THE POLLUTION PARADIGM pdf

1: 7 Kinds of Environmental Pollution - Sustainable Baby Steps

Beyond the Pollution Paradigm Why We Can't Leave Saving the Planet to Environmentalists. The Birth of Environmentalism The Official Story. Photo used by Time.

The writing is the result of spending four days hiding out from the cold in my attic apartment on Botley Road over Christmas break. I had a couple of papers to bang out over the two-week time, but after having completed a minor in philosophy along with my undergraduate chemistry degree just a few months before, I had fun with this one. When everything was said and done, I was awarded an academic distinction in the course, partly for this piece. Introduction Oxford is a city that projects an image of bucolic academic life, one rich in historic context played out among extraordinary architecture and surrounded by pastoral tranquility. It is not until one experiences the city from the inside that other relevant aspects of the picture become present: Of these, it is the last point that will be the subject of focus in this paper. It is a long-standing ecological maxim that the health of a community is contingent on the health of its water supplies. In the case of the City of Oxford, it is the condition of the river water that gives one pause. With this and nearly every other research question, there are at least four approaches that one can choose from: These approaches are known as paradigms. Paradigms are defined simply as a basic set of beliefs that guide action Guba, A more developed definition of a paradigmâ€”one of my own creationâ€”proposes that a paradigm is a philosophical framework or structure wherein ideas can be coordinated and arranged to produce an understanding. Of the four research paradigms, I assert that the firstâ€”positivismâ€”serves as a historical precursor to the other three postpositivism, constructivism and critical theory. And it is these latter three that for the most part dominate in the contemporary fields of academic research today. In what follows, I will describe the basic distinguishing aspects and philosophical assumptions of each paradigm, starting with positivism, in order to lay the historical groundwork for understanding those that followed. I will show how these assumptions come together to create unique research approaches, and ultimately will apply each paradigm to the research question at hand to illustrate what I believe to be a novel approach to paradigm accommodation. Philosophical Aspects of Research Paradigms Positivism, postpositivism, constructivism and critical theory can be recognized one from another by differences in ontology, epistemology and methodology. Ontology denotes the nature of being, or reality. This can take a variety of forms: Realism involves an assertion that the nature of reality is fixed and independent of human existence. Furthermore, this reality can be verified and understood through sensory perception and rational thought. Realism is an ontology based in ideas of materialism and physical absolutes Guba, Critical realism is similar, but with a degree of skepticism and self-awareness built in. Critical realists hold that reality is certainly out there, but that an understanding of the natural world will always be imperfect and incomplete, due to sensory imperfections and failures in reason Guba, Relativism goes considerably further in this assumption, and rejects the idea of an external, independent reality altogether as being either nonexistent or irrelevant. Relativists hold that, as persons, we are immersed in worlds of meaning and context and that, hence, multiple realities existâ€”each reality being unique to the individual, culture, time and place Creswell, These ideas of ontology are closely linked to epistemologies, or assumptions regarding the nature of understanding and how understanding can be gained. There are three dominant epistemologies among the four paradigms: Objectivism assumes a dualistic notion of the human mind and the physical world. As such, the objectivist researcher assumes an objective, detached and dispassionate stance toward the subject of study Guba, The possibility of doing this, however, has been called into question for ontological reasons, and has led to what is called modified objectivism. As with objectivism, modified objectivism holds that the objective posture of the researcher toward the subject is an ideal to strive for, but differs in holding that this stance is one that can seldom be achieved. Nevertheless, in this case reliance upon multiple sources serve to reduce distortions in research, analysis and interpretation, and peer reviews and replication of results can lead to verifiable truth claims Guba, ; Creswell, Subjectivist epistemology takes the modified objectivist skepticism of knowledge correlation to the real world considerably farther, and rejects all such notions altogether. Herein, understanding is something that holds relevance only between human beings, and which is created through

discursive interactions in human life Creswell, Finally, there are four methodologiesâ€"or, approaches to gaining knowledge and understandingâ€"distributed among the four different paradigms. The experimental methodology deals with propositional statements that are later subjected to empirical tests under controlled conditions for the purpose of falsification or verification Robson, The modified experimental methodology is similar, differing mainly in the incorporation of ideas of critical multiplism, the estimation of natural settings in research, the use of grounded theory, the incorporation of qualitative data and the reintroduction of discovery into the research process Guba, Hermeneutics involve the creation of dialectic constructions, usually of human experiences Guba These methodologies will be elucidated in greater detail with the ensuing discussion on methods in regards to each respective paradigm. A concise summary of these details is provided for the reader in Table 1. Summary of research paradigms. I would like to further add that these three distinctionsâ€"ontological, epistemological and methodologicalâ€"are not the only aspects in which the four research paradigms differ. There are also ethical, axiologic, rhetorical and aesthetic qualities unique to each, and which further serve to define them. However, discussion of these must be reserved for a larger forum on the topic. Positivism and the Scientific Revolution Historically, positivism was the first of the four research paradigms to emerge, doing so during the scientific revolution and Enlightenment era of the 17th and 18th centuries. It remained dominant in the fields of science well into the 20th century and was virtually the only valid approach to systematic research throughout much of this time. Originally, it was a paradigm developed by researchers and thinkers who were trying to figure out the nature of the earth, patterns of motion in the solar system and an empirical and rational understanding of the cosmos in general. Drawing on rediscovered works of Aristotle and similar philosophers, early positivists started to construct models of the world that were founded in sensory evidence, causal relationships and systematic rational thought. This approach marked a dramatic departure from the mysticism and monotheistic Judeo-Christian theology dominant in their world at that time, and which was largely founded on the platonic philosophy of idealism. Ontologically, this departure created a precedent of realism in positivist thought, conjoined with an objectivist epistemology and an experimental methodology. Within positivism there is a strong emphasis on quantitative data collected from research using the scientific method. This type of approach has led to marvelous advances in knowledge and understanding of the physical world. However, many researchers have found problems with fundamental positivist assumptions. This has been most apparent when positivist methods of measurement and control have been applied to subjects in the human and social sciences, such as psychology, anthropology and sociology. The most pressing of these problems has been that the positivist approach lacked realism, and that it provided for considerable bias in the experiment Robson, These issues also became increasingly apparent within the more traditional scientific fields of natural science over time, as well, and hence some modifications in the approach needed to be made. Nevertheless, the positivist quest for an understanding of physical laws in nature has served to provide much of the fundamental knowledge available in mathematics, chemistry, physics and biology. Postpositivism The first paradigm to account for many of the failings of positivism was postpositivism. Here, adjustments were made toward a critical realist ontology, a modified objectivist ontology and a modified experimental methodology. Nevertheless, in postpositivism, emphasis still remains on quantitative data involving numerical values and on the scientific method. An emphasis on control, operational definitions, replication and hypothesis testing still prevails Burns, Postpositivist research methodologies provide for fixed designs and include experiments, randomized control trials, surveys, and observation studies. Methods include measurements, structured questionnaires, interviews and observation Creswell, Postpositivism as a research paradigm has a number of strengths, the primary of these as with positivism being precision and control during an investigation. In addition, the experimental approach empowers the researcher to make deductive statements regarding causal relationships. The use of this deductive approach allows for hypothesis testing, and the collection of quantitative data during the experiment enables the researcher to employ procedures of statistical analysis. Both of these factors allow for stronger truth claims as a result of the study Burns, Regardless of these strengths, the postpositivist paradigm still proves considerably inadequate in many areas outside of the physical and mathematical sciences. Due to the dynamic nature of human existence, human behavior is complex and difficult to predict. Furthermore, this

difficulty may not be a matter of needing greater control or more powerful mathematics. For a human observer, the objective ideal is often impossible to maintain in studies of this nature, and experimental control often comes at the cost of realism in the study Burns, Furthermore, an over-reliance on systemization and quantitative data collection leads to alienation and dehumanization of the subject in the experiment Berlin, These weaknesses often result in inadequately complete results and oversimplified conclusions. Hence, other attempts have been made to understand the human condition in light of these research difficulties. Constructivism Philosophical developments in the late 19th and early 20th centuries created a space in academic thinking that allowed for a shift toward qualitative research in the s, and a more effective paradigm for studying subjective aspects of human existence Burns, ; Creswell, This paradigm is known as Constructivism. Constructivism assumes a relativist ontology and a subjectivist epistemology, both developed considerably in this sense by Husserl in the early decades of the 20th century. Constructivist methodology, however, did not reach fruition until some years later after the work of Heidegger, whose ideas related to hermeneutics were able to be appropriated and used by social science researchers Koch, Such methodologies take the forms of phenomenology, ethnography, case study, grounded theory and biographical narrative Creswell, In light of these philosophical bases, constructivism differs radically from positivism and post-positivism. Constructivist researchers recognize multiple realities, each contingent on social and experiential situations, rather than a single absolute. These realities vary according to person in both form and content, yet are valid because they describe thoughts, feelings and reflections on personal experiences. Although these experiential factors are not easily quantifiable, they are nevertheless relevant. Constructivist descriptions come into being not simply through the narrative created by the researched subject, but appear as a result of the conjunctive presence of the researcher. Thus, the researcher attempts to recognize his or her own presence in the research process, and account for the effect of this in the creation of research findings in order to extract a more accurate reading thereof Guba, Whereas both positivists and postpositivists may stress rigor and quantitative data in the research process, a constructivist might use qualitative data and emphasize the importance of relevance to real life in the results Guba, The constructivist recognizes that people develop subjective meanings of their experiences, and that individuals create subjective understandings of the world s in which they live and work. Hence, whereas a post-positivist might employ deductive methods in order to reduce ideas to a small set of testable variables that constitute a hypothesis, a constructivist would look for patterns of complexity in order to generate new ideas Creswell, This is achieved through an intense focus on the research process. The constructivist researcher asks broad and general questions allowing participants latitude to express meaning therein. These expressions are compared with other observations to construct interpretive notions of meaning and experience toward which there is substantial consensus Creswell, This all comes about through a dialectic process that was not granted validity within earlier paradigms. Critical Theory During the s and s, a movement arose in academic circles informed by postmodern ideas of culture, language, gender and colonialism. Researchers and theorists therein asserted that the assumptions of other research paradigms did not adequately address issues of social justice Creswell, From this perspective, it was well and fine to research and understand something, but what good was that research if it did little to make a difference for those who needed it? Questions such as this led to the development of what is known as ideologically-oriented inquiry, or critical theory. The critical theory paradigm operates from a critical realist ontology. All paradigms and research paradigms, specifically reflect these values.

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2: Light pollution - Wikipedia, the free encyclopedia

Abstract: Air pollution affects billions of people worldwide, yet ambient pollution measurements are limited for much of the world. Urban air pollution concentrations vary sharply over short distances (â‰ˆ1 km) owing to unevenly distributed emission sources, dilution.

Sky glow Sky glow refers to the "glow" effect that can be seen over populated areas. It is the combination of all light reflected from what it has illuminated escaping up into the sky and from all of the badly directed light in that area that also escapes into the sky, being scattered redirected by the atmosphere back toward the ground. This scattering is very strongly related to the wavelength of the light when the air is very clear with very little aerosols. Rayleigh scattering dominates in such clear air, making the sky appear blue in the daytime. When there is significant aerosol typical of most modern polluted conditions , the scattered light has less dependence on wavelength, making a whiter daytime sky. Sky glow is of particular irritation to astronomers, because it reduces contrast in the night sky to the extent where it may even become impossible to see any but the brightest stars. The Bortle Scale rates the darkness of the sky and the visibility of night sky phenomena such as the gegenschein and the zodiacal band , easily masked by sky glow, on a scale of one to nine, providing a detailed description of each step on the scale. Light is particularly problematic for amateur astronomers , whose ability to observe the night sky from their property is likely to be inhibited by any stray light from nearby. Most major optical astronomical observatories are surrounded by zones of strictly-enforced restrictions on light emissions. Cinzano Measuring the effect of sky glow on a global scale is a complex procedure. The natural atmosphere is not completely dark, even in the absence of terrestrial sources of light. This is caused by two main sources: At high altitudes, primarily above the mesosphere , UV radiation from the sun is so intense that ionization occurs. When these ions collide with electrically neutral particles they recombine and emit photons in the process, causing airglow. Apart from emitting light, the sky also scatters incoming light, primarily from distant stars and the Milky Way, but also sunlight that is reflected and backscattered from interplanetary dust particles the so-called Zodiacal light. To precisely measure how bright the sky gets, night time satellite imagery of the earth is used as raw input for the number and intensity of light sources. These are put into a physical model [12] of scattering due to air molecules and aerosoles to calculate cumulative sky brightness. Maps that show the enhanced sky brightness have been prepared for the entire world. Global effects of light pollution are also made obvious. The entire area consisting of southern England, Netherlands, Belgium, west Germany, and northern France have a sky brightness of at least 2 to 4 times above normal see above right. The only place in continental Europe where the sky can attain its natural darkness is in northern Scandinavia. In North America the situation is comparable. From the east coast to west Texas up to the Canadian border there is very significant global light pollution. Health effects of over-illumination or improper spectral composition of light may include: There is some evidence that lengthy daily exposure to moderately high lighting leads to diminished sexual performance. For example, Lepidopterists and entomologists have documented that night-time light may interfere with the ability of moths and other nocturnal insects to navigate. Migrating birds can be disoriented by lights on tall structures. Estimates by the U. Fish and Wildlife Service of the number of birds killed after being attracted to tall towers range from million per year to an order of magnitude higher. Other well-known casualties of light pollution are sea turtle hatchlings emerging from nests on beaches. It is a common misconception that hatchling sea turtles are attracted to the moon. They are not; rather, they find the ocean by moving away from the dark silhouette of dunes and their vegetation, a behavior with which artificial lights interfere. Nocturnal frogs and salamanders are also affected by light pollution. Since they are nocturnal, they wake up when there is no light. Light pollution may cause salamanders to emerge from concealment later, giving them less time to mate and reproduce. A book that assembles various research on the subject was released in The International Dark-Sky Association claims there are no good scientific studies that convincingly show a relationship between lighting and crime. Furthermore, the association claims that badly installed artificial lights can create a deeper contrast of shadows in which criminals might hide. Further information might be found on the talk page or at requests

for expansion. August Skyglow reduces the contrast between stars and galaxies in the sky and the sky itself, making it more difficult to detect fainter objects. This is one factor that has caused newer telescopes to be built in increasingly remote areas. Some astronomers use narrow-band " nebula filters" which only allow specific wavelengths of light commonly seen in nebulae, or broad-band "light pollution filters" which are designed to reduce but not eliminate the effects of light pollution by filtering out spectral lines commonly emitted by sodium - and mercury -vapor lamps, thus enhancing contrast and improving the view of dim objects such as galaxies and nebulae. Unfortunately this affects color perception, so these filters cannot be used to visually estimate variable star brightness, and no filter can match the effectiveness of a dark sky for visual or photographic purposes. Due to low surface brightness, the visibility of diffuse sky objects such as nebulae and galaxies is affected by light pollution more than are stars. A simple method for estimating the darkness of a location is to look for the Milky Way. The usual measures to reduce this glare, if reducing the light directly e. The method for best reducing light pollution, therefore, depends on exactly what the problem is in any given instance. Turning lights off using a timer or occupancy sensor or manually when not needed. Improving lighting fixtures, so that they direct their light more accurately towards where it is needed, and with less side effects. Adjusting the type of lights used, so that the light waves emitted are those that are less likely to cause severe light pollution problems. Evaluating existing lighting plans, and re-designing some or all of the plans depending on whether existing light is actually needed. It ensures that light is only directed below the horizontal, which means less light is wasted through directing it outwards and upwards. This drop-lens cobra luminaire allows light to escape sideways and upwards, where it may cause problems. The use of full cutoff lighting fixtures, as much as possible, is advocated by most campaigners for the reduction of light pollution. It is also commonly recommended that lights be spaced appropriately for maximum efficiency, and that lamps within the fixtures not be overpowered. A full cutoff fixture, when correctly installed, reduces the chance for light to escape above the plane of the horizontal. Light released above the horizontal may sometimes be lighting an intended target, but often serves no purpose. When it enters into the atmosphere, light contributes to sky glow. Some governments and organizations are now considering, or have already implemented, full cutoff fixtures in street lamps and stadium lighting. The use of full cutoff fixtures may help to reduce sky glow by preventing light from escaping unnecessarily. Full cutoff typically reduces the visibility of the lamp and reflector within a luminaire, so the effects of glare may also be reduced. Campaigners also commonly argue that full cutoff fixtures are more efficient than other fixtures, since light that would otherwise have escaped into the atmosphere may instead be directed towards the ground. However, full cutoff fixtures may also trap more light in the fixture than other types of luminaires, corresponding to lower luminaire efficiency. The use of full cutoff fixtures may allow for lower wattage lamps to be used in the fixtures, producing the same or sometimes a better effect, due to being more carefully controlled. In every lighting system, some sky glow also results from light reflected from the ground. This reflection can be reduced, however, by being careful to use only the lowest wattage necessary for the lamp, and setting spacing between lights appropriately. This is most likely because historically there has not been a large market specifically for full cutoff fixtures, and because people typically like to see the source of illumination. Due to the specificity with their direction of light, full cutoff fixtures sometimes also require expertise to install for maximum effect. This article or section needs copy editing for grammar, style, cohesion, tone or spelling. You can assist by editing it now. A how-to guide is available. September The effectiveness of using full cutoff roadway lights to combat light pollution has also been called into question. According to computer simulations, luminaires with full cutoff distributions as opposed to cutoff or semi cutoff, compared here have to be closer together to meet the same light level, uniformity and glare requirements specified by the IESNA. Cutoff designs paradoxically performed better than full cutoff designs. This indicates that, in roadway installations, over-illumination required by full cutoff fixtures may be more detrimental than direct uplight created by fewer cutoff fixtures. Therefore, existing systems could be improved more by reducing the number of luminaires than by switching to full cutoff designs: It should be noted too that Italian Lombardy region, where only full cutoff design is allowed Lombardy act n. It is often the case that inappropriate light sources have been selected for a task, either due to ignorance or because more sophisticated light sources were unavailable at the time of installation. Therefore,

badly chosen light sources often contribute unnecessarily to light pollution and energy waste. By re-assessing and changing the light sources used, it is often possible to reduce energy use and pollutive effects while simultaneously greatly improving efficiency and visibility. Some types of light sources, in order of energy efficiency, are: Type of light source.

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3: New Paradigm for Air Pollution Monitoring: Progress Report | Air Research | US EPA

2 Abstract: The air pollution monitoring paradigm is rapidly changing due to recent advances in 1) the development of portable, lower-cost air pollution sensors reporting data in near-real time at a.

Want to learn more about how I do that? Most people can name air, water and land Or examples of what constitutes actual pollution in each category? Listed below are each kind and examples to help you understand just how we can affect the environment and each other. Air Pollution According to the dictionary, air pollution is the contamination of air by smoke and harmful gases, mainly oxides of carbon, sulfur, and nitrogen. And maybe by that smelly uncle. Some examples of air pollution include: Exhuast fumes from vehicles The burning of fossil fuels, such as coal, oil, or gas Harmful off-gasing from things such as paint, plastic production, and so on Radiation spills or nuclear accidents Air pollution is linked to asthma, allergies and other respiratory illnesses. You can more about how the environment affects human health here. Some examples of land pollution include: Litter found on the side of the road Illegal dumping in natural habitats Oil spills that happen inland The use of pesticides and other farming chemicals Damage and debris caused from unsustainable mining and logging practices Radiation spills or nuclear accidents Land pollution is responsible for damage done to natural habitat of animals, deforestation and damage done to natural resources, and the general ugly-ing up of our communities. So stop being a litterbug, eh? Light Pollution Light pollution is the brightening of the night sky inhibiting the visibility of stars and planets by the use of improper lighting of communities. Some examples of what causes light pollution: Street lamps that shine light in all directions, instead of with a hood to point light downward toward the street. Extra, unnecessary lights around the home Cities that run lights all night long Light pollution uses more energy by shining more light up instead of down, meaning you need brighter bulbs for the same amount of light , may affect human health and our sleep cycles, and most importantly, corrupts our kids telescopes and their curiosity. I grew up in a city. My first no-light night in the country blew my mind. Noise Pollution Noise pollution is any loud sounds that are either harmful or annoying to humans and animals. Some exmaples of noise pollution: Thermal Pollution Thermal pollution is the increase of temperature caused by human activity. A few examples of this include: Warmer lake water from nearby manufacturing using cool water to cool the plant and then pump it back into the lake Included in thermal pollution should also be the increase in temperatures in areas with lots of concrete or vehicles, generally in cities These kinds of environmental pollution can cause aquatic life to suffer or die due to the increased temperature, can cause discomfort to communities dealing with higher temperatures, and will affect plant-life in and around the area. Visual Pollution Visual pollution is what you would call anything unattractive or visualing damaging to the nearby landscape. This tends to be a highly subjective topic. Some examples of visual pollution: Skyscrapers that blocks a natural view Graffiti or carving on trees, rocks, or other natural landscapes Billboards, litter, abandoned homes, and junkyards could also be considered among three kinds of environmental pollution Mostly, visual kinds of environmental pollution are annoying and ugly, although some may say they are also depressing, and they of course affect the surrounding landscape with the changes they cause. When a man throws a billboard across a view, he is richly rewarded. Alan Liefting Water pollution is the contamination of any body of water lakes, groundwater, oceans, etc. Some examples of water pollution: Raw sewage running into lake or streams Industrial waste spills contaminating groundwater Radiation spills or nuclear accidents Illegal dumping of substances or items within bodies of water Biological contamination, such as bacteria growth Farm runoff into nearby bodies of water These kinds of environmental pollution are linked to health issues in humans, animals and plant-life. You can read more about how the environment is affecting our health here.

4: Smart cities, 5G and EMF pollution: Technology INCREASES microwave radiation exposure

Lung cancer paradigm shifts: Air pollution is a carcinogen but mortality can be reduced Posted on 12/11/ Page Content Reflecting on lung cancer awareness month (November), the debate on lung cancer is witnessing two significant paradigm shifts.

But it is also clear that without the ban on sale of firecrackers, the levels would have been far worse. Calm wind and more moisture in the air on the post-Diwali morning worsened the pollution build-up. The Supreme Court has already ordered a phase down strategy with the help of regulation of chemicals, standards, reduced quantum of crackers, controlled bursting of crackers through community events, locational controls etc. This must be implemented without delay for a longer term solution to the problem. This demands longer term strategy to control pollution from continuous sources, including motor vehicles and industry, while curbing episodic pollution from firecrackers and farm fires. The key highlights of the air quality analysis are as follows: The findings are indicative as this analysis faced data quality challenges. For instance, the Mandir Marg station is showing a constant reading from 12 pm onwards. Siri Fort, on the other hand, has stopped giving data since yesterday. Punjabi Bagh and ITO have stopped giving data since 12 pm, while data for R K Puram is not available from midnight to 3 am in the morning. Also data for Faridabad is not available since 10 pm of October Moreover, direct comparison with Diwali has been difficult as data from all stations are not available for both the years. Here are some key highlights: Despite the cracker ban the hour average level of PM2. This is more than two times higher than the levels during pre-Diwali day when the 24 hour average was microgramme per cu m. Direct comparison with Diwali has not been possible due to lack of data from all comparable monitoring stations. Pre-Diwali level this year much cleaner than previous year: This year pre-Diwali pollution has been lower than the pre-Diwali pollution of Last year the pre-Diwali pollution had already hit the severe level 4. Other steps including closure of Badarpur Power Station and conventional brick kilns and stronger action on trucks etc as part of the graded response action plan contributed to this trend. Night time pollution three to four times higher than day time pollution in Delhi and NCR town: Night time pollution in Delhi and NCR towns has been three to four times higher than the day time pollution on Diwali day. During the day about 13 hour average â€" 6 am to 7 pm the levels in Delhi and NCR town of Gurugram and Gaziabad were in very poor category Delhi â€" microgramme per cu m; Gurugram microgramme per cu m; and Gaziabad microgramme per cu m. Delhi- microgramm per cu m; Gurugram â€" microgramme per cu m; Gaziabad â€" microgramem per cu m. SO2 levels increased dramatically during the night of Diwali 10pm-3am: The SO2 levels that otherwise remain very low in the region increased by more than three times in several locations including RK Puram, Shadipur and Punjabi Bagh. But on Diwali night the hourly levels increased alarmingly to microgramme per cum. This is a direct indicator of impact of Diwali crackers. The emergency condition has prevailed until 10am on October Many stations have observed peaking of pollution i. Overall, since October 1, PM2. Thereafter, it increased to very poor category. This also coincides with the starting of farm fires. However, on Diwali night and the morning after the region has experienced severe and emergency level.

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5: paradigm pollution | RpNation

Discusses the main reasons for a paradigm shift in the way Texas industries approach pollution prevention and environmental management issues.

Definition[edit] Environmental sociology is typically defined as the sociological study of societal-environmental interactions, although this definition immediately presents the problem of integrating human cultures with the rest of the environment. Although the focus of the field is the relationship between society and environment in general, environmental sociologists typically place special emphasis on studying the social factors that cause environmental problems, the societal impacts of those problems, and efforts to solve the problems. In addition, considerable attention is paid to the social processes by which certain environmental conditions become socially defined as problems. History[edit] Ancient Greeks idealized life in nature using the idea of the pastoral. Much later, Romantic writers such as Wordsworth took their inspiration from nature. Modern thought surrounding human-environment relations can be traced back to Charles Darwin. Although typically taken at the micro-level, evolutionary principles, particularly adaptability, serve as a microcosm of human ecology. Sociology developed as a scholarly discipline in the mid- and lateth and early 20th centuries, in a context where biological determinism had failed to fully explain key features of social change, including the evolving relationship between humans and their natural environments. In its foundational years, classical sociology thus saw social and cultural factors as the dominant, if not exclusive, cause of social and cultural conditions. This lens down-played interactive factors in the relationship between humans and their biophysical environments. Environmental sociology emerged as a coherent subfield of inquiry after the environmental movement of the s and early s. The works of William R. In the late s, they called for a new holistic, or systems perspective. Since the s, general sociology has noticeably transformed to include environmental forces in social explanations. Environmental sociology has now solidified as a respected, interdisciplinary field of study in academia. Concepts[edit] This article relies largely or entirely on a single source. Relevant discussion may be found on the talk page. Please help improve this article by introducing citations to additional sources. June Existential dualism[edit] The duality of the human condition rests with cultural uniqueness and evolutionary traits. From one perspective, humans are embedded in the ecosphere and co-evolved alongside other species. Humans share the same basic ecological dependencies as other inhabitants of nature. From the other perspectives , humans are distinguished from other species because of their innovative capacities, distinct cultures and varied institutions. Human creations have the power to independently manipulate, destroy, and transcend the limits of the natural environment Buttel and Humphrey, According to Buttel , there are five basic epistemologies in environmental sociology kindly mention them. In practice, this means five different theories of what to blame for environmental degradation , i. In order of their invention, these ideas of what to blame build on each other and thus contradict each other. Hardin offered privatization of resources or government regulation as solutions to environmental degradation caused by tragedy of the commons conditions. Many other sociologists shared this view of solutions well into the s see Ophuls. There have been many critiques of this view particularly political scientist Elinor Ostrom , or economists Amartya Sen and Ester Boserup. Even though much of mainstream journalism considers Malthusianism the only view of environmentalism, most sociologists would disagree with Malthusianism since social organizational issues of environmental degradation are more demonstrated to cause environmental problems than abstract population or selfishness per se. For examples of this critique, Ostrom in her book Governing the Commons: The Evolution of Institutions for Collective Action argues that instead of self-interest always causing degradation, it can sometimes motivate people to take care of their common property resources. To do this they must change the basic organizational rules of resource use. Her research provides evidence for sustainable resource management systems, around common pool resources that have lasted for centuries in some areas of the world. Amartya Sen argues in his book Poverty and Famines: An Essay on Entitlement and Deprivation that population expansion fails to cause famines or degradation as Malthusians or Neo-Malthusians argue. Instead, in documented cases a lack of political entitlement to

resources that exist in abundance, causes famines in some populations. He documents how famines can occur even in the midst of plenty or in the context of low populations. He argues that famines and environmental degradation would only occur in non-functioning democracies or unrepresentative states. Instead of agricultural technology and scale determining and limiting population as Malthus attempted to argue, Boserup argued the world is full of cases of the direct opposite: Eco-Marxist scholar Allan Schnaiberg below argues against Malthusianism with the rationale that under larger capitalist economies, human degradation moved from localized, population-based degradation to organizationally caused degradation of capitalist political economies to blame. He gives the example of the organized degradation of rainforest areas which states and capitalists push people off the land before it is degraded by organizational means. New Ecological Paradigm[edit] In the s, The New Ecological Paradigm NEP conception critiqued the claimed lack of human-environmental focus in the classical sociologists and the Sociological priorities their followers created. This view was shaped by the leading Western worldview of the time and the desire for Sociology to establish itself as an independent discipline against the then popular racist-biological environmental determinism where environment was all. In this HEP view, human dominance was felt to be justified by the uniqueness of culture, argued to be more adaptable than biological traits. Furthermore, culture also has the capacity to accumulate and innovate, making it capable of solving all natural problems. Therefore, as humans were not conceived of as governed by natural conditions, they were felt to have complete control of their own destiny. Any potential limitation posed by the natural world was felt to be surpassed using human ingenuity. Research proceeded accordingly without environmental analysis. In the s, sociological scholars Riley Dunlap and William R. Catton and Dunlap suggested a new perspective that took environmental variables into full account. The NEP recognizes the innovative capacity of humans, but says that humans are still ecologically interdependent as with other species. The NEP notes the power of social and cultural forces but does not profess social determinism. Instead, humans are impacted by the cause, effect, and feedback loops of ecosystems. The Earth has a finite level of natural resources and waste repositories. Thus, the biophysical environment can impose constraints on human activity. It was additionally a critique of Malthusian views of the s and s. This environmental aspect of Durkheim has been discussed by Schnaiberg as well. There was cross pollination. Neo-Marxism was based on the collapse of the widespread believability of the Marxist social movement in the failed revolts of the s and the rise of many New Social Movements that failed to fit in many Marxist analytic frameworks of conflict sociology. Sociologists entered the fray with empirical research on these novel social conflicts. Therefore, some sociologists wanted to stretch Marxist ideas of social conflict to analyze environmental social movements from this materialist framework instead of interpreting environmental movements as a more cultural "New Social Movement" separate than material concerns. So "Eco-Marxism" was based on using Neo-Marxist conflict sociology concepts of the relative autonomy of the state applied to environmental conflict. For Moore, the modern world-system is a capitalist world-ecology, joining the accumulation of capital, the pursuit of power, and the production of nature in dialectical unity. Moore argues that the emergent law of value, from the sixteenth century, was evident in the extraordinary shift in the scale, scope, and speed of environmental change. What took premodern civilizations centuries to achieveâ€”such as the deforestation of Europe in the medieval eraâ€”capitalism realized in mere decades. This world-historical rupture, argues Moore, can be explained through a law of value that regards labor productivity as the decisive metric of wealth and power in the modern world. From this standpoint, the genius of capitalist development has been to appropriate uncommodified naturesâ€”including uncommodified human naturesâ€”as a means of advancing labor productivity in the commodity system. This conflictual concept has overwhelming political salience. First, the economic synthesis states that the desire for economic expansion will prevail over ecological concerns. Policy will decide to maximize immediate economic growth at the expense of environmental disruption. Secondly, the managed scarcity synthesis concludes that governments will attempt to control only the most dire of environmental problems to prevent health and economic disasters. This will give the appearance that governments act more environmentally consciously than they really do. Third, the ecological synthesis generates a hypothetical case where environmental degradation is so severe that political forces would respond with sustainable policies. The driving factor would be economic damage caused by

environmental degradation. The economic engine would be based on renewable resources at this point. Production and consumption methods would adhere to sustainability regulations. These conflict-based syntheses have several potential outcomes. One is that the most powerful economic and political forces will preserve the status quo and bolster their dominance. Historically, this is the most common occurrence. Another potential outcome is for contending powerful parties to fall into a stalemate. Lastly, tumultuous social events may result that redistribute economic and political resources. Treadmill of production[edit] In , the highly influential work of Allan Schnaiberg entitled The Environment: From Surplus to Scarcity was a large contribution to this theme of a societal-environmental dialectic. Moving away from economic reductionism like other neo-Marxists, Schnaiberg called for an analysis of how certain projects of "political capitalism" encouraged environmental degradation instead of all capitalism per se. He analyzes only the United States at length, though sees such a treadmill of production and of environmental degradation in operation in the Soviet Union or socialist countries as well. The desire for economic expansion was found to be a common political ground for all three contentious groupsâ€”in capital, labor, and the stateâ€”to surmount their separate interests and postpone conflict by all agreeing on economic growth. Therefore, grounds for a political alliance emerge among these conflictual actors when monopoly capitalism can convince both of the other nodes to support its politicized consolidation. This can appeal to the other nodes since it additionally provides expanding state legitimacy and its own funding while providing at least at the time secure worker employment in larger industries with their desired stable or growing consumption. This political capitalism works against smaller scale capitalism or other uses of the state or against other alliances of labor. This acceleration he felt was at root merely an informal allianceâ€”based solely on the propaganda from monopoly capital and the state that worker consumption can only be achieved through further capitalist consolidation. This provides grounds for both to reject their treadmill alliance with monopoly capital. Schnaiberg is motivated to optimism by this potential if states and labor movements can be educated to the environmental and livelihood dangers in the long run of any support of monopoly capital. This potentially means these two groups moving away from subsidizing and supporting the degradation of the environment. This deceleration was defined as state and working labor movements designing policies to shrink the scale of the economy as a solution to environmental degradation and their own consumptive requirements. Meanwhile, in the interim, he argued a common alliance between the three is responsible for why they prefer to support common economic growth as a common way to avoid their open conflicts despite mounting environmental costs for the state as well as for laborers due to environmental disruption. Ecological modernization and reflexive modernization[edit] Further information: Ecological modernization By the s, a critique of eco-Marxism was in the offing, given empirical data from countries mostly in Western Europe like the Netherlands, Western Germany and somewhat the United Kingdom that were attempting to wed environmental protection with economic growth instead of seeing them as separate. This was done through both state and capital restructuring.

THE POLLUTION PARADIGM pdf

6: Pollution prevention: A paradigm shift in environmental management

EPA and partners have been involved in emerging air quality sensor research including a wide range of activities. This presentation's goal is to share research highlights from

Urban pollution is a major source of concern for human health and is a complex of many environmental factors. The topical exposure to pollution activates cutaneous stress. In this study, we tested the antipollution protection of two active components: Two representative pollution models were studied using reconstructed epidermis: The observations reveal the potential use of active agents in combination for a selective mode of protection from urban pollution. This is because many active materials cannot solely provide a broad protection against different types of pollutants. This strategy might be beneficial for future antipollution regimen formulated in both pharmaceutical and cosmetic products. The World Health Organization WHO defines pollution as contamination of the indoor or outdoor environment by any chemical, physical or biological agent that modifies the natural characteristics of the atmosphere. Pollution can be classified according to its causes into primary pollutants and secondary pollutants. The pollutants caused by PM may also carry polyaromatic hydrocarbons PAHs , which are highly lipophilic and therefore easily penetrate through the skin barrier. They are widespread persistent organic pollutants in the atmosphere, and because of their persistence, toxicity, bioaccumulation and long-distance migration, they can also be passed on to offspring through the cellular matrix, causing deformities. It comprises toxic organic compounds, heavy metals, driving automobile smoke and burning plants and smoke, dirt and dust from industrial factories, agricultural farming and roads. Under certain atmospheric conditions, secondary pollutants, such as ozone and peroxyacetyl nitrates PANs , are formed by photochemical reactions of the primary pollutants exposed to heat and UV radiation. These newly formed pollutants accumulate in the low atmospheric level, known as the troposphere, and settle over both urban and rural areas, forming what is usually known as smog. In particular, ozone levels increase during summer, when the strong sunshine enhances ozone production via photochemical reactions of the primary pollutants. Nitrous gases, mainly from automobile combustion and industry, are generally higher in South American and Far East Asian big cities and some European cities due to their high industrial activities. In general, we may state that the kind of pollution we are exposed to is mainly defined by time and place factors. The topical exposure to pollution may activate cutaneous stress since pollutants can react with skin tissue, alter functioning of the skin barrier, penetrate the skin barrier and cause oxidative stress and inflammation damages by reacting with skin proteins, lipids and DNA molecules. Moreover, some pollutants e. Daily application of skincare products, formulated with active ingredients, known to improve skin barrier function, do so by physically shielding the skin. Some ingredients work by scavenging the oxidative pollutants. Film formers and antioxidants do not always provide the sufficient protection. Indeed, they can reduce immediately the exposure of skin to the pollution to some extent and its consequential risk of health damage in the short term; however, this regimen is not expected to be effective in eliminating the long-term chronic exposure risks. There is a need for a novel antipollution skin-protecting strategy, considering the different risks, and supplying a multipurpose treatment that combines biological and physical defense against contemporary pollution risks in both short- and long-term exposure. In this study, we demonstrate a new paradigm of treatment against pollution based on two active components, which can be potent for modern antipollution defense. Dead Sea minerals are well known for their therapeutic efficacy in treating a variety of skin conditions as well as for their cosmetic benefits. The polysaccharide is obtained by a controlled biotechnological process, and when formulated in a cosmetic preparation and topically applied, it protects human skin from pollution damage. This anionic polysaccharide shields the skin by matrix forming and is proven to serve as a physical barrier to the following three types of pollution stresses: As such, PS limits the extracellular and intercellular damages induced by such pollution stresses, e. The results indicate selective skin protection against a broad range of pollutants by the tested ingredients. A new versatile strategy for skin protection from modern pollutant health risks, which was lately submitted as a patent pending IL patent no , is presented in this work, based on a mixture of the two cosmetic active ingredients. Materials and

methods Preparation of test materials Test materials consist of either Dead Sea water extract Osmoter , either biosaccharide gum-4 or 1,2-hexanediol PS or their combination. Osmoter and PS were tested in different ratios, as described in Table 1. Table 1 Preparation of test materials in different concentrations Abbreviations: Skin model The preparations in Table 1 were tested on reconstructed epidermis. These are normal human-derived epidermal keratinocytes that have been cultured to form a three-dimensional multilayered, highly differentiated model of the human epidermis. The model exhibits normal barrier functions presence of a well-differentiated stratum corneum. Prior to use, the tissues were removed from the agarose-shipping tray and placed into a six-well plate containing 0. After this initial incubation, the assay medium was replaced with 0. Four tissue samples were prepared for each treatment. Primary pollution model â€" mixture of heavy metal and atmospheric PM A reconstructed human skin model was used comprising normal human epidermal keratinocytes, growing as an integrated three-dimensional cell culture model, perfectly mimicking the human skin in vitro. Treatment and exposure Epidermis tissues were exposed to a mixture of pollutants MOP composed of heavy metal and atmospheric PM. The composition of heavy metals is described in Table 2. Table 2 Heavy metals composition Atmospheric PM was obtained as a standard composition consisting of 23 polyhalogenated aromatic compounds PHAs , 13 PCBs and four chlorinated pesticides. The epidermis units were daily washed with phosphate-buffered saline PBS , and the samples were applied again. All the experiments were carried out in three replicates. An inflammatory response in the tissues was then initiated via ozone exposure. One set of tissues was not exposed to ozone and served as a non-ozone exposed control. After the ozone exposure, the test materials were reapplied to the tissues and the tissues were incubated overnight in fresh media. Two aliquots of every sample were transferred to a well plate for the reading. At the end, the samples were washed with a suitable buffer. A series of PGE2 standards were prepared ranging from 7. An ELISA plate was prepared by removing any unneeded strips from the plate frame, remembering to designate two wells each for total activity TA wells, non-specific binding NSB wells, maximum binding MB wells and substrate blank wells B0. Two representative pollution models were conducted: Treatment with DSW 0. Although it is essential for normal skin functioning, overproduction of this cytokine, even in small amounts, might lead to adverse effects. Prostaglandins are synthesized in a variety of cells from arachidonic acid. Arachidonic acid can be released from membrane phospholipids via phospholipase A2 and is then committed to form PGEs via the action of cyclooxygenase. PGE2 has been shown to be involved in the inflammatory pathway of the skin. These observations indicate the inflammation-related damage to epidermis following exposure to PM and heavy metals. Every day, the epidermis units were washed with PBS and the samples were applied again. Treatments with all test materials, i. None of the test materials and their combination fully inhibited the sharp decrease in epidermal viability following MOP exposure nor did they contribute to its decrease following MOP exposure. Epidermis equivalents were treated topically with test materials. PGE2 values are expressed as concentrations. Only when DSW and PS were mixed together, a significant inhibition in one or both inflammatory markers was observed. Treatment with a mixture containing DSW 0. Discussion The evolution of human lifestyles and the increasing urbanization rate during the last few decades have resulted in pollution becoming a dominant stressor and a cause of concern for our health. Powerful experimental models are needed to elucidate the damage mechanisms and plan an effective strategy to protect human skin from contemporary urban pollution damages. Skin as the outermost barrier is in direct contact with various air pollutants, both primary e. In order to develop an effective treatment against pollution for skin, the damage mechanisms have to be better understood. Therefore, we chose to analyze skin response to various pollution factors using different skin models. Most existing data in the scientific literature are based on clinical studies 6 , 9 â€" 11 ; however, studies dealing with alternative laboratory skin models are scarce. There is a need for cost-effective and high-throughput tools for the elucidation of relevant biomarkers induced by different polluting factors. Thus, the importance of valid skin laboratory models for studying the risks of urban pollution is more significant than ever. Laboratory skin pollution models can also be used to evaluate treatment regimens and to screen large amounts of topical preparations before proceeding to the expensive stage of clinical trials. So far there is no validated model for pollution in skin. We recently attempted to establish a pollution skin model treated with a standard cigarette smoke solution, in our skin laboratory, using

ex vivo human skin organ culture. However, the significant damage biomarkers are not yet fully characterized unpublished data. In this study, a well-established commercialized in vitro reconstructed epidermis was used as a representative skin model for two common pollution types: MOP containing heavy metals and atmospheric PM, for primary pollution and ozone exposure, for secondary pollution. These two different skin models are complementary and thus might provide more valuable data regarding the selectivity of antipollution protection mode of action by different test materials. The in vitro test results may supply a valuable source for prediction of antipollution protection manner in future cosmetic and therapeutic applications. Oxidation and inflammation biomarkers are reported to be induced following exposure to various pollutants. This is in line with other studies: Additionally, the effect of acute ozone exposure on the arachidonic acid cascade was shown on airway segments of rats where chronic ozone exposure enhanced the release of PGE2. Dead Sea ingredients are known for their therapeutic and beneficial cosmetic effects. PS is known for protective properties against specific pollution stress, i. DSW alone has a protective effect against skin exposure to a mixture of heavy metals and atmospheric PM, which are known as inducing skin pollution stress. Similarly, as expected, the composition comprising the specific polysaccharide of PS illustrated a protective effect against exposure to a mixture of heavy metals and atmospheric PM on reconstructed epidermis. This protection activity was retained with compositions, which comprised combinations of the DSW and PS. Remarkably, the skin-protecting capability of DSW and PS, as a stand-alone treatment, was completely different in the other model of secondary pollution by ozone exposure: Interestingly, a combination of DSW and PS demonstrates significant protection from ozone exposure according to both markers. Further bewildering is the absence of a clear trend of the protection capacity vs concentrations. A total of 0. This phenomenon illustrates the complexity of understanding biological activity of a formulation containing numerous active ingredients. From the observations, it can be concluded that the combination of DSW 0. This combination inhibited all tested inflammatory markers: The other combinations provided only partial protection against the tested pollutants.

7: Lung cancer paradigm shifts: Air pollution is a carcinogen but mortality can be reduced

The current paradigm change in air pollution monitoring is being catalyzed by recent advances in multiple areas of electrical engineering that include (1) microfabrication techniques; (2) microelectro-mechanical system (MEMS) that can incorporate microfluidic, optical, and nanotube elements; (3) energy efficient radios and sensor circuits that.

And yet today, 45 years after its passage, the CWA is rapidly showing its age with its inadequacy in addressing new, increasingly complex clean water issues. In short, we are stuck using a midth century statutory and regulatory framework to try and address 21st century challenges. The time has come to modernize the clean water paradigm in a way that preserves the strongest and most successful aspects of our current structure, while also creating a new suite of tools and resources to address the water quality realities of today and those of the coming decades. Developing a modern statutory construct for clean water will be a critical part of this effort, but it must go beyond this as well. Modernizing the paradigm will also require clean water utilities redefining their relationships with regulators, as well as engaging stakeholders and the public in new ways to elevate the importance of clean water. NACWA is working to advancing this effort by: This includes a greater focus on diffuse sources of pollution, such as agricultural non-point sources, and a more comprehensive approach to addressing the underlying causes of water quality impairment that looks beyond the current pollutant-by-pollutant framework. A watershed construct will also provide the best flexibility to address the critical but still unknown impacts of climate change on water quality. Increasing reliance on water reuse to supplement water supplies underscores the need to explore the intersection of these two statutes. Federal law must recognize this reality, initially through codification of Integrated Planning principles, but also through more robust statutory provisions such as the creation of true integrated, watershed permits and longer-term discharge permits. But doing so will be much easier under a statute that encourages and incentivizes new thinking. A modernized clean water statute must explicitly recognize that it will not be able to foresee or predict all the water issues that may emerge in the future, and it must explicitly direct EPA and other federal agencies to foster innovation. NACWA is working aggressively in both the short term and the long term â€” with policy makers of all political stripes and interested stakeholders â€” to advocate for this new statutory paradigm and make it a reality. Working closely with state and federal regulators, these public utilities have collectively achieved an astonishing level of pollution reduction, both at their own facilities and at thousands of industrial facilities regulated by utilities under the federal pretreatment program. As a result of this hard work, municipal clean water agencies have earned the right â€” and the responsibility â€” to be treated as co-regulators in ensuring environmental and public health protections. This does not mean public utilities cease to have any meaningful regulatory oversight. But local utilities have earned the right to have direct input into the regulatory structure that they operate under, based on a foundation of continual self-evaluation, self-improvement, and partnership with the states and Federal Government. Recognizing this reality, NACWA is building a consensus for change by engaging a diverse group of stakeholders â€” including environmental activist groups, farmers, industry, states, conservationists, academics, and others â€” to exchange ideas. It is only by sharing thoughts on a modern clean water paradigm that we can build a vision for the future that has the chance of becoming a reality. But most importantly, NACWA is committed to engaging the public in a broad conversation about the importance and value of water , and the need to elevate water as a national priority â€” because it is only through this public support that creating a new paradigm will be possible. But so much more remains to be done, and the public clean water community is best positioned to advance the needed progress. A new clean water paradigm is within our grasp â€” and NACWA is prepared to help lead the way toward a new and better clean water future.

8: Writing: Paradigm Accommodation in Water Pollution Assessment // Shawn Young

Modernizing the Clean Water Paradigm The Clean Water Act (CWA) is one of the most successful environmental statutes in U.S. history. It has led to a significant reduction in pollution from point source dischargers, provided important investment to the nation's clean water infrastructure, and helped municipal clean water utilities become.

But, most people remain uninformed about the dangers of this new technology and the increase in EMF pollution. New paradigm, and ease. However, cracks are appearing in this dystopian vision. Should we move forward with smart cities if they are ultimately harmful to our health? In this article, you will learn about the key elements of the smart city and understand the steps to protect your family and community from the health risks of these developing technologies. Our devices currently run on 3G and 4G technology, which utilize a limited range of the microwave spectrum. These high frequencies, between 14 GHz and 73 GHz, do not travel as far or penetrate building as easily. However, they will allow for incredibly fast download speeds. The biggest issue with 5G is that wireless antennas will be placed on most light and utility poles within our neighborhoods. It is estimated that the 5G network will require each of the four major wireless carriers to install one million new base stations. This is why the industry is now pressing for weaker regulations. SB 19 would take away any remaining ability that communities have to regulate the placement of cellular antennas. It would allow a wireless company to put a 5G antenna right outside your bedroom window. Call your Senator today and ask them to put a hold on this bill so that you have more say in your health going forward. Cellular antennas like this pictured below are currently being placed on utility poles throughout major cities. These antennas will eventually be part of the 5G network unless we start to speak out. This will enable cities to better control infrastructure, which can benefit society. However, this technology will also make its way into our homes and fill them with appliances and devices that pulse microwave radiation. The smart home will include wireless toothbrushes, coffeemakers, toasters, thermostats, and security systems. These items will pulse hundreds of thousands of times each day, greatly expanding the amount of EMF pollution in homes. Rather than convenience or energy efficiency, the true reason for rolling out this technology is the immense personal data that the Internet of Things devices will give industry. This data will be worth billions to marketers and will only erode person privacy for individuals. There is also a bill currently in the Senate that will reduce regulations on Internet of Things technologies. It is simply unwise to allow these technologies into the homes of unsuspecting families when there is so much science showing harm. Take Back Your Power Are we safe with self-driving vehicles? The self-driving car is a major component of the smart city. The promise of autonomous cars is that people will be chauffeured by artificial intelligence on wheels while they sit back and watch 5G videos. This technology may also reduce accidents caused be people who are currently distracted by their phones, but there is a major downside for society. Self-driving cars require at least seven different types of wireless technology to operate. The truth is that self-driving cars will bathe passengers and nearby residents in microwave radiation. As you will now see, the health impact of this technology may outweigh any benefits from self-driving cars and other elements of the smart city. However, our best science now shows this to be patently false. This federal government study was designed to prove, once and for all, that cell phone radiation is safe. Instead, it showed that 2G cell phone radiation causes brain cancer and DNA damage in rats. This study is the gold standard of science and the results were so shocking that the researchers released their findings early to the public so that we could start to make better decisions. In the coming years, there must be a change in public policy like there once was with tobacco if we are to have a healthy society. Furthermore, while cancer risk is important, it is not even the primary risk with electromagnetic field EMF pollution. This is why many people are now experiencing symptoms, such as headaches, tinnitus, and sleep disturbance, when overexposed to wireless technology. While the mainstream medical community is not yet acknowledging this problem, many medical doctors are now well aware that people are being affected and are advising their patients to avoid EMF pollution. Often, this is a primary solution to help their patients heal. Solutions you can implement today The good thing about this issue is that there are solutions â€” both at the personal and community level. I encourage you to call your senators to have them put a hold on SB 19 and SB 88

mentioned above. This will help stall bills that are a complete give-away to wireless companies and that take away your rights to a healthy environment. Also demand that your city leaders delay implementing smart city technology because there is simply too much science showing harm. This will ultimately be more wise and economical than dismantling an expensive system in the future. Furthermore, if a wireless company wants to install an antenna on a light pole near your home, band together with your neighbors to protest the placement. A knowledgeable community working together is more powerful than any wireless company. I have seen dozens of communities successfully stop cellular base stations from being built. On a personal level, here are key solutions that will help you develop a healthier relationship with technology: Be wise how you use your smartphone. Never put the phone to your head, in a bra strap or your pants pocket, unless it is turned off or on Airplane Mode. For calls, use the speakerphone feature or a headset. They are powerful microwave transmitters right next to your brain. The phone is also radiating in your pocket, near reproductive organs. When at the gym, use an iPod with a wired headset or download podcasts to your phone that is on Airplane Mode. Move toward wired technology. Ethernet and a wired router are the healthiest and most secure option for data. I use fiber optics and Ethernet in my home. If you must use Wi-Fi, put the router on a timer so that it is off at night. This is when you want to eliminate exposure to blue light and EMF pollution. Replace cordless phones and wireless baby monitors. Wired landline phones are the healthiest option for long calls. Request an analog meter from your utility company. In California, nearly , families have switched back to analog meters because of the health and privacy risks of smart meters. Forward-thinking, health-conscious parents are now working to make schools safer by eliminating Wi-Fi. A growing number of schools are going back to wired computing, which is actually the future. Measure your home for EMF pollution. With a few measurement devices or the help of a professional consultant, you can learn what is happening in your home and make the changes that will greatly reduce your EMF exposure. The coming years will undoubtedly see an expansion in wireless technology as the smart city is pushed upon us. However, more and more people are waking up to this issue as the science showing harm becomes clear and awareness grows. Society will eventually have to find safer alternatives and realize that the public simply should not be exposed to certain technologies. Until that day comes, hopefully the above solutions will help you and your community reduce your exposure to EMF pollution so that you are healthy for many years to come. Jeromy Johnson has an advanced degree in engineering and worked in Silicon Valley for nearly two decades.

9: Modernizing the Clean Water Paradigm

carry pollution to persons, houses and so on within a radius of several yards from the person who is the centre of infection. (www.enganchecubano.com) there was a recognized scale of distances at which.

Ecoefficiency makes the link between improved economic performance, higher resource efficiency, and lower environmental impact. It involves either "improving the productivity of energy and material inputs to reduce resource consumption and cut pollution per unit of outputâ€”in essence, making more and better products from the same amount of raw materials with less waste and fewer adverse environmental impacts" World Resources Institute, â€”or using fewer raw materials or different, more environmentally benign materials. An even smaller number are beginning to assess the impacts of their activities within the context of sustainable development. This latter approach presents a daunting challenge, since it requires broadening the view of the relation between industry and nature to include communityâ€”a paradigm shift from "greening to sustaining" Gladwin et al. In many ways the movement toward sustainability is a continuation of the "greening" shift that began in the s. Since that time, companies have begun internalizing environmental costs in decision making. In many companies, environmental considerations are now integrated into core business functions such as research, development, distribution, provision of services, and product disposal. Page Share Cite Suggested Citation: Industrial Environmental Performance Metrics: The National Academies Press. It has been enabled by public policies and a range of technological innovations that reach well beyond environmental control or cleaner production. Innovations in information and communications technologies, in particular, have transformed production and management strategies throughout industry, changes that have brought unintended environmental improvements Freeman, The greening shift took about a generation to find mainstream acceptance. Time was needed to demonstrate the reliability of improved analytic principles and problem-solving techniques. Such a gestation period is not unusual. Kuhn has observed that new paradigms generally emerge without a full set of concrete rules or standards and often encounter considerable resistance that may require a generation or more to overcome. Sustainable development, first proposed in , is complex and controversial, particularly when considered within the context of its social dimensions. A sustainable industrial enterprise incorporates and moves substantially beyond cleaner production and ecoefficiency. This chapter explores the idea of a sustainable development-oriented industrial enterprise and considers the challenges in developing associated performance metrics. The Call for Sustainable Development The call for sustainable development is driven by observations that global environmental conditions are in decline and that significant environmental problems are deeply embedded in the socioeconomic fabric of all nations United Nations Environment Programme, Environmental trend data suggest a continued deterioration in the health of natural systems of these regions, taking the form of declining renewable resources, large-scale alterations of global biogeochemical cycles, and a threatened biological base Brown et al. These environmental threats are cumulative and interactive, often arising from multiple causes, as shown in Figure Environmental deterioration is closely related to a variety of social trends. Human effects, however manifested, have a systemic impact. Human and natural systems are increasingly coupled, especially at current and future scales of human activity. Those in the business community who have responded to the sustainable development challenge cite 10 threats to ecosystem viability Box Technology and economic success can change the nature of these threats and their impacts on individuals and society. However, complexities associated with the interactions between human and natural systems make the quantification and management of such risks a daunting task World Business Council for Sustainable Development, Extinction of species, principally from the global loss of habitat and the associated loss of generic diversityâ€”over 1, plant and animal species each year. Shortage of fresh-water resources. Threats to human health from mismanagement of pesticides and hazardous substances and from waterborne pathogens. Climate change, probably related to the increasing concentration of greenhouse gases in the atmosphere. Acid rain and, more generally, the effects of a complex mix of air pollutants on fisheries, forests, and crops. Pressures on energy resources, including shortages of fuel wood. World Business Council for Sustainable Development The move toward the sustainable business

enterprise presents an interesting mix of challenges and opportunities. The challenges lie in managing the long-term uncertainties inherent in resolving complex, coupled interactions between human and natural systems. Long-range analysis of trends in the efficient use of energy, materials, and land shows that it may be possible to decarbonize the global energy system and drastically reduce greenhouse gas emissions; that the material intensity of the economy can be reduced by leaner manufacturing, better product design, and smarter use of materials; and that it may be possible to increase the area of protected lands by reducing agricultural needs through the use of advanced farming techniques Ausubel and Langford, In the short term there are opportunities to disseminate "best practices" in environmental management as well as environmentally friendly products and services. A cleaner environment has been achieved in concert with robust economic growth. Despite the successes of the U. Even greater opportunities for global efficiency gains are to be tapped in less developed emerging economics. Nevertheless, metrics are emerging around three aspectsâ€"economic, environmental, and socialâ€"of sustainable development. Economic measures of corporate performance are tied to financial reporting and have evolved and matured over the past century. Environmental performance metrics, by contrast, began emerging only in the s, and corporate environmental performance reporting appeared only in the last decade. Such reporting reflects a disparate and uncoordinated mix of metrics. It can also be expressed as " Under this view, a sustainable United States will have an economy that equitably provides opportunities for satisfying livelihoods and a safe, healthy, high quality of life for current and future generations. Sustainability seeks to ensure, to the degree possible, that present generations attain a high degree of economic security and can realize democracy and popular participation in control of their communities while maintaining the integrity of the ecological systems upon which all life and all production depend, while assuming responsibility to future generations to provide them with the wherewithal for their vision, hoping that they have the wisdom and intelligence to use what is provided in an appropriate manner Viederman, Interest in so-called social reporting, first seen in the s, has experienced some resurgence as companies have had to defend the working conditions and wages of their suppliers e. Such publicized incidents tarnish corporate image and alienate the customer base and, in extreme cases, can eventually lead to shareholder concerns about management policies and practices. Corporate sustainability accounting and reporting, while still somewhat nascent and exploratory, attempts to merge all three elements of sustainable development. A review of sustainability-related economic, environmental, and social metrics by Fiskel et al. However, more sophisticated internal accounting metrics e. If economic performance metrics are to evolve beyond merely accounting for profitability and cash flow, they need to quantify hidden costs associated with the utilization of materials, energy, capital, and human resources. They must also estimate uncertain future costs associated with external impacts of industrial production and consumption and lead to understanding of the costs and benefits incurred by various stakeholders such as customers, employees, communities, and interest groups across the life cycle of a product or process. Environmental performance metrics are less well developed than financial metrics. Most are based in regulations and require companies to measure their output of wastes and emissions. While many companies track their material- and energy-use efficiencies, these are not commonly reported. Indeed, even within a single industry, there is great variety in what companies report as their environmental performance. Interest in standardization of environmental reporting is growing as individual companies experiment with ecoefficiency indicators. Consensus on an approach to measuring ecoefficiency could be an important prelude to any quantitative assessment of sustainability. They appear to fall into two categories: Metrics to assess social performance are embryonic and will require a great deal of development, improvement, and acceptance if they are to be truly integrated into business strategies and decision making. Currently, there are no sustainability performance evaluations that attempt to integrate economic, environmental, and social measures.

THE POLLUTION PARADIGM pdf

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