

# Interconnected Climate Risks & Opportunities in Health, Environment, and Education

# Conference Abstracts



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about Health and the Environment



University of Cologne

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Oral Presentation

# The challenge of long-term climate change

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## ABSTRACT

The 20<sup>th</sup> and 21<sup>st</sup> century's climate exhibits a strong warming trend in globally averaged surface air temperature, which is unprecedented during the last millennia. There is a broad scientific consensus that the warming is forced by the increase of the atmospheric greenhouse gas concentrations, especially carbon dioxide. In response to the global surface warming, weather extremes are becoming more frequent and intense. This concerns heat waves, droughts as well as heavy precipitation events with flooding. Moreover, sea levels are rising due to thermal expansion and land-ice melt.

The talk provides a brief history of global warming research, explains how climate models work, and in which manner global surface warming can be attributed to human activities, specifically the emissions of heat-trapping greenhouse gases.

*Keywords:* Climate change, global warming, weather extremes

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Oral Presentation

# The Climate Toolkit: A Collaborative Model for Rethinking Climate Action

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## ABSTRACT

For too long, the conversation around climate action has focused on combatting the problem of climate change as a top-down solution. But climate change is not the problem; it is the symptom of an even greater problem. The real problem is the lifestyles we lead in much of the western world that manifests itself in many other ways such as climate change, loss of biodiversity, environmental racism and global inequity. In our current paradigm, we prioritize immediate, transactional interactions as “good business” over ones that build from an understanding of the short- and long-term effects our actions have on all living things. Our dynamic, vibrant interconnections and relationships to nature disappear when we operate in fragmented isolation and fail to recognize the earth as part of the decision-making calculus. We need to change the way we measure success and take a long-term view of how our actions and decisions will impact our users, co-creators, donors, community and planet. We also need to recognize that solving this crisis will require both a top-down and bottom-up approach. The presentation focuses on the latter and how cultural institutions like museums and gardens can serve as an ideal conduit for modeling a better way to interact with the world and inspire our millions upon millions of annual visitors to do the same. The Climate Toolkit is a collaborative effort of sharing and learning ways to change the way these organizations operate to address climate change that is based on recognizing the unique essence of each institution and their community.

*Keywords:*

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Oral Presentation

# Communicating Public Health in an Era of Science Denial

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## ABSTRACT

An effective public health system is predicated on not only having good scientific evidence, but as importantly, being able to translate that evidence into practice – and public health communication is a core element of this process. But over the past several years, this translation process has become more difficult, as the public and policy leaders reject the messages coming from credible public health organizations and individuals. This has been particularly evident during the COVID-19 pandemic.

The reasons for this backlash are complex and most likely place- and issue-specific. Nevertheless, several key themes have emerged. First, an increasing proportion of the population gets their news from sources known to promote misinformation, such as politically conservative news outlets. These sources have economic and political aims to confront scientific information, and the potential policies that follow. And, surveys have shown that those who get their information from these sources do not follow other news outlets that might offer differing views. Second, the public has access to social media continuously, and these companies use technology to promote those posts that get the most “clicks”—especially misinformation. And finally, there is a fundamental misunderstanding among members of the general public that the scientific process is iterative, and that changes in knowledge are a fundamental part of the process.

Two general approaches exist to overcome misinformation and science denial. The first involves reducing access to misinformation. Curricula exist in primary schools and universities to increase media literacy, by teaching students how to find credible sources of information (e.g., the Media Bias Chart 8.0). The second involves increasing the production and promotion of accurate scientific information (i.e., “fighting fire with fire”). Public health professionals and organizations have increasingly adopted the most current social media tools to communicate their messages (e.g., TikTok, Instagram). Each of these approaches has significant limitations, including concerns about limiting free speech and the steps needed to produce information in an inherently political governmental agency, such as a public health department).

*Keywords:* Public health communications, misinformation

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Oral Presentation

# Transformation towards sustainability - Psychological barriers and catalysts of change

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## ABSTRACT

There is near-to-perfect academic consensus that humanity is responsible for the deteriorating situation of the earth system. This situation, characterized – among others – by biodiversity loss, land-system change and climate change, requires rapid and concerted action in order to prevent life-threatening scenarios. Long neglected, the psychological processes involved in transforming society to a sustainable one contribute to an understanding of the systemic change we need. In this talk, I argue that a focus on collective, rather than individual, processes is vital to define the levers in the system. Specifically, I will position the role of these processes within a multilevel model of transformation. Emerging from this perspective, I present empirical work on different behaviors (e.g., mobility, dietary behavior, activism, consumption, policy support), and how these are subject to social identity concerns. I hope for a stimulating and controversial discussion on how this research informs limits and potentials of psychology in understanding – and overcoming – global crises.

*Keywords:* Transformation, Global crises, Collective action

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Oral Presentation

# The Social Side of Climate Change Education for Youth

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## ABSTRACT

Climate change education research has traditionally focused on climate science knowledge of youth and educators. However, knowledge is not enough to encourage and support positive climate attitudes nor climate action. Instead, in this talk, we will examine several aspects of the social side of climate change education. First, youth and educators talk about climate change in ways that either resonate or not. Research indicates that using a social discourse—one that connects the science of climate change to its social effects—is related to concern and behavior. Second, youth's climate related behavior is highly correlated to the norms of their social groups, more so than their knowledge. Lastly, messages of climate denialism—a socially-constructed “debate” about the existence and causes of climate change—affect youth's attitudes in negative ways and are not buffered by more knowledge. Taking this body of research into account, we will discuss strategies to improve climate change education more broadly.

*Keywords:* climate change, youth, attitudes, behavior, psycho-social aspects

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Oral Presentation

# **Towards climate literacy—some key aspects for consideration in the curriculum in India**

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## **ABSTRACT**

Climate change is a threat no country is exempt from its consequences. Efforts are being made at the global and national level to tackle it. However, it is yet to be considered a topic for daily discourse amongst its citizens in India. Even the existing curriculum falls short of addressing climate change appropriately, if not adequately. A systematic and holistic approach to climate change in the curriculum is the way forward for effectively bringing about climate literacy. This will require systematically incorporating the various aspects of climate change such as Climate System, Causes of Climate Change, Measuring and Modeling Climate, Impacts of Climate Change, and Human Responses to Climate Change, along with preparing relevant resource materials and also equipping teachers to transact the curriculum.

*Keywords:*

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Oral Presentation

# “Climateethics”: Structuring a Standard for African Trade and Development

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## ABSTRACT

As the Global North oscillates between climate change mitigation and adaptation, it is increasingly evident that integrating either of the options into trade and developmental plans at national and regional levels is imperative for sustainable development. Unfortunately, there are differing interests in the Global North and a waning interest in the Global South for ethical trade and developmental practices that can berth the coordinated response needed to reduce the effects of climate change and preserve the earth for future generations. The drive for economic development in the North and South is still at a level that pitches the economy against the environment and may remain so until the world agrees on an international ethical standard that will reflect our concern for the fragility of our global climate. Africa is a resource-rich continent but under severe pressure to push back its high development deficit. A major initiative by the continent is the coming into effect of the Agreement establishing the African Continental Free Trade Area (AfCFTA) to cover a market of 1.2 billion people and a gross domestic product of \$2.5 trillion across all 55 member States of the African Union. It is projected that the active participation of the majority of the member States will translate to steady economic development and an increase in investment in developmental projects in the African States. But this drive for Africa’s economic prosperity may further worsen the situation for Africa if trade and development projects are executed without regard for climate ethical practices. This paper will examine the existing climate change framework for trade and development projects in Africa and the need for a structured ethical standard for the continent.

*Keywords:* Climate, Ethics, Trade

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Oral Presentation

# **Social movements for climate change: the Extinction Rebellion example**

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## **ABSTRACT**

Climate change poses a serious threat to human life and well-being on planet Earth. Scientists have stated clearly what needs to be done to prevent the climate from warming beyond certain temperature thresholds, and yet little real action has been taken toward these goals. The primary obstacle to action is not scientific or technical, but political since the political system in many different countries, especially the US, is captured by fossil fuel interests. Extinction Rebellion (XR) is a social movement that seeks to tell the truth about climate change and what is needed to stop it. XR recognizes the political roadblock to change and seeks to remove it by mass civil disobedience. This talk will discuss XR's successes and failures to date and what the future has in store for it.

*Keywords:* civil disobedience, Extinction Rebellion, political change

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Oral Presentation

# Epidemiology Practice Faces Science Denialism: Rising from the Ashes of Converging Pandemics

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## ABSTRACT

The COVID-19 pandemic has been the largest public health practice challenge faced in our lifetimes, exposing the gripping effect of science denialism on practitioner success in thwarting the pandemic. Science denialism is not new and is an underlying threat, not only to response to a pandemic where no person is unable to claim lack of awareness of devastating counts of illness and death, but also to most emerging health issues: climate change, new ways to ingest harmful substances, or racism as a public health crisis. The deniers' playbook (Carroll 2020) includes (1) doubting the science, (2) questioning scientists' integrity, (3) conflating disagreements among scientists as bad, thereby allowing anyone to be an expert, (4) misquoting harm, (5) elevating personal freedom, and (6) rejecting information that challenges a key belief. Whereas Smith et al (2021), request epidemiologists to engage in policy efforts and remind us that "transmission of SARS-CoV-2 depends on human behavior," how is the public health system to act when the behaviors we try to change are grounded in denial of the very science and evidence public health produces? In this presentation, I shall explore counter-scientific beliefs in the form of attitude roots. As Horsney and Fielding (2017) note, attitude roots are "the underlying fears, ideologies, worldviews, vested interests, and identity needs that sustain and motivate" attitudes such as climate skepticism or science denialism. Those roots can guide persuasion and health communication efforts to align information sharing with those motivations. Examples from the International Network of Epidemiology for Policy (INEP) key working areas of vaccine hesitancy, e-vaping, climate change, and racism as a global health crisis will be reviewed from the construct of science denialism as witnessed from the front row seat of a State Epidemiologist, guiding efforts in one US state to gather, analyze, and disseminate accurate public health surveillance data to both the public and to elected officials.

*Keywords:* epidemiology, denial of science, International Network of Epidemiology for Policy (INEP), attitude roots

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IMES Student Presentation

## **Scientific preconceptions in the general public: the example of Genetically Modified Crops**

**Sophie Nitschke, Jan Kleine-Arndt**

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### **ABSTRACT**

As the world population is expected to continue growing to nine billion people until 2050, a constant increase in food production will be needed to feed the population. Additionally, the increase of extreme weather conditions due to global climate change puts pressure on agricultural systems. Genetically modified crops can be a tool to face those challenges in order to provide food security. But where does the mainly bad reputation of GMOs in the general public come from and how can communication help to create a more realistic picture?

*Keywords:*

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IMES Student Presentation

# The Science of Science Communication - Breaking Down Comprehension Barriers

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## ABSTRACT

The general goal of science communication is to inform decision making. Especially in a more and more complex world, science communication is facing the challenge to communicate those scientific findings and therefore to gain the understanding and acceptance in the broader audience or general public. It thereby helps to expand the knowledge underlying decision-making processes and, in the end, to achieve an improved understanding of the world.

Effective design of this communication is particularly important in decision-making processes where citizens have to step out of their comfort zone or, for example, have to do without something for the common good. Take the topic of flying, for example. What behavior can we reconcile with our conscience and how much exactly do we actually know about the consequences of our travel behavior? Based on this case, we would like to illustrate which tools and steps are available from the science of scientific communication in order to effectively communicate such a topic.

*Keywords:*

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IMES Student Presentation

# Do you remember the Ozone Layer?

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## ABSTRACT

The ozone layer is vital for the life on the Earth. In our presentation we will discuss the fate of the ozone layer during the last decades, and specifically what has happened since the Montreal Protocol. We will also present on the actual state because we aim to emphasize on the importance of the ozone layer as a not yet solved problem and of the continuation of global cooperation until its full recovery.

*Keywords:*

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IMES Student Presentation

# Animal Products: The Problem of Communicating Dietary Changes and How to Address Them Properly

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## ABSTRACT

Factory farming of animal products is known to be one of the major drivers of climate change. One of the most impactful actions an individual can take to minimize their CO<sub>2</sub>-footprint is to reduce the consumption of these products. However, addressing this topic with friends, family or colleagues seems to be very tricky and delicate. People often take suggestions of changing their diet personally, and may brush off information or revert further into existing opinions. We aim to provide information about the psychological mechanisms behind common behaviors and responses. Additionally, we propose different tactics on how to address this topic in a way that allows open minded communication and interchange.

*Keywords:*

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IMES Student Presentation

# Insects as Food: A Health and Environmental Perspective

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## ABSTRACT

According to the report published in 2013 by the Food and Agricultural Organization (FAO) of the United Nations, edible insects are a viable and sustainable food option that could replace meat in the future. Insects are not only nutritionally excellent food with health benefits, but their production also has a smaller environmental impact compared to the production of the common livestock species. The main challenge the insect industry faces today is overcoming the cultural aversion consumers have regarding the hygienic safety, environmental sustainability, and tastiness of eating insects.

*Keywords:*

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IMES Student Presentation

# COVID-19: How the Media's Communication Contributes to a Polarization of German Society

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## ABSTRACT

Our video will deal with the topic of how the media communicate the corona crisis to the broader public and answer a research question along the lines of "*To what extent did the media contribute to a polarization during the Corona crisis in Germany, and which communication strategies/ frames were decisive?*". We aim to provide an outlook of how the media influence our perception of the crisis and offer an explanation of the resulting polarization.

*Keywords:*

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PhD Student Presentation

# Food Insecurity and Climate Change: An Interconnected Crisis

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## ABSTRACT

Globally, food insecurity has been a public health issue for decades. Although often thought to be a problem primarily affecting refugees, migrants, other displaced persons, and individuals in developing countries, it also affects persons across the United States (US) as well, for financial, geographic, and other reasons. Whereas many populations experience food insecurity, one often overlooked group is college students. In the US, it has been reported that college students are more commonly food insecure than their non-academic counterparts. Whereas lack of financial resources is one of the factors, the COVID-19 pandemic may have exacerbated this condition because of isolation, lost wages, enforcement of social distancing, less food diversity and availability, and other reasons. Moreover, with the growing concern of climate change and the calculated impact that is predicted on access to food and proper nutrition overall, US college students are invariably at greater risk of experiencing food insecurity than before, ultimately having an adverse effect on their mental well-being and overall quality of life. In this presentation, I will use personal experiences and anecdotal data to tell a story about the extent of food insecurity in the US college population, the potential worsening effects of climate change and associated agricultural crop yields, and the mechanisms for communicating about these constructs to the at-risk population.

*Keywords:* food insecurity; US college students; climate change; COVID-19

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PhD Student Presentation

# The Role of Faith-Based Communities in Addressing Climate Change

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## ABSTRACT

In our ever-changing world, climate change remains an ongoing concern that threatens and negatively impacts the health of many locally and globally. A closer look at the situation in the United States shows that while each region of the country is experiencing climate change, certain areas are found to be more at-risk due to reasons outside of their geographical locations. These increased risks are a result of societal factors. As climate change influences many health outcomes, it is vital that communities actively assess how these changes are affecting their communities. In particular, communities must identify their most at-risk populations while effectively implementing preparedness approaches aimed at preventing and reducing negative health outcomes. While the fullness of what these health effects can be are still evolving, much like numerous other evolving public health concerns, preparedness is fundamental. With preparedness efforts, it is vital to bring in trusted key stakeholders and partners. Across communities, often these trusted partners belong to faith-based communities in which the community members belong. Faith-based communities have a dynamic and evolving role in our society. These communities are vital drivers for impacting the health of individuals they serve whether that's at the individual level, interpersonal level, organizational level, community level, and public policy level. To build on existing efforts, properly equipping, and utilizing faith-based communities is a great way to help protect individuals from climate change effects. I will share ways in which faith-based communities can serve as vehicles for addressing climate change and how, together, we can make a difference in how we take care of our world by taking care of each other.

*Keywords:* faith-based communities; faith-based organizations; climate change

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Student Presentation

# Assessing the health and Little Buffalo Creek and Sarver Run through backpack electrofishing surveys

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## ABSTRACT

Little Buffalo Creek and its major tributary, Sarver Run, comprise about 21% of the drainage area of the Buffalo Creek Watershed. 64.8% and 52.2% of the stream miles within Little Buffalo Creek and Sarver Run are impaired. Impairment sources to Little Buffalo Creek include agriculture, riparian deforestation, on-site wastewater, and urban runoff. However, impairment sources to Sarver Run are unknown. The Audubon Society of Western Pennsylvania (ASWP) has coordinated conservation efforts to improve the health of the Buffalo Creek Watershed. Our goal was to gain a better understanding of the water quality of Little Buffalo Creek and Sarver Run sub-watersheds. Seven backpack electrofishing surveys, four of which were surveyed in 2013, were conducted and Ohio Index of Biotic Integrity (IBI) was calculated for each site. Results of each fish survey were compared to those obtained in 2013. A significant decrease in IBI is observed at two of the locations surveyed in both 2013 and 2020. Percent lithophilic species decreased significantly at both sites indicating potentially increased sedimentation. Our data will help guide conservation efforts outlined in ASWP watershed conservation plan.

*Keywords:*

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Student Presentation

# Genotyping Hunter-Harvested Black Bears in Pennsylvania

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## ABSTRACT

In this study, microsatellite analysis was conducted on animals harvested during Pennsylvania's black bear hunting season to determine the probability of identity value and provide a preliminary analysis of the population's genetic structure. This information can be used in wildlife forensic cases, management decisions, and monitoring any future changes in the population.

*Keywords:*

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Student Presentation

# Detecting Native Freshwater Mussels in Pennsylvania Waterways: Traditional Methods vs. Environmental DNA Techniques

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## ABSTRACT

Environmental DNA (eDNA) is shed by organisms in the form of tissues, feces, and gametes, allowing scientists to extract DNA from environmental samples (usually water) to detect target species. This is particularly useful in areas where traditional sampling is difficult, or where species are in low abundance. eDNA-based methods have several advantages over traditional sampling methods, including lower costs, less required time, and fewer hazards to researchers and the organisms being studied. Freshwater mussels are a highly imperiled group of organisms due to past and current threats, including overharvesting, invasive species, and habitat destruction/modification. Individuals of freshwater mussel species tend to be rare and difficult to detect/identify morphologically, making them good potential candidates for eDNA-based studies. Many recent studies have compared the effectiveness of eDNA surveys with traditional electrofishing, a common survey method to sample fish populations. Very few studies, however, have applied eDNA-based methods to freshwater mussels or compared them to morphological surveys. With this project, we seek to describe native mussel populations in several waterbodies within the Pittsburgh area, including the Allegheny River, Pine Creek, and its tributaries using both eDNA-based methods and traditional morphological surveys.

*Keywords:*

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Teacher Student Presentation

# How can Education for Sustainable Development be promoted at School?

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## ABSTRACT

Education for sustainable development achieves a societal transformation in which people around the world are empowered to shape their thinking and actions with the future in mind. But what role can school play in achieving this, and how can education for sustainable development be promoted within schools? One example is the "Weltbürger AG" ("global citizen club") who is making a positive contribution within the Hildegard-von Bingen secondary school in Cologne since May 2016. Their main aim is to promote the development of new products from discarded materials.

A key achievement and principle of this club is their ability to practically implement the topic of sustainability and visibly raise awareness on this issue within the educational system for students. The deeper goal is to create an educational culture where the value and importance of sustainability is recognized and understood from a young age.

We visited the school club various times and interviewed the teachers and the students involved for a better insight into the way it operates. The school club is open to all grades from years five to twelve. The goal of "Weltbürger AG" is to encourage students to demonstrate a willingness to engage and connect with the world and future generations. Furthermore, the program supports students to shape the future in a sustainable way. Students are encouraged to reflect on their actions and are able to form and discuss their opinions on different aspects related to sustainability. There is a strong organizational focus on empowering students to raise awareness outside of the project; spreading the message to their friends and family. A collaborative team work approach is intended to strengthen the sense of belonging and mutual appreciation of all participants.

*Keywords:* sustainability, education, environment

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Teacher Student Presentation

# Urban Gardening – “Essbare Stadt Köln“

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## ABSTRACT

Half of the world's population lives in cities and the trend towards urbanization is increasing. In Germany, as much as 77 % of the population lives in urban areas. Consequences of this ongoing urbanization are climate change and the loss of biodiversity. In addition, urban environments develop into heat islands. The project “Essbare Stadt Köln” - could be named in English: “Eatable city Cologne” - provides a nature-based solution related to these problems and can be associated with urban gardening.

The overall aim of this project is the sustainable production of food within the city. It is not about complete self-sustaining, as this goal cannot be achieved. Another aim is the planting and revegetation of urban areas. Allotments, community gardens, garden spots, green strips, orchard meadows, green roofs and facade greenings originated from this project. It aims to bring about a rethinking of the use of public spaces in the city. Newly created habitats cause animals to settle again in these areas, thereby increasing the biodiversity and helping to protect endemic plants and animals. Also, the urban heat island effect can be reduced by increasing green areas. Many gardens also serve as extracurricular learning environment. In addition, the projects of “Essbare Stadt Köln” also provide a space for encounter and recovery for people, that do not have their own garden. Thereby it promotes the social coherence, as well as health and wellbeing.

Therefore, the project offers solutions for many socially problematic aspects of urbanization and counteracts climate change.

*Keywords:* Urban gardening, sustainability, biodiversity, “Essbare Stadt Köln”

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Teacher Student Presentation

# Investigation on the practicability of environmental sustainability measures among greening grey infrastructure by facade greening at the University of Cologne

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## ABSTRACT

In times of critical environmental events, caused by effects of the anthropogenic climate change, scientists, movements, and humans all over the world are hatching for short- and long-term solutions. Especially in Germany, urban green space is becoming increasingly scarce caused by surface sealing and real estate investment speculations. In general, there is also a huge interest to improve air quality and avoid overheating in cities. One solution for urban space to avoid hotspots or particulate matter contamination can be realized by changing existing real estate objects into greening gray hybrid infrastructure and architecture. This can be realized by fitting out existing urban infrastructure with facade greening to regulate the median temperature and even reduce carbon dioxide or NoX out of the local air, as like it was researched in a field study in 2016 by M. Aduse-Poku and H.G. Edelmann, even though the reputation of facade greening in local society is still poor. In fact, this is nothing new and well known for a society or institution that is especially close to natural sciences, like the University of Cologne. Yet, there is a pronounced, partly complicated and very complex administrative structure, traditionally characterized by bureaucratic requirements to overcome before it comes to permissions changing, adjusting or inventing the system of regulations. However, there are existing and realized projects in the whole region and not only of Cologne, such as a funding program of the City of Cologne, especially for facade greening. There must therefore be public and/or institutional interest for this kind of measures. The central question of our investigation will focus on pointing out the practicability and to try to work out possible hurdles, barriers or similar, inhibiting or delaying the realization of measures for improving environmental sustainability at the university as well as local buildings, and possible perspectives. We shall try to achieve this crucial information by interviews and getting statements from governmental and non-governmental key stakeholders in order to present them during the Winter Meeting.

*Keywords:* anthropogenic climate change, green infrastructure, bureaucratic hurdles, green facades, cologne district

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Teacher Student Presentation

# “Unser WaldKlima”

## Environmental Education

### Project at the University of Cologne

Fynn Bertram, Katharina Jentges

Master of Education, University of Cologne, Institute of Biology Education

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#### ABSTRACT

Environmental problems caused by climate changes is present among the society. Protest movements like “Fridays for Future” show that there are potentials for changing mind in terms of priority in the direction to protect the environment and to curb climate change. However, there are obvious discrepancies between environmental knowledge and environmental action.

The aim of environmental education should shift the focus from the environmental knowledge to the specific options for action to maintain the environment. In addition, environmental behavior of each person has to change in order to protect the future of next generations. Therefore, one aim of modern schools currently is to teach environmental education in order to generate environmentally friendly abilities behavior. Due to the anthropogenic climate change, the sustainability of forests on this planet is under pressure. Heat waves, droughts, forest fires and insect pests destroy the resilience of the forest ecosystems. This is of special interest, because forests with their ability to absorb carbon dioxide, have a predominant role in climate protection.

The “Unser WaldKlima” (our “forestclimate”) project of the Institute of Biology Education of the University of Cologne ties in this problem. The projects intention is to sharpen student’s awareness of their own behavior and to show the role of forests for climate protection. The project starts with school education and tries to create nature experiences for students to establish a value of nature. Based on research-based learning, the project aims to increase students' motivation by combining digital learning with practical work in the form of experiments and nature experiences. The freely accessible materials on the “WaldKlima” project homepage for teachers provide students the opportunity to independently develop questions about the problem of climate and forest, to search for answers, to reflect on results and to draw conclusions about their own behavior.

*Keywords:* environmental knowledge, environmental education, WaldKlima Project, environmental behavior, digital learning, research-based learning

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Student Presentation

# India: A Step Closer To Achieve SDG Targets in Energy

Ashish Sutar, Ankita Paradkar, Mrunmyee Pawar

Institute of Environment Education and Research, Bharati Vidyapeeth University, Pune, India

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## ABSTRACT

Most of our electricity comes from nonrenewable energy sources like coal, nuclear, and other sources. Producing energy from these resources has a severe impact on our environment, polluting our air, land, and water. Goal 7 of the SDGs aims to correct the enormous imbalance by ensuring everyone has access to affordable, reliable, and modern energy services by the year 2030. To expand energy access, it is crucial to enhance energy efficiency and to invest in renewable energy. India is well on the path to meet these targets by taking number of initiatives. This presentation showcases the case studies and initiatives taken by India in the field of Energy including the floating Solar Panel, one of its kind in India.

*Keywords:* Solar energy, climate change, SDGs

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Student Presentation

# **e-rase your e-waste!**

**Ayushika Saraswat, Radhika Jagtap**

Institute of Environment Education and Research, Bharati Vidyapeeth University, Pune, India

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## **ABSTRACT**

This presentation focuses environmental problems related with the discarded electronic appliances, known as e-waste. Several studies have pointed out that failure to adopt appropriate recycling practices for e-waste may cause environmental disasters and health concerns to humans due to the presence of hazardous materials. This warrants the need for a review of the existing processes of e-waste management. Moreover, we will cover the current and the future production of e-waste, the potential environmental problems associated with their disposal and management practices in India.

*Keywords:*

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Student Presentation

# Our tiny superheroes: Microbes

Kaustubh Priyansh

Bharati Vidyapeeth University, Institute of Environment Education and Research, Pune, India.

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## ABSTRACT

When it comes to education in India, we have wide diversity of systems ranging from international schooling systems, national boards as well as tribal schooling systems. Indian education system uses diverse pedagogical techniques, the most dominant of which still is teacher centered. Student centric learning and using the outdoors is still not common. SDG 4, i.e. Quality Education, in states “students should be educated in a way where, they should know how to connect their knowledge to real life, and the education should be inclusive, and no child should be left behind”. This presentation will focus on an evaluation done of students’ knowledge about micro-organisms given the COVID 19 scenario as well as textbook content. It was found that the knowledge of microorganisms was very limited despite their utility as primary producers, decomposers, fixator of miner cycles and much more. They are first introduced in the later stages at junior high school, and the content is limited to bookish knowledge, lacks real life perspectives. The presentation will also focus on the interventions made to inculcate knowledge of microorganisms and their role in our lives.

*Keywords:* Pedagogy, Microorganisms, SDGs

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Student Presentation

# Simulation Of Urban Pluvial Flooding in Pune City, India

Mayur Kumbhar

Bharati Vidyapeeth University, Institute of Environment Education and Research, Pune, India

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## ABSTRACT

Climate change and rapid urbanization can lead to extreme weather conditions like heavy rain and drought. The city of Pune is witnessing extreme weather patterns heavy rainfall and rainstorms. The rainstorm in the last week of September 2019 not only caused massive economic damage but also killed 22 citizens. In this context, this research is an attempt to assess and develop a model for pluvial flooding in the Dhayari ward of Pune city using the open-source model and high-resolution geospatial datasets.

This study proposes a methodology to model 2D surface overland flow using high-resolution DEM in HEC-RAS software and to model a 1D sewer network in SWMM software to estimate the vulnerable population at risk of Pluvial floods in Pune City. Using heavy rainfall that took place on 25 September 2019, the simulation results will help to identify the flooded area with an inundation depth and to find the hydraulic capacity of the existing drainage system. The pluvial flooding in Pune city affected approximately 1.9 million people between 21 hrs 25 September and 00 hrs 26 September. The result of the research may help the civic body of Pune for the identification of areas prone to pluvial floods for better management and mitigation of pluvial floods in near future.

*Keywords:* Urban Pluvial Floods, simulation, geospatial technologies, climate change

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Student Presentation

# **Bats in the Classroom – Addressing children’s perception of bats through an environmental education initiative**

**Nayantara Siruguri**

Bharati Vidyapeeth University, Institute of Environment Education and Research, Pune, India

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## **ABSTRACT**

Bats are certainly not favourites among animals, especially for children, and even more so in the light of perceived health risks during the COVID-19 pandemic. However, such negative perceptions only persist because people are largely ignorant about the wonderful ways in which bats live, behave, and help human beings. This research aimed to study school children’s perception of bats in Maharashtra, India, and test the effectiveness of a brief bat education intervention in positively changing their perceptions. Not only did the intervention successfully and positively change children’s perceptions, but the findings of this study also offered interesting insights into the use of non-traditional methods, lessons about designing environmental education initiatives for bats and other “disgusting” animals, and other opportunities in climate and environmental education.

*Keywords:* bats, classroom, education, COVID 19

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Student Presentation

# Solar energy in India - paving way for a "brighter" future

Rajat Rao, Crystal Fernandes, Tanaya Rele

Bharati Vidyapeeth University, Institute of Environment Education and Research, Pune, India

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## ABSTRACT

Solar energy and its applications have always been looked at from an industrial point of view by the global north as something that needs to be harnessed. There are the usual talks about setting up large scale power grids and accumulation of immense energy capital, often ignoring the potential uses it can have in serving people at the local level. This presentation brings a few interesting case studies about use of solar energy, simply for sustenance. The case studies cover various applications such as - solar house heating, solar energy driven borewells and solar fence systems. In the process, highlighting the creative ways in which solar energy can be used to bring about meaningful change.

*Keywords:* solar energy, climate change, SDGs

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Student Presentation

# Are Consumers consuming our planet?

Rupali Bedake, Aman Upadhyay

Bharati Vidyapeeth University, Institute of Environment Education and Research, Pune, India

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## ABSTRACT

The presentation will focus on waste generated in the retail sector and the food waste scenario in developing countries. The data relevant to this comes from a survey that has been carried out and the use of secondary literature. The presentation explores the relationship between the current pandemic, climate change and consumerism linking it finally to the sustainability triangle along with challenges and probable solutions.

*Keywords:* consumerism, solid waste, sustainability, SDGs, climate change

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Student Presentation

# Covid 19: Welcome to the NEW NORMAL

Rutuja Phadke, Ananya Gupta, Tanu Yadav

Bharati Vidyapeeth University, Institute of Environment Education and Research, Pune, India

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## ABSTRACT

Covid-19 pandemic has changed our lives in many ways. We have come a long way to accept this new normal. A lot has changed since the world went on a pause after the first case of covid-19 was reported. Be it about health consciousness, mental health etc. Many of us went through the adjusting process and even found comfort in the new norm. Improvement in health facilities and adaption to digitisation are few of the SDG (Sustainable Development Goals) push. This presentation delves deeper into this new normal and what it means for our planet.

*Keywords:* COVID 19, new normal, SDGs

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Student Presentation

# Conservation Psychology: Strengthening our bonds with nature

Sangbuanliu Gonmei, Charu Sharma, Geetanjali Paliwal

Bharati Vidyapeeth University, Institute of Environment Education and Research, Pune, India

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## ABSTRACT

The human-nature relationship goes beyond the extent to which an individual believes or feel they are part of nature. Our very own existence cannot sustain without it. The field of conservation psychology aims to create stronger connections between the natural and social sciences, between research and practice ultimately making efforts to achieve environmental sustainability. Moreover, it encourages people to care about the natural world and its role in it. We will take a look as to how integrating augmented-science backed ideas into religious/cultural beliefs helps us in conservation, thereby tackling climate change. The ideas of how things when related to traditions, end up having a bigger impact.

*Keywords:* tradition, science backed ideas, human-nature relationships, climate change

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Student Presentation

# Urban farming: A Way Forwards to Sustainability

Swati Aswal, Ganga Kerudi

Bharati Vidyapeeth University, Institute of Environment Education and Research, Pune, India

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## ABSTRACT

India's predicted population is expected to cause an acute food shortage and will overburden the current agriculture system. Rapid urbanisation, degradation of agricultural lands, climate change, changing occupations, land conversion to non-agricultural uses puts enormous pressure. Small landholdings, issues of market access absence of cold storages, poverty aggravate the problem.

Urban farming has been a popular concept in cities across India. This presentation focuses on sustainability in urban farming practices and their role in ensuring food security, good health and stable income besides addressing other issues stated above.

*Keywords:* urban farming, climate change, health, poverty, SDGs

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