan, experts from Nepal shared knowledge of about 25 incidences of Red Panda poaching, involving approximately 55 animals and also claimed to have witnessed and/or have confirmed reports related to poaching on six occasions involving 15 animals.

The detailed study carried out by TRAFFIC is significant not only because Red Panda, is an iconic species and classified as Endangered under the IUCN Red List but also because large

part of its habitat is restricted to inaccessible higher reaches of the Eastern Himalayas. A recent study has pointed out that the Red Panda is not one species but two based on the DNA evidence.

In India, the species is recorded in northern West Bengal, Sikkim and Arunachal Pradesh.

(With inputs from

Rahul Karmarkar)

END

Source : www.thehindu.com Date : 2020-03-10

CPCB NOTIFIES CONTAMINATED SITES

Relevant for: Environment | Topic: Environmental Pollution - Air, Water, Soil & E-waste

There are 128 sites in India contaminated by toxic and hazardous substances, according to a March update by the Central Pollution Control Board (CPCB). West Bengal led the list with 27 sites followed by Odisha at 23. Including those, there are 324 sites that may be contaminated, with 196 still awaiting an investigation and confirmation.

The Union Environment Ministry has been monitoring — and has begun to commission clean-up jobs — at sites known to be contaminated.

Twenty sites in 6 States have seen agencies prepare a detailed project reports, or a plan of action, to clean up sites. Such action follows orders by the National Green Tribunal (NGT). There are four such sites in Kerala (Eloor-Edayar), Odisha (Ganjam, Orichem) Tamil Nadu (Ranipet), Uttar Pradesh (Rania, IPL and Deva Road), West Bengal (Nibra village), Madhya Pradesh (Ratlam).

These incidents include oil contamination due to leakage of underground oil pipelines of Bharat Petroleum Corporation Limited in Tamil Nadu, pesticide and heavy metal contamination in creeks at Eloor, Kerala, chromium contamination at Rania, improperly disposed electronic waste lying on the banks of river Ramganga, Moradabad and mercury contamination of the soil at Kodaikanal, Tamil Nadu, and Ganjam, Odisha.

END

Source : www.hindustantimes.com Date : 2020-03-11

CLIMATE CRISIS: LAND IS THE KEY

Relevant for: Environment | Topic: Environmental Degradation - GHGs, Ozone Depletion and Climate Change

Mar 11, 2020-Wednesday
-°C

Humidity
-

Wind
-

Metro cities - Delhi, Mumbai, Chennai, Kolkata

Other cities - Noida, Gurgaon, Bengaluru, Hyderabad, Bhopal , Chandigarh , Dehradun, Indore, Jaipur, Lucknow, Patna, Ranchi

Powered by OpenWeatherMap

A recent report by the Union ministry of earth sciences (MOES), *Observed Rainfall Variability and Changes,* has found that seven Indian states — Uttar Pradesh, Bihar, West Bengal, Himachal Pradesh, Arunachal Pradesh, Meghalaya and Nagaland — have witnessed significant decreasing trends in annual rainfall in the last 30 years. Alarmingly, many other parts of the country have also seen an increase in the number of dry days during the monsoon season. This, the report added, has adversely affected groundwater recharges in these rain-deficit regions. This rain deficit and its impact on groundwater can be attributed to the climate crisis, government officials acknowledge.

The impact of an erratic monsoon on agriculture — and farmers — is direct. This is because between 50% to 60%of the country's agriculture is still rainfed, without access to any form of irrigation. The 2017-18 *Economic Survey* said the climate crisis could reduce annual agricultural incomes in the range of 15-18% on an average, and up to 20-25% for unirrigated areas. Other than having a negative impact on agrarian production, the climate crisis also impairs the land's ability to act as carbon sink. The Intergovernmental Panel on Climate Change's 2019 *Climate Change and Land* report, therefore, warned of massive impact of changing weather patterns on soil fertility, increase in arid and desertified zones, and contraction of polar climate zones and biodiversity. This exacerbates the climate crisis, while the climate crisis, in turn, exacerbates land degradation in different ways.

While micro-planning, as India's state climate action plans are supposed to do, and providing farmers with better seeds, climate information, land quality management and irrigation are critical, it is also important to use the knowledge of farmers on these issues. This is because they hold vital local knowledge and practices on how to avoid, improve or adapt to a changing climate. Catalysing this with climate science could have a real impact on framing effective climate action.

END

Source : www.thehindu.com Date : 2020-03-11

AFRICAN CHEETAHS TO BE INTRODUCED IN INDIA

Relevant for: Environment | Topic: Biodiversity, Ecology, and Wildlife Related Issues

The Asiatic Cheetah was declared extinct in India in 1952. According to reports, the last Indian cheetah died around 1948.

In India, over the years, cheetahs brought in from abroad have been kept in zoos. Cheetahs became extinct due to various reasons like hunting, destruction of habitat and human intervention. Wildlife experts say that for cheetahs to survive, a large area of grassland and a prey base are required

Also read: Editorial | Cat conundrum: On cheetahs in Indian forests

The Supreme Court has directed the National Tiger Conservation Authority (NTCA) to introduce African cheetahs into the Indian habitats.

The top court has set up a three-member committee to guide the NTCA in this experimental project to revive the cheetah population.

In 2012, the SC had stalled the introduction of foreign cheetahs into Palpur Kuno Sanctuary in Madhya Pradesh fearing their conflict with another project to reintroduce lions into the same sanctuary.

The Hyderabad-based Centre for Cellular and Molecular Biology (CCMB) had even initiated a project to clone Indian cheetah. But this is yet to bear fruit.

Around 7,000 cheetahs are now left in the wild, most of them in Africa. Being the mildest of the wild cats, cheetahs need special attention and care. Conservationists now fear the lack of enough area and prey base for the African cheetahs in Indian habitats. Low survival rates of cubs, animal-human conflict, are some of the other challenges ahead.

END

Source : www.thehindu.com Date : 2020-03-13

NEW ENVIRONMENT IMPACT NORM CUTS TIME FOR PUBLIC HEARING

Relevant for: Environment | Topic: Environmental Conservation, Sustainable Development, and EIA

A set of key updates to India's Environment Impact Assessment (EIA) Act, the law that governs how the threat posed by large infrastructure projects to the environment ought to be evaluated, proposes to reduce the time given to people to air objections.

How not to do an environmental assessment

The draft EIA notification proposes to be an update to the EIA of 2006, which specifies a "minimum of 30 days" for people to respond. The current version of the update, which will likely become law in 60 days, gives a "minimum of 20 days" of notice period. It also requires that the public-hearing process be wrapped up in 40 days, as opposed to the existing norm of 45 days.

The public hearing process is considered a key component of the EIA. An organisation has to submit a detailed plan, as part of the EIA process, that details the nature, need, potential impact and remedial measures, if their proposed infrastructure project threatens to significantly impact a region. As part of the process, representatives of the company, State and district administration representatives must discuss the environment impact management plan, record objections from residents of the region and submit these to a committee of experts, constituted by the Union Environment Ministry, who will then take a holistic view of the comments and the management plan and decide on whether to accord clearance to the project.

While expert committees constituted by the MoEF appraise projects, those below a certain size are appraised by State-level authorities called the State Environment Impact Assessment Authority (SEIAA).

On March 2016, the Ministry further delegated the authority to grant clearances for up to five hectares of individual mining lease of minor minerals and 25 hectares in clusters, to the DEIAA, or District Environment Impact Assessment Authority.

Over the years, several provisions in the EIA 2006 have been challenged in the National Green Tribunal (NGT) and led to the MoEF modifying the rules. The EIA 2019 aims to accommodate all these revisions, officials have told *The Hindu*.

Last year, the Union Environment Ministry circulated a 'zero draft' to States where it sought comments from State authorities and prepared the draft that has now been put up for public feedback.

Independent experts opine that the proposed EIA introduces new aspects to the regulations. Kanchi Kohli, who analyses EIA legislation and its effects, said that authorities were earlier mandated to monitor projects for compliance with environmental norms every six months. It has now been proposed to relax the monitoring frequency to once a year. "Shorter processing times pose both institutional challenges and the quality of participation," she added.

The government has set an ambitious target of eliminating single-use plastics by 2022.

END

Source : www.pib.nic.in Date : 2020-03-21

ACTION-PLAN TO TACKLE ADVERSE IMPACT OF GLOBAL WARMING ON FOOD CROPS

Relevant for: Environment | Topic: Environmental Degradation - GHGs, Ozone Depletion and Climate Change

Ministry of Agriculture & Farmers Welfare

Action-Plan to tackle Adverse Impact of Global Warming on Food Crops

Posted On: 20 MAR 2020 4:27PM by PIB Delhi

Global Warming associated with the increase in concentration of green house gases in the atmosphere is one of the reasons for the increase in extreme weather events. Due to global warming agriculture sector is likely to be affected and climate change is expected to impact yields of agriculture crops in a business as usual scenario.

Simulation studies using integrated modelling framework showed that rainfed rice yields in India are projected to reduce marginally (<2.5%) in 2050 and 2080 scenarios while irrigated rice yields are projected to reduce by 7% in 2050 and 10% in 2080 scenarios. Climate change is projected to reduce wheat yield by 6-25% towards the end of the century with significant spatio-temporal variations. Climate change in 2050 and 2080 scenarios is projected to reduce the *kharif* maize yields by 18 to 23%. *Kharif* groundnut yields are projected to be increased by 4-7% in 2050 scenarios where as in 2080 scenario the yield is likely to decline by 5%. Future climates are likely to benefit chickpea with increase in productivity (23-54%).

During XII Plan (2012-2018), more than 400 climate resilient germplasm lines have been identified and 58 genotypes characterised with high water and nutrient use efficiency by Indian Council of Agricultural Research (ICAR).

National Mission for Sustainable Agriculture (NMSA) one of the missions under National Action Plan on Climate Change (NAPCC) aims to evolve and implement strategies to make Indian agriculture more resilient to the changing climate.

National Food Security Mission (NFSM) programme is implemented in the identified districts across the country with the objective of increasing foodgrain production through area expansion and productivity enhancement, restoring soil fertility and productivity at individual farm level and enhancing farm level economy.

ICAR has launched a flagship network project National Innovations in Climate Resilient Agriculture (NICRA).

The NICRA aims at strategic research on adaptation and mitigation, demonstration of technologies on farmers' fields and creating awareness among farmers and other stakeholders to minimize the impacts of global warming on agriculture. Under this project, large number of indigenous genetic resources and improved crop varieties of pulses (black gram, green gram, pigeonpea, chickpea) and cereals (rice and wheat) are screened for major abiotic stresses like drought and heat to identify superior cultivars for large scale adoption in farmer's fields genetic materials for cultivation at farmers field. In the process number of genetic materials including improved varieties were identified, some of which are already in the farmer's fields. Besides, location specific NRM technologies are being demonstrated under Technology Demonstration

Component of NICRA in 151 climatically vulnerable districts to achieve climate resilient agriculture.

This information was given in a written reply by the Union Minister of Agriculture and Farmers Welfare Shri Narendra Singh Tomar in Rajya Sabha today.

****

APS/PK/BA

(Release ID: 1607346) Visitor Counter : 327

END

Source : www.pib.nic.in Date : 2020-03-26

GLACIERS IN SIKKIM ARE LOSING MASS FASTER THAN OTHER PARTS OF THE HIMALAYA

Relevant for: Environment | Topic: Environmental Degradation - GHGs, Ozone Depletion and Climate Change

Ministry of Science & Technology

Glaciers in Sikkim are losing mass faster than other parts of the Himalaya

Posted On: 25 MAR 2020 2:04PM by PIB Delhi

Scientists from Wadia Institute of Himalayan Geology (WIHG), Dehradun an autonomous research institute for the study of Geology of the Himalaya under the Department of Science and Technology, have found that glaciers in Sikkim are melting at a higher magnitude as compared to other Himalayan regions.

The study published in Science of the Total Environment assessed the response of 23 glaciers of Sikkim to climate change for the period of 1991-2015 and revealed that glaciers in Sikkim have retreated and deglaciated significantly from 1991 to 2015. Small-sized glaciers in Sikkim are retreating while larger glaciers are thinning due to climate change.

Compared to other Himalayan regions, the magnitude of dimensional changes and debris growth are higher in the Sikkim. A major shift in glacier behavior has occurred around 2000. Contrary to the western and central Himalaya, where glaciers are reported to have slowed down in recent decades, the Sikkim glaciers have shown negligible deceleration after 2000. Summer temperature rise has been prime driver of glacier changes.

To understand the various parameters of Sikkim Himalayas glaciers such as length, area, debris cover, snow-line altitude (SLA), and how they respond to global warming Scientists from WIHG selected 23 representative glaciers from this region. A detailed and rigorous literature survey related to the study was carried out to assess the existing knowledge in the subject. Thereafter, representative glaciers well spread over the study area were selected based on multiple criteria such as size, length, debris cover, slope, aspect, and so on. Then, the multi-temporal and multi-sensor satellite data covering selected glaciers was procured. The team analyzed the results and compared with existing studies, and the impact of various influencing factors was systematically explored to understand the glaciers state.

The behavior of glaciers in the region is heterogeneous and found to be primarily determined by glacier size, debris cover, and glacial lakes. Though a generalized mass loss is observed for both small (less than 3 km square) and large-sized glaciers (greater than 10 km square), they seem to adopt different mechanisms to cope with the ongoing climatic changes. While the first adjust mostly by deglaciation, the latter lose mass through downwasting or thinning.

The Sikkim glaciers have been poorly studied till now, and field-based mass balance measurements have been limited to only one glacier (ChangmeKhangpu) and for a short period (1980-1987). The studies are regional in nature and do no give emphasis on individual glacier behavior. Besides, most of the existing measurements in this region have been focused on length/area changes only. Velocity estimations have also been extremely rare.

This study, for the first time, studied multiple glacier parameters, namely length, area, debris cover, snowline altitude (SLA), glacial lakes, velocity, and downwasting, and explored interlinkage among them to present a clear picture about status and behavior of glaciers in the Sikkim.

Accurate knowledge of magnitude as well as the direction of glacier changes, as highlighted in the present study, can lead to awareness among common people regarding water supplies and possible glacier hazards, particularly to those communities that are living in close proximity. The study can provide ample baseline data on glacier changes and systematically explore the causal relationship between glacier parameters and various influencing factors. A clear understanding of glacier state will help orienting future studies as well as taking necessary measures.

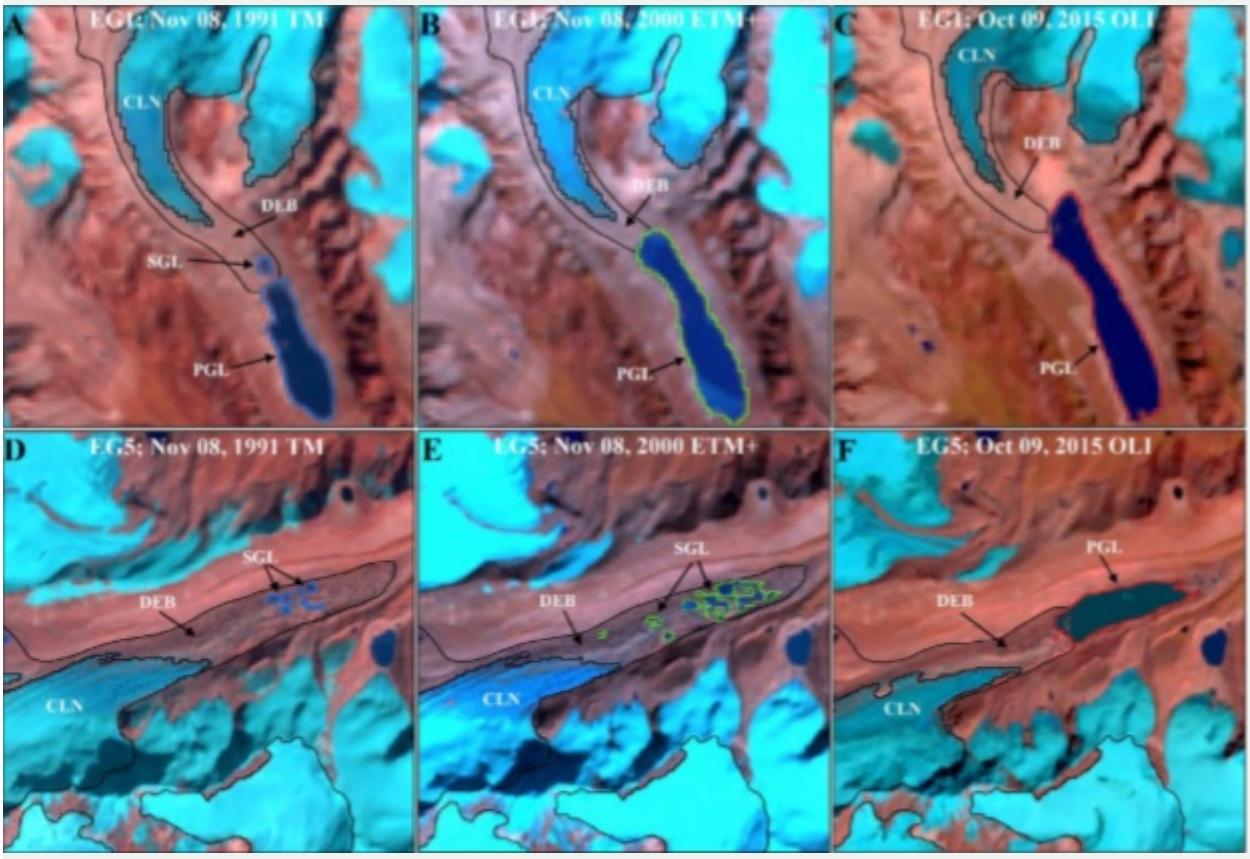


Figure- Example of lake changes on two glaciers in the Sikkim during 1991–2015.

*****

SNC/KGS(DST)

(Release ID: 1608065) Visitor Counter : 371

Read this release in: Hindi

END