



# Emerging Environmental Issues 2013

A COMPILATION OF GLOBAL ENVIRONMENTAL  
ALERT SERVICE BULLETINS



© 2014, United Nations Environment Programme

ISBN: 978-92-807-3378-5

Job Number: DEW/1763/NA

This publication may be reproduced in whole or in part and in any form for educational or non-profit purposes without special permission from the copyright holder, provided acknowledgement of the source is made. UNEP and the authors would appreciate receiving a copy of any publication that uses this report as a source.

No use of this publication may be made for resale or for any other commercial purpose whatsoever without prior permission in writing from the United Nations Environment Programme.

United Nations Environment Programme

PO Box 30552, Nairobi 00100, Kenya

Tel: +254 20 7621234

Fax: +254 20 7623943/44

<http://www.unep.org>

*For bibliographic and reference purposes this publication should be referred to as:*

UNEP (2014), "Emerging Environmental Issues 2013"

Division of Early Warning and Assessment (DEWA)

United Nations Environment Programme (UNEP)

P.O. Box 30552

Nairobi 00100, Kenya

#### DISCLAIMER

The views expressed in this publication are not necessarily those of the agencies cooperating in this project. The designations employed and the presentations do not imply the expression of any opinion whatsoever on the part of UNEP or cooperating agencies concerning the legal status of any country, territory, city, or area of its authorities, or the delineation of its frontiers or boundaries.

Mention of a commercial company or product in this report does not imply endorsement by the United Nations Environment Programme. The use of information from this publication concerning proprietary products for publicity or advertising is not permitted. Trademark names and symbols are used in an editorial fashion with no intention of infringement on trademark or copyright laws.

We regret any errors or omissions that may have been unwittingly made.

UNEP

promotes environmentally sound practices globally and in its own activities. This publication is printed on 100 per cent chlorine free paper from sustainably managed forests. Our distribution policy aims to reduce UNEP's carbon footprint.

# UNEP'S GLOBAL ENVIRONMENTAL ALERT SERVICE (GEAS)

GEAS is a mechanism for identifying and communicating early warning information on emerging issues in areas ranging from climate change and ecosystem management to environmental governance and resource efficiency. The Global Environmental Alert Service continuously scans the scientific literature, analyses results of earth observations and other data sources to produce alerts on policy relevant environmental hotspots, environmental science, and near real-time environmental hazards. GEAS are widely distributed, reaching up to 300,000 individuals by emails and social media. By taking the pulse of the planet, GEAS enhances UNEP's ability to provide regular, science based environmental updates to its Member States and the international community.

Public awareness on emerging environmental issues is recognized as a critical issue in the Future We Want, the outcome document of the 2012 United Nations Conference on Sustainable Development (Rio +20). However, the process of identifying emerging issues is not always straight forward. The very definition of an emerging issue is subjective. Different methods such as the Foresight process, Delphi method, and Horizon scanning tend to lead to different lists of emerging issues because of varying methodologies and different perspectives of participants.

For the purposes of GEAS, emerging issues are defined as issues that are:

- Critical to the environment. The issue can be either positive or negative but must be environmental in nature, or environmentally-related.
- Have a large impact. Issues should either be global, continental or 'universal' in nature (by 'universal' we mean an issue occurring in many places around the world).
- Recognized as 'emerging' based on newness, which can be the result of new scientific knowledge; new scales or accelerated rates of impact; heightened level of awareness; and, or, new ways to respond to the issue.

## Production and Outreach Team

*Michelle Anthony*

*Arshia Chander*

*Kim Giese*

*Tejaswi Giri*

*Lindsey Harriman*

*Reza Hussain*

*Erick Litswa*

*Theuri Mwangi*

*Charles Sebukeera*

*Ashbindu Singh*

*Anna Stabrawa*

*Zinta Zommers*

## UNEP Environmental Themes



Climate Change



Disasters and Conflicts



Ecosystem Management



Environmental Governance



Harmful Substances and Waste



Resource Efficiency

## TABLE OF CONTENTS



### JANUARY

5

Transnational environmental crime – A common crime in need of better enforcement



### FEBRUARY

13

Forecasting and early warning of dust storms



### MARCH

25

The impact of corruption on climate change: Threatening emissions trading mechanisms?



### APRIL

35

Water hyacinth: Can its aggressive invasion be controlled?



### MAY

47

A new eye in the sky: Eco-drones



### JUNE

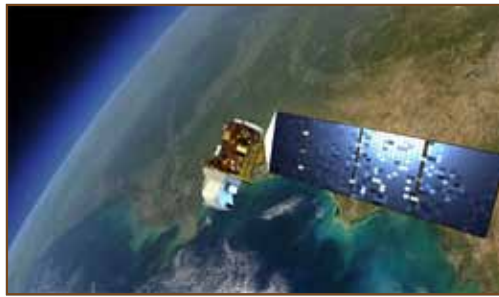
57

Balancing economic development and protecting the cradle of mankind





# TABLE OF CONTENTS



## JULY

67

**From Hotspots to Hopespots: Connecting local changes to global audiences**



## AUGUST

77

**Mangrove forest cover fading fast**



## SEPTEMBER

85

**Where will the water go? Impacts of accelerated glacier melt in the Tropical Andes**



## OCTOBER

97

**Municipal solid waste: Is it garbage or gold?**



## NOVEMBER

105

**Cyclone Phailin in India: Early warning and timely actions saved lives**



## DECEMBER

113

**Saving the Great Migrations: Declining wildebeest in East Africa?**



## WRITERS

### **Claire Bedelian**

University College, London

### **Braedon Cashion**

UNEP/DEWA/LAC- Panama

### **Ludgarde Coppens**

UNEP/DEWA-Nairobi

### **Lindsey Harriman**

UNEP/DEWA/GRID-Sioux Falls

### **Joseph Muhlhausen**

CielMap

### **Naga Manohar Velpuri and Gabriel Senay**

USGS

### **A. Rozenberg**

UNEP/DEWA/GRID-Geneva

### **Mwangi Theuri**

UNEP/DEWA-Nairobi

### **Martin Walter and Michelle Luebke**

UNEP-RONA

## ACKNOWLEDGEMENTS

### **UNEP/DEWA-Nairobi**

Ludgarde Coppens  
Peter Gilruth  
Patrick M'mayi  
Neeyati Patel  
Ashbindu Singh  
Anna Stabrawa  
Frank Turyatunga  
Kaisa Uusimaa

### **UNEP/DEWA/GRID-Geneva**

Pascal Peduzzi  
Ron Witt

### **UNEP/DTIE**

Surya Chandak  
Françoise D'Estais  
Ben Janse Van Rensburg  
Pia Jonsson  
Llorenc Mila I Canals  
David Piper  
Mark Radka  
Djaheezah Subratty  
Marlyn Van Voore

### **University of Toronto, Munk School of Global Affairs**

Shelley Robertson

### **UNEP/DEWA-LAC**

Charles Davies  
Silvia Giada  
Andrea Salinas  
Lucia Scodanibbio

### **University of Sheffield, UK**

Edward Van-Asch

### **UNODC**

Tim Steele  
Joanna Wright

### **UNEP/ROAP**

Thomas Enters  
Justin Gosling  
Kakuko Nagatani-Yoshid  
Max Zieren

### **Institute of Geographic Sciences and Natural Resources Research, CAS**

Dr. Juanle Wang

### **NASA/Goddard Space Flight Center**

Dr. Ritesh Gautam

### **Chapman University**

Dr. Ramesh Singh

### **UNEP/RONA, Northwestern University and the Institut d'Etudes Politiques de Paris**

Justin Gosling  
Dmitry Zhdankin

### **UNEP/DEPI**

Tim Christophersen  
David Jensen  
Andrew Morton

### **UNEP/WCMC**

Maxwell Gomera  
Michael Hoffmann

### **CAB International-Nairobi**

Arne Witt

### **UNEP/DEL**

Robert Wabunoha

### **UNEP/DHI Centre**

Peter Bjornsen

### **UNEP-ROLAC**

Andrea Salinas

### **UNEP-Marine and Coastal Ecosystem Branch**

Jacqueline Alder

### **UNEP/DEWA-ROLAC**

Charles Davies  
Isabel Martinez  
Jordi Pon  
Andrea Sabelli

### **Institut de Recherche pour le Développement (IRD), Bolivia**

Bernard Francou

### **GEOESTUDIOS, Chile**

Cedomir Maragunic

### **Instituto de Geologia y del Medio Ambiente, Universidad Mayor de San Andres, Bolivia**

Alvaro Soruco

### **University of Hohenheim**

Joseph Ogutu

### **Conservation Biologist, Kenya**

Zeke Davidson

## EXECUTIVE SUMMARY

UNEP's monthly Global Environmental Alert (GEAS) bulletins 'take the pulse of the planet' and widely distribute the findings about environmental events and trends to the public. The science about the state of the planet's health is presented in highly readable language, accompanied by clear graphics and stunning satellite imagery. The bulletins use sound scientific investigation to recognize important environmental trends and connect them to policy by uncovering the links to past human activity and the potential for future action.

This 2013 Emerging Environmental Issues publication presents the 12 monthly bulletins in a single document, allowing readers to note and assess significant environmental events that took place that year. UNEP's GEAS team carefully identified and selected these monthly issues by continuously scanning the scientific literature, focusing on policy relevant environmental hotspots, environmental science, and near real-time environmental hazards. They are organized around UNEP's five themes: environmental governance, harmful substances and hazardous wastes, ecosystem management, climate change, disasters and conflicts, and resource efficiency. Each bulletin acknowledges UNEP's team of authors and provides a full list of the scientific literature referenced.

The bulletins present the issues in an eminently understandable way by organizing the stories around four main questions: Why is this issue important? What are the findings? What are the implications for policy? and What can be done?

January's story is about Transnational Environmental Crime, which refers to a number of common but ill-controlled offences, including the illegal trade in wildlife; illegal logging and its associated timber trade; illegal, unreported and unregulated (IUU) fishing; illegal trade in controlled chemicals (including ozone-depleting substances); the illegal disposal of hazardous waste; and newer environmental crimes such as the illegal trading of carbon and unlawful water management. Globally, such environmental crimes rank among the top ten for their value in illicit markets and more needs to be done to control them.

In February, the bulletin looked at the need for a better way to forecast dust storms and broadcast early warnings to help prevent and mitigate future risks and impacts of these devastating events. This need became evident after a massive dust storm engulfed Sydney, Australia in September 2009. The bulletin presents facts about the harmful impacts of such events and the science behind their occurrence, illustrates the story with impressive satellite images of major recent

dust storms, and suggests future steps to improve early-warning systems.

March's bulletin is an overview of the impact of corruption on environmental governance, focusing on emissions trading mechanisms. These regulatory frameworks were set up to achieve the goals to reduce greenhouse gas (GHG) emissions laid out in the 1992 United Nations Framework Convention on Climate Change (UNFCCC). The system quantifies and commodifies GHG emissions to allow them to be exchanged among economic actors. When corrupt actors prioritize private benefits (examples include reselling and misreporting used carbon offsets, theft from national carbon emission registries, and tax fraud) it jeopardizes mitigation efforts and reduces the effectiveness of environmental governance.

In April, the bulletin looked at the aggressive invasion of water hyacinth and how to control it. This plant, native to South America, is now a major weed in more than 50 countries in the world's tropical and subtropical regions and climate change may allow it to spread to higher latitudes. The bulletin shows its destructive impacts on biodiversity and other environmental services, and on humans and their economies. It warns of the need for more intense monitoring, mitigation, and management measures to keep it in check.

Although usually associated with military weapons or surveillance tools, drones can also be low-cost and low-impact ways to manage ecosystems. May's bulletin is about such 'eco-drones' or 'conservation drones'. Because they are very agile and have high-quality imaging abilities, they are being used effectively as mapping tools for monitoring environmental change and providing early warning. A number of challenges and concerns still need to be surmounted, however, including addressing technological capabilities and policy implications.

In June, the bulletin examined how to balance economic development in the transboundary Lake Turkana basin without harming the environment known as the cradle of mankind. The watershed extends into Ethiopia, Kenya, South Sudan, and Uganda. Development activities, such as dam building and irrigation schemes, bring economic opportunities but also affect water levels and distribution. Sharing water can be a cause of conflict, but can also provide opportunities for cooperation. Transboundary agreements or other international arrangements more commonly associated with much larger shared basins would benefit this region if more dams and irrigation schemes are planned.

## EXECUTIVE SUMMARY

The July issue discusses UNEP's ongoing use of paired satellite images to document environmental change and inform a large audience of its findings. By comparing past and present images of the same place on the planet, its series of Atlases of Our Changing Environment has identified more than 200 'hotspots' of dramatic large-scale environmental change, representing local places in more than 100 countries and on all seven continents. These 'change pairs' also identify 'hopespots', which refer to areas where actions have led to, or are now making positive changes to the local environment. Accompanied by a short storyline and ground photos, these images can ultimately function as a unique decision-support tool.

The August issue warns that despite their global importance, mangroves are being lost rapidly and action is urgently needed to protect them. Mangrove forests are uniquely adapted to the interface between the sea and land. Among their many attributes, they protect coastal areas from tidal waves and

cyclones and are among the most carbon-rich forests in the tropics. Their ecosystem services and support for coastal livelihoods worldwide are worth at least US \$1.6 billion a year. This bulletin shows the many ways in which these forests are being destroyed and degraded and highlights ongoing and new opportunities to protect them and the communities they support.

Like glaciers around the world, those in the tropical Andes are melting at an accelerated rate. The September bulletin looks at the evidence and impacts of the nexus of melting glaciers, dwindling water resources, and climate change in the region, with examples from Peru. It examines the scientific evidence of accelerated melting and discusses the causes, illustrated with numerous change-pair images. In addressing the issue, it examines the need for climate change modeling and policies, research, and actions towards adaptation and water rights.

The October issue asks: is municipal solid waste garbage or gold? With the world's growing population and increased

预览已结束，完整报告链接和二维码如下：

[https://www.yunbaogao.cn/report/index/report?reportId=5\\_8875](https://www.yunbaogao.cn/report/index/report?reportId=5_8875)

