

Nature Environment and Pollution Technology

Vol. 15, No. (1), March 2016

CONTENTS

1. **Lin Mu, Qinggang Qiu, Jianbiao Chen, Hongchao Yin, Aimin Li and Xiao Chi**, Numerical investigation of ash particles deposition and distribution in a refining and chemical wastewater incineration equipment 1-10
2. **Lin Man-li, Gui He-rong and Peng Wei-hua**, Health risk assessment of heavy metals in the groundwater of a coal mining area in Northern Anhui Province, China 11-18
3. **Minhaj Ahmad Khan, Arun Kumar K., Balkrishna Sopan Bhole and Pradeep K. Srivastava** Phylogenetic identification of DNase secreting soil bacteria antagonistic to fungus *Aspergillus* 19-26
4. **Xiaoyu Ma, Lei Bi and Zhan-ao Wang**, Effect of air pollution on provincial fiscal investment for environmental protection in China 27-34
5. **Vara Saritha, Bhavya Kavitha Dwarapureddi and Ch. Bhavannarayana**, Occupational health effects of self employed personnel with reference to auto drivers and photocopy workers 35-42
6. **Mohammad Delnavaz, Hossein Zangoeei and Mohammad Zangoeei**, Application of mathematical models and fuzzy regression analysis to determine the microbial growth kinetic coefficients and predicting quality of treated wastewater 43-50
7. **Junfeng Yang**, Heterogeneity analysis of the relationship between economic growth and water environmental pollution in Beijing, Tianjin and Zhengzhou of China 51-58
8. **Yilun Li**, Relationship between contaminant flux and economic growth at the Pearl River estuary in Guangdong Province, China 59-66
9. **C. Rajakumar and T. Meenambal**, Experimental study on the utilization of industrial and agricultural wastes to stabilize the expansive soil subgrades 67-72
10. **Pingping Qiao**, Relationships between environmental pollution, population increase and economic development of Henan China 73-80
11. **Guo Ping and Chen Huiqing**, Game theory analysis on agricultural ecological compensation in rural areas around Beijing-A case of Zhangcheng District 81-86
12. **Rekha H. B. and Usha N. Murthy**, Decolorization of reactive dye solutions by electrocoagulation using iron electrodes 87-92
13. **Guo Xiaojing, Yang Po, Zhang Fawang, Li Zitao and Wu Binhua**, The pollution characteristics analysis of groundwater in Sanjiao Area Hedong Coalfield 93-96
14. **Lei Ji, Ren Lijun, Hu Shibin and Cui H. Ron**, Isolation and characterization of the carbendazim-degrading strain Djl-5B 97-102
15. **Soheil Ahmadi, Saeid Gitipour† and Nasser Mehrdadi**, Compressive strength development of solidified PAHs contaminated soil using cement and micro silica 103-106
16. **Soheil Aghaei, N. Bahador and M. Baserisalehi**, GC-MS analysis of antibacterial metabolites extracted from *Rhodococcus rhodochrous* isolated from soil samples 107-112
17. **Xiufan Xie, Shuquan An and Changjun Zhu**, Fuzzy neural network model and its application in water quality evaluation 113-116
18. **Wang Lide, Yao Tuo, Cheng Long, Chai Xiaohong, Guo Chunxiu, Man Duoqing, Wang Duoze and Sun Guangzheng**, Soil chemical properties and biological characteristics of discontinued farmland in the downstream of Shiyang River 117-122
19. **David Swami, Brijesh Pare and Pramod Pandit**, Decolorization and mineralization of hazardous brilliant cresyl blue dye using visible light and TiO₂ as photocatalyst 123-128
20. **Feng Qian and Li Yang**, Natural ventilation environment strategy in green building design 129-134
21. **Li Bowen and Men Baohui**, Study on the feasibility of karst water as a source of water supply in Beijing 135-140
22. **Wenjuan Wang, Tieliang Wang and Li Bo**, Effects of different water and fertilizer couplings on the yield and soil environment of greenhouse tomatoes in Liaoning, China 141-146

23. **Zhao Yiping, Deng Yu, Ni Fuquan, Zhang Manxue, Zheng Yalin, Wang Wenli and Qiu Zhenyi**, The treatment of decentralized domestic sewage in a rural area with a vermibiofilter in different seasons 147-152
24. **T. Bhagavathi Pushpa, V. Sekaran, S. J. Sardhar Basha and J. Jegan**, Investigation on preparation, characterization and application of effective microorganisms (*EM*) based composts-An ecofriendly solution 153-158
25. **Linhua Sun**, Source quantification of major ions in groundwater from deep limestone aquifer system in northern Anhui Province, China based on Unmix model 159-164
26. **Kuo Wang, Lian Chen, Tao Feng, Chaohui Song and Dawei Gao**, The Relationship of atmosphere and sea surface temperature (SST) with Asian cold events in winter 165-170
27. **S. Sivaranjani and A. Rakshit**, Indigenous materials for improving water quality 171-176
28. **Annapoorna H. and Janardhana M. R.**, GIS based spatial mapping of major ion chemistry of groundwater of Ingaldhal and surrounding areas, Chitradurga District, Karnataka State 177-182
29. **Song Chen and Herong Gui**, Geochemical characteristics of groundwater from limestone aquifer in Sunan coal-mining region, Anhui Province, China 183-188
30. **Xiaowei Li and Kun Sun**, The effect of climatic factors on leaf traits of a non-leguminous nitrogen fixing species *Hippophae tibetana* (Schlecht.) along the altitudinal gradient in the eastern Tibetan Plateau, China 189-194
31. **Yu Fan and Daming Li**, Research on 2-D ecological mathematical model of red tide 195-200
32. **N. Kumara, N. Loganandhan, Somashekhar and B. Hanumanthe Gowda**, Effect of black polythene mulches on growth and yield of green chilli (*Capsicum annum*) in Tumkur district, Karnataka 201-204
33. **Lingfeng Zhu, Weiyong Zhu, Xiaoqi Chai, Yingying Li and Guoting Li**, Study on adsorptive removal of 1,4-benzoquinone by agricultural waste sugarcane bagasse 205-210
34. **Subroto Dutta and Firoz Khan**, An analytical study of lead in blood serum and urine in relation to health of silver jewellery workers of Ajmer city, Rajasthan 211-216
35. **Ge Jian-kun, Wang Shun-sheng, Wu Feng, Yang Hong-guang and He Jing**, Modelling greenhouse thermal environment in north China based on Simulink 217-220
36. **Lifang Qiao, Mei Li, Yichuan Zhang and Xiaodan Zhao**, Research on the construction of the urban wetland park environment based on resource saving and environment friendliness 221-226
37. **Shiv Shankar Kumar, Shovik Deb, P.B.S. Bhadoria, Dibyendu Mukhopadhyay, Amitava Rakshit and Ashok Choudhury**, Impact of *Pseudomonas putida* on available soil phosphorus dynamics and crop productivity under lowland rice ecology 227-232
38. **V. Visalakshmi, M. R. B. Raju, A. Upendra Rao, K. Madhu Kumar and N. Hari Satyanarayana**, Compatibility and efficacy of insecticide and fungicide combinations on major pests and sheath blight of paddy 233-235
39. **Peijun Yu**, Wind tunnel technology in green building environment 237-242
40. **Wenfeng Gong, Li Yuan, Wenyi Fan, Xiaofeng Wang and Philip Stott**, Comparison to supervised classification modelling in land use cover using landsat 8 OLI Data: An example in Miyun County of North China 243-248
41. **Vinay Pandey, Adesh Singh, Ashish Dwivedi, S. S. Tomar, Kapil Kumar and Roop Kishor**, Comparative performance and production potential of hybrid maize (*Zea mays* L.) with urdbean (*Vigna mungo*) and mungbean (*Vigna radiata*) under different planting patterns in alluvial soil 249-255
42. **S. Nandhini and K. Revathi**, Study on biofouling organisms present on the surface of boats in Royapuram, Chennai 257-261
43. **Hao Chengyuan and Zhang Hebing**, Regional clustering for ecological geographical parameters based on SOFM model 263-267
44. **Yingfa Yang**, A study on the relationship among fossil energy consumption, air pollution, and economic development in Hebei Province 269-275
45. **Yueying Bao and Limin Yao**, Empirical investigation on the degree of influence of industrial structure and urbanization on haze pollution in China 277-283
46. **S. Suchithra and R. Malathy**, Effective utilization of industrial wastes in self compacting concrete for environmental protection 285-290

47. B. S. Verma and S. K. Srivastava , Study of factors affecting phytoplankton primary productivity in a pond of Patna, Bihar, India	291-296
48. B. Semedi and F. Rahmawan , Estimation of stress levels of coral reefs bleaching using night-time satellite data: A case study of Indonesian tropical waters	297-300
49. Muqing Qiu, Shuiying Xiong, Xiaohong Sun, Haoqiang Zhou, Peichao Luo, Shichao Ren, Jianbo Xu and Yannan Xuan , Removal of the dye congo red in aqueous solution by the modified camphor sawdust adsorbent	301-304
50. Li Hai-hua, Yan Wei-feng, Meng Rui-jing, Liang Qian and Liu Ya-ting , Influence of coexistent ions Fe ³⁺ and Mn ²⁺ on arsenic (III) adsorption behaviour onto river sediment	305-310
51. Faisal Rehman, Helmy S.O. Abuelnaga, Hussein M. Harbi and Ali H. Atef , Application of vertical electrical sounding and water analysis for study the contaminated area at Al Misk Lake, Eastern Jeddah, Saudi Arabia	311-316
52. Xiao-Xi Zhang, Bo-Chao Zhu, Zeng-Wen Liu, Yuan-Hao Bing, Xiao-Bo Liu and Xiao Liang , Allelopathic effects of humus soil of <i>Platyclusus orientalis</i> forests on understory plants in the loess plateau, China	317-324
53. Gargi Sharma and Urmila Brighu , Selection of suitable plant species in semi arid climatic conditions for quality improvement of secondary treated effluent by using vertical constructed wetland	325-329
54. Xiangming Zeng and Dekai Tang , The research on urea nozzle optimization of marine selective catalyst reduction (SCR) system to reduce NOx from marine diesel engines	331-336
55. Zhang Wei-peng , Research on application of support vector machine method in Ningbo marine ecological environment security prediction	337-342
56. Chen Zu-yun, Chen Liang and Wu Chang-fu , Performance of discharge in two phase mixture of air-droplet	343-348
57. Wu Bishan and Liu Zhenling , Models for the measurement of carbon footprint from the raw-coal production	349-353
58. Conferences/Symposia/Workshops on Environment	236
59. Environmental News	256, 276, 284, 330
60. Did you know	262
61. Environmental Quotes	268

The Journal
is
Currently
Abstracted
and
Indexed
in:

International Scientific Indexing with Impact Factor (2015) 2.095

NAAS Rating of the Journal (2014) = 4.94

Scopus®, SJR (0.138)

Index Copernicus = 5.96

EI Compendex of Elsevier

Indian Science Abstracts,
New Delhi, India

Chemical Abstracts, U.S.A.

Elsevier Bibliographic
Databases

Pollution Abstracts, U.S.A.

Zoological Records

Paryavaran Abstract,
New Delhi, India

Indian Citation Index

Electronic Social and Science
Citation Index (ESSCI)

EBSCO: Environment Index™

Zetoc

Google Scholar

ProQuest, U.K.

J-Gate

Environment Abstract, U.S.A.

British Library

Centre for Research Libraries

WorldCat (OCLC)

JournalSeek

Connect Journals (India)

CSA: Environmental Sciences and Pollution Management

Research Bible (Japan)

Indian Science

Geobase

Elektronische
Zeitschriftenbibliothek (EZB)

SHERPA/RoMEO

Directory of Science

CNKI Scholar (China National
Knowledge Infrastructure)

Access to Global Online Research in Agriculture (AGORA)

AGRIS (UN-FAO)

Abstracts and full papers are available on the Journal's Website:
www.neptjournal.com

SUBSCRIPTION RATES (w.e.f. 2016)*

Print/Online	India	Nepal/Pakistan/Bhutan/Bangladesh/Srilanka	Rest of the World
Only Print Copy	Rs. 3500	US \$200	US \$400
Only Online Copy	Rs. 2500	US \$150	US \$300
Print + Online Copy	Rs. 4500	US \$300	US \$550

* There is no separate rate for individuals/authors.

ADVERTISEMET RATES

	1 Issue	2 Issues	4 Issues
Full Page	Rs. 5000	Rs. 8000	Rs. 12000

All remittances can be made by netbanking/bank draft/cheque, the details of which can be sent on request by e-mail: contact@neptjournal.com.

Nature Environment and Pollution Technology

EDITORS

Prof. K. P. Sharma

Ecology Lab, Deptt. of Botany
University of Rajasthan
Jaipur-302 004, India
Rajasthan, India

Dr. P. K. Goel

Former Head, Deptt. of Pollution Studies
Yashwantrao Chavan College of Science
Vidyanagar, Karad-415 124
Maharashtra, India

Marketing Manager: Mrs. Apurva Goel Garg, C-102, Building No. 12, Swarna CGHS, Beverly Park, Kanakia, Mira Road (E)-401107, Distt. Thane, Maharashtra, India (**E-mail: journalnept@gmail.com**)

Business Manager: Mrs. Tara P. Goel, Technoscience Publications, 2 Shila Apartment, Shila Nagar, Karad-415 110, Maharashtra, India (**E-mail: contact@neptjournal.com**)

Managing Editor at Jaipur: Dr. Subhashini Sharma, Department of Zoology, Rajasthan University, Jaipur, Rajasthan, India

All correspondence regarding subscription and publication of papers in the journal must be made only at the Managing Office at Karad

EDITORIAL ADVISORY BOARD

1. **Dr. Prof. Malay Chaudhury**, Department of Civil Engineering, Universiti Teknologi PETRONAS, Malaysia
2. **Dr. Saikat Kumar Basu**, University of Lethbridge, Lethbridge AB, Canada
3. **Dr. Sudip Datta Banik**, Department of Human Ecology Cinvestav-IPN Merida, Yucatan, Mexico
4. **Dr. Elsayed Elsayed Hafez**, Deptt. of of Molecular Plant Pathology, Arid Land Institute, Egypt
5. **Dr. Dilip Nandwani**, College of Agriculture, Human & Natural Sciences, Tennessee State Univ., Nashville, TN, USA
6. **Dr. Ibrahim Umaru**, Department of Economics, Nasarawa State University, Keffi, Nigeria
7. **Dr. Prof. D.S. Mitchell**, Albury, Australia
8. **Dr. Prof. Alan Heritage**, Sydney, Australia
9. **Mr. Shun-Chung Lee**, Deptt. of Resources Engineering, National Cheng Kung University, Tainan City, Taiwan
10. **Samir Kumar Khanal**, Deptt. of Molecular Biosciences & Bioengineering, University of Hawaii, Honolulu, Hawaii
11. **Dr. Prof. P.K. Bhattacharya**, Dept. of Chemical Engineering, IIT, Kanpur, U.P., India
12. **Dr. Zawawi Bin Daud**, Faculty of Civil and Environmental Engg., Universiti Tun Hussein Onn Malaysia, Johor, Malaysia
13. **Dr. Srijan Aggarwal**, Civil and Environmental Engg. University of Alaska, Fairbanks, USA
14. **Dr. M. I. Zuberi**, Department of Environmental Science, Ambo University, Ambo, Ethiopia
15. **Dr. Prof. A.B. Gupta**, Dept. of Civil Engineering, MREC, Jaipur, India
16. **Dr. Kiran Tota-Maharaj**, Faculty of Engineering & Science University of Greenwich, Kent, ME4 4TB, United Kingdom
17. **Dr. Bing Jie Ni**, Advanced Water Management Centre, The University of Queensland, Australia
18. **Dr. Prof. S. Krishnamoorthy**, National Institute of Technology, Tiruchirapally, India
19. **Dr. Prof. (Mrs.) Madhoolika Agarwal**, Dept. of Botany, B.H.U., Varanasi, India
20. **Dr. Anthony Horton**, Envirocarb Pty Ltd., Australia
21. **Dr. Riccardo Buccolieri**, University of Salento-DISTEBA S.P. 6 Lecce-Monteroni - 73100 Lecce, Italy
22. **Dr. Prof. A.M. Deshmukh**, Dept. of Microbiology, Dr. B.A. Marathwada University Sub-Centre, Osmanabad, India
23. **Dr. Prof. M.P. Sinha**, Vinoba Bhave University, Hazaribagh India
24. **Dr. G.R. Pathade**, H.V. Desai College, Pune, Maharashtra, India
25. **Dr. Hossam Adel Zaqoot**, Ministry of Environmental Affairs, Ramallah, Palestine
26. **Dr. T.S. Anirudhan**, Dept. of Chemistry, University of Kerala, Trivandrum, Kerala, India
27. **Dr. James J. Newton**, Environmental Program Manager 701 S. Walnut St. Milford, DE 19963, USA
28. **Dr. M.G. Bodhankar**, Dept. of Microbiology, Yashwantrao Mohite College, Pune, India
29. **Dr. Murat Eyvaz**, Department of Environmental Engg. Gebze Inst. of Technology, Gebze-Kocaeli, Turkey
30. **Dr. Zhihui Liu**, School of Resources and Environment Science, Xinjiang University, Urumqi, China
31. **Dr. Sandeep Y. Bodkhe**, NEERI, Nagpur, India
32. **Dr. D. R. Khanna**, Gurukul Kangri Vishwavidyalaya, Haridwar, India
33. **Dr. S. Dawood Sharief**, Dept. of Zoology, The New College, Chennai, T. N., India
34. **Dr. B. N. Pandey**, Dept. of Zoology, Purnia College, Purnia, Bihar, India
35. **Dr. Xianyong Meng**, Xinjiang Inst. of Ecology and Geography, Chinese Academy of Sciences, Urumqi, China
36. **Dr. Ms. Shaheen Taj**, Dept. of Chemistry, Al-Ameen Arts, Science & Commerce College, Bangalore, India
37. **Dr. Nirmal Kumar, J. I.**, ISTAR, Vallabh Vidyanagar, Gujarat, India
38. **Dr. Wen Zhang**, Deptt. of Civil and Environmental Engineering, New Jersey Institute of Technology, USA

ENVIRONMENTAL CALENDAR OF 2016

February

- 2nd : World Wetlands Day
- 28th : National Science Day

March

- 3rd : World Wildlife Day
- 21st : World Forestry Day
- 22nd : World Water Day
- 23rd : World Meteorological Day
- 31st : Earth Hour

April

- 7th : World Health Day
- 18th : World Heritage Day
- 22nd : Earth Day
- 27th : Save the Frogs Day

May

- 10th : World Migratory Bird Day
- 18th : International Museum Day
- 22nd : International Day for Biological Diversity
- 23rd : World Turtle Day

June

- 1st : National Whale Day
- 5th : World Environment Day
- 8th : World Oceans Day
- 15th : Global Wind Day
- 17th : World Day to Combat Desertification and Drought

July

- 11th : World Population Day
- 28th : National Tree Day

August

- 9th : International Day for World Indigenous People
- 12th : International Youth Day

September

- 16th : International Day for the Preservation of the Ozone Layer
- 17th : World Parks Day
- 18th : World Water Monitoring Day
- 22nd : World Car-Free Day
- 27th : World Rivers Day

October

- 3rd : World Habitat Day
- 4th : World Animal Day
- 16th : World Food Day
- 17th : International Day for the Eradication of Poverty

November

- 6th : International Day for Preventing the Exploitation of the Environment in War and Armed Conflict
- 21st : World Fisheries Day; World GIS Day

December

- 3rd : International Day of People with Disability
- 5th : World Soil Day
- 10th : Human Rights Day
- 11th : International Mountain Day

Conferences/Symposia/Workshops on Environment

Technoarete-International Summit on Biotechnology and Environmental Management (ISBEM 16)

10th to 11th December 2016, Pattaya , Thailand

Website http://technoarete.com/FConference/Dec2016/10-11dec_pattaya-ISBEM/

Contact person: Conference Coordinator

Design and Nature 2016

13th to 15th September 2016, New Forest, U. K.

Website: <http://www.wessex.ac.uk/16-conferences/design-and-nature-2016.html>

Contact person: Irene Moreno Millan

Water Pollution 2016

27th to 29th June 2016, Venice, Italy

Website: <http://www.wessex.ac.uk/16-conferences/water-pollution-2016.html>

Contact person: Irene Moreno Millan

ISABIS: International Conference on Aquaculture Science (ICAS 2016)

20-21 September, 2016, Manila, Philippines

Website: <http://icas2016.weebly.com/>

Contact person: infoisabis@gmail.com

17th International Conference on Green and Sustainable Technology (GSUS)

15-16 June, 2016, Singapore

15th to 16th June 2016 , Singapore

Website: <http://singaporegsus.com/>

Contact person: Dr. D Lazarus

8th International Congress of Environmental Research

27th to 28th July 2016, Luebeck, Schleswig-Holstein, Germany

Website: <http://www.icer16.jerad.org/index.php>

Contact person: Prof. Dr. Subhash C. Pandey

EurAsia Waste Management Symposium

2nd to 4th May 2016, Istanbul, Turkey

Website: <http://www.eurasiasymposium.com>

Contact person: Mehmet Sinan Bilgili

Sustainable Development and Planning 2016

6th to 8th December 2016, Penang, Malaysia

Website: <http://www.wessex.ac.uk/16-conferences/sustainable-development-and-planning-2016.html>

Contact person: Irene Moreno Millan

Academics World-82nd International Conference on Environmental Science and Development (ICESD)

12-13, October, 2016, Chengdu, China

Website: <http://academicworld.org/Conference/ChengduChina/ICESD/>

E-mail: info@academicworld.org

RW- 78th International Conference on Civil and Environmental Engineering (I2C2E)

14th October 2016, Macau , China

Website <http://researchworld.org/Conference/2016/China/1/I2C2E/>

Contact person: Conference Coordinator

Energy Production and Management in the 21st Century (Energy Quest 2016)

6th to 8th September 2016, Ancona, Italy

Website: <http://www.wessex.ac.uk/16-conferences/energy-quest-2016.html>

Contact person: Irene Moreno Millan

IPN : 2nd International Conference on Green and Environmental Technology (ICGET 2016)

23-24, September, 2016, Kuala Lumpur, Malaysia

Website: <http://icget2016.weebly.com/>

Contact person: infoncorg@gmail.com

Air Pollution 2016

20th to 22nd June 2016, Crete, Greece

Website: <http://www.wessex.ac.uk/16-conferences/air-pollution-2016.html>

Contact person: Irene Moreno Millan

Waste Management 2016

7th to 9th June 2016, Valencia, Spain

Website: <http://www.wessex.ac.uk/16-conferences/waste-management-2016.html>

Contact person: Irene Moreno Millan

ENVIRONMENTAL NEWS

Seismologists studying the recent dramatic upswing in earthquakes triggered by human activity want to clear up a few common misconceptions about the trend

There is increasing evidence that these earthquakes are caused by injecting fluids from oil and gas operations deep into the earth. These human-caused earthquakes are sometimes called "induced earthquakes." A Seismological Research Letters focus section to be published online June 10 addresses some common misconceptions about induced seismicity—the biggest of which is that it is primarily related to oil and gas recovery by hydraulic fracturing or "fracking."

Guest editor Justin Rubinstein, a scientist with the U.S. Geological Survey, explains that most of the induced earthquakes felt in the United States are from the disposal of large amounts of wastewater from oil and gas production. The majority of this wastewater is ancient ocean brine that was trapped in rock layers along with gas and oil deposits. Only a small percentage of induced seismicity comes from fracking processes that inject liquid into the ground to break up rock layers to free oil and gas for recovery. Wastewater disposal from oil and gas operations has increased in the U.S. in the past decade, especially in states like Oklahoma where the amount of wastewater disposal doubled between 1999 and 2013.

Not all fluid injection causes earthquakes that can be detected or felt, Rubinstein added. Only a few dozen of the tens of thousands of wastewater disposal, enhanced oil recovery and hydraulic fracture wells in the U.S. have been linked to induced earthquakes that can be felt. The central United States has experienced a surge in seismicity in the past six years, rising from an average of 24 earthquakes magnitude 3.0 or larger per year between 1973 and 2008 to an average of 193 earthquakes of this size every year between 2009 and 2014, with 688 occurring in 2014 alone.

Researchers are also tracking induced earthquakes in Canada, and the current batch of studies suggests that fracking might be more significant than wastewater disposal for causing earthquakes in that country, according to focus section co-editor David Eaton of the University of Calgary.

As research continues in both countries, experts are recommending a more proactive approach to the risks of induced seismicity. A focus section article by Randi Jean Walters and colleagues at Stanford University outlines a possible workflow to reduce pre and post-injection risks at oil and gas sites. The workflow would incorporate seismic monitoring, a thorough understanding of a region's past and present geology and detailed information on the industrial methods used in an oil and gas operation. Perhaps most important, they write, an ongoing risk assessment would take into account what sorts of resources—from buildings to natural settings—would be affected by seismic activity, and what kinds of seismic activity the surrounding population is willing to tolerate.

Another focus section paper by James Dieterich and colleagues at the University of California, Riverside explores the mechanics of induced seismicity. Their study uses an earthquake simulation program called RSQSim to explore how simple faults with various levels of pre-existing stress respond to fluid injection. Their model is able to reproduce many of the observed characteristics of induced seismicity and relate them to physical quantities such as injection duration and injected volumes. If the simulator can model more complex situations in future trials, it may offer guidance on managing the seismic risks at injection sites and estimating the probabilities of inducing earthquakes.

DID YOU KNOW

- Recycling one aluminum can saves enough energy to run a TV for three hours.
- The world's tallest tree is a coast redwood in California, measuring more than 360 feet or 110 meters.
- The world's oldest trees are 4,600 year old Bristlecone pines in the USA.
- Every time you open the refrigerator door, up to 30 percent of the cold air can escape.
- Plastic bags and other plastic garbage thrown into the ocean kill as many as 1,000,000 sea creatures every year.
- Of 1.5 million known species, 16,118 species are in danger of disappearing.
- Each year, mankind consumes 40 percent more resources than nature can restore.
- A million tons of paper is used worldwide in a single day.
- A modern glass bottle takes 4000 years or more to decompose.

- Most of the world's creatures live in the sea. There are still millions of species to be discovered.
- On the average, there are 27 oil spills per day in the world's oceans.
- Almost all the plastic ever made still exists today. A plastic milk jug, for example, takes a million years to decompose.
- The World Health Organization estimates that 160,000 people die each year because of the indirect causes of climate change.
- Worldwide levels of plankton organisms have dropped 40 percent since the 1950s. The drop has been linked to rising ocean temperatures.
- The Intergovernmental Panel on Climate Change predicts that the ocean will rise by 18-59 centimeters by the year 2100 because of melting of glaciers in Greenland and Antarctica. About 10 percent of the world's population lives in danger of being flooded.
- China, The United States and India produce about half of the world's carbon dioxide emissions.
- The trails left by airplanes make up almost half of the greenhouse warming caused by the airline industry.
- An estimated 50,000 species inhabiting our tropical forests become extinct annually. That's an average of 137 species a day.

ENVIRONMENTAL QUOTES

- The good man is the friend of all living things.

Mahatma Gandhi
- Earth provides enough to satisfy every man's needs, but not every man's greed.

Mahatma Gandhi
- What we are doing to the forests of the world is but a mirror reflection of what we are doing to ourselves and to one another.

Chris Maser, Forest Primeval
- Here is your country. Cherish these natural wonders, cherish the natural resources, cherish the history and romance as a sacred heritage, for your children and your children's children. Do not let selfish men or greedy interests skin your country of its beauty, its riches or its romance.

Theodore Roosevelt
- What's the use of a fine house if you haven't got a tolerable planet to put it on.

Henry David Thoreau
- If the bee disappeared off the face of the earth, man would only have four years left to live.

Maurice Maeterlinck
- A nation that destroys its soils destroys itself. Forests are the lungs of our land, purifying the air and giving fresh strength to our people.

Franklin D. Roosevelt
- The earth will not continue to offer its harvest, except with faithful stewardship. We cannot say we love the land and then take steps to destroy it for use by future generations.

John Paul II
- My world, my Earth is a ruin. A planet spoiled by the human species. We multiplied and fought and gobbled until there was nothing left, and then we died. We controlled neither appetite nor violence; we did not adapt. We destroyed ourselves. But we destroyed the world first.

Ursula K. Le Guin
- A true conservationist is a man who knows that the world is not given by his fathers, but borrowed from his children.

John James Audubon
- In every walk with nature one receives far more than he seeks.

John Muir

ENVIRONMENTAL NEWS

Climate change could kill more than 500,000 adults in 2050 worldwide due to changes in diets and bodyweight from reduced crop productivity, according to new estimates published in *The Lancet*. The research is the strongest evidence yet that climate change could have damaging consequences for food production and health worldwide.

The modelling study, led by Dr Marco Springmann from the Oxford Martin Programme on the Future of Food at the University of Oxford, UK, is the first of its kind to assess the impact of climate change on diet composition and bodyweight, and to estimate the number of deaths they will cause in 155 countries in 2050. "Much research has looked at food security, but little has focused on the wider health effects of agricultural production," explains Dr Springmann. "Changes in food availability and intake also affect dietary and weight-related risk factors such as low fruit and vegetable intake, high red meat consumption, and high bodyweight. These all increase the incidence of non-communicable diseases such as heart disease, stroke, and cancer, as well as death from those diseases."

The study reveals that, unless action is taken to reduce global emissions, climate change could cut the projected improvement in food availability by about a third by 2050, and lead to average per-person reductions in food availability of 3.2% (99 kcal per day), in fruit and vegetable intake of 4.0% (14.9g per day), and red meat consumption of 0.7% (0.5g per day). The findings predict that these changes could be responsible for around 529000 extra deaths in 2050, compared to a future without climate change in which increases in food availability and consumption could have prevented 1.9 million deaths.

The countries that are likely to be worst affected are low- and middle-income countries, predominantly those in the Western Pacific region (264000 deaths) and Southeast Asia (164000), with almost three-quarters of all climate-related deaths expected to occur in China (248000) and India (136000). On a per-capita basis, also Greece (124 deaths per million people) and Italy (89 deaths per million people) are likely to be significantly affected.

The biggest impacts of changes in fruit and vegetable intake are likely to be felt across high-income countries (accounting for 58% of all changes in deaths), in low- and middle-income countries (LMIC) of the Western Pacific (74%), Europe (60%), and the Eastern Mediterranean (42%). Southeast Asia and Africa top the list for underweight related-deaths in adults, accounting for 47% and 49% of all changes in deaths in 2050 respectively. Climate change will have some positive effects with many climate-related deaths being offset by reductions in obesity. However, the saving of around 260000 fewer deaths from obesity worldwide in 2050 is balanced by lower calorie availability and an increase in the number of deaths cause by people being underweight (266000 extra deaths).

According to Dr Springmann, "Climate change is likely to have a substantial negative impact on future mortality, even under optimistic scenarios. Adaptation efforts need to be scaled up rapidly. Public-health programmes aimed at preventing and treating diet and weight-related risk factors, such as increasing fruit and vegetable intake, must be strengthened as a matter of priority to help mitigate climate-related health effects."

ScienceDaily, 2 March 2016

ENVIRONMENTAL NEWS

Researchers find world's first warm-blooded fish The silvery fish, roughly the size of a large automobile tire, is known from oceans around the world and dwells hundreds of feet beneath the surface in chilly, dimly lit waters.

Researchers have discovered a first fully warm-blooded fish that circulates heated blood throughout its body much like mammals and birds.

The silvery fish, roughly the size of a large automobile tire, is known from oceans around the world and dwells hundreds of feet beneath the surface in chilly, dimly lit waters. The warm-blooded opah or moonfish swims by rapidly flapping its large, red pectoral fins like wings through the water, giving it a competitive advantage in the cold ocean depths, reported the team from National Oceanic and Atmospheric Administration's National Marine Fisheries (NOAA Fisheries).

"That warm-blooded advantage turns the opah into a high-performance predator that swims faster, reacts more quickly and sees more sharply," said fisheries biologist Nicholas Wegner, lead author of the paper. "It turns out to be a very active predator that chases down agile prey like squid and can migrate long distances," he added.

While looking at opah, Wegner recognised an unusual design: Blood vessels that carry warm blood into the fish's gills wind around those carrying cold blood back to the body core after absorbing oxygen from water.

The design is known in engineering as "counter-current heat exchange." Resembling a car radiator, it's a natural adaptation that conserves heat. The unique location of the heat exchange within the gills allows nearly the fish's entire body to maintain an elevated temperature even in the chilly depths.

"There has never been anything like this seen in a fish's gills before," Wegner said. This is a cool innovation by these animals that gives them a competitive edge. "The concept of counter-current heat exchange was invented in fish long before we thought of it," the authors said. Discoveries like this will help scientists understand the role species play in the marine ecosystem.

Journal Science

ENVIRONMENTAL NEWS

Antarctica's temperature to rise by 3 degrees by end of century

An expert said the rise in temperature could be the tipping point as far as the fight against global warming is concerned. The temperature in Antarctica may increase as much as three degrees by the end of the century, according to an expert. This could be the tipping point as far as the fight against global warming is concerned, he added.

“There are models about the kind of increase in (temperature in) 21st century in Antarctica and it is suspected that the temperatures in the Antarctica peninsula could increase about three degrees up to the end of this century,” Jeronimo Lopez-Martinez, president of the Scientific Committee on Antarctic Research (SCAR), told IANS on the sidelines of the XIIth International Symposium on Antarctic Earth Sciences here. The Britain-based SCAR is responsible for initiating, developing and coordinating high quality international scientific research in the Antarctic region (including the Southern Ocean), and on the role of the Antarctic region in the Earth system.

Martinez also said that there was clear evidence that global warming is increasing in the planet in general and particularly in some areas.

“The areas where the temperatures have increased in the last 50 years are polar - some areas in Alaska and Siberia and Western Antarctica. The effects of warming on ice is increasing,” he said, adding that melting ice changes salinity, influences currents and raises the sea level.

“The complications will arise if the temperatures increase more than 2.5 degrees in the next century,” Martinez said when asked if there was a tipping point beyond which the challenge of global warming would be difficult to overcome.

The atmosphere over Antarctica as well as the ocean surrounding the southern continent has strong influences on global weather patterns and ocean currents which directly affect the mankind across the globe.

July 14, 2015, IndiaToday.in