WORLD WATER DAY: WHY WASTE WATER?

World water day, held on 22 March every year, is about taking action to tackle the water crisis. Today, there are over 663 million people living without a safe water supply close to home, spending countless hours queuing or trekking to distant sources, and coping with the health impacts of using contaminated water. This year's theme: Why waste water? In support of SDG 6.3 on improving water quality and reducing, treating and reusing wastewater.

Globally, the vast majority of all the wastewater from our homes, cities, industry and agriculture flows back to nature without being treated or reused – polluting drinking and bathing and irrigation and losing valuable nutrients and other recoverable materials.

Reducing and safely treating and reusing wastewater in settings such as agriculture and aquaculture, protects workers, farmers and consumers to promote food security, health and wellbeing.

Global campaign for World Water Day

Campaign materials

JOURNAL ARTICLES

Air Pollution

Neonatal Cord Blood Oxylipins and Exposure to Particulate Matter in the Early-Life Environment: An ENVIRONAGE Birth Cohort Study

As part of the lipidome, oxylipins are bioactive lipid compounds originating from oxidation of different fatty acids. Oxylipins could provide a new target in the developmental origins model or the ability of early life exposure to change biology. The authors

CHILDREN’S ENVIRONMENTAL HEALTH NEWS

Press Releases

Europe and Central Asia transitioning to new forms of malnutrition

Economic growth and rising per capita incomes have all but wiped out hunger in Europe and Central Asia. But as countries become more affluent, changing consumption patterns are giving rise to other health threats. This “food insecurity transition” is documented in a new report released by FAO. Regional Overview of Food Insecurity: Europe and Central Asia analyses a wealth of country data: on dietary energy supply, undernourishment indicators such as stunting and wasting, anaemia, overweight and obesity, and what people on average are eating. The report points to a pattern whereby countries progress from dealing predominantly with undernutrition and micronutrient deficiencies, to coping with degenerative diseases associated with increased dietary fat, sugar, meat and dairy, and processed foods. This transition is often accompanied by a more sedentary lifestyle. FAO (14/3/2017)

WHO European Healthy Cities Network adopts the Pécs Declaration

The WHO European Healthy Cities Network Annual Conference drew to a close on Friday 3 March, with mayors and political leaders adopting the 2017 Healthy Cities Pécs Declaration. This reconfirms their commitment to creating inclusive, safe, resilient and sustainable societies. The three-day Conference saw the assembled experts and delegations discuss initiatives and share good practices on creating healthy and empowering urban environments. Their discussions covered areas such as migrants and refugees, climate change adaptation, community resilience, transport and urban planning, and health and well-being throughout the life-course. The participants were
of this paper studied the association between in utero PM2.5 (particulate matter with aerodynamic diameter <2.5µm) exposure and oxylipin profiles in newborns. In utero exposure to particulate matter, particularly during the second trimester, was associated with differences in the cord blood levels of metabolites derived from the lipoxygenase pathways. These differences may indicate an effect of air pollution during in utero life on the inflammatory state of the newborn at birth.

Environmental Health Perspectives

Chemicals

Cross-sectional study of social behaviors in preschool children and exposure to flame retardants

Children are exposed to flame retardants from the built environment. Brominated diphenyl ethers (BDE) and organophosphate-based flame retardants (OPFRs) are associated with poorer neurocognitive functioning in children. The objective of this study was to determine if flame retardant exposure was associated with measurable differences in social behaviors among children ages 3–5 years. Teacher-rated social behaviors measured using the Social Skills Improvement Rating Scale (SSIS) and personal exposure to flame retardants were examined. Silicone passive samplers worn for 7 days were used to assess personal exposure to 41 compounds using gas chromatography-mass spectrophotometer. Researchers observed a dose dependent relationship between lnΣOPFR and two subscales where children with higher exposures were rated by their preschool teachers as having less responsible behavior ($p = 0.07$) and more externalizing behavior problems ($p = 0.03$). Additionally, children with higher lnΣBDE exposure were rated by teachers as less assertive ($p = 0.007$).

Environmental Health

A Strategy for Comparing the Contributions of Environmental Chemicals and Other Risk Factors to Neurodevelopment of Children

In this study, researchers attempted to develop a strategy for taking into account the distribution (or incidence/prevalence) of a risk factor, as well as its effect size, in order to estimate its population impact on neurodevelopment of children. The total numbers of Full-Scale IQ points lost among U.S. children 0–5 years of age were estimated for chemicals (methylmercury, organophosphate able to see first-hand some of the programmes implemented in Pécs to address these areas, making it an inclusive healthy city and a strong founder member of the Network. WHO (14/3/2017)

School Meals a vital ingredient in ending hunger and promoting healthy diets

Every day around 370 million children around the world are fed at school through school meals programmes that are run in varying degrees by national governments. The school is an ideal setting for teaching basic skills in food, nutrition and health. In many communities, schools may be the only place where children acquire these important life skills. This food and nutrition education is an essential element in the prevention and control of diet-related health problems. For this reason, FAO provides technical assistance for integrating food and nutrition education in the primary school curriculum. FAO (9/3/2017)

Children at forefront of climate action urge focus on child rights

Climate change contributes to the increasing frequency and intensity of weather-related disasters, and the threats to children's health and survival posed by extreme weather underscore the need for a child-based approach to climate action. Teen environmentalist Kehkashan Basu began her campaign to save the planet at the age of eight, planting her first tree, collecting cans to recycle, and urging other children to do the same. Since then, she has launched numerous other actions to fight climate change. She founded the Green Hope Foundation, which has led clean-up operations and awareness. Office of the United Nations High Commissioner for Human Rights (9/3/2017)

Tobacco control activities in Turkey enter a new phase, with leaders looking to ensure sustainability

More than 100 representatives from public institutions, academia and nongovernmental organizations (NGOs) gathered in Ankara on 9 February 2017 to discuss recent steps taken and planned measures to strengthen tobacco control in Turkey. “We have several new policies and laws to be introduced in the coming days. For example, we have completed preparations for the introduction of plain packaging. We have new practices to reinforce the enforcement of smoking bans. We are determined to ensure that these measures are sustainable. We do this for the future of our children, for our young people and our society,” said Dr Recep Akdağ, Minister of Health of the Republic of Turkey. WHO EURO (24/2/2017)
pesticides, lead) and a variety of medical conditions and events (e.g., preterm birth, traumatic brain injury, brain tumors, congenital heart disease). Results suggest that their contributions to neurodevelopmental morbidity are substantial, exceeding those of many nonchemical risk factors.

*Environmental Health Perspectives*

**Reproductive Health**

**Association of Maternal Smoking During Pregnancy and Birth Weight With Retinal Nerve Fiber Layer Thickness in Children Aged 11 or 12 Years**

Both maternal smoking during pregnancy and low birth weight have been implicated in impaired development of the retina. This study investigates the associations of maternal smoking during pregnancy and low birth weight with retinal nerve fiber layer (RNFL) thickness in preadolescent children. The Copenhagen Child Cohort 2000 Eye Study is a prospective, population-based, birth cohort study that included all children (n = 6090) born in 2000 in Copenhagen, Denmark. Exposure to maternal smoking during uterine life and low birth weight were independently associated with having a thinner RNFL at age 11 or 12 years. These observations support previous findings that intrauterine and perinatal factors can have long-lasting effects on the retina and the optic nerve. The results of this study add evidence to existing recommendations to avoid smoking during pregnancy and support measures that promote maternal and fetal health.

*Jama Ophthalmology*

**Climate change**

**An Analysis of the Potential Impact of Climate Change on Dengue Transmission in the Southeastern United States**

Meteorological variables such as temperature and precipitation can impact disease distribution and abundance through biophysical impacts on the vector and virus. Such tightly coupled links may facilitate further spread of dengue fever under a changing climate. This paper assesses projected climate change-driven shifts in dengue transmission risk in the Americas. A dynamic mosquito population and virus transmission model driven by meteorological data to simulate *Aedes aegypti* populations and dengue cases was used.

**Pesticides are “global human rights concern”, say UN experts urging new treaty**

Two United Nations experts are calling for a comprehensive new global treaty to regulate and phase out the use of dangerous pesticides in farming, and move towards sustainable agricultural practices. They referred to research showing that pesticides were responsible for an estimated 200,000 acute poisoning deaths each year, overwhelmingly in developing countries. Chronic exposure to pesticides has been linked to cancer, Alzheimer’s and Parkinson’s diseases, hormone disruption, developmental disorders and sterility. Farmers and agricultural workers, communities living near plantations, indigenous communities...
in 23 locations in the southeastern US under current climate conditions and future climate projections. Estimates for each location was compared to simulations based on observed data from San Juan, Puerto Rico, where dengue is endemic. Simulations based on current climate data suggest that dengue transmission at levels similar to San Juan is possible at several US locations during the summer months, especially in southern Florida and Texas. 

Environmental Health Perspectives

Climate Change and Food Security: Health Impacts in Developed Countries

Authors investigated the potential impact of climate change on food security (nutrition and food safety) and the implications for human health in developed countries. Increasing food prices may lower the nutritional quality of dietary intakes, exacerbate obesity, and amplify health inequalities. Altered conditions for food production may result in emerging pathogens, new crop and livestock species, and altered use of pesticides and veterinary medicines, and affect the main transfer mechanisms through which contaminants move from the environment into food. All these have implications for food safety and the nutritional content of food. Developed countries have complex structures in place that may be used to adapt to the food safety consequences of climate change, although their effectiveness will vary between countries, and the ability to respond to nutritional challenges is less certain. 

Environmental Health Perspectives

E-waste

Elevated lead levels and changes in blood morphology and erythrocyte CR1 in preschool children from an e-waste area

Improper dismantling and combustion of electronic waste (e-waste) may release persistent organic pollutants and heavy metals that possess potential risk for human health. The aim of the study was to investigate the effect of Pb exposure on blood morphology and erythrocyte complement receptor 1 (CR1) levels as related to immunologic function in preschool children. 484 preschool children were recruited at 2- to 6-years of age, among whom 332 children were from Guiyu, a typical and primitive e-waste processing area, and 152 children from Haojiang (reference area). Results showed that the blood Pb level (BPb) and erythrocyte Pb level (EPb) of exposed children were significantly and pregnant women and children are particularly vulnerable to pesticide exposure and require special protections. UN Human Rights (7/3/2017)

WHO Fact sheets

Mercury and health Updated March 2017

In the Media

One in three children malnourished in epicentre of drought-hit Kenya - UN

More than 350,000 children, pregnant women and new mothers are acutely malnourished, with malnutrition rates above 30 percent - double the emergency threshold - in three northern counties, the U.N. said in a statement on Thursday. Eastern and southern Africa were hard hit in 2016 by drought exacerbated by El Nino - a warming of sea-surface temperatures in the Pacific Ocean - that wilted crops, slowed economic growth and drove food prices higher. Reuters (16/3/2017)

Proposed Law Would Require All California Children To Be Screened For Lead

Growing national concern about lead poisoning in children has prompted a California lawmaker to introduce legislation to ensure that all of the state’s kids are tested for the toxic metal. The bill, introduced by Assemblyman Bill Quirk (D-Hayward), would change the state’s Health and Safety Code to require testing for all children ages 6 months to 6 years. Kaiser Health News (14/3/2017)

Australian e-waste ending up in toxic African dump, torn apart by children

A computer monitor from St George Bank, destined for recycling in Australia, has been found on a toxic e-waste dump in West Africa, being pulled apart by children as young as five. At Agbogbloshie dump, in Ghana’s capital, Accra, children tear apart e-waste from Western nations with their hands, and burn circuit boards over open fires to melt out the precious metals. Broken or redundant computers are considered hazardous waste and are illegal to ship out of Australia – so the discovery of the bank monitor raises serious questions about the integrity and regulation of Australia’s growing e-waste problem. ABC News (10/3/2017)

Warnings over children's health as recycled e-waste comes back as plastic toys
higher, but, the mean corpuscular hemoglobin concentration (MCHC) and erythrocyte CR1 levels were significantly lower than reference children. Our data suggests that elevated Pb levels result in adverse changes in blood morphology, hemoglobin synthesis and CR1 expression, which might be a non-negligible threat to erythrocyte immunity development in local preschool children. *The Science of the Total Environment*

**Partitioning of polybrominated biphenyl ethers from mother to fetus and potential health-related implications**

Researchers investigated the concentrations of PBDEs in paired mother-fetus samples from 72 pregnant women in Wenling, China. The detection of PBDE concentration suggested that the expectant women living in Wenling for over 20 years might be highly exposed to PBDEs, which is largely ascribed to e-waste recycling activities in the local environment. The median concentration ratios between paired cord serum and maternal serum for higher-brominated BDEs were smaller than those for lower-brominated BDEs (p < 0.05). This result indicated that the placenta could hinder the transfer of PBDEs from mother to fetus, and the hindrance effect increased with higher-brominated congeners. There was a significant association between BDE-153 and TT4 levels in maternal serum from Wenling local residents (p < 0.05), suggesting potential implications for fetal development and their mothers' health in e-waste recycling environment.

**Chemosphere**

**New Publications**

**Multiple Threats to Child Health from Fossil Fuel Combustion: Impacts of Air Pollution and Climate Change**

Approaches to estimating and addressing the risk to children from fossil fuel combustion have been fragmented, tending to focus either on the toxic air emissions or on climate change. Yet developing children, and especially poor children, now bear a disproportionate burden of disease from both environmental pollution and climate change due to fossil fuel combustion. This commentary summarizes the scientific evidence regarding current and projected health impacts of fossil fuel combustion on the young. Sharply reducing our dependence on fossil fuels would achieve highly significant health and economic benefits for our children and their future.

*Environmental Health Perspectives*

Flame retardants used in plastics in a wide range of electronic products are putting the health of children exposed to them at risk, according to a new report. Brominated flame-retarding chemicals have been associated with lower mental, psychomotor and IQ development, poorer attention spans and decreases in memory and processing speed according to the peer-reviewed study by the campaign group CHEM Trust. Other studies show associations of certain chemicals with hormone alteration and cancer. Some of these accumulate in living bodies and can be transported far with atmospheric circulation and ocean currents. The Guardian (9/3/2017)

**WHO chief: Air pollution link to 600,000 deaths in children**

The director general of the World Health Organization has said air pollution is “one of the most pernicious threats” facing global public health today and is on a much bigger scale than HIV or Ebola. Dr Margaret Chan told the Today programme that poor air quality was having a disproportionate impact on the young. She said indoor and outdoor pollution was linked to the deaths of hundreds of thousands of children each year. BBC News (6/3/2017)

**Air pollution around the world takes a staggering toll**

President Trump is reportedly aiming the Environmental Protection Agency’s staff by a fifth, ignoring vast volumes of evidence on the ecological and human damage various types of pollution still cause. Researchers recently released a global air pollution death toll, finding that two major types of air pollution were associated with 4.2 million deaths in 2015, which totalled 7.6% of all deaths. The Washington Post (5/3/2017)

**Child labourers exposed to toxic chemicals dying before 50, WHO says**

Children as young as eight, working in the tanneries of Bangladesh producing leather that is in demand across Europe and the USA, are exposed to toxic chemical cocktails that are likely to shorten their lives, according to a new report. According to WHO approximately 90% of those exposed die before age 50. MSF set up and ran four main clinics for 5,000 workers in 2015, located in the centre of communities involved in four different manufacturing processes at factories for tanning, plastics recycling, garment-making and metals. The Guardian (21/3/2017)
UPCOMING EVENTS

7th Green Standards Week

LSHTM/WHO Short Course Adolescent Health in Low and Middle Income Countries
5 - 16 June 2017. London, United Kingdom.

Sixth Ministerial Conference on Environment and Health
13–15 June 2017, Ostrava, Czech Republic

European Academy of Pediatrics 2017 Congress
12-15 October 2017. Ljubljana, Slovenia

Doctors Warn Climate Change Threatens Public Health
Across the US, physicians are noticing an influx of patients whose illnesses, they say, are directly or indirectly related to climate change. Now, 11 medical associations — representing around half the doctors and physicians in the country — are creating a group that intends to address the links between climate change and health risks. The group, called the Medical Society Consortium on Climate and Health, intends to advocate for climate change and health awareness among the public and policymakers. The consortium released a report outlining the connections between climatic shifts and health risks, pointing out that wildfires and air pollution are adding to cases of cardio-respiratory illnesses; heat events are affecting people in urban centers; infectious diseases are spreading in unusual geographic areas and times of the year; and extreme weather events are threatening psychiatric health. Scientific American (17/3/2017)