



Climate Change and Energy Options for a Sustainable Future.

Dinesh Kumar Srivastava and V. S. Ramamurthy. World Scientific Publishing Co. Pte. Ltd. 5 Toh Tuck Link, Singapore 596224. 2021. 364 pages. Price: Rs 9174.

Climate change and its disastrous consequences was not considered as a serious threat to environment for quite some time. It is only in the last ten years with all too obvious events with the clear signatures of large scale natural disasters such as Tsunami, huge forest fires, melting of the glaciers and the polar ice caps, frequent earthquakes, etc. that climate change turned to a serious subject with much debate. Intergovernmental panel came in the forefront and general public started to take climate change seriously.

Dinesh Srivastava and V. S. Ramamurthy's (both belonging to National Institute of Advanced Studies, Bangalore) book *Climate Change and Energy Options for a Sustainable Future* is thus very timely, it covers not only key points of destructive consequence of climate change but more on solution to our grim future.

The authors point out in bold language 'Global warming is real', although the greenhouse gases which have already bored a deep hole deep into the ozone layer in the polar cap and its unprecedented consequence due to sun's ultraviolet rays creating havoc on earth including cancer is not discussed enough, in detail, I feel.

The most important source of the dramatic change on the climate equilibrium is of course the abundant and sustained use of fossil fuel, coal, petrol, diesel, etc. – earth's own resources nurtured over the years so tenderly is used to

destroy the earth. We have to simply escape from it; Srivastava and Ramamurthy cite the usual route, of alternative energy sources emphasizing on solar, renewable and wind energy including geothermal energy, the last source completely unexplored in our country, till now.

Expectedly (both being at the Department of Atomic Energy formerly) they dwell extensively and exhaustively on nuclear power, including fusion. In principle, nuclear power is important, however, nobody can deny the remote danger however slight implicit in a nuclear power station. I feel renewable energy will take over the world in a short time with a helping hand from Solar Power; humans feel safe with them – and – that is important.

One Table presented by the authors 'Pollutants Emitted by 1300 MW Thermal Power Plant using Coal' reveals all! It sounds worse than the gas chamber of Adolf Hitler.

The book is eminently readable with lots of beautiful pictures explaining how we are destroying our beautiful blue planet. They also trace human history and demonstrate how civilization has perished, essentially because of destruction by humans the ecology around us, deforestation in particular in the name of progress, Mesopotamian civilization, Babylonian civilization, Egyptian civilization, even Byzantine civilization and ultimately creation of the Sahara desert. Even our highly civilized Harappan civilization fell victim of the same malice – progress at any cost, even at the cost of our environment.

I recommend the book at school level, bit by bit from class nine to twelve, but I imagine that is asking for too much. Its a balanced book, written without any dogma but true, stark facts, the reality. Finally, I am yet to see such an optimum use of Wikipedia, it is a pleasure reading the book.

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Annual Review of Public Health, 2020.

Jonathan E. Fielding, Ross C. Brownson and Lawrence W. Green (eds). Annual Reviews, 4139 El Camino Way, P.O. Box 10139, Palo Alto, California 94303-0139, USA. Vol. 41. xvi + 600 pages. Price: US\$ 118.00.

This annual review opens with a methodological article on the 'Essential Ingredients and Innovations in the Design and Analysis of Group-Randomised Trials'. While randomised control trials are at the pinnacle of the study designs evoked for medical evidence, public health practitioners have often grappled with study designs that randomise groups rather than individuals. Also known as cluster-randomised trials, these study designs have a strong rationale when groups rather than individuals need to be randomised when there is fear of contamination between participants or when interventions target groups rather than individuals. However, group-randomised trials come at a cost since outcomes on individual participants from the same group are likely to be correlated because of common exposures, shared experiences, or participant interactions. There are clearly problems in design and analysis related to the estimation of sample sizes and for ways to address intra-cluster correlations. This article will appeal to public health researchers who have grappled with the evaluation of 'group-level' interventions as I have. The article is succinct and includes case studies to illustrate issues more clearly.

I was drawn to the article of 'Measures of Racism, Sexism, Heterosexism, and gender Binarism for Health Equity Research: From Structural Injustice to Embodied Harm – An Ecosocial analysis'. The article deals with various 'isms', created by people which propagate unjust, and preventable differences in health status. Nancy Krieger, the author, draws our attention to fallacious premises in each of these 'isms' – the notion of discrete races and the fact that some races are biologically superior; the acceptance of male supremacy and codified roles and status based on gender; the notion of 'natural' sexual orientation and identity; and the 'othering' of people as unnatural and deviant. The author calls for a rejection of biological essentialism and of definitions of social normality, an acceptance of the inherent dignity of all

humans and a recognition that unjust societal rules are typically established by people in privileged positions and tend to perpetuate inequalities, including those in health. The article is meant to be provocative and the author does not provide easy solutions but challenges the reader to join in the collective efforts currently underway to address these issues.

In a departure from the tradition of normal reviews which critique the entire literature in a finite area, the article on 'Built Environment, Physical Activity, and Obesity: Findings from the International Physical Activity and Environment Network (IPEN) Adult Study' is a summary of multiple lessons learned from a single study conducted across multiple countries. India, unfortunately is not a part of this collaboration. Many studies have, of late, started collecting data across multiple geographies as these data provide a greater heterogeneity in variables and allow for the delineation of associations that might otherwise not have been apparent in homogenous, single country studies. The data of this article used objective indices of the built environment as well as self-reported measures of the environment such as the neighbourhood environment walkability scale. These self-reports are important since they reflect individual behaviour. The data show associations between built environment and physical activity patterns, especially moderate-vigorous physical activity and walking for leisure. Associations between the built environment and overweight/obesity are generally low. This, for me, is not surprising but is an important reinforcement of the idea that the benefits of physical activity have for too long been focused on body weight, an easily measured index. However, the benefits of physical activity impact health through multiple pathways and this, to my mind, is ample reason to promote physical activity for its own sake.

The article on 'Sedentary Behavior and Public Health: Integrating the Evidence and Identifying Potential Solutions' is thought provoking and especially topical, given the contribution of physical inactivity to disease morbidity and all-cause mortality. For many years, epidemiologists have focused on the association of physical inactivity and disease outcomes. However, in recent years, sedentary behaviour has been shown to be distinct from physical inac-

tivity and specifically includes all those activities that are characterized by low metabolic equivalents of ≤ 1.5 while sitting, reclining or lying. Sedentary activity can offset the beneficial effects of physical exercise. Thus, while the promotion of regular physical exercise has gained much prominence, the need to also minimize sedentary behaviour has received considerably less attention. The authors review the emerging field of sedentary behaviour both from an epidemiological and experimental point of view and the review is notable in that the authors represent the fields of public health and as well as experimental human physiology. The paper also reviews large scale interventions aimed at reducing workplace and classroom sitting. The review is striking in the relative lack of data from low and low-middle income countries. Since these countries have large populations and account for a larger burden of related health outcomes in absolute numbers, this area should spur public health researchers in these countries to collect these data so that intervention programmes are developed in culturally appropriate and cost-effective ways.

An article of relevance is entitled 'Public Health and Online Misinformation: Challenges and Recommendations'. The current COVID-19 pandemic has witnessed a surge of information on the internet, not all of which is validated or correct. This concern has led the World Health Organization to coin the term 'infodemic' to describe the epidemic of rapid, and often unreliable information overload. The above article, is thus, in some ways, prescient. The authors draw attention to the 'retreat from evidence-based medicine...towards media- and celebrity-based information'. I found the article comprehensive, informative, analytical, and especially lucid. Areas of how individuals engage with health information online, the nature of the spread of misinformation on social media and approaches to tackle misinformation, were some of the areas covered. The issue of health literacy, i.e. the ability of individuals to seek, find, and understand health information so that they can make appropriate health decisions is an area of particular concern in India, and for which there is limited local research.

Top-down public health research and interventions have often become the norm, with scientists and policy experts

physically and culturally removed from the populations they seek to study or to serve. 'Partnerships, Processes, and Outcomes: A Health Equity-Focused Scoping Meta-Review of Community-Engaged Scholarship' addresses four broad domains of community based participatory research, viz. contexts of research, partnership processes; methods of intervention and research, including its transplanted, implementation and dissemination; and outcomes in the short and long term, including the implications for social justice. The article covers a broad swath of data and elegantly summarizes the findings within each of the domains. Community participation and partnerships which allow for co-creation of a knowledge base and which empower disadvantaged communities are important reasons why public health experts should take note of this very important article. There are numerous messages to be learned from what has already been done. This includes methodological lessons in terms of ensuring fair processes of community engagement as well as the need for continued community engagement to ensure that translated research reaches the intended beneficiaries.

Apart from the specific articles in the Annual Review that I have alluded to above, this edition covers several other areas including sleep health as a public health problem, issue of mental health of refugee children, biological impact of psychosocial stress on ageing, issues of homelessness, addressing health equity in public health practices, drug pricing, global child sex trafficking and aspects of health services research, among others.

With such a diverse variety of articles, the Annual Review of Public Health is sure to have something that is relevant to any practitioner or researcher of public health. One striking issue is the relative absence of data and articles from the global South. While this may in some, but not all cases, reflect lower levels of research in these geographical areas, it does diminish the relevance of some of these reviews. This should encourage young researchers in developing countries, where much needs to be done. An area which continues to receive relatively little attention is that of infectious disease. I have no doubt that the current pandemic will address this lacuna in future issues. It is clear, that the epidemiological transition from infectious to non-communicable disease is not a

one-way street. Thus, issues of how non-communicable disease enhance the risk of infectious disease and to what extent the slowing or reversal of the epidemiological transition impacts health planning and policy, will be important issues for the future.

Overall, I found this volume engaging and with some superbly written articles that were thought provoking and evocative. There was much food for thought for young researchers including new areas to explore, and new methodologies to acquire.

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