# Welcome to

# *THE ECCSSA COLLOQUY SPOTLIGHT*

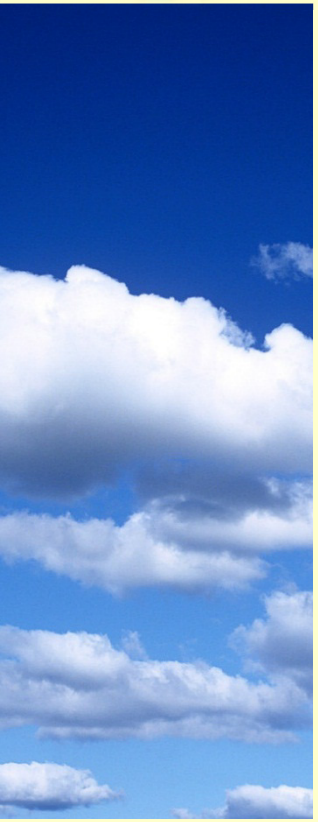
## *A Focus on the Environment*

*Issues, Awareness, Education, Ethics, Responsibility, Advocacy, Research, Collaboration & Models*

ECCSSA
East Coast Colleges
Social Science Association



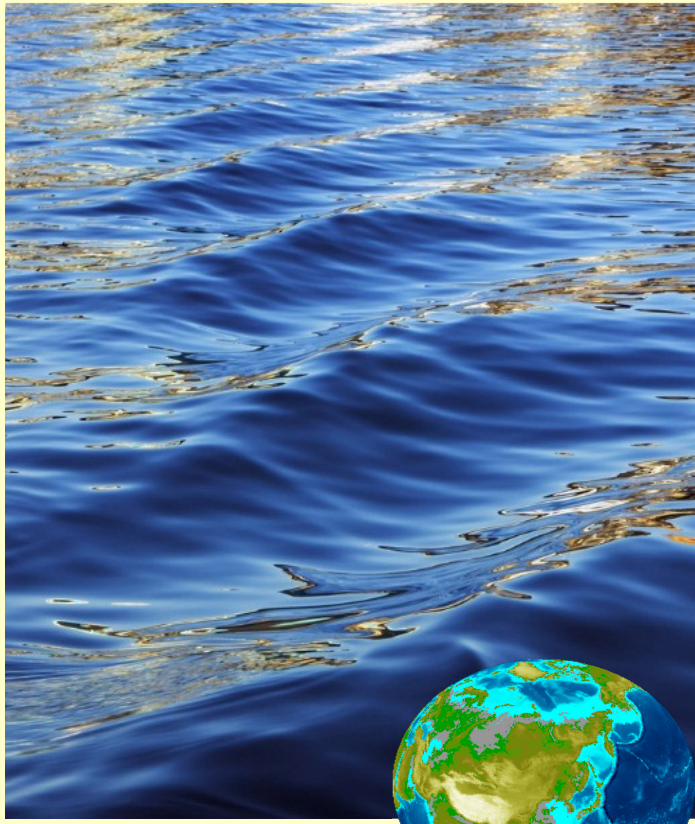
*Presenter: Dr. Rosalyn M. King*



# A Focus on the Environment: Issues, Pandemics and the Human-Environment Interaction

**A Need for Education, Awareness, Ethics and Responsibility**
**Interdisciplinary—Crossdisciplinary—Multidisciplinary Perspectives**

**ECCSSA Colloquy Spotlight-July 30, 2020**





*Opening Commentary-Dr. Rosalyn M. King, Professor of Psychology & Chair, Board of Directors*

# Overview of Presentation

## Introduction
- The Problem
- Critical Issues
- Critical Questions
- Critical Topics and Themes for Exploration

## Major Issues & Impacts
- Global Warming, Surface Temperatures & Climate Change
- Extreme Heat, Surface Temperatures & Drought
- Oceans & Rise in Sea Levels & Flooding
- Air Pollution & Mold Proliferation
- Pandemics
- The Built Environment & Behavior
- The Human-Environment Interaction & Destruction

## Specific Impacts On Human Development
- Prenatal Development
- Impact on Human Health & Development
- Impact of Climate on Physical, Mental & Community Health
- Effects of Climate on Roots of Violence, Aggression
- Food Insecurity, Malnourishment & Violence
- Air Quality & Pollution on Mental Illness & Neuropsychiatric Disorders
- Pandemics

## The Need for Awareness and Education
- Educating Students and Citizens
- The Arts, Humanities and the Environment
- Role of Higher Education
- Environmental Studies, Environmental Science & Environmental Psychology
- Local and Global Focus

## Environmental Ethics, Responsibility & Advocacy
- Teaching Ethics, Societal Attitudes, Actions & Policies
- Development Ethic
- Preservation Ethic
- Conservation Ethic
- Teaching human values, moral principles
- Teaching for Sustainability
- Global Impacts

## Research, Collaboration & Models
- Interdisciplinary, Crossdisciplinary and Multidisciplinary Approaches
- Select Models

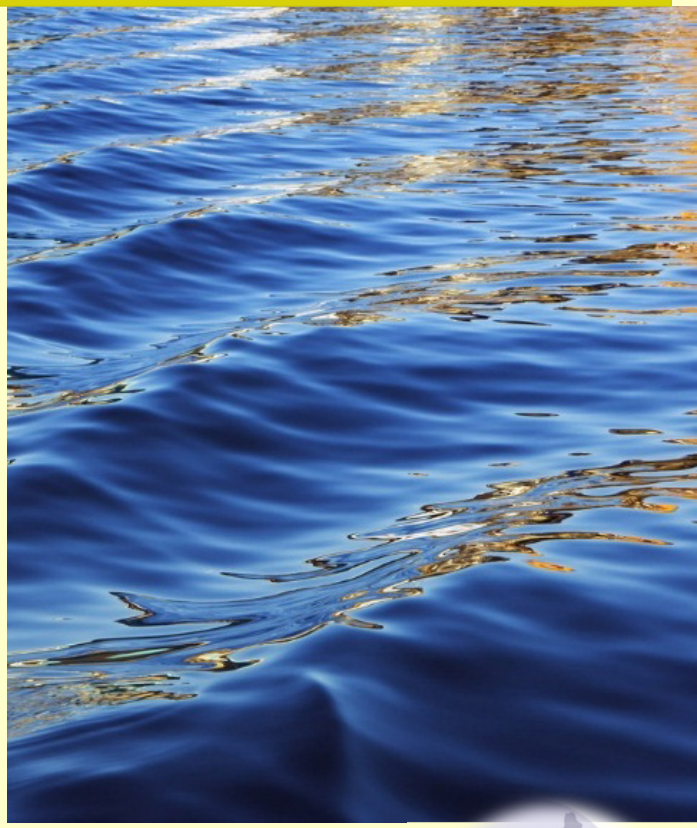
## Recommendations & Implications

# *A Focus on the Environment: Issues, Pandemics and the Human- Environment Interaction*

**A Need for Education, Awareness, Ethics, and Responsibility**

# Introduction

Problem, Issues, and Questions



# Introduction

- Climate change and environmental issues are of the utmost critical concern today.
- Evidence shows that the nature of the climate, storms, hurricanes, typhoons, flooding, air quality, pollution, water toxicity and more are getting increasingly worse.
- Many are not aware of the human-environment connection and how human behavior contributes significantly to many environmental changes and demise.


Image Credit: https://helpsavenature.com/human-environment-interaction-meaning-examples

# The Problem

*There is a lack of awareness, education and understanding about the role we humans play in stewarding the environment!*

- **There is a need:**
  - to raise awareness.
  - for education.
  - for key players and institutions to get involved.
  - for collective and collaborative effort is needed with shared values.
  - for global involvement.

***Everyone has role to play!***

- Right time for educators, behavioral scientists, social scientists, natural scientists and other related professionals to develop pertinent knowledge, skills and strategies to enhance their capability to interface, deliver and educate their constituencies.
- Understanding the human-environment nexus is vital for the survival of human and animal life and planet.

# Critical Issues

| Environment | Human Interaction | Animal Interaction |
|---|---|---|
| •Global Warming & Climate Change<br>•Extreme Environments<br>•Sea Level Risings & Flooding<br>•Increased Storms<br>•Drought/Heat<br>•Air & Water Pollution<br>•Mold Proliferation<br>•Teratogens (Lead, Asbestos)<br>•Conservation Ecology<br>•Marine Ecosystems<br>•Oceanography<br>•Planetary Boundaries<br>•Farming & Food<br>•Sustainability/Preservation | •Lack of understanding of environment & human contributions<br>•Poor quality environments<br>•Human evolution & human development<br>•Learning, human functioning & performance<br>•Human health, allergies, infectious diseases & organs, environmental hypersensitiveness, debilitating diseases<br>•Food Insecurity<br>•Violence & Aggression<br>•Mental Health & Illness | •Human-Animal Bond and Interaction<br>•Consumption of Animals<br>•Zoonotic infectious diseases<br>•Contact with animal carriers<br>•Deforestation and human destruction of animal habitats<br>•Wildlife inhabiting human territory<br>•Climate change and animal species survival and destruction<br>•Endangered species |

# Critical Issues

## Built Environment

- Biophilic Design
- Buildings
- Population
- Crowding
- Urban Life
- Residential
- Neighborhood & Community
- Structural Design
- Institutional Design
- Work Design
- Museum Design
- Prison Design
- Public Space
- Creating Restorative Environments

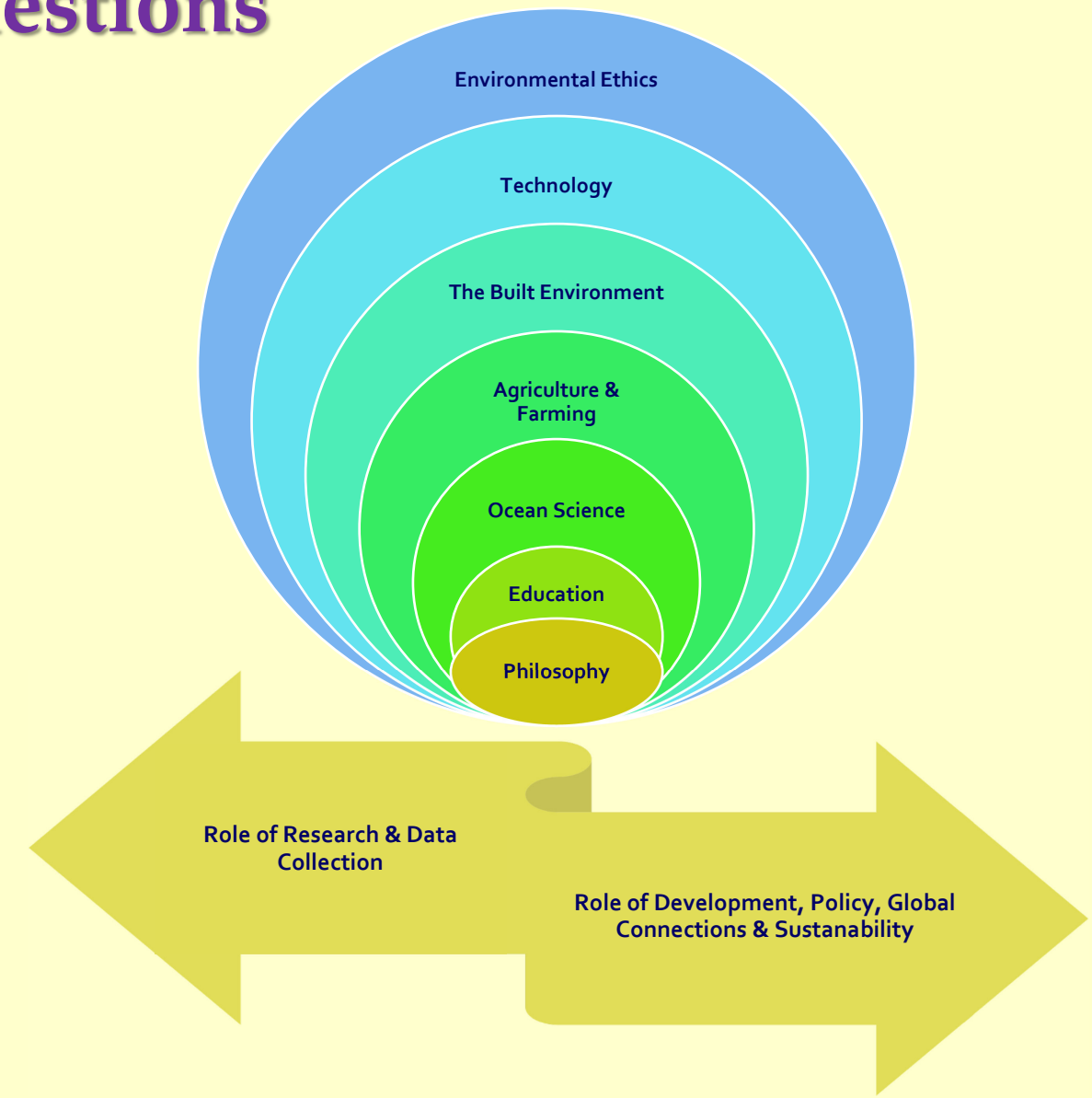
## Place/Location

- Mundane Environments
- Extreme Environments
- Depressed Environments
- Geographical Regions & Climate
- Migration, Climate and Adaptation & Change in physical features

## Pandemics & Viruses

- Climate, heat & spreading of infectious diseases
- Floods and spread of infectious agents
- Vector born diseases
- Forest and eradication of animal habitats leads to increases in epidemic outbreaks due to animal carriers of virus and disease
- Pathogens move from animals to humans
- Disruption of ecosystems
- Invasion of tropical forests and wild landscapes lead to exposure to unknown viruses
- Climate and environmental disturbances lead to new diseases such as COVID-19

# Critical Questions



# Critical Topics and Themes for Exploration

- A Moral Call to Earth Care
- The Relationship Between Humans and Nature
- The Human-Environment Interaction
- Connecting Identity, Place and Nature
- Democracy, Citizenship, Economics and the Land
- Economic Development Vs. The Environment
- Environmental Attitudes, Perception and Cognition

■

- Global Warming, Climate Change and Effects
- Psychological Effects of Climate Change
- Air Quality and Pollution Effects
- Impacts on Animal and Sea Life
- The Issue of Water Quality, Clean Water and Water Scarcity
- Fostering a Water Ethic
- Health Effects of the Growing Proliferation of Mold
- Awareness, Education and Protection of Oceans and Wetlands
- Effects of the Environment on Coastal Waters and Oceans
- Small Island Environmental Concerns and Sustainability
- Solid and Hazardous Waste

■

- The Neighborhood and Community Environment
- Extreme and Mundane Environments

■

- The Built Environment
- Impact of the Built Environment on Health, Mental Health and Behavior
- Effects of Public Spaces on Health, Wellbeing, Reduction of Crime and More

- Exploring Innovative Techniques in Agriculture and Farming
- Use of Hydroponic and Organic Farming
- Permaculture
- Use of Technology to Understand, Predict and Improve Environmental Circumstances
- Strategies for Teaching About the Environment Across Disciplines
- Critical Thinking and Interdisciplinary Learning in Environmental Education
- Role of Geoscience
- Role of Environmental Chemistry

■

- Environmental Ethics
- Connecting Economics, Ecology and Ethics
- Land/Earth Ethics: Making Connections

■

- The Environment and Mental Health Impacts
- The Environment and Physical Health Impacts
- The Environment and Community Health Impacts
- Environmental Issues and Social Justice
- Environmental Justice

■

- Human Destruction of the Environment
- Environmental Effects of Tourism

■

- Environmental Solutions
- Alternative Energy
- Solar and Wind Energy

■

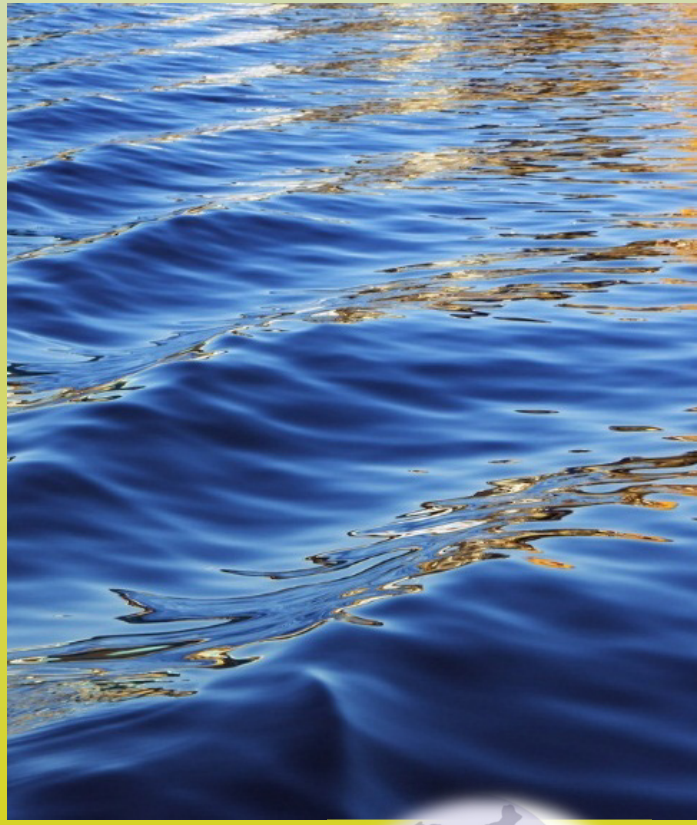
- The Environment and Global Impacts
- Globalization and its Impact on the Environment
- Global Sustainability
- Local, National and Global Environmental Policy

# *A Focus on the Environment:*
# *Issues, Pandemics and the Human- Environment Interaction*

**A Need for Education, Awareness, Ethics, and Responsibility**

## Major Issues & Impacts

*Average Surface Temperature, Extreme Heat, Droughts*
*Oceans & Sea Levels*
*Severity of Storms, Hurricanes*
*Flooding*
*Air Quality & Pollution*
*Mold Proliferation*
*Pandemics*



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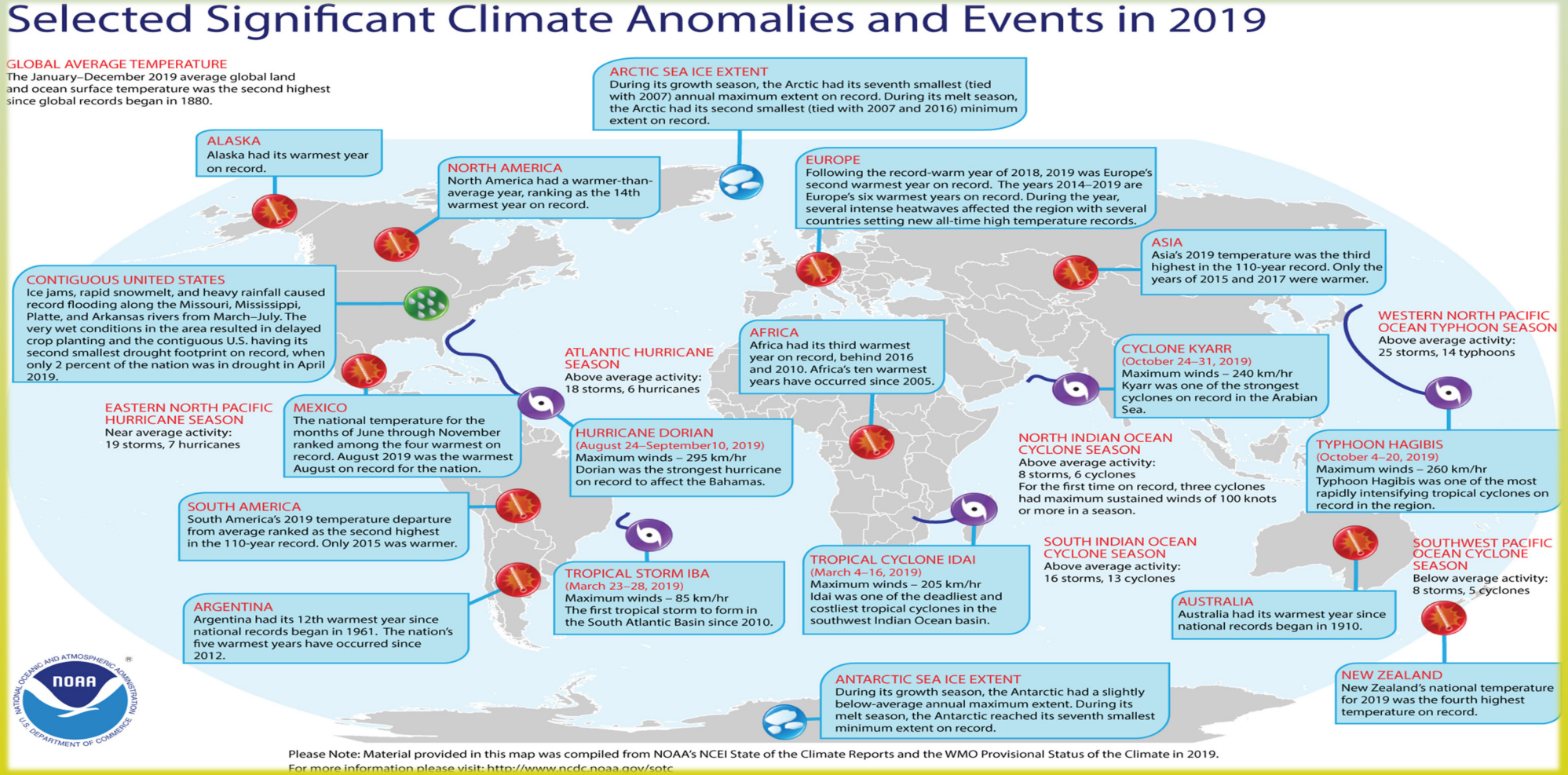
# Global Warming, Surface Temperatures and Climate Change

*As a result of global warming, there has been a rise in surface temperatures, extreme heat, droughts, forest fires, along with a rise in sea levels, increased severity in storms, flooding, air quality, pollution, mold proliferation, and pandemics.*

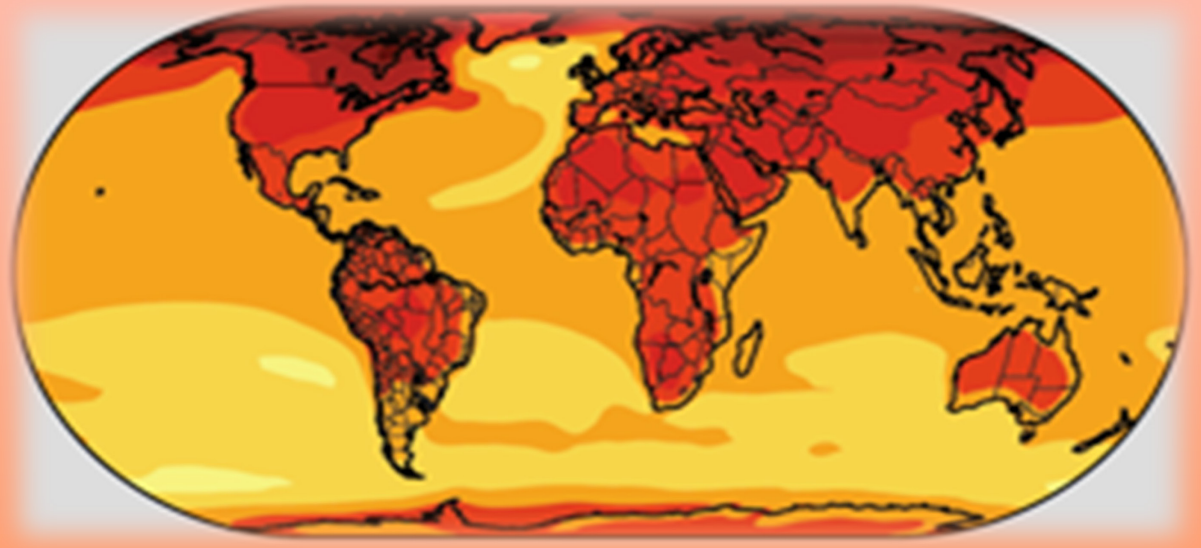
# Global Warming, Surface Temperatures and Climate Change





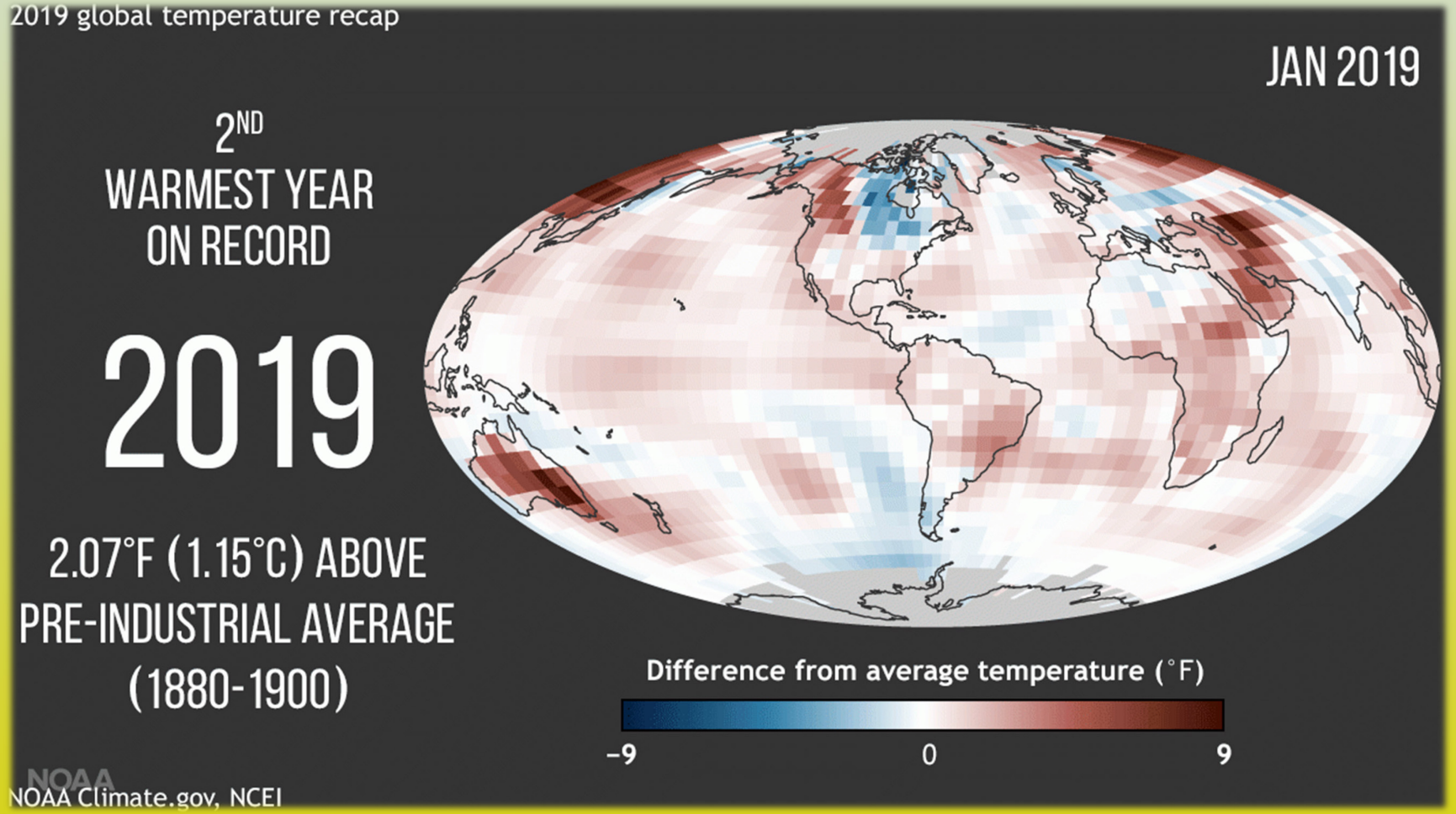

Source: NOAA, 2020. Online: https://www.noaa.gov/news/2019-was-2nd-hottest-year-on-record-for-earth-say-noaa-nasa

# Extreme Heat, Surface Temperatures & Drought



Source: Berkely Lab. Extreme Heat and Drought in the Coming Decades.
Online: https://today.lbl.gov/2014/05/07/extreme-heat-and-drought-in-coming-decades-says-lab-climate-expert/

# Global Warming, Surface Temperatures and Climate Change






Source: NOAA, 2020. Online: https://www.noaa.gov/news/2019-was-2nd-hottest-year-on-record-for-earth-say-noaa-nasa.

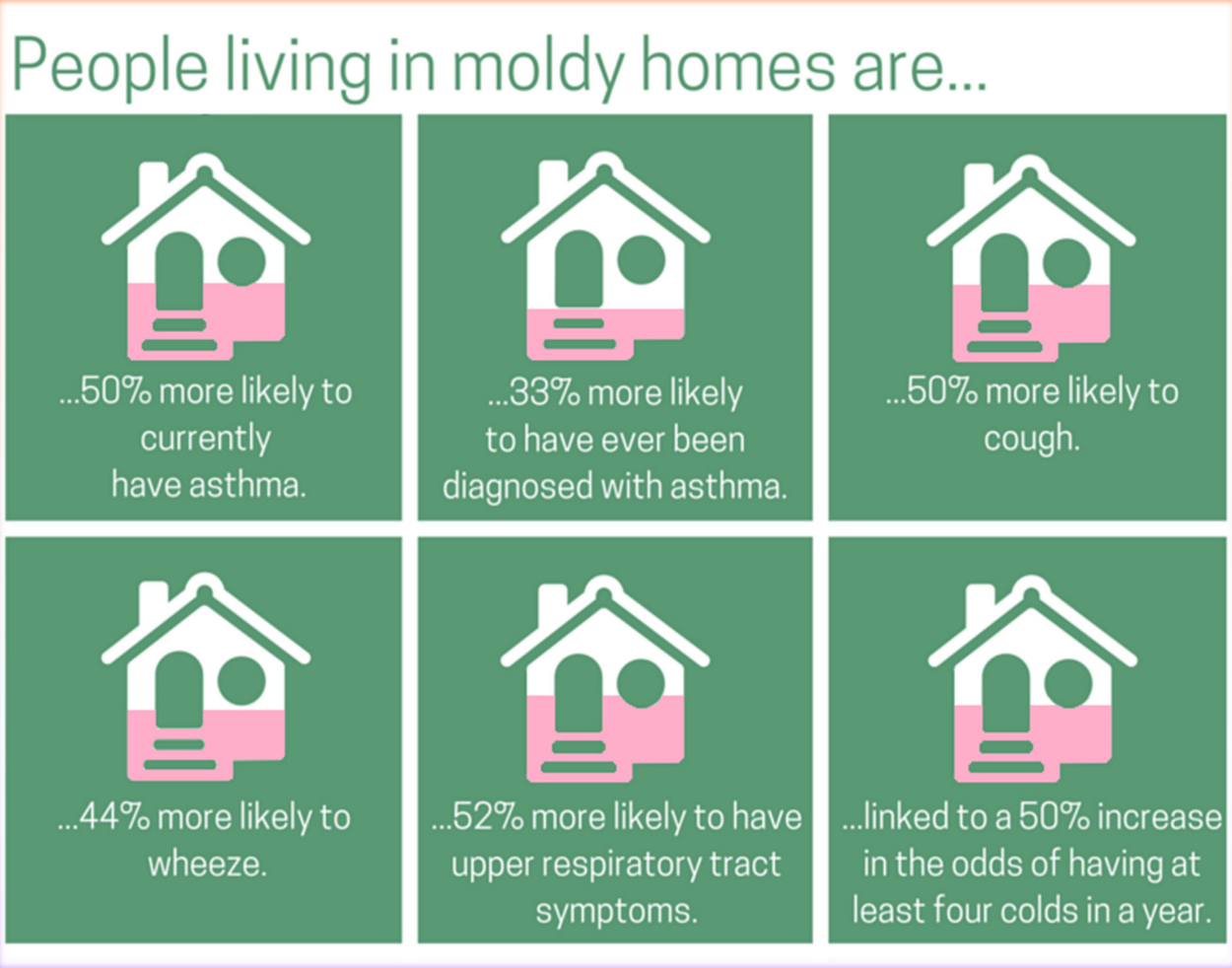
# Oceans and Rise in Sea Levels and Flooding

- ***Is Sea Level Rising? YES! At an increasing rate.***
- **In the US:** ***Nearly 40 percent*** of the population live in high-population-density coastal areas, where sea level plays a role in flooding, shoreline erosion, and hazards from storms. **Globally:** ***Eight (8) of the world's 10 largest cities*** are near a coast. (U.N. Atlas of the Oceans, National Ocean Service (NOA), NOAA, 2019.
- **Cause:** ***thermal expansion and increased melting of land-base ice, such as glaciers and ice sheets.***
- **The oceans:** Are absorbing more than 90 percent of the increased atmospheric heat associated with emissions from human activity.
- According to NOAA, this will impact ***infrastructure for local jobs, regional industries, roads, bridges, water supplies, subways, oil and gas wells, power plants, sewage treatment plants, landfills, and more.***

# Flooding and Effects


- Homes, Businesses, Industries Destroyed
- Lost Human Lives
- Lost Animal and Livestock Lives
- Moisture & Mold Proliferation
- Chemicals, Pollutants → Air, Water, Lakes, River Contamination
- Pathogen Breeding
- Waterborne Diseases
- Growth of Mosquitos→ Vector Diseases
- Sewage & Water Contamination
- Agricultural Waste
- Psychological & Health Problems (stress, trauma, depression, PTSD
- Economic Impact

# Mold Proliferation, Growth & Effects




**Impact on Physical Health:** Causes Respiratory illness, asthma, pneumonia, cough or wheeze, dermal and ocular irritation, headache, diarrhea, and pulmonary hemorrhage in infants.

**Impact on Autoimmune Disease:** Causes inflammatory diseases such as eczema, psoriasis, lung disorders and other autoimmune disorders and triggers.

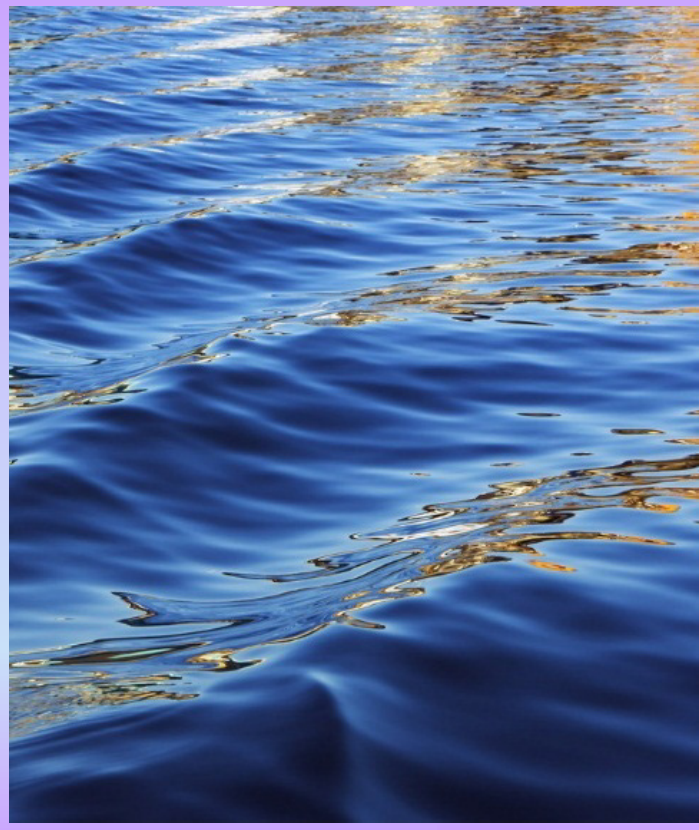
**Impact on Mental Health:** Depression, memory loss, difficulty concentrating and lethargy. In fact, with global warming and climate change, this is one of the most prevalent concerns by scientists (Chan, A., Hon, K., Leung, T., Ho, M. Rosa Duque, J., Lee, T., 2018).



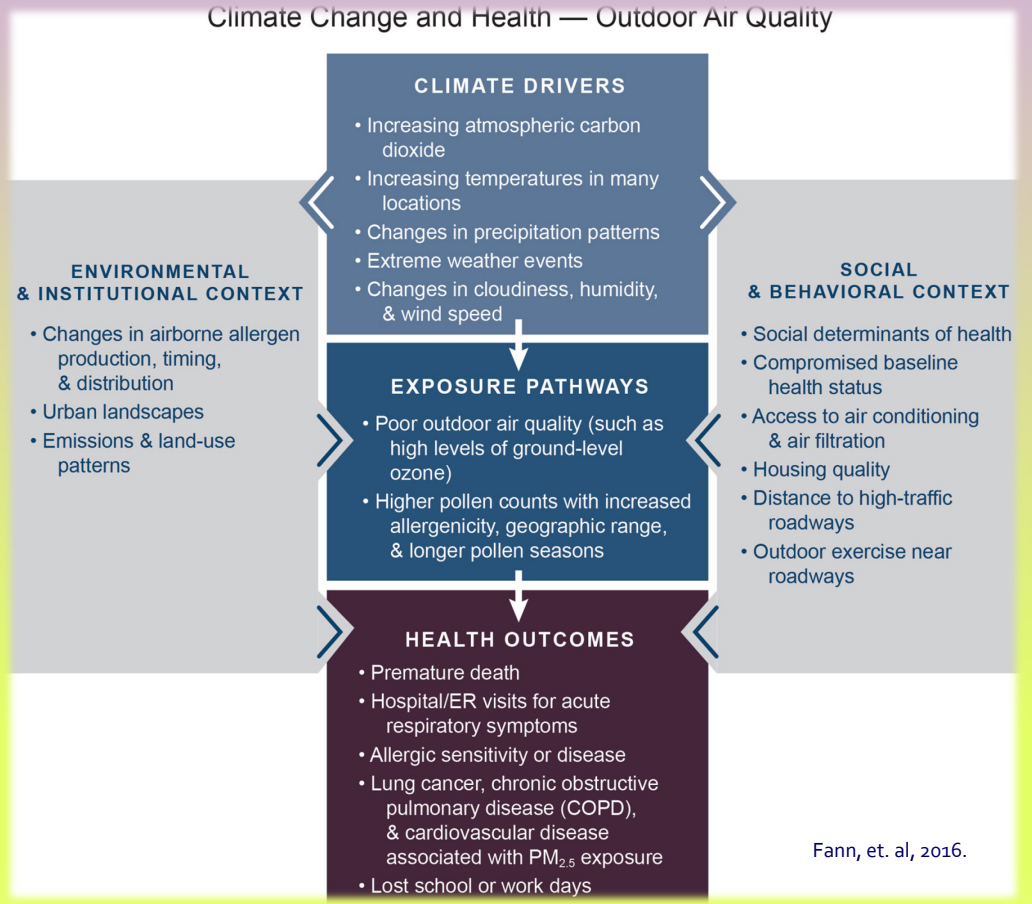
Image Credit: Online- https://insight.livestories.com/s/health-impacts-of-climate-change-mold-and-respiratory-illness/567b2bb962b12600174b9e02/

# Air Quality & Pollution

*Changes in climate affect the air we breathe and our health.*

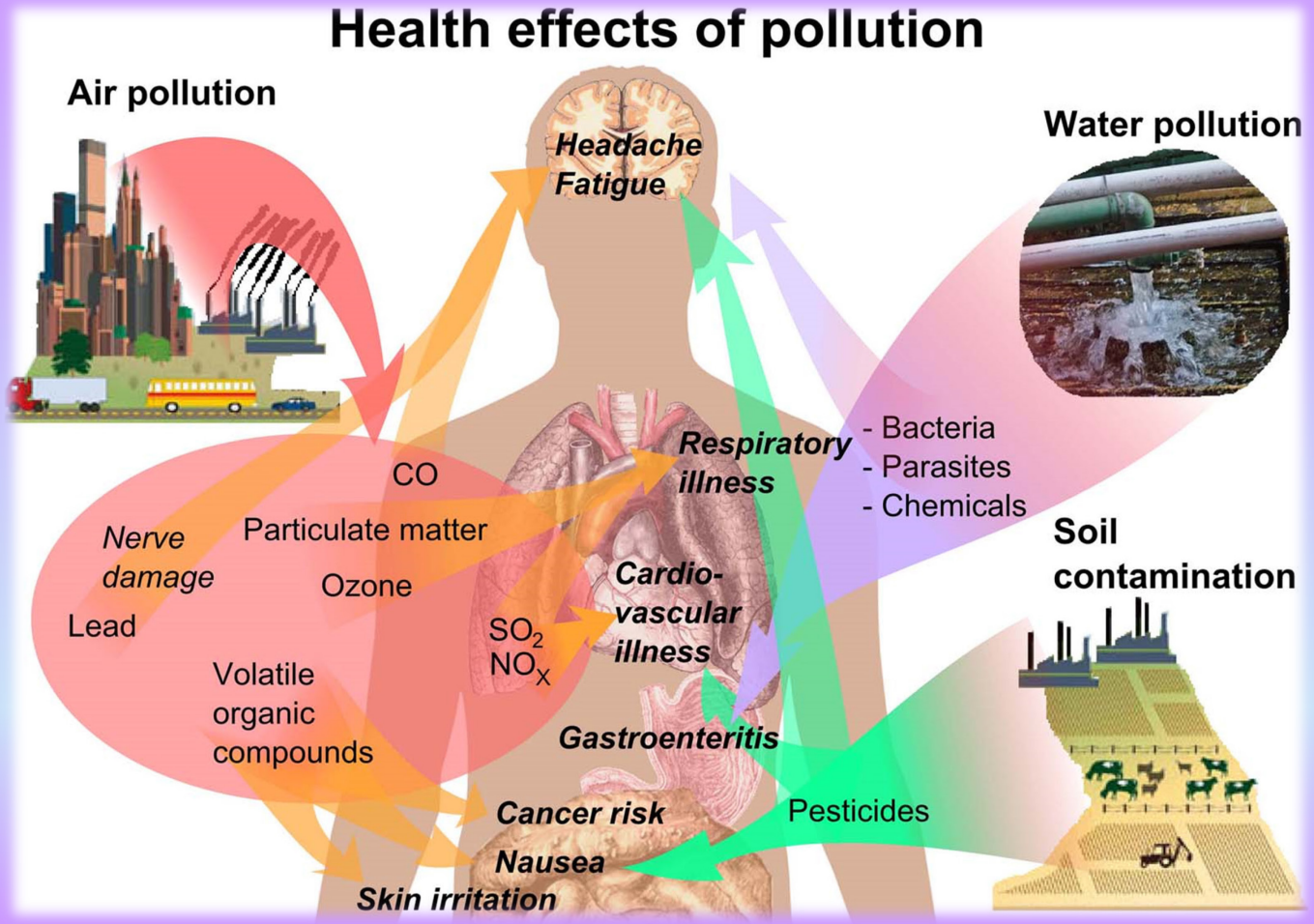


# Air Quality & Pollution


Fann, et. al, 2016.

# Air Quality & Pollution



# Air Quality & Pollution on Mental Illness & Neuropsychiatric Disorders

- **2 Major Findings and 1 Conclusion:**

Poor air quality is associated with higher rates of bipolar disorder and major depression in studies in the US and Denmark.

Growing evidence from human, animal and in-vitro studies find that airborne pollutants target the brain and are implicated in neurological and psychiatric disorders' etiology. There is a strong positive correlation.

World Health Organization (WHO) estimates that air pollution kills 7 million people each year— equivalent to 13 deaths every minute— more than the combined total of war, murder, tuberculosis, HIV, AIDs and malaria (Elks, 2019).



Khan, Plana-Ripoll, Antonsen, Brandt, Geels, Landecker, et al, 2019.

# Air Quality & Mental Illness



millenniumpost
NO HALF TRUTHS

Delhi Edition
Date - 7 Nov'19

## 'Air pollution linked to mental health'

NIKITA JAIN

**NEW DELHI:** Air pollution has created a hazardous condition and has placed people's health in an unsafe territory, with Air Quality Index reeling between severe and very poor category. With such adverse health affects, doctors have revealed that air pollution also have psychiatric affect on people.

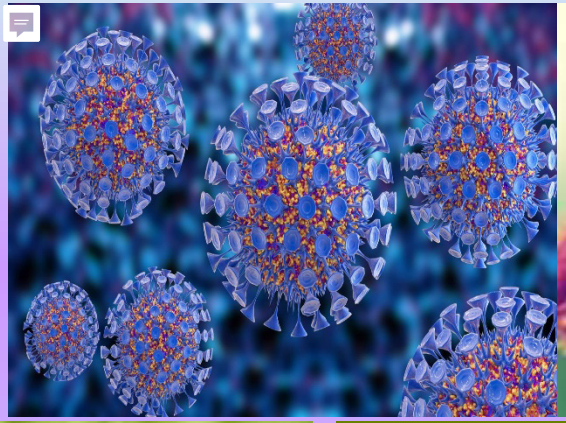
Speaking to ***Millennium Post***, Dr. Vikas Goswami, Sr. Consultant Medical Oncologist from Max Hospital Vaishali said, "The particles that enter our body due to air pollution, cause an inflammation, wherever these particles will touch, there will be an inflammatory reaction. Air pollution also affects the mood, people are having irritation, depression and agressiveness due to it."

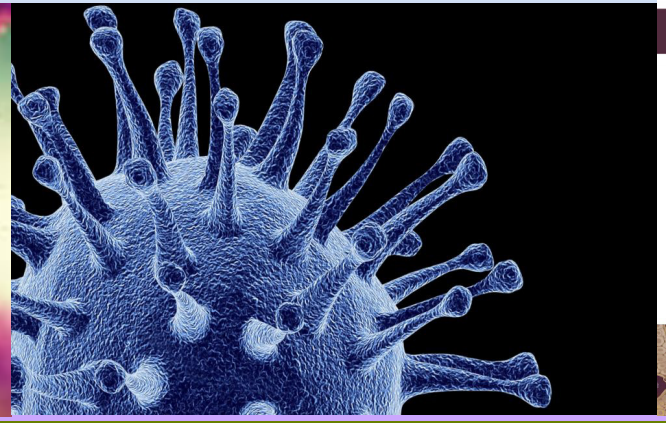
Recent studies have now found a link between mental health and air pollution. According to reports, there is greater risk of seasonal affective disorders, especially depression, when the whether is smoggy with limited sunshine. There is higher risk of anxiety disorders and panic attacks with high levels of pollution in the air. This especially effects children and the elderly.

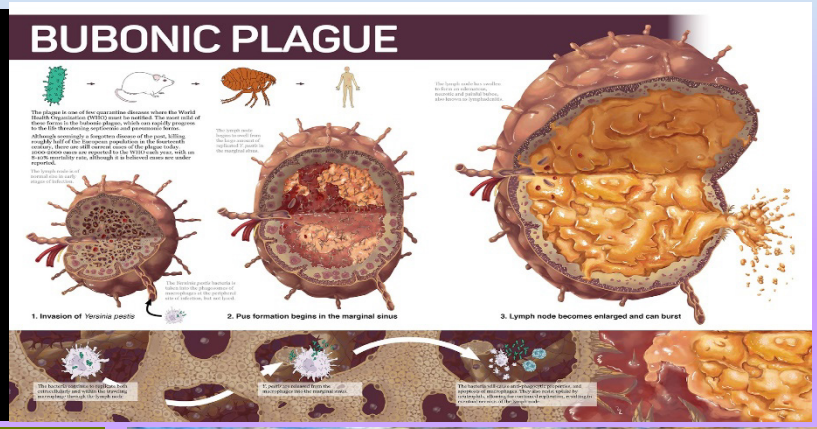
According to a study conducted by the University of Washington there is a strong connection between psychological distress and pollution. Post Diwali, things became difficult with Dr Goswami revealing, "Several cases of Chemical Pneumonitis were reported in our hospital after Diwali. Majorly, two forms of chemical pneumonitis i.e. acute and chronic. In acute form, people suffer from cough, face breathing issues, abnormal lung sounds (wet, gurgling sounding breaths), chest pain, tightness or burning. In chronic, there is persistent cough, shortness of breath and increased susceptibility to respiratory illness."

Dr. Goswami said that the condition of air pollution is serious and advised people to avoid exposure from outside environment. "One can also use air purifiers, plant more trees in their homes and drink lots of water," he added.

On the other hand, air pollutants create issues for our skin that cause free radical production in the skin. Dermatologist Nivedita Dadu, Founder and Chairman at Dr Nivedita Dadu's Dermatology clinic suggests to stock up on C, "Vitamin C is an antioxidant that can help us fight the devastating effects of pollution. It can rid our bodies of free radicals that cause our cells to age more rapidly. It can also help us breathe easier."

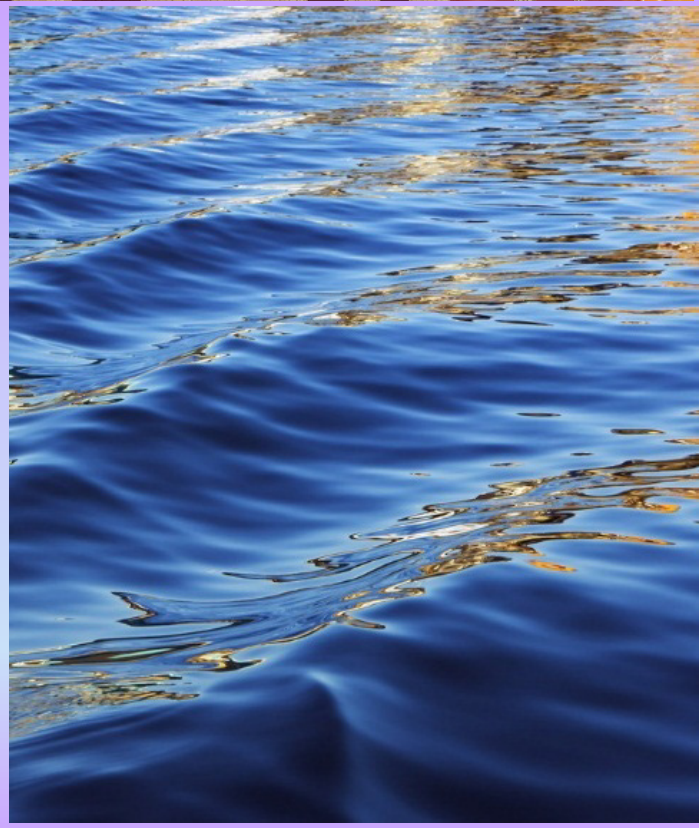




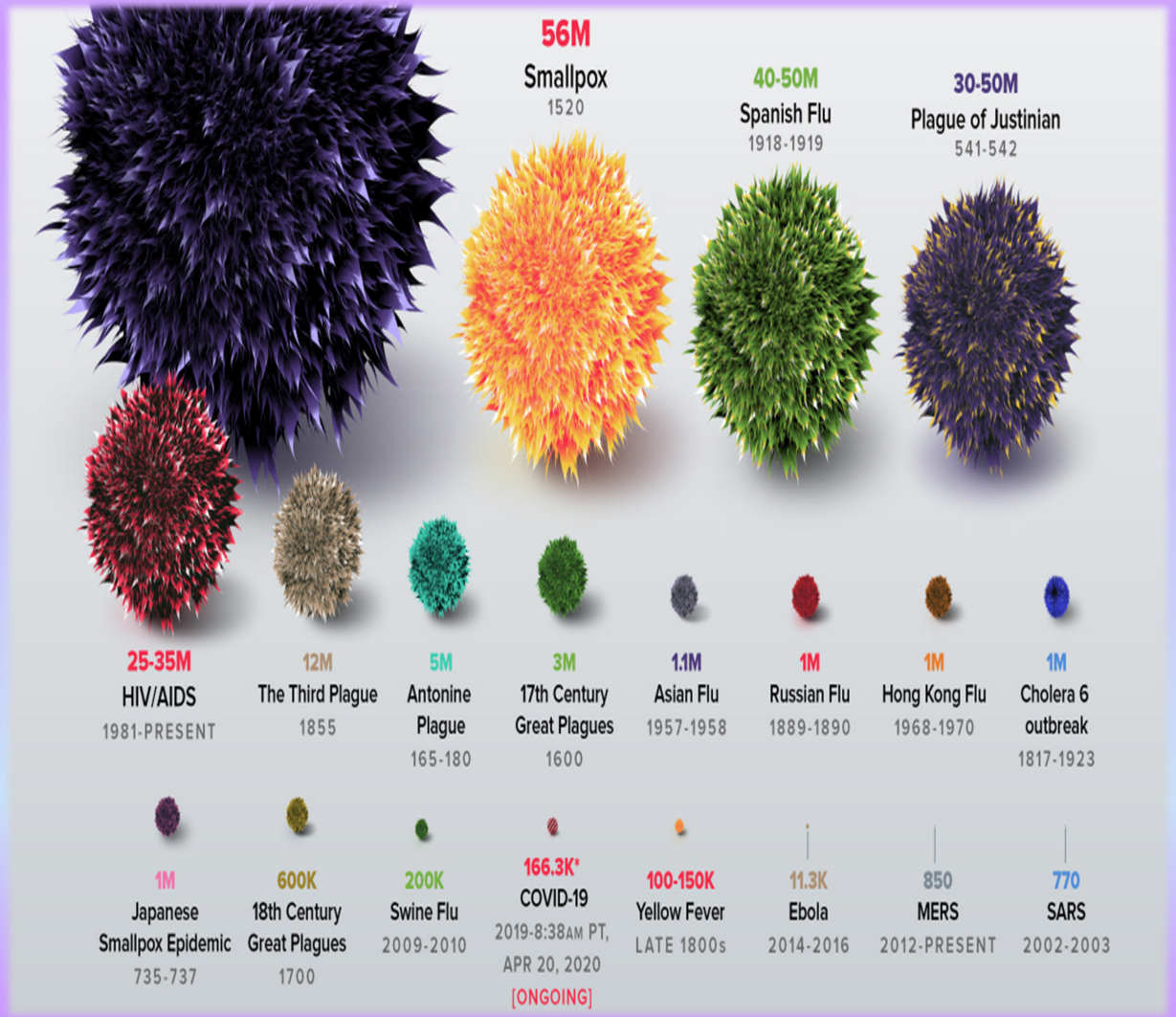


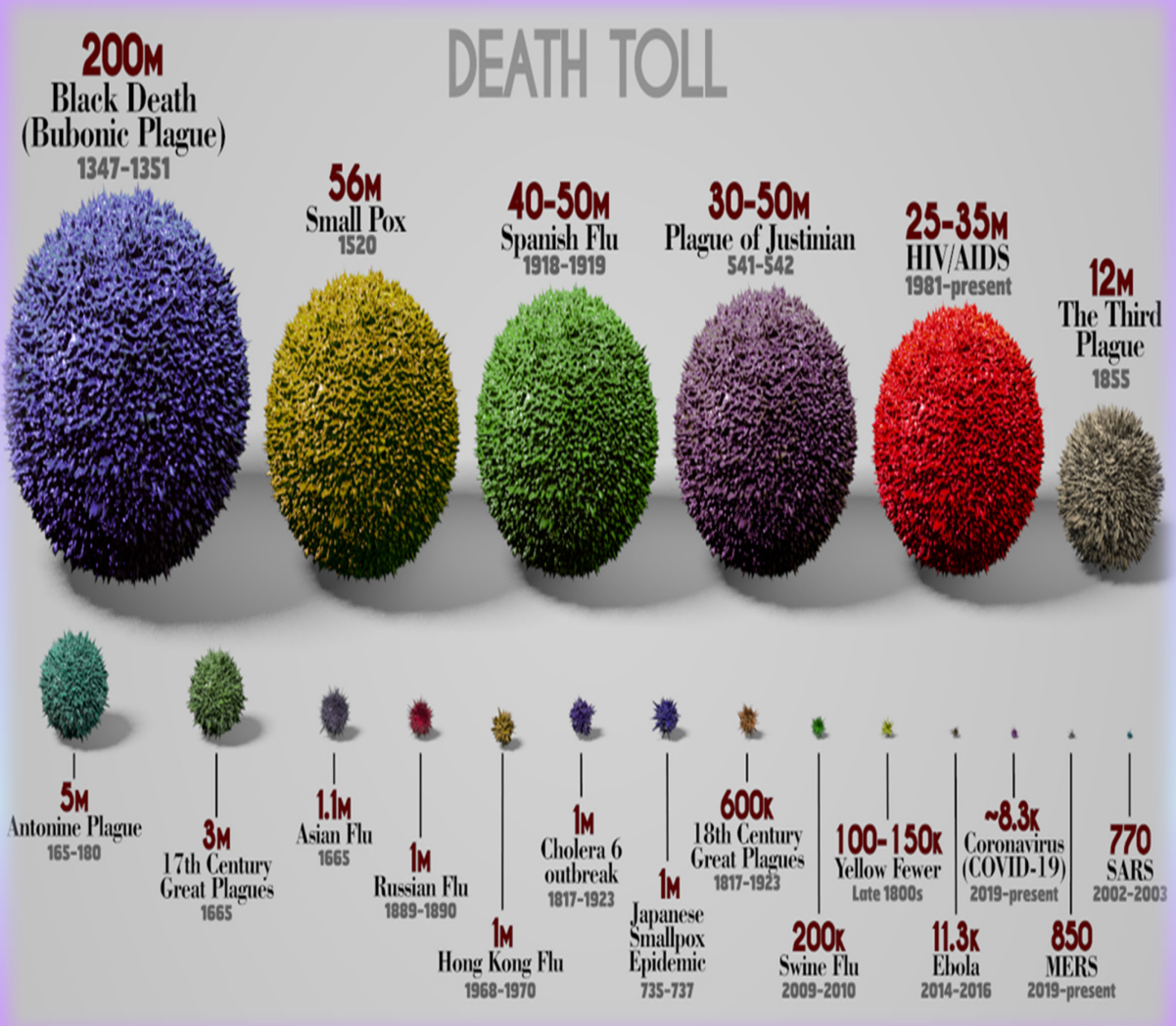

# Pandemics

**Viruses, Plagues, Flu and More are Climate and Environment Related.**



# Pandemics


56M
Smallpox
1520
40-50M
Spanish Flu
1918-1919
30-50M
Plague of Justinian
541-542
25-35M
HIV/AIDS
1981-PRESENT
12M
The Third Plague
1855
5M
Antonine Plague
165-180
3M
17th Century Great Plagues
1600
1.1M
Asian Flu
1957-1958
1M
Russian Flu
1889-1890
1M
Hong Kong Flu
1968-1970
1M
Cholera 6 outbreak
1817-1923
1M
Japanese Smallpox Epidemic
735-737
600K
18th Century Great Plagues
1700
200K
Swine Flu
2009-2010
166.3K*
COVID-19
2019-8:38AM PT, APR 20, 2020
[ONGOING]
100-150K
Yellow Fever
LATE 1800s
11.3K
Ebola
2014-2016
850
MERS
2012-PRESENT
770
SARS
2002-2003


DEATH TOLL
200M
Black Death (Bubonic Plague)
1347-1351
56M
Small Pox
1520
40-50M
Spanish Flu
1918-1919
30-50M
Plague of Justinian
541-542
25-35M
HIV/AIDS
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17th Century Great Plagues
1665
1.1M
Asian Flu
1665
1M
Russian Flu
1889-1890
1M
Hong Kong Flu
1968-1970
1M
Cholera 6 outbreak
1817-1923
1M
Japanese Smallpox Epidemic
735-737
600K
18th Century Great Plagues
1817-1923
200K
Swine Flu
2009-2010
100-150K
Yellow Fewer
Late 1800s
11.3K
Ebola
2014-2016
~8.3K
Coronavirus (COVID-19)
2019-present
850
MERS
2019-present
770
SARS
2002-2003

# History of Pandemics

| Name | Time period | Type / Pre-human host | Death toll |
|---|---|---|---|
| Antonine Plague | 165-180 | Believed to be either smallpox or measles | 5M |
| Japanese smallpox epidemic | 735-737 | Variola major virus | 1M |
| Plague of Justinian | 541-542 | Yersinia pestis bacteria / Rats, fleas | 30-50M |
| Black Death | 1347-1351 | Yersinia pestis bacteria / Rats, fleas | 200M |
| New World Smallpox Outbreak | 1520 – onwards | Variola major virus | 56M |
| Great Plague of London | 1665 | Yersinia pestis bacteria / Rats, fleas | 100,000 |
| Italian plague | 1629-1631 | Yersinia pestis bacteria / Rats, fleas | 1M |
| Cholera Pandemics 1-6 | 1817-1923 | V. cholerae bacteria | 1M+ |
| Third Plague | 1885 | Yersinia pestis bacteria / Rats, fleas | 12M (China and India) |
| Yellow Fever | Late 1800s | Virus / Mosquitoes | 100,000-150,000 (U.S.) |
| Russian Flu | 1889-1890 | Believed to be H2N2 (avian origin) | 1M |
| Spanish Flu | 1918-1919 | H1N1 virus / Pigs | 40-50M |
| Asian Flu | 1957-1958 | H2N2 virus | 1.1M |
| Hong Kong Flu | 1968-1970 | H3N2 virus | 1M |
| HIV/AIDS | 1981-present | Virus / Chimpanzees | 25-35M |
| Swine Flu | 2009-2010 | H1N1 virus / Pigs | 200,000 |
| SARS | 2002-2003 | Coronavirus / Bats, Civets | 770 |
| Ebola | 2014-2016 | Ebolavirus / Wild animals | 11,000 |
| MERS | 2015-Present | Coronavirus / Bats, camels | 850 |
| COVID-19 | 2019-Present | Coronavirus – Unknown (possibly pangolins) | 608K (Johns Hopkins University estimate as of 11:46am PT, July 20, 2020) |



LePan, Nicholas. (2020). Visualizing the history of pandemics. Online: https://www.visualcapitalist.com/history-of-pandemics-deadliest/.

# Pandemics

- Climate change is making outbreaks of disease more common and more dangerous.

Figure 6.1: Four main types of transmission cycle for infectious diseases (reference 5)

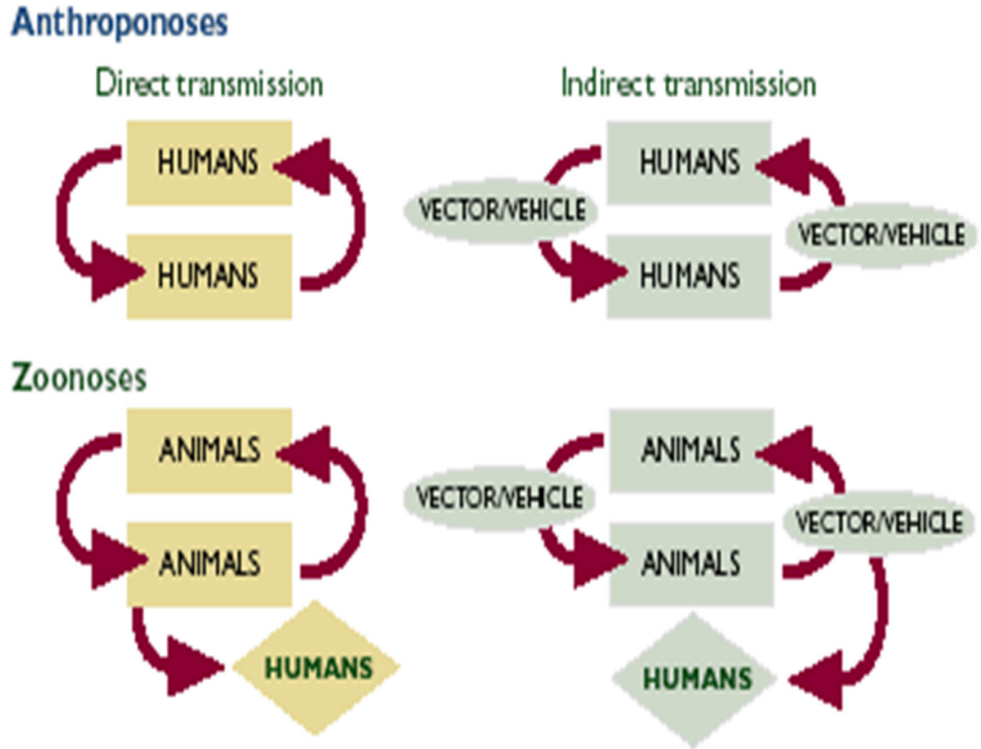



Table 6.1: Examples of how diverse environmental changes affect the occurrence of various infectious diseases in humans (Refernce 5)

| Environmental changes | Example diseases | Pathway of effect |
|---|---|---|
| Dams, canals, irrigation | Schistosomiasis | ▲ Snail host habitat, human contact |
| | Malaria | ▲ Breeding sites for mosquitoes |
| | Helminthiasies | ▲ Larval contact due to moist soil |
| | River blindness | ▼ Blackfly breeding, ▼ disease |
| Agricultural intensification | Malaria | Crop insecticides and ▲ vector resistance |
| | Venezuelan haemorraghic fever | ▲ rodent abundance, contact |
| Urbanization, urban crowding | Cholera | ▼ sanitation, hygiene; ▲ water contamination |
| | Dengue | Water-collecting trash, ▲ *Aedes aegypti* mosquito breeding sites |
| | Cutaneous leishmaniasis | ▲ proximity, sandfly vectors |
| Deforestation and new habitation | Malaria | ▲ Breeding sites and vectors, immigration of susceptible people |
| | Oropouche | ▲ contact, breeding of vectors |
| | Visceral leishmaniasis | ▲ contact with sandfly vectors |
| Reforestation | Lyme disease | ▲ tick hosts, outdoor exposure |
| Ocean warming | Red tide | ▲ Toxic algal blooms |
| Elevated precipitation | Rift valley fever | ▲ Pools for mosquito breeding |
| | Hantavirus pulmonary syndrome | ▲ Rodent food, habitat, abundance |

▲ increase ▼ reduction



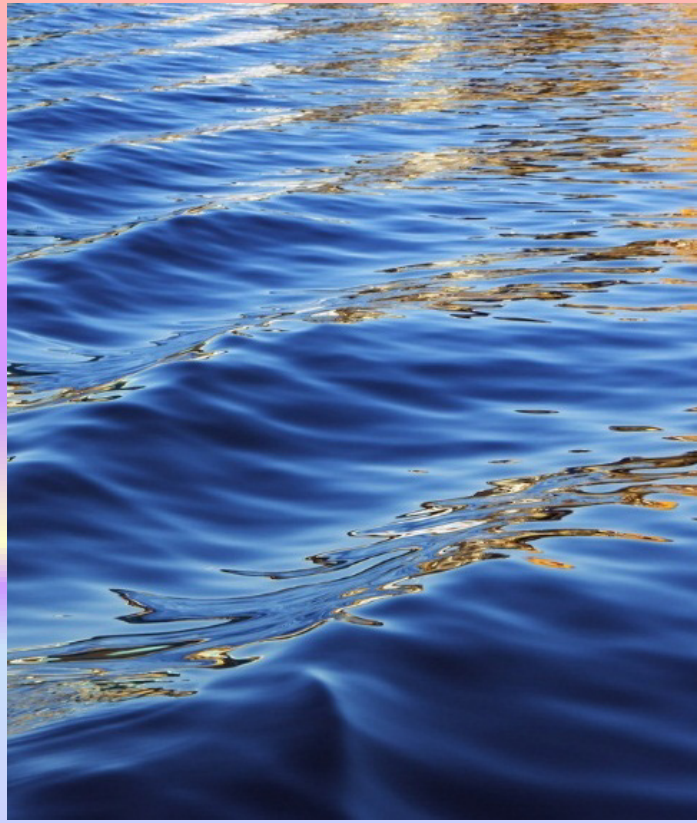
WHO, (2020)

# Coronavirus Spread


- 75% of all emerging and re-emerging infectious diseases are zoonotic – meaning they come from animals. These include, among others, SARS, H5N1 avian flu, and the H1N1 influenza virus. The Coronavirus is included.
- Massive deforestation, climate change and habitat loss results in animal movement nearer to humans and is part of the problem. Thus the contact with viruses through soil contamination, fecal matter, human consumption and more is the culprit.
- Thriving ecosystems can help to stop the spread of epidemics. Large areas of intact natural habitats act as natural barriers that separate humans and wild animals and keep them safe from one another. But disrupting those ecosystems can make us more susceptible to getting diseases (Patsavoudi, 2020).
- Humans invade tropical forests and other wild landscapes, which harbor so many species of animals and plants — and within those creatures, so many unknown viruses. We cut the trees; we kill the animals or cage them and send them to markets. We disrupt ecosystems, and we shake viruses loose from their natural hosts. When that happens, they need a new host. Often, humans are it. (Patsavoudi, 2020).

# The Built Environment

*Human-made spaces in which we work, recreate and reside.*



# The Built Environment & Behavior

## The Built Environment

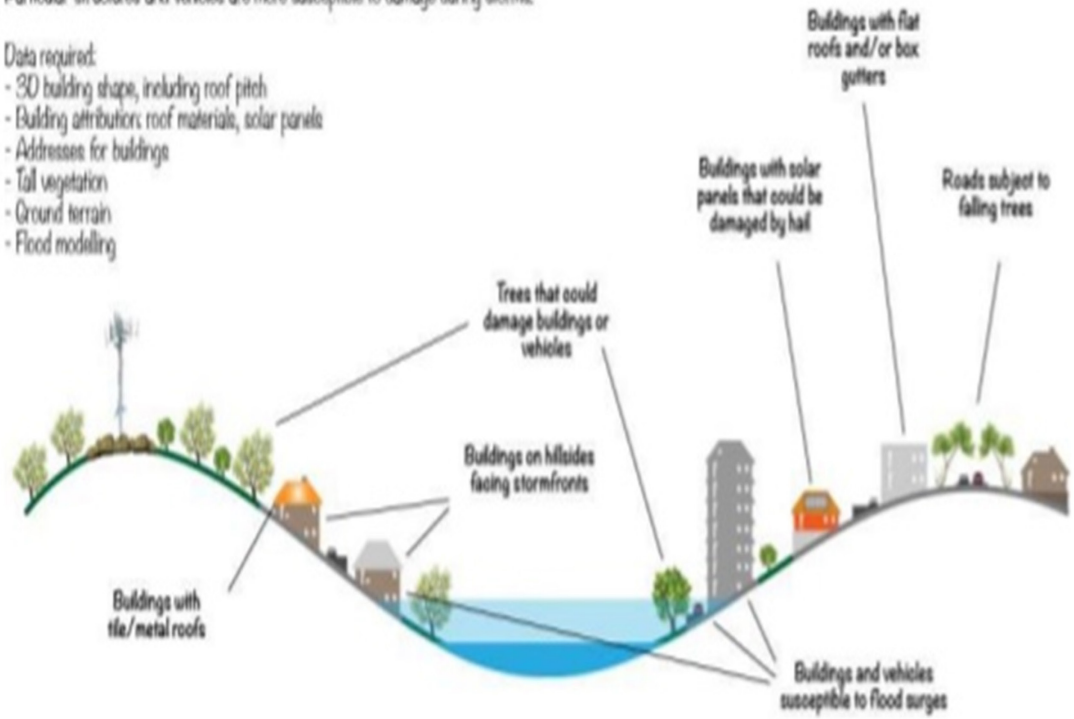
"The human-made space in which people live, work, and recreate on a day-to-day basis. The built environment encompasses places and spaces created or modified by people including buildings, parks, and transportation systems."[1]

[1] Roof, K; Oleru N. (2008). "Public Health: Seattle and King County's Push for the Built Environment.". *J Environ Health* **71**: 24–27.

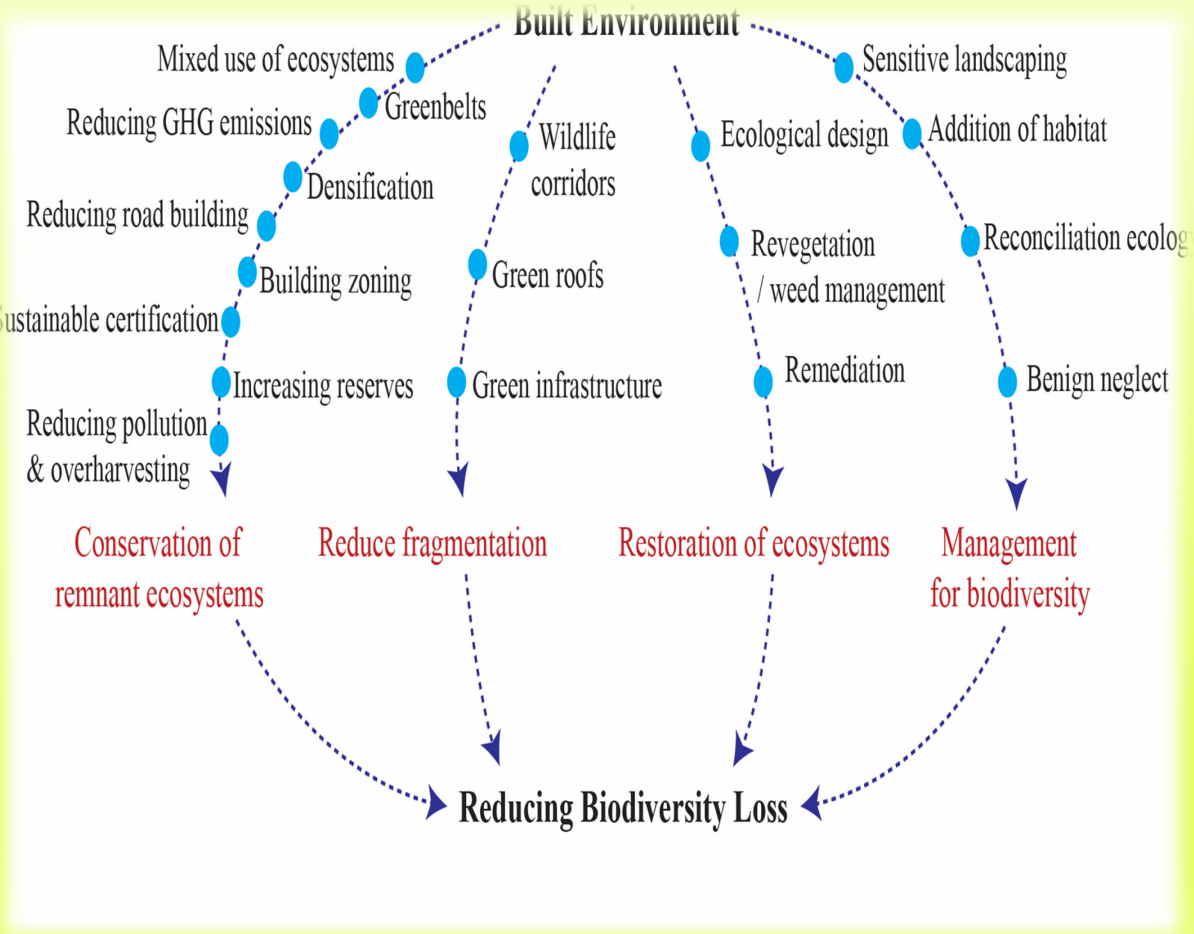
## Defining the built environment

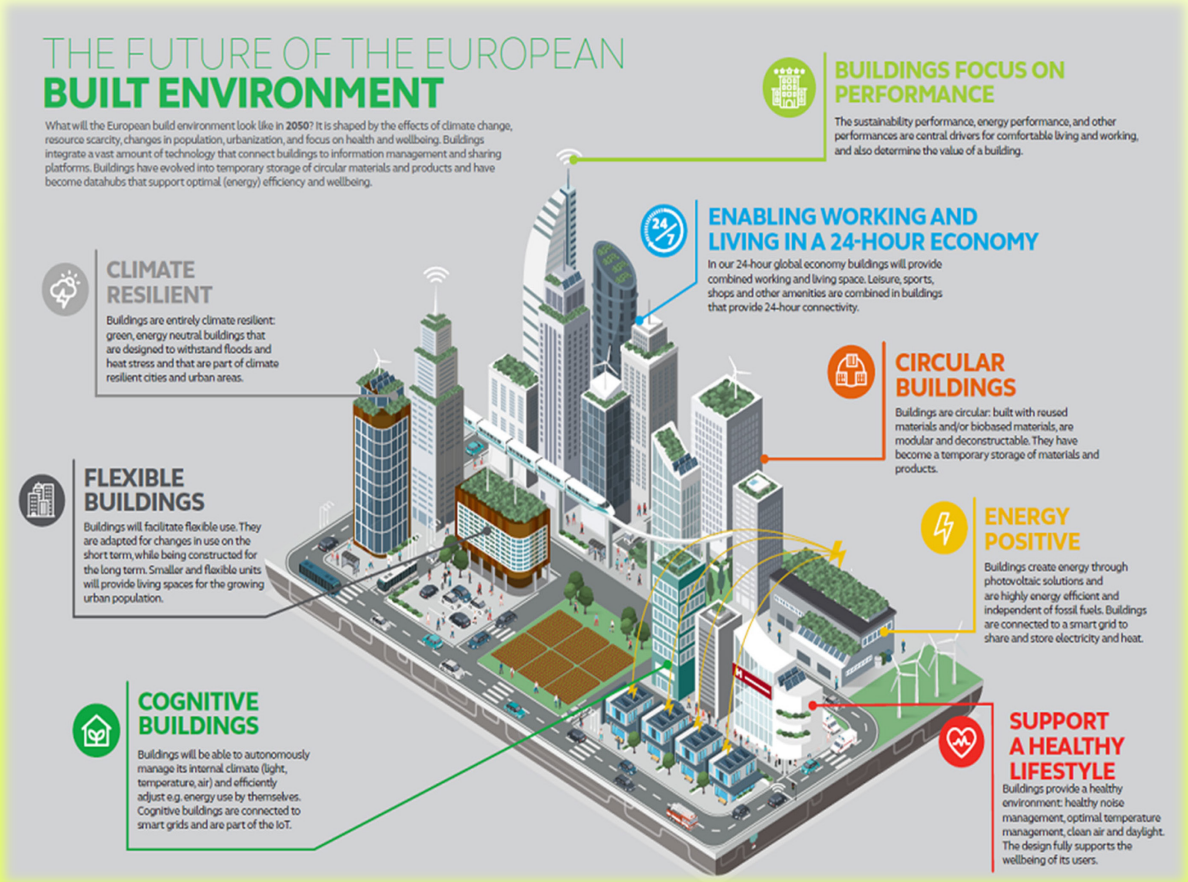
Particular structures and vehicles are more susceptible to damage during storms.

Data required:
- 3D building shape, including roof pitch
- Building attributes: roof materials, solar panels
- Addresses for buildings
- Tall vegetation
- Ground terrain
- Flood modelling

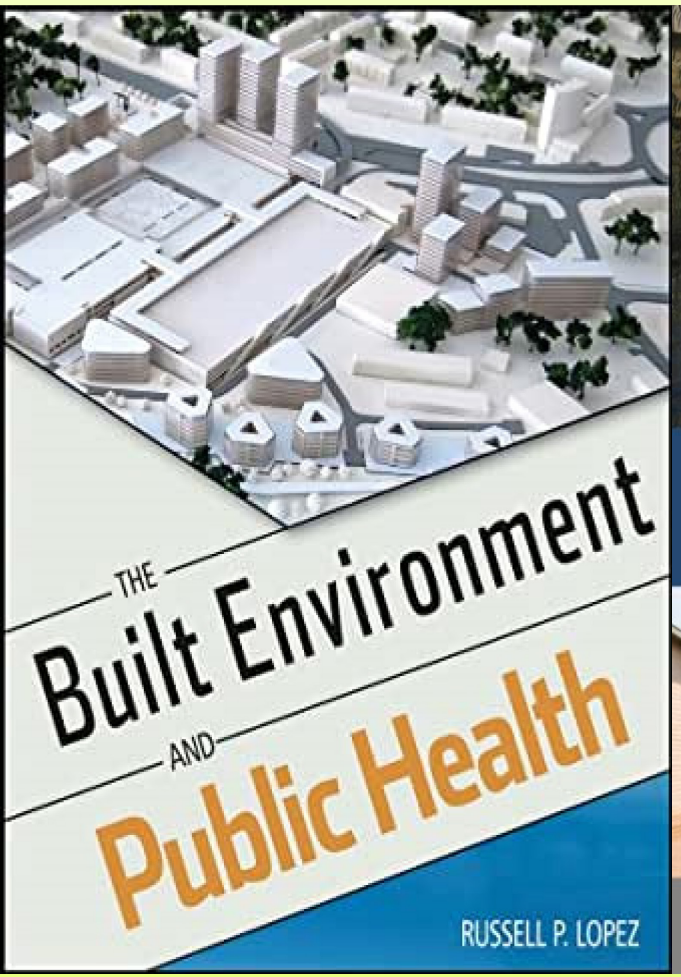


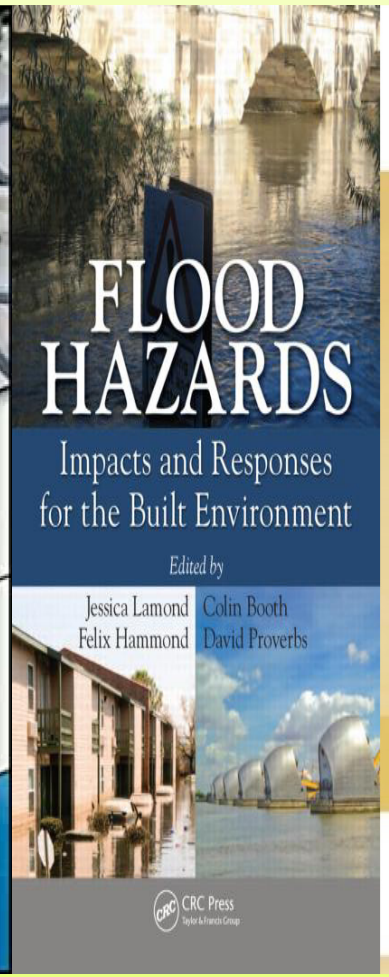
# The Built Environment & Behavior



# The Built Environment & Behavior




# The Built Environment & Behavior-Research Topics

- Wayfinding
- Effects of Noise
- Population Density
- Effects of High Density on Humans
- Effects of Density on Social Behavior
- Effects of Crowding
- Effects of Urban Life
- Environmental Solutions to Urban Problems
- Personal Space and Territorial Behavior
- Residential Environments
- Attachment to Place
- Preferences
- Satisfaction with the Home Environment
- Neighborhood and Community Environments
- Institutional Environments
- Classroom Settings
- Hospital Settings
- Museum Environments
- Prison Design and Behavior
- Designing for the Elderly
- Work Environments
- Ambient Work Environments
- Territoriality and Status
- Human Factors
- Open-Plan vs. Private Offices

# The Human-Environment Interaction--Destruction

- Understanding the human-environmental connection is critical to the teaching and research in science, environmental psychology and health psychology. This nexus also is critical to the sustainability of nations, small island nations and the entire world.
- Human Destruction of the Environment includes destruction of natural habitats (loss), deforestation, killing endangered animal species, fossil fuels, overhunting and overfishing, contributing to pollution.


"There is no faithfulness, no kindness, no knowledge of God in your land. You make vows and break them; you kill and steal and commit adultery. There is violence everywhere - one murder after another.

That is why your land is in mourning, and everyone is wasting away.

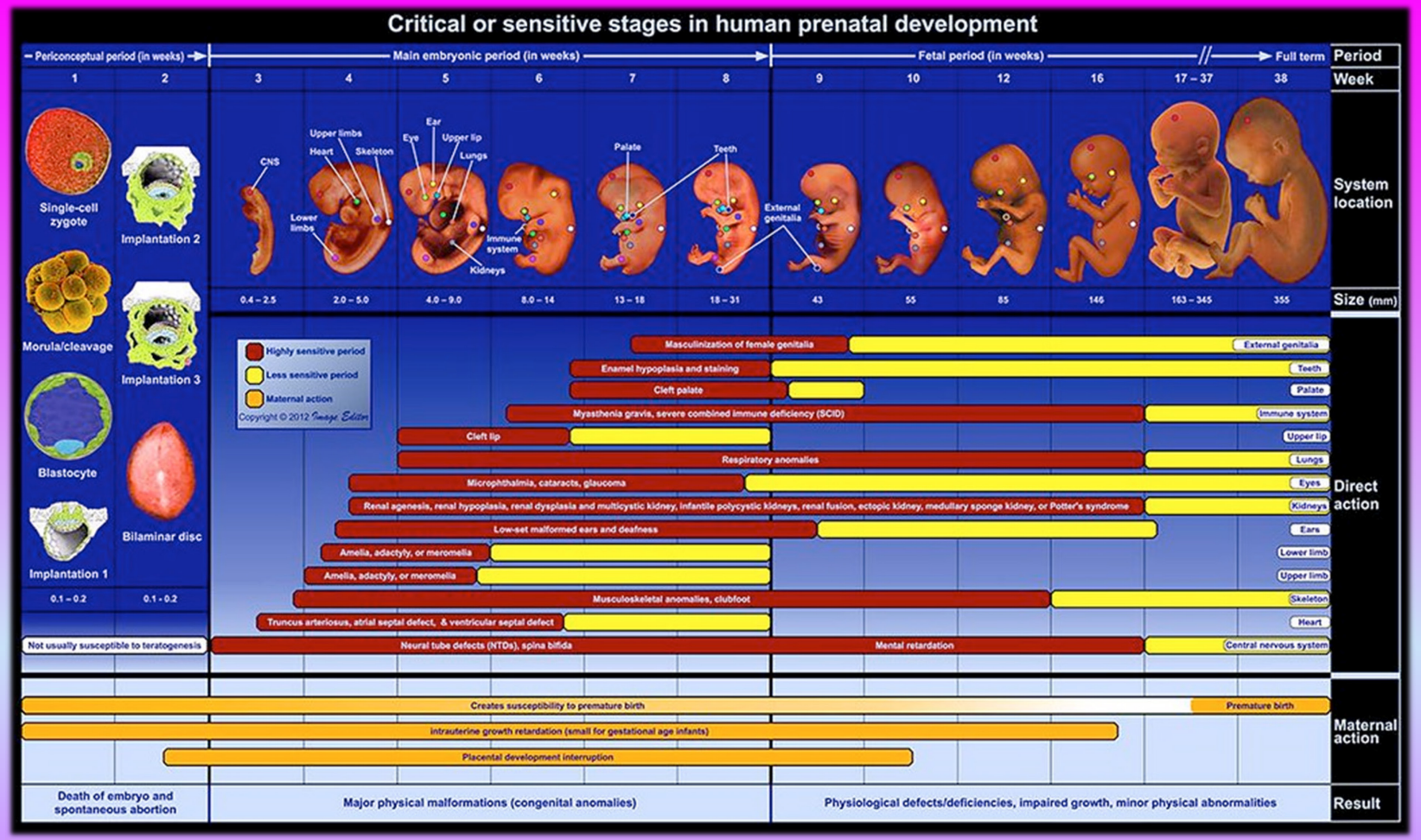
Even the wild animals, the birds of the sky, and the fish of the sea are disappearing."

- Hosea 4:1-3 (NLT)

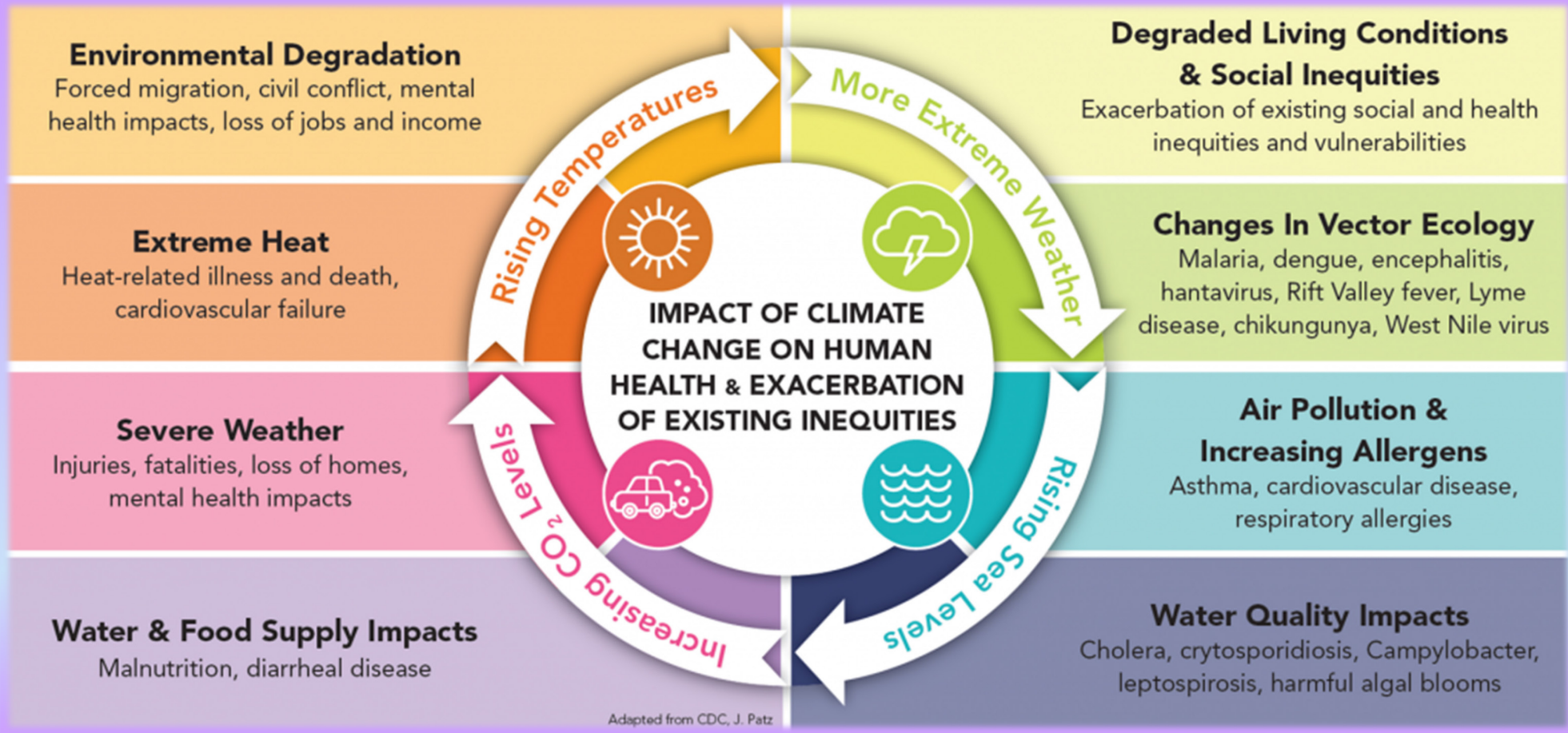
# Specific Impacts on Human Development

*Across the Lifespan*

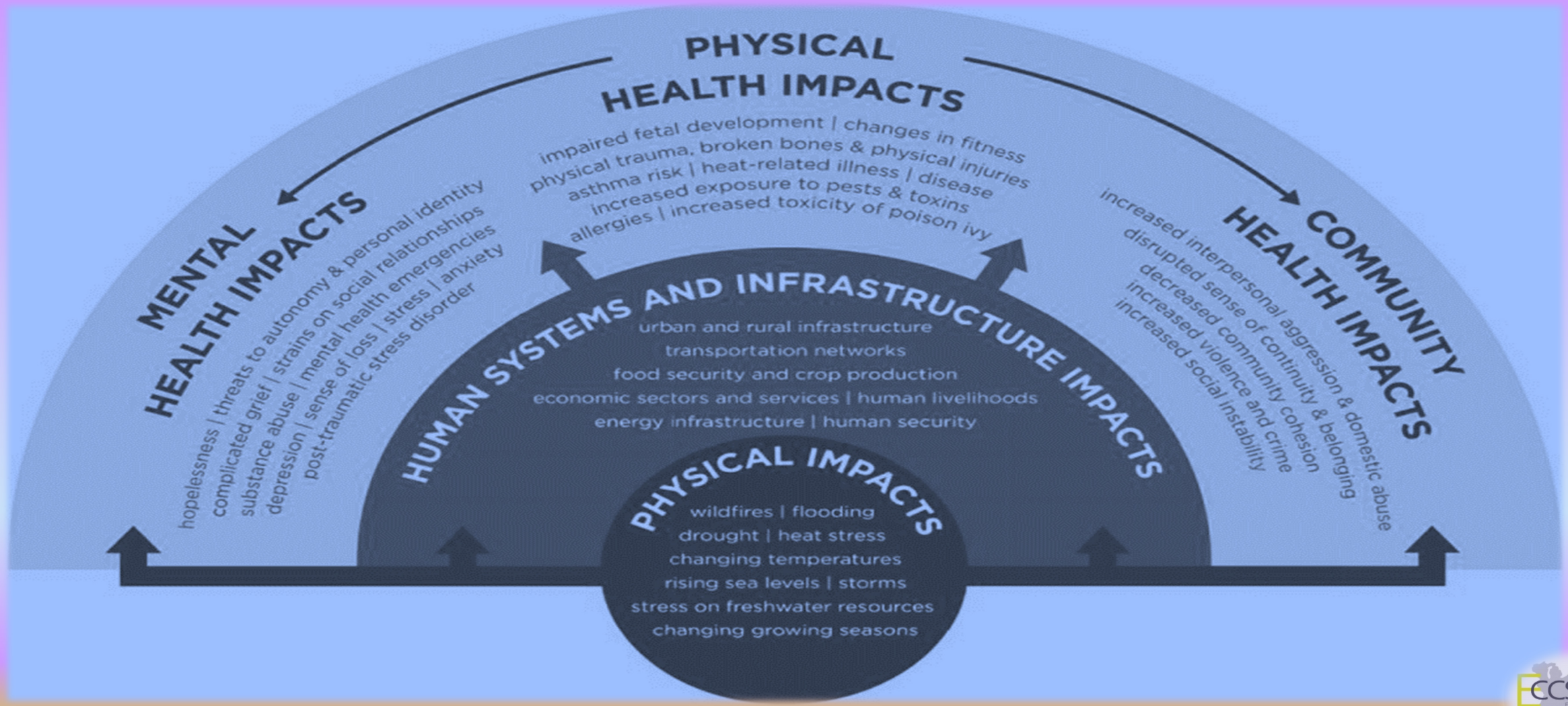
# Reproductive Health & Prenatal Development



# Impact of Climate Change on Human Health & Development



# Impact of Climate Change on Mental, Physical and Community Health






National Socio-environmental Synthesis Center (2015)

# Effects of Climate on Roots of Violence, Aggression, Food Insecurity & Neuropsychiatric Disorders

Hot temperatures increase aggressive behavior.

The hotter the temp, violence increases--domestic and physical assault.

Anderson & DeLisi, 2011 as cited in Plante & Anderson, 2017.

# Food Insecurity, Malnourishment & Violence

Food & vital crop production shortages due to droughts, extreme weather, heat & wildfires.

Starvation & food insecurity leads to aggressive states & actions.

Can lead to infants, children & adolescents becoming violent-prone adults.

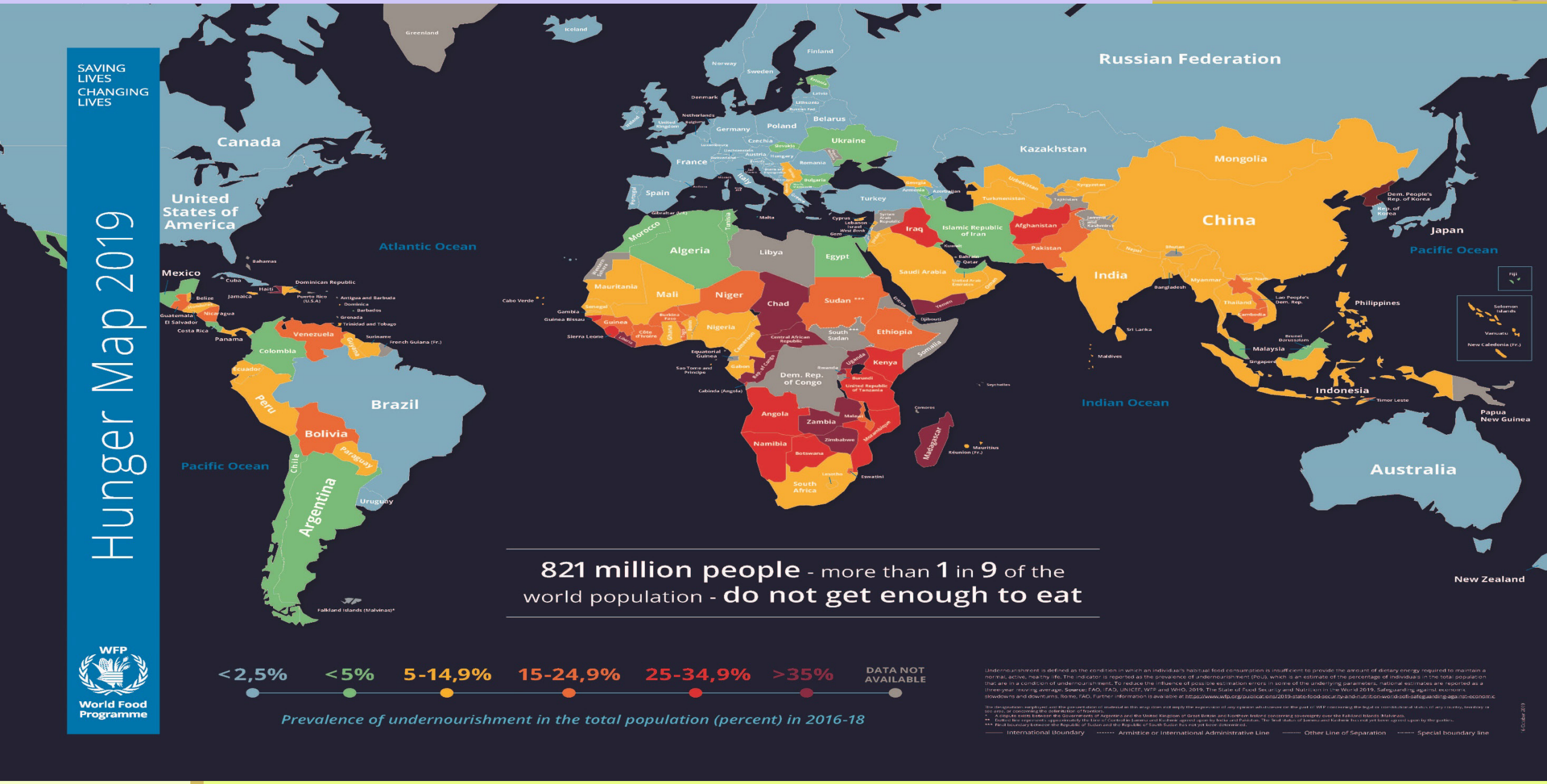
Empirical longitudinal studies show malnourishment (prenatal & early childhood) as a precursor to adult antisocial behavior, aggression, and violence.

Climate driven changes increase conflict & violence & increased acts of terrorism and recruitment for participation.

Civil wars, protests, coups, rebellions, riots & large-scale conflicts likely due rise in temperature, climate conditions & economic circumstances.

Jianghong Liu et. al, 2004.

# Food Insecurity






Hunger Map: https://www.wfp.org/publications/2019-hunger-map?_ga=2.47683813.359091347.1595910145-1170456459.1595910145

# Awareness and Education

*For Sustainable Development*

# Educating Students and Citizens

Integrating awareness and education into curricula about the environment. Should be a goal of education at all levels and especially higher education.

Ensuring lack of human destruction of environment through education and public awareness.

Equipping students with understanding of the connections, behavioral patterns, effects of climate.

Educating citizens about their role, engagement and importance of advocacy for pro-environmental behavior.

Creating, modifying or revamping instructional design and delivery to focus on environmental issues is imperative.

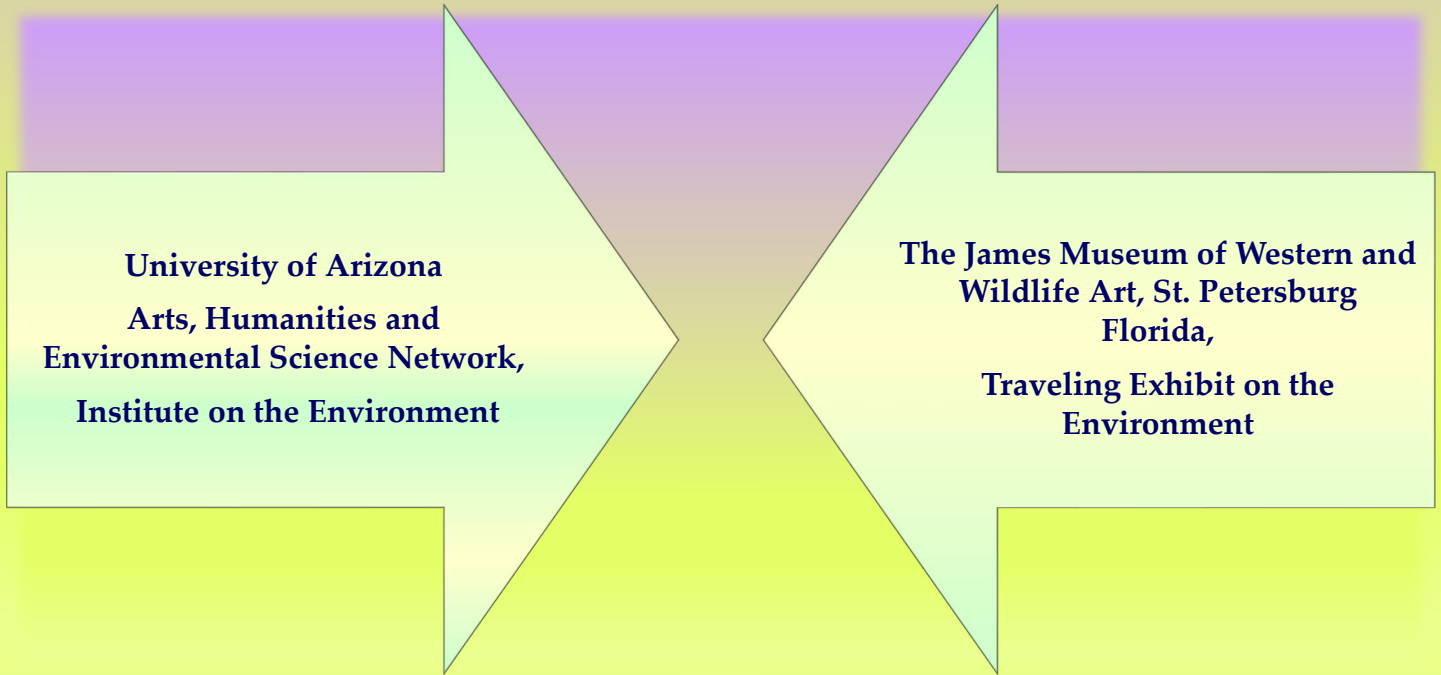
# Educating Students and Citizens

It is important to educate the public about how to get along and protect the environment or endure the consequences. Program and instructional interventions can be used such as the promotion of public information campaigns, pertinent courses, seminars, and relevant content.

Examples of courses and content include: *health psychology; environmental psychology; environmental science; environmental studies; the built environment, architecture & environmental design and engineering; public health, epidemiology and toxicology; marine ecosystems, oceanography and wetlands; social sciences; anthropology; physics; ecology; economics; genetics, biology, biodiversity & biotechnology; conservation and preservation; atmospheric sciences; environmental chemistry; geography & geosciences; agriculture, organic farming and permaculture; the arts & literature; local and global studies; hazardous waste and other waste disposal; small island sustainability; effects of tourism; environmental literacy; environmental ethics, public policy and research*; and more.

# Role of the Arts & Humanities

- The arts and humanities can help to raise awareness and catalyze a public response to environmental insecurities and risks.
- They can illuminate issues of environmental justice and imagine more sustainable futures. They can speak to emotion as well as to reason in finding new ways to articulate the richness and diversity of relationship between people and the environment.
- The arts, humanities and the environmental sciences can help us understand and ascertain our place in the world.
- **Two Models:**



# Higher Education Curriculum

## Environmental Psychological Science, Environmental Science and Environmental Studies

**Introduction to Environmental Psychological Science**
**(Example of Possible Content)**

**Overview of Environmental Psychological Science**

**Critical Environmental Issues**
-The Local Environment
-The Global Environment

**The Nexus of Environmental Psychology and Science**

**Eco-Psychology: Human-Environmental Interaction**
-Environmental Impacts on Human Health & Wellbeing
-Human Impacts on the Environment
-Health and Toxicology
-Human Destruction of the Environment
-Violence and Criminal Behavior in Mundane and Extreme Environments
-The Scientific and Behavioral Effects of Extreme Environments

**Climate Change**
-The Psychological Effects of Climate and Climate Change

**Conservation Psychology**
~The Role of Humans in Nature
~Environmental Attitudes, Perception and Cognition

**Air and Water Pollution**
~Pollution & Behavior
~Impact on Allergies and Physical and Mental Health

**The Built Environment**
~Impact of the Built Environment on Health, Mental Health & Behavior
~Environmental Design

**Public Spaces**
~Building Effective Public Spaces
~Building a Sense of community and Place
Effects of Public Spaces on Health, Wellbeing, Urban Heat Island Effect, Reduction of Crime and More

**Environmental Policy**
~Environmental Ethics
-Environmental Education

**The Importance of Environmental Literacy, Education & sustainability**
~Sustainability Research and Strategies for the Future
~Small Island and Global Sustainability

**Course Summary and Policy Implications**

**Introduction to Environmental Science**
**(Example of Course Content)**

**Overview of Environmental Science**

**Critical Environmental Science Issues**
~Local Environment
~Global Environment

**Nexus of Environmental Science and Human Interaction**
~Human-Environment Interaction
~Health, Toxicology and Wellbeing
~Human Destruction of Environment
~Solid and Hazardous Waste
~Public Education and Environmental Psychological Science

**Atmospheric Sciences and Environmental Chemistry**
~Air Quality and Pollution
Global Warming and Climate Change
~Ozone, Weather and More
~Alternative Energy

**Oceanography and Wetlands**
~Water Systems, Resources and Pollution

**Conservation Biology**
~Diversity of the Living World
~Natural Resource Conservation
~Impact of Human Activity on Species, Community and Ecosystems
~Interdisciplinary Approaches to Protecting and Restoring Biological Diversity

**Geoscience**
~Earth Atmosphere
~Earth and Soil Permeability
~Permaculture
~Organic Farming

**The Importance of Environmental Literacy, Education and Sustainability**
~Small Island and Global Sustainability

**Course Summary and Policy Implications**

**Introduction to Environmental Studies**
**(Example of Course Content)**

**Introduction and Overview of Environmental Studies**

**The Bridge Between Science, Psychology and Other Related Disciplines**
~Multidisciplinary Involvement and Collaboration

**Human Interaction and the Environment**
~Health, Toxicology and Wellbeing
~Human Destruction of Environment
~Solid and Hazardous Waste
~Public Education and Environmental Psychological Science

**Environmental Health**

**Local Issues**

**Global Issues and Comparative Analyses**
~Air Quality and Air Pollution
~Climate Change, Global Warming and Effects
~Biodiversity
~Water Systems and Oceans
~Alternative Energy
~Air and Water Pollution and Waste
~The Built Environment
~Creating Effective Public Spaces

**The Environmental Effects of Tourism**

**Environmental Ethics and Policy**

**The Importance of Environmental Literacy, Education and Sustainability**
~Small Island and Global Sustainability

**Course Summary and Policy Implications**

# Local and Global Focus

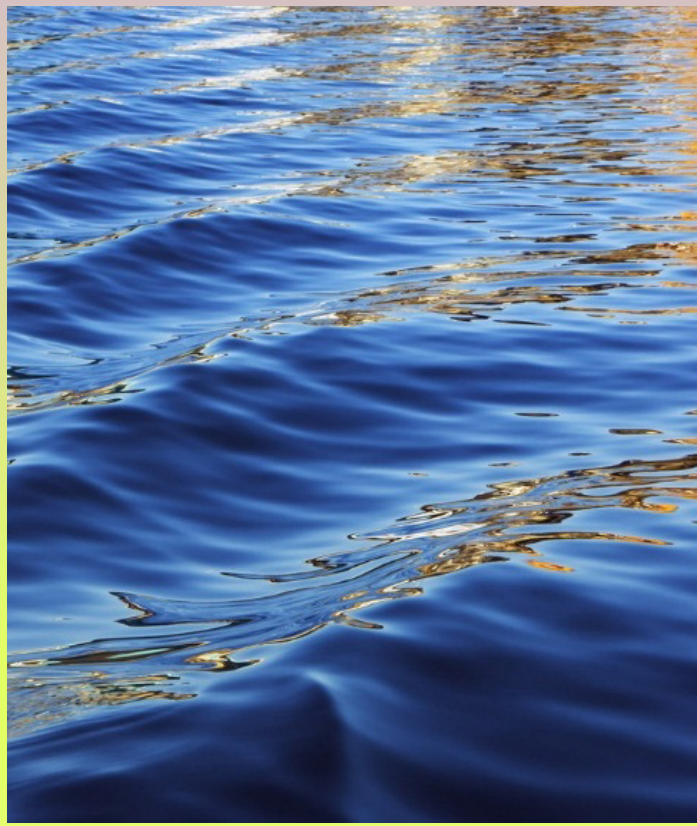

- *Education, Awareness and Content Should be Local and Global. We are an Interconnected World!*
- *When climate change is framed in global terms, people become more peaceful and reconciliatory (Plante & Anderson, 2017).*
- *Educators, teaching faculty, community leaders and related professionals interfacing with students and the public should be familiar with UNESCO's SDGs.*



UNESCO and Sustainable Development Goals. (2019). Online: https://en.unesco.org/sdgs

# Ethics, Responsibility, and Advocacy

Three Core Perspectives



# Promoting an Ethics and Moral Consciousness

## Three Core Perspectives

The ***development ethic*** which is based on the individual (egocentrism). It assumes that humans should be the master of nature and that Earth and its resources exist for our benefit. This attitude assumes that nature has no inherent value; that is, the environment has value only insofar as humans economically place value on it.

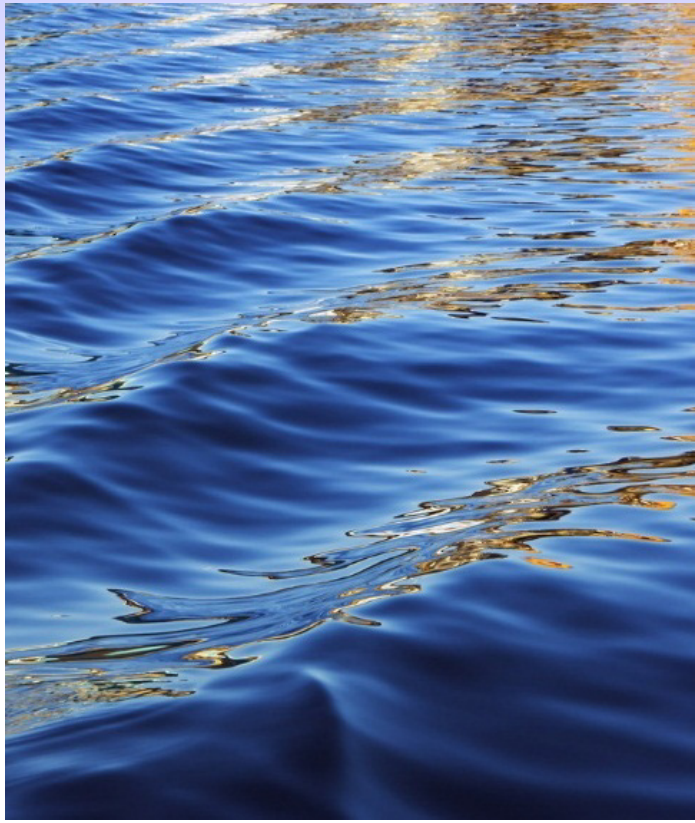
The ***preservation ethic*** considers nature as being special. Nature has intrinsic value or worth apart from human reliance on it. Preservationists have varying reasons for wanting to preserve nature. Some have a strong respect for all life and respect the right of all creatures to live, no matter what the social or economic costs. Other preservationists' interest in nature is primarily aesthetic or recreational.

The ***conservation ethic*** stresses a balance between total development and absolute preservation. It stresses that rapid growth in world population and economics is not sustainable in the long run. The goal of the conservation ethic is that humans must live together with a good quality of life, but in a way that sustains all life and protects Earth.

- Promoting Ethics, Responsibility & Advocacy establishes a relationship between humans and the earth and teaches them their role in keeping the environment safe and protected. It also aids in instilling an ethical perspective.
  - What is morally good and right in terms of human actions as they affect the environment and natural world in which we live?
    - What are the ethical and moral responsibilities of humans for the future sustainability of the nation, world and planet?

# Research, Collaboration, and Models

*Interdisciplinary, Crossdisciplinary and Multidisciplinary*



# Models

| | |
|---|---|
| **Cambridge Environmental Initiative (CEI)** | • Launched in 2004. 8 fields associated with environment: built environment, climate change; conservation; energy; natural hazards; society, policy; and law; waste; ad water.<br>• Interdisciplinary with 35 different departments. |
| **School of Geography & Environment-Oxford** | • Founded in 2005. 5 research clusters, 2 research centers, the Environmental Change Institute, the Transport Studies Institute, 3 interdepartmental research programs, the African Environment program and the Oxford Branch of the Tyndall Center.<br>• Focus-Climate Change. |
| **Oxford Martin School** | • Founded in 2006. Mission-to formulate new concepts, policies and technologies that will make the world and the future a better place to be.<br>• Consists of 30 interdisciplinary research teams for research on aging, armed conflict, cancer therapy, carbon reduction to nanoscience, oceans, science innovation & society, future of mind & humanity. |

# Models

| | |
|---|---|
| **Smith School of Enterprise & the Environment** | • Founded in 2008 to help government and industry.<br>• Focus-climate change. |
| **University College, London** | • Founded in 2008. UCL Grand Challenges.<br>• 4 areas of research: global health sustainable cities, human wellbeing, intercultural interaction. Also the Wisdom Agenda |
| **John Tyndall Center for Climate Change Research and the UK Energy Research Center (UKERC)** | • Founded in 2000. by 28 scientists from10 institutions. Based in 8 British universities.<br>• A multidisciplinary approach to the study of climate change. |

# Models

**The Globe Program-(US)**

The Global Learning and Observations to Benefit the Environment (GLOBE)

- A worldwide science & education founded by Al Gore in 1994. Run by NASA. See video: https://www.globe.gov/about/overview.
- GLOBE provides grade level-appropriate, interdisciplinary activities and investigations about the atmosphere, biosphere, hydrosphere, and soil/pedosphere, which have been developed by the scientific community and validated by teachers.

**Demos-A British Think Tank**

- The focus is on the need for more public participation in discussion about aims and priorities of scientific research and greater openness of science to the public.
- Supported by the Royal Society of Great Britain, Science in Society Program.

**Science in Society Program-Royal Society**

- Founded in 2004 for promoting dialogue with society and influencing and sharing responsibility for policy on scientific matters.
- Embracing a culture of openness in decision-making which considers the values and attitudes of the public.

# Select College & University Models

**Macalester College--Environmental Studies Major and Minor**
http://www.macalester.edu/environmentalstudies/majorsminors/

—

**A Truly Interdisciplinary Approach: Challenges and Opportunities in the Environmental Studies Program at Guilford College**

https://www.guilford.edu/environmental-studies

—

**Athabasca University, Canada--Environmental Studies**

Centre for Interdisciplinary Studies, Faculty of Humanities and Social Sciences
http://envs.athabascau.ca/

- Stetson University, Deland, Florida

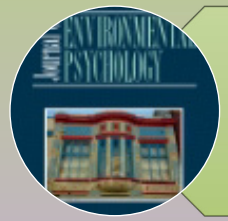
Environmental Studies (3 Tracks)

- ***Environmental Policy and Economics***—for students interested in careers in environmental law, policy development, non-profits, and planning.
- ***Environmental Art and Communication***—for students interested in leading culture change through art, communication and marketing, and who will pursue careers in non-profits, for-profits, and agencies with strong public education goals.
- ***Cultural Geography***—for students who are interested in studying the local and global aspects of human cultures as they are defined by the environment, and who will pursue careers in non-profits, agencies, and foreign service.

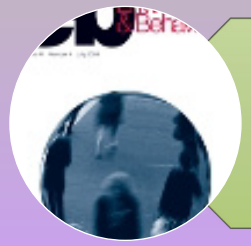
# Research Journals

The *Journal of Urban Affairs* focuses on urban research and policy analysis, and it is among the most widely cited journals in the field. The journal accepts theoretical or methodological approaches to metropolitan problems, empirical research, strategies for social change, and innovative ideas about urban policies and programs.

*Architectural Science Review* is an international refereed journal published by the University of Sydney since 1958 devoted to the science of architecture and the built environment. ASR welcomes submissions of original research papers, articles, and notes in all areas of architectural science, environmental science, environmental sustainability, building economics, audio, acoustics, illumination, history and theory of architectural and building science and technology, and social science pertaining to architecture and the built environment.



*Journal of Environmental Psychology* is directed toward individuals in a wide range of disciplines who have an interest in the study of the transactions and interrelationships between people and their sociophysical surroundings (including man-made and natural environments) and the relation of this field to other social and biological sciences and to the environmental professions. The journal publishes internationally contributed empirical studies, reviews of research, and an extensive book review section.



*Environment and Behavior* includes topics such as beliefs, meanings, values and attitudes of individuals or groups concerning various environments such as neighborhoods, cities, transport routes and devices, or recreational areas; evaluation and effectiveness of environments designed to accomplish specific objectives; Interrelationships between human environments and behavioral systems; planning, policy and political action aimed at controlling environments and behavior.

# Recommendations and Implications

- We need to move outside the narrow box of our disciplines and widen our perspective of how we examine and analyze a problem to study the environment and all problems of living.
- We need to work collaboratively across disciplines. All disciplines should be represented in the dialogue and planning.
- The study of the environment should include such representative scholars from: *environmental psychology, environmental science, visual arts, environmental and ecological engineering, architecture, geography, geosciences, anthropology, sociology, urban planning, agriculture and organic farming, permaculture, tourism, oceanography, economics, biology, biodiversity and biotechnology, atmospheric sciences, environmental chemistry, conservation and preservation, veterinary science, global studies, small island sustainability, medicine, public health and epidemiology, public and social policy, as well as design researchers and professionals, such as interior, industrial, urban designers and other related professionals.*

# Final Thoughts

A basic task is help people around the world acquire a good understanding of what our global problems are and what we need to do about them, It needs to be recognized much more widely that the kind of academic inquiry we have inherited from the past—knowledge is damagingly irrational.

We need to put into practice in schools and higher education, wisdom-inquiry. To tackle the problems of living—globally. This would transform the relationship between universities and the social world.

Higher Education would be charged with becoming fundamentally concerned with promoting public understanding of what needs to be done to create a better, wiser world.

Maxwell and many others are calling for a high-profile campaign to wisdom-inquiry to higher education so that people can flourish and grow.

## How Universities Can Help Create a Wiser World

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