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WHO global air quality guidelines
How Indoor Air Quality Affects Your Health
Health Effects of Indoor Air Pollution
Air Pollution Impacts on Health, Prevention Strategies and Mitigation Measures
Air Pollution
Indoor Environmental Quality
Enhanced Living Environments
Indoor Environmental Quality
Indoor Air Pollution

TYRONE KYLAN

The Inside Story John Wiley & Sons
This book focuses on understanding urban

vulnerability and risk mitigation, advancing good health and wellbeing, and analysing resilience measures for various Asian cities. Today, cities are the dominant human habitat, where a large number of environmental, social, cultural and economic factors have impacts on human health and wellbeing. Cities consist of complex, dynamic, socio-ecological, and technological systems that serve multiple functions in human health and wellbeing. Currently half of Asia's population is urban, and that figure is expected to rise to 66 percent by 2050. Since urban areas are often most vulnerable to hazards, the people living in them need good health infrastructure facilities and technological support at various scales. As such, the need of the hour is to enhance the adaptive capacity, strengthen resilience, reduce vulnerability, and take risk mitigation measures in urban areas, which requires a systematic approach based on science–policy interface that is transformative, trans-disciplinary and integrative for a sustainable urban future. Global sustainable development goals are closely tied to urban human health and wellbeing: (1) the third of the United Nations' Sustainable Development Goals is to "Ensure healthy lives and promote wellbeing for all at all

ages" and (2) the eleventh is to "Make cities inclusive, safe, resilient and sustainable". By addressing these goals, this book offers a highly useful resource for anyone concerned with healthy and resilient cities in Asia, today and tomorrow.

Improving Indoor Air Quality for Poor Families National Academies Press

I am delighted to present before you the book "Air Pollution". Pollution problems have continuous increase around the world because of increased population growth and associated industrial activities. The presence of high levels of pollutants in nature is of major concern because of their potential threats to both human and ecosystem health. Air pollution poses a grave danger for not only in man but the entire life on this planet. Air pollution have many adverse effect on the nature such as Global warming, Climate change, Ozone depletion, Sea level rise, Adverse effects on biodiversity etc. The foremost thing which deserves to be done is to educate the people that the atmosphere is not meant for dumping all kinds of pollution. Importance of preserving the health and welfare of man, protection of plant and animal life, prevention of damage to property, ensuring visibility for safe air and ground transport, and maintenance of cleaner atmospheric environment should

also be explained. We are seeing a series of inovations and experiments aimed at alternate and unconventional options to reduce pollutants. Air Pollution is one of the larger mirrors of man's follies, and a challenge we need to overcome to see a tomorrow. This book provides a detailed knowledge in various aspects of Air pollution. I have taken every effort to incorporate updated facts and interpretations in the light of the latest findings and development in the area concerned. This book will be useful for the graduate and post graduate students of life science and environmental science as a basic reference.

Digital Cities Roadmap American Society of Heating Refrigerating and Air-Conditioning Engineers Urban Climates is the first full synthesis of modern scientific and applied research on urban climates. The book begins with an outline of what constitutes an urban ecosystem. It develops a comprehensive terminology for the subject using scale and surface classification as key constructs. It explains the physical principles governing the creation of distinct urban climates, such as airflow around buildings, the heat island, precipitation modification and air pollution, and it then illustrates how this knowledge can be applied to moderate the undesirable consequences of urban development and help

create more sustainable and resilient cities. With urban climate science now a fully-fledged field, this timely book fulfills the need to bring together the disparate parts of climate research on cities into a coherent framework. It is an ideal resource for students and researchers in fields such as climatology, urban hydrology, air quality, environmental engineering and urban design.

Climate Change, the Indoor Environment, and Health Springer Nature

HEALTH PROFESSIONALS HAVE FOUND THAT THE AIR PEOPLE BREATHE IN THEIR HOMES IS LIKELY TO BE TWO TO FIVE TIMES MORE POLLUTED THAN THE AIR THEY INHALE OUTSIDE. INDOOR AIR POLLUTION IS RANKED IN THE TOP FIVE ENVIRONMENTAL RISKS TO OUR HEALTH. How Indoor Air Quality Affects Your Health and what you can do about it provides in-depth information on the effects to our health of the many pollutants in the home and how we can eradicate them and breathe clean, fresh air.

How to Grow Fresh Air BoD – Books on Demand

In this paper the authors investigate individuals' exposure to indoor air pollution. Using new survey data from Bangladesh, they analyze exposure at two levels-differences within households attributable to family roles, and differences across households

attributable to income and education. Within households, they relate individuals' exposure to pollution in different locations during their daily round of activity. The authors find high levels of exposure for children and adolescents of both sexes, with particularly serious exposure for children under 5. Among prime-age adults, they find that men have half the exposure of women (whose exposure is similar to that of children and adolescents). They also find that elderly men have significantly lower exposure than elderly women. Across households, they draw on results from their previous paper (Dasgupta et al, 2004), which relate pollution variation across households to choices of cooking fuel, cooking locations, construction materials, and ventilation practices. They find that these choices are significantly affected by family income and adult education levels (particularly for women). Overall, the authors find that the poorest, least-educated households have twice the pollution levels of relatively high-income households with highly-educated adults. For children in a typical household, pollution exposure can be halved by adopting two simple measures-increasing their outdoor time from 3 to 5 or 6 hours a day, and concentrating outdoor time during peak cooking periods. The authors recognize that

weather and other factors may intervene occasionally, and that child supervision outdoors may be difficult for some households. However, the potential benefits are so great that neighbors might well agree to pool outdoor supervision once they became aware of the implications for their children's health.

Current Air Quality Issues CRC Press

This book presents revised guideline values for the four most common air pollutants - particulate matter, ozone, nitrogen dioxide and sulfur dioxide - based on a recent review of the accumulated scientific evidence. The rationale for selection of each guideline value is supported by a synthesis of information emerging from research on the health effects of each pollutant. As a result, these guidelines now also apply globally. They can be read in conjunction with Air quality guidelines for Europe, 2nd edition, which is still the authority on guideline values for all other air pollutants. As well as revised guideline values, this book makes a brief yet comprehensive review of the issues affecting the application of the guidelines in risk assessment and policy development. Further, it summarizes information on: . pollution sources and levels in various parts of the world, . population exposure and characteristics affecting sensitivity to pollution, . methods for

quantifying the health burden of air pollution, and . the use of guidelines in developing air quality standards and other policy tools. Finally, the special case of indoor air pollution is explored. Prepared by a large team of renowned international experts who considered conditions in various parts of the globe, these guidelines are applicable throughout the world. They provide reliable guidance for policy-makers everywhere when considering the various options for air quality management.

Air Pollution Springer Nature

The Indoor Air Quality Guide: Best Practices for Design, Construction and Commissioning is designed for architects, design engineers, contractors, commissioning agents, and all other professionals concerned with IAQ. This comprehensive publication provides both summary and detailed guidance.The detailed guidance provides:Hundreds of internal and external links to invaluable IAQ resources Access to an incredible variety of in-depth information by topic to help you design construct and operate acceptable IAQThe CD that comes with the book contains the detailed guidance for implementing these strategies. Embedded in a digital version of the summary guidance information are hundreds of internal and external links to resources for the design, construction

and commissioning of buildings with excellent indoor air quality.

Indoor Air Pollution

Springer Science & Business Media

In developing countries the price of rapid growth is all too often noxious airborne pollution, which annually contributes to a disturbing number of avoidable deaths. In recent decades, however, there has been considerable progress in the epidemiology of air pollution, significant changes in international air pollution guidelines, and the emergence of more systematic approaches to air pollution control. While many of these advances have originated in affluent countries, there have been major developments in other parts of the world. In this book, a distinguished cast of leading researchers in both the scientific and policy dimensions of air pollution and health have synthesized the recent developments in the field and their relevance for public health in developing countries. The authors review studies from a wide range of Asian, African and Latin American countries and contrast the findings with those from Europe and North America. They also describe various tools and systems for air pollution management and emphasize approaches that can be used when data is scarce. With a clear focus on the scientific and technical aspects of air pollution and

health, this book is essential reading for pollution and health policy-makers, researchers and others concerned with air pollution and health in developing countries.

Indoor Environmental Quality World Bank Publications

This report provides a comprehensive assessment of the economic consequences of outdoor air pollution in the coming decades, focusing on the impacts on mortality, morbidity, and changes in crop yields as caused by high concentrations of pollutants.

Darkening Air: The Invisible Threat Springer Nature

This open access book was prepared as a Final Publication of the COST Action IC1303 “Algorithms, Architectures and Platforms for Enhanced Living Environments (AAPELE)”. The concept of Enhanced Living Environments (ELE) refers to the area of Ambient Assisted Living (AAL) that is more related with Information and Communication Technologies (ICT). Effective ELE solutions require appropriate ICT algorithms, architectures, platforms, and systems, having in view the advance of science and technology in this area and the development of new and innovative solutions that can provide improvements in the quality of life for people in their homes and can reduce the financial burden on the budgets of the

healthcare providers. The aim of this book is to become a state-of-the-art reference, discussing progress made, as well as prompting future directions on theories, practices, standards, and strategies related to the ELE area. The book contains 12 chapters and can serve as a valuable reference for undergraduate students, post-graduate students, educators, faculty members, researchers, engineers, medical doctors, healthcare organizations, insurance companies, and research strategists working in this area.

The Economic Consequences of Outdoor Air Pollution

Cambridge University Press

Abstract: "In this paper the authors investigate individuals' exposure to indoor air pollution. Using new survey data from Bangladesh, they analyze exposure at two levels--differences within households attributable to family roles, and differences across households attributable to income and education. Within households, they relate individuals' exposure to pollution in different locations during their daily round of activity. The authors find high levels of exposure for children and adolescents of both sexes, with particularly serious exposure for children under 5. Among prime-age adults, they find that men have half the exposure of women (whose exposure is similar to that of children and

adolescents). They also find that elderly men have significantly lower exposure than elderly women. Across households, they draw on results from their previous paper (Dasgupta and others, 2004), which relate pollution variation across households to choices of cooking fuel, cooking locations, construction materials, and ventilation practices. They find that these choices are significantly affected by family income and adult education levels (particularly for women). Overall, the authors find that the poorest, least-educated households have twice the pollution levels of relatively high-income households with highly-educated adults. For children in a typical household, pollution exposure can be halved by adopting two simple measures--increasing their outdoor time from 3 to 5 or 6 hours a day, and concentrating outdoor time during peak cooking periods. The authors recognize that weather and other factors may intervene occasionally, and that child supervision outdoors may be difficult for some households. However, the potential benefits are so great that neighbors might well agree to pool outdoor supervision once they became aware of the implications for their children's health. This paper--a product of the Infrastructure and Environment Team, Development Research Group--is part of a larger effort in the

group to study environmental health issues in developing countries"--World Bank web site.

Indoor Pollutants IOS Press

This book provides a synthesis for using IoT for indoor air quality assessment. It will help upcoming researchers to understand the gaps in the literature while identifying the new challenges and opportunities to develop healthy living spaces. On the other hand, this book provides insights about integrating IoT with artificial intelligence to design smart buildings with enhanced air quality. Consequently, this book aims to present future scope for carrying out potential research activities in this domain. Over the past few years, the Internet of Things (IoT) is proven as the most revolutionizing invention in the field of engineering and design. This technology has wide scope in automation and real-time monitoring. Indoor air quality assessment is one of the most important applications of IoT which helps in the development of smart and healthy living spaces. Numerous methods have been developed for air quality assessment to ensure enhanced public health and well-being. The combination of sensors, microcontrollers, and communication technologies can be used to handle the massive amount of field data to access the condition of building air

quality.

Air Pollution and Health in Rapidly Developing Countries Discovery Publishing House (India)

Air pollution occurs when harmful or excessive quantities of substances including gases, particles, and biological molecules are introduced into Earth's atmosphere. It may cause diseases, allergies and even death to humans; it may also cause harm to other living organisms such as animals and food crops, and may damage the natural or built environment. Both human activity and natural processes can generate air pollution.Indoor air pollution and poor urban air quality are listed as two of the world's worst toxic pollution problems in the 2008 Blacksmith Institute World's Worst Polluted Places report.[1] According to the 2014 World Health Organization report, air pollution in 2012 caused the deaths of around 7 million people worldwide, [2] an estimate roughly echoed by one from the International Energy Agency.[3][4]An air pollutant is a material in the air that can have adverse effects on humans and the ecosystem. The substance can be solid particles, liquid droplets, or gases. A pollutant can be of natural origin or man-made. Pollutants are classified as primary or secondary. Primary pollutants are usually produced by processes

such as ash from a volcanic eruption. Other examples include carbon monoxide gas from motor vehicle exhausts or sulphur dioxide released from factories. Secondary pollutants are not emitted directly. Rather, they form in the air when primary pollutants react or interact. Ground level ozone is a prominent example of secondary pollutants. Some pollutants may be both primary and secondary: they are both emitted directly and formed from other primary pollutants.Substances emitted into the atmosphere by human activity include: - Carbon dioxide (CO2) - Because of its role as a greenhouse gas it has been described as "the leading pollutant"[5] and "the worst climate pollution".[6] Carbon dioxide is a natural component of the atmosphere, essential for plant life and given off by the human respiratory system.[7] This question of terminology has practical effects, for example as determining whether the U.S. Clean Air Act is deemed to regulate CO2 emissions.[8] CO2 currently forms about 410 parts per million (ppm) of earth's atmosphere, compared to about 280 ppm in pre-industrial times, [9] and billions of metric tons of CO2 are emitted annually by burning of fossil fuels.[10] CO2 increase in earth's atmosphere has been accelerating.[11]-Sulfur oxides (SOx) -

particularly sulphur dioxide, a chemical compound with the formula SO2. SO2 is produced by volcanoes and in various industrial processes. Coal and petroleum often contain sulphur compounds, and their combustion generates sulphur dioxide. Further oxidation of SO2, usually in the presence of a catalyst such as NO2, forms H2SO4, and thus acid rain.[2] This is one of the causes for concern over the environmental impact of the use of these fuels as power sources.-Nitrogen oxides (NOx) - Nitrogen oxides, particularly nitrogen dioxide, are expelled from high temperature combustion, and are also produced during thunderstorms by electric discharge. They can be seen as a brown haze dome above or

Indoor Air Quality for Poor Families

Educreation Publishing

This book aims to strengthen the knowledge base dealing with Air Pollution. The book consists of 21 chapters dealing with Air Pollution and its effects in the fields of Health, Environment, Economy and Agricultural Sources. It is divided into four sections. The first one deals with effect of air pollution on health and human body organs. The second section includes the Impact of air pollution on plants and agricultural sources and methods of resistance. The third section includes environmental changes, geographic

and climatic conditions due to air pollution. The fourth section includes case studies concerning of the impact of air pollution in the economy and development goals, such as, indoor air pollution in México, indoor air pollution and millennium development goals in Bangladesh, epidemiologic and economic impact of natural gas on indoor air pollution in Colombia and economic growth and air pollution in Iran during development programs. In this book the authors explain the definition of air pollution, the most important pollutants and their different sources and effects on humans and various fields of life. The authors offer different solutions to the problems resulting from air pollution.

WHO Guidelines for Indoor Air Quality

Springer

Which substances are polluting air the most? What is the ozone hole? How much CO2 is emitted by burning 1 litre of petrol? Which country emits the maximum CO2 per person? What is BS-IV? How are climate change and air pollution related? What is the Kyoto Protocol? Which are the most and least polluted cities of India? Know the answers to these, and 42 more frequently asked questions, on air pollution, its various aspects, and impacts. Other titles in this series: 50 FAQS on Climate Change (ISBN: 9788179935392) 50 FAQs on Global

Warming (ISBN: 9788179934524) 50 FAQs on Renewable Energy (ISBN: 9788179935415) 50 FAQs on Waste Management (ISBN: 9788179935408) 50 FAQs on Water Pollution (ISBN: 9788179934593)

Urban Air Quality Monitoring, Modelling and Human Exposure Assessment The Energy and Resources Institute (TERI)

Indoor air quality (IAQ) and indoor air pollution (IAP) are a matter of concern in many countries because they can significantly influence the general health and well-being of those who spend most of their time inside, whether at home or work. Poor IAQ and repeated exposure to dangerous concentrations of pollutants can contribute significantly to the healthcare burden along with increased absenteeism and lost productivity worldwide. This book, Indoor Air Quality Assessment for Smart Environments, explores the problem of IAQ and highlights potential challenges, gaps, and opportunities in the field. As the title suggests, it focuses on assessing IAQ in smart environments using emerging technologies, such as the Internet of Things (IoT) and Wireless Sensor Networks (WSN), that can further contribute to the development of intelligent building management systems. The book contains 8 chapters, written by various experts in the field and addressing significant elements of

IAQ management, including: definition, state-of-the-art and applications; sensing techniques; technological interventions and smart environments; smart monitoring devices; green and smart hospitals; health risks of nano building products; the optimization of household ventilation; and an assessment of smart environments. While providing a useful source of knowledge for researchers, policymakers, public health professionals and government agencies wishing to enhance the air quality in buildings, the book will also serve as a guide to building occupants who wish to take the necessary measures to enhance the built environment with improved ventilation arrangements.

Indoor Air Quality Assessment for Smart Environments Springer Nature

This book presents select proceedings of the 2nd Asian Conference on Indoor Environmental Quality (ACIEQ-2023) and explores the current research in the field of indoor environmental quality which includes indoor air quality, adaptive thermal comfort, productivity and health, indoor lighting, and acoustics. These themes include exposure assessment in various microenvironments, i.e., commercial, residential, and institutional and its effect on human health and performance for

better well-being. The book also discusses the strategies to improve thermal and visual comfort along with filtration technologies for improving indoor air quality in urban built environment. It also emphasizes on profiling of indoor air pollutants such as bioaerosols, volatile organic compounds, particulate matter in schools, offices, dyeing/printing industry, and modes of commute. The book is a valuable reference for researchers and professionals in engineering, architecture, lighting, and acoustic areas interested in the relevant aspects of indoor environmental quality.

Who Suffers from Indoor Air Pollution? Evidence from Bangladesh Routledge

The main objective of these updated global guidelines is to offer health-based air quality guideline levels, expressed as long-term or short-term concentrations for six key air pollutants: PM2.5, PM10, ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide. In addition, the guidelines provide interim targets to guide reduction efforts of these pollutants, as well as good practice statements for the management of certain types of PM (i.e., black carbon/elemental carbon, ultrafine particles, particles originating from sand and duststorms). These guidelines are not legally binding standards; however, they provide WHO Member States with an

evidence-informed tool, which they can use to inform legislation and policy. Ultimately, the goal of these guidelines is to help reduce levels of air pollutants in order to decrease the enormous health burden resulting from the exposure to air pollution worldwide.

50 FAQs on Air Pollution Springer Nature

The National Capital Territory (NCT) of Delhi has seen rapid growth in its industrial, transportation, and housing sectors over the past decades. The population of Delhi has increased from 1.378 crore in 2001 to 1.678 crore in 2011, a decadal growth of 21.2% against a national growth rate of 17.7%. This rapid growth in population, along with the increased rate of industrialization and urbanization and the rise in motorized transport, have resulted in an increased concentration of various air pollutants such as nitrogen oxides, sulphur dioxide, suspended particulate matter, respirable suspended particulate matter, carbon monoxide, ozone, lead, benzene, hydrocarbons, etc. With rising concerns about the steep increase in air pollution in the National Capital Territory of Delhi, several factors particularly motorized transportation, construction, and stubble burning in neighboring states are being identified as contributing to this

hazard.The present book includes Air Pollution impacts and control measures, Air Pollution in Mega City-Delhi NCR, understanding towards Delhi's complex Air Pollution Problem and their sources, impact of urbanization on Air Pollution in Asian Cities, Impacts of Air Pollution on the ecosystem and human health, Indoor Air Pollution sources, impact on health & remediation, recent trends in the control and improvement of Indoor Air Quality, regional and global level environmental problems of Air Pollution.

Indoor air pollution

Lulu.com

"Indoor air pollution (IAP) from cooking and heating is estimated to kill a million children annually in developing countries. To promote a better understanding of IAP, the authors investigate the determinants of IAP in Bangladesh using the latest air monitoring technology and a national household survey. The study concludes that IAP is dangerously high for many poor families in Bangladesh. Concentrations of respirable airborne particulates(PM10) 300 ug/m3 or greater are common in the sample, implying widespread exposure to a serious health hazard.

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