

Project Management Multiple and Cumulative Effects

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Disadvantaged and underserved populations are more likely to face a variety of environmental challenges, ranging from poor air quality to inadequate housing. Recent research by the Columbia Center for Children's Environmental Health, for example, discovered that African American mothers in the South Bronx exposed to vehicular pollution, cigarette smoke, and incinerators during the third trimester of pregnancy had smaller kids with lower head circumferences. Toxic hotspots is often related with environmental justice. Conventional risk assessment and risk management have failed to address these pockets of numerous and cumulative exposures because they have focused on regulating pollution sources via technology-based regulation or a contaminant approach. In this perspective, the Environmental Protection Agency's cumulative risk assessment methodology from 2003 constitutes a watershed moment for both cumulative risk assessment and protection of the environment [1], [2]. The framework's contribution to the discourse on risk assessment and environmental justice is fundamental in that it recognizes that assessment requires an iterative process involving the affected community and all stakeholders, including government and business, as articulated in the National Academy of Sciences report *Understanding Risk* and the Presidential/Congressional Commission on Risk Assessment and Risk Management.

Social Vulnerability

There are several vulnerabilities in underserved and disadvantaged populations that may contribute to the way environmental exposures impact health. Several characteristics may have an impact on a community's capacity to avoid, tolerate, or recover from environmental injury. Covered an unusual case. They discovered a robust relationship between noxious land use introduction and times of maximum community demographic change. In terms of stable leaders, networks, and institutions, these transition times seem to be low moments for community social capital. Pastor and his colleagues invented the term *ethnic churning* to characterise this phenomenon.

Employment position, access to health insurance, verbal fluency, and access to social capital are all socioeconomic characteristics that might influence how people react to environmental insults. A key reason may be a lack of health care. Poverty, poor nutrition, and emotional stress may all weaken one's coping mechanisms. Economic, ethnic, linguistic, or other isolation results in fewer connections, less access to knowledge or influence, and consequently less capacity to avoid, tolerate, or recover from environmental stresses. Such social issues may severely impede meaningful participation in environmental decision-making. Indexes that assess isolation, such as disparity and dissimilarity indices, might be relevant in this context. In the following discussion, I am grateful to Roger Kasperson for developing a concept of vulnerability that was accepted in the EPA's 2003 framework for cumulative risk assessment. Kasperson divides susceptibility/sensitivity, differential dose, differential readiness, and differential capacity to recover into four categories [3]–[5].

This debate focuses on two fundamental topics. Secondly, differences in exposure to environmental dangers cannot be used to identify disproportionate repercussions. The volume and severity of exposures,

as well as the composition of the receptor population, must be considered on both sides of the risk equation. Both the social and biological elements of susceptibility must be considered. Second, social and cultural variables have a functional link with environmental risk. Disadvantaged, neglected, and ecologically stressed populations face physical as well as social vulnerability. Environmental justice is based on the notion that some groups come to the table with pre-existing physical and social impairments that make the impacts of pollution more, and in some circumstances unbearably, oppressive. In other words, the idea of vulnerability is crucial to what environmental justice entails. In a chronological context, the legacy of socioeconomic discrimination is one component of environmental injustice, resulting in a high incidence of certain illnesses and ailments, which enhances the populations sensitivity to environmental damages. These illnesses and ailments are referred classified as health inequalities, and the US has made a national commitment to eradicate them. Hence, vulnerability and health disparities are inextricably linked concepts, and connecting them may result in a highly effective analytical tool for understanding the intricate linkages that lead to unequal environmental risk.

The idea of disproportionate affects has two significant consequences. First, although the idea of disproportionate effects is fundamental to understanding environmental justice, scholars and practitioners are just now beginning to recognise its complexities. A complete, rigorous conceptual framework for comprehending unequal consequences is only emerging, one that covers inequalities in exposure, susceptibility, law enforcement, and health and accounts for numerous and cumulative repercussions. This conceptual framework will significantly aid in the creation of the research and policy agenda required to address such consequences. Second, focusing just on pollution management and prevention may be counterproductive; it is vital to address the numerous social, economic, and cultural realities of impoverished, neglected, and overloaded populations at the same time. The health of many diverse sectors, including economic growth, housing, and transportation, determines a community's well-being.

Collaborative and Integrated Problem Solving

The rising theoretical and practical knowledge of unequal effects, as well as the accompanying legal, public policy, and research concerns, is assisting in the identification of the best tactics and instruments for resolving the complex issues of attaining environmental justice. As previously stated, communities of colour, indigenous, and low-income groups are often subjected to harmful and disproportionate exposure to both natural and occupational dangers. Moreover, these communities are particularly susceptible due to deficits in their social contexts, which include housing, land use, transportation, health care, and other variables. Lastly, the incapacity of impacted communities to deploy a variety of capabilities that is, human, technical, financial, social, and political capital offers significant barriers to constructive transformation.

Social capital, defined as the social networks, norms, and social trust that promote coordination and collaboration for mutual benefit is vital to collaborative environmental justice issue solving. The problem of matching resources to needs, an adequate practical definition of cooperation, is particularly acute in impoverished and underserved areas, where organisations must mobilise the required human, technical, legal, institutional, and financial resources to solve complex situations. Marshaling the required resources necessitates the efforts of many persons from various backgrounds representing various segments of society. When sitting at a table together, engaging in discourse, and getting to know one other on a human level, it is difficult for individuals not to strive towards resolving conflicts. Once social capital is established, it may be used to leverage other types of capital investments, such as financial, institutional, infrastructural, nor environmental capital. Social ties are also vital for the standards of behaviour that they support, writes Robert Putnam. Networks, by definition, require reciprocal duties; they are really not interesting as simple interactions. Community involvement networks establish strong rules of reciprocity... A suspicious society is more efficient than a society defined by broad reciprocity.... Trustworthiness facilitates social interactions. Regular contact among a varied group of individuals produces a generalised reciprocity norm [4], [6].

the advent of collaborative methods to achieve environmental justice and healthy communities echoes a similar tendency in a variety of fields, including community development and community health. Income inequality, discrimination, access to education, and housing regulations are examples of social determinants of health in public health. Public health professionals are increasingly aware that tackling these social impacts on wellbeing will need new research and intervention techniques, cross-disciplinary cooperation, and community participation. The following assessment of public health practise, which gave rise to the fields of community-based participatory research and socioeconomic determinants of health, strongly resonates with the goal of environmental justice:

Religious Approaches to Environmental Health

The Catholic Hospital Association has launched a number of efforts aimed at reducing harmful pollutants, including dioxins and mercury, as well as educating its health care workers and patients about environmental. The Women of Reform Judaism and the National Council of Catholic Women launched the California Interfaith Partnership for Childrens Health and the Environment, which helped sponsor a series of legislative hearings on legislative as well as regulatory solutions to environmental health concerns. The National Association of Evangelicals is involved in a healthy families programme that aims to educate its members about environmental health risks. As a nod to the famous slogan What Would Jesus Do? religious activists around the nation have sponsored rallies asking, What Would Jesus Drive? therefore drawing significant media attention to the health repercussions of fuel-inefficient automobiles

Religious understandings of environmental health underpin the measures that certain religious groups and organisations have started to take, and that many more may begin to do in the future, to address environmental health challenges. A comprehensive examination of how different religion traditions see the environment and health, as well as the links between them, is much beyond the scope of this chapter a For Further Information section at the conclusion of the chapter lists several in-depth examinations. But, even a quick description may demonstrate the potential value of religious methods for environmental health.

Lynn White Jar's major paper in 1967 spurred numerous scientific and popular debates about religious perspectives on the role of the human in the culture. White believed that Christian and Jewish perspectives on this function had bad environmental consequences and were at the root of many ecologically destructive activities by people and society. According to Whites interpretation of Genesis 1, Christian and Jewish traditions situate the human at the centre of the cosmos and provide humanity total rule over all other living things. Hundreds of articles and, increasingly, full-length books have been written in response to Whites assertions, providing a more nuanced view of these and other traditions.

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Second, one of existences greater objectives is to celebrate the variety of life. In his Summa Theologica, St. Thomas Aquinas said, the welfare of the species is higher than the good of the individual. Hence, a diversity of species contributes more to the goodness of the cosmos than a diversity of people from the same species. Since a single creature could not adequately symbolise the heavenly goodness, God created numerous and varied creatures. As a result, the whole cosmos participates in and symbolises divine kindness more fully than any one species. According to the Talmud, of everything the Holy One, blessed be God, made, no species was formed without purpose, and humans were not created until the sixth day so that if our thoughts were too haughty, we may be reminded, even the gnats preceded you in creation.

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White correctly pointed out, most religious traditions place a high value on the human role. Rather than seeing this as a barrier to engagement in environmental health, it may be seen as a basic awareness of people ability to change the environment. Certainly, no other species on our planet is capable of wreaking as much ecological destruction, and no other species is capable of taking the required measures to safeguard all people from environment health threats. Because religious organisations have historically been significantly more concerned in health-related issues than in environmental issues, religious perceptions of health have not been as well explained as religious understandings of the environment. Maybe this is because it is assumed that religious and secular ideas on health are compatible. Western medicine, on the other hand, has been focused on the treatment of sickness, and it often seems to consider health as just the absence of pathology. In contrast, the National Conference of Catholic Bishops said in its pastoral letter on health and health care that health in the Christian viewpoint includes completeness not just bodily and emotional wholeness, but also spiritual and social wholeness. Inadequate housing, unemployment, a lack of education, and a polluted environment are usually causes of poor health, the bishops write. As church leaders, we shall continue to advocate for social and institutional reforms that address these fundamental issues. Maybe not surprisingly, individuals interested in public health in general and environmental health in particular have started to express a more comprehensive, positive concept of health. The World Health Organizations definition of health, for example, a condition of total physical, mental, and social well-being and not only the absence of sickness or infirmity, substantially corresponds to these religious understandings.

Such realisations, however, have not yet resulted in widespread participation of religious groups and organisations in environmental health problems. This is due, in part, to the fact that religious groups, like the rest of the world, often neglect the links between health and the environment. Consider the exercise below, which the author of this chapter has done hundreds of times. Close your eyes and ask the audience to think of the first picture that occupies their minds when they hear the term environment. Then, if there were any persons in the photograph, ask everyone to raise their hands. Never has more than 10% of any audience, even religious audiences, raised their hands. This gap between environmental and health considerations remains a fundamental obstacle to religious engagement in environmental health problems. Strangely, it has also been one of the impediments to larger religious participation in environmental problems in general, since many faith-based groups see them as luxury concerns, much less essential than more conventional missions to the poor and disadvantaged.

This gap also separates religious traditions from their own past, which is rich in instances of effort addressing what we now recognise as environmental health problems. The Catholic bishops, for example, said in the portion of their pastoral letter that included suggestions for action, Emphasis should be put on the promotion of health, the avoidance of sickness, and the protection against environmental and other risks to physical and mental health Yet, similar issues precede the phrase environmental health. In his early ministry, for example, eighteenth-century preacher John Wesley not only gave free medical treatment to the impoverished of Bristol and London, but also stressed sickness prevention via the supply and upkeep of clean water. Rabbinical authorities devised broad public health rules during the beginning

of the Common Era, based on biblical precepts such as Deuteronomy 23:13 to build up latrines outside military camps to guarantee cleanliness. These included, for example, rigorous rules on the location of companies that would contaminate the air, the disposal of potential hazards waste, and the examination of the safety and cleanliness of wells . Such laws were based on a commitment to strive to avoid health issues rather than just treat them after they arose. Several major faiths have similar customs, such as Muslims responsibilities to offer clean water for tourists.

Guiding Principles of Environmental Health

There are many, if yet unrealized, opportunities for religious groups and organisations to address environmental health challenges. Even before such possibilities are realised, a number of religious teachings and ideals may serve as guiding principles not just for religious activity but also for the larger society. Furthermore, articulating these ideas clearly and forcefully may accomplish more than anything else to establish public support for required environmental health actions. The sections that follow address a few of the numerous conceivable subjects and ideas that might be clarified in this manner. These topics centre on children since it has been discovered that this subject offers a captivating lens on the problem of environmental health for religious communities, both inside themselves and when they engage in talks with other organisations. Given the experience of the author of this chapter, Jewish materials predominate; nonetheless, they should be useful to persons of all faiths.

God Loves All People, Especially Childrennd Those the World Does Not Value

All humans are made in the image and likeness and are linked to the divine world. Many people believe that all children, as well as those who are destitute or otherwise vulnerable, have a particular place in Gods heart. For example, it is reported that the Prophet Mohammed, himself an infant, would reduce his prayers if a child cried in a mosque so that the kid might be comforted more easily. You must not mistreat the alien nor harass them, because you were aliens in the land of Egypt, Exodus 22:20-22 says. You must not mistreat a widow or orphan. If you abuse them, I will listen to their cries as soon as they reach out to me. According to Matthew 18:2-5, Jesus said, whoever becomes humble like this kid is the greatest in the heavenly kingdom.

Whoever accepts one such kid in my name accepts me. A passage from the prophet Ezekiel 16:6 is read during the traditional Jewish naming ceremony that exemplifies Gods profound connection to an abandoned child: No eye pitied you, to have compassion on you, instead and you were cast into the open field, for you were abhorred and polluted on the day you were born. Yet, when I passed over you and watched you battling in your birth-blood, I told you, In your blood live. Yeah, I told to you, dwell in your blood.

Whilst such lessons undoubtedly have far-reaching ramifications, the implications for environmental health are enormous. For example, all children, equally loved by God, require equal protection from environmental health concerns, according to this viewpoint. Children of colour and those living in smaller communities, on the other hand, are significantly more likely than other youngsters to be exposed to risks ranging from lead poisoning the brain to diesel pollution choking their lungs. Persons of religion can and should be leaders in promoting environmental health for children and holding society accountable for failing to value and protect all children.

Windows of Opportunity and Vulnerability

Teaching one's children was traditionally a mitzvah imposed on the father. Yet, Ben Gamla saw that this subjected orphans or children with ignorant parents to an eternal cycle of ignorance. As a result, he proceeded to establish a public education system. His initial initiative was bringing previously uneducated youths to area schools. This initiative, however, quickly failed. According to the Talmud, these youths thrashed and chased their professors out of the classroom! Ben Gamla eventually demanded that local, readily and securely accessible schools be established, with children starting school at the age of six and maximum teacher-pupil ratios stipulated. Ben Gamla learned one of the most important lessons of

childrens environmental health, one that is all too often overlooked in health and safety laws and regulations: there are developmental windows, windows of opportunity for healthy development and windows of security vulnerabilities to disruptions in development. When an opportunity is lost or a vulnerability is revealed, irreversible harm might ensue. When health is safeguarded and growth is supported during those critical periods, long-term benefits may result.

Many sages were first and foremost instructors, so they knew this firsthand. They elaborated on Proverbs 22:6: Train youngsters in the path they should travel, and they will not stray when they are old. Rabbi Joshua clarified this passage in Midrash Proverbs 22:6: the kid is like a heifer; if she is not taught to plough while she is young, it will be difficult for her to do so later. She may also be likened to a wine branch: if you dont bend it while its full of sap, it hardens and you can't do anything with it.

Elisha ben Abuyas instruction in Avot de Rabbi Nathan 24 becomes more poignant when considered in the context of a society that prized study above all else: When individuals acquire Torah in their youth, to what may they be compared to be inked on a new piece of parchment. When individuals learn in their old age, it's like ink on a sheet that has been written on and obliterated, written on and erased, written on and erased. Several other ancient traditions also acknowledged these windows. For example, in the Confucian tradition, parents are supposed to be completely devoted to their child for the first three years of their childs life, and a Hadith from the Prophet Mohammed teaches that it is forbidden that any burden be placed on children which would arrest or harm their natural development. These lessons imply a responsibility to recognise environmental health dangers that close doors of opportunity and to avoid exposure to these hazards.

The Sacred Nature of Human Development

Some of this focus on childrens development was for practical purposes, such as determining which holy books should be taught at various ages or developing a schedule for youngsters to undertake adult religious responsibilities. Yet it also goes deeper, expressing a notion that human growth is a holy activity in and of itself. The process of children developing in knowledge, wisdom, and faith justified the whole creation: Resh Lakish declared in the name of R. Judah the Patriarch: the universe continues solely for the purpose of schoolchildrens breath. Children are not to be denied Torah learning even for the sake of Temple construction. I have a legend from my forefathers... that a city with no children in school would be destroyed, Resh Lakish also told R. Judah the Patriarch [7]–[9].

There was also an acknowledgement that the hallowed ideal of complete human development was conditional. This objective, as well as the realisation that if parents and society fail to meet their commitments, complete development may not occur, may be traced back to the first chapter of Genesis in many religious traditions. As time passes, all other species are considered to be able to breed lminahu, after their kind. A maple will produce maples on its own. This statement is deleted just for humans since obtaining full human potential is not inevitable. Yet, although other works of creation are seen as excellent, and creation as a whole will be regarded as very good, the term in the image of God is used solely to people. This acknowledges each individuals enormous potential. Yet, it may also help us understand that far too many people fall short of their potential, not through any fault of their own, but because environmental toxins have injured their bodies and minds.

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