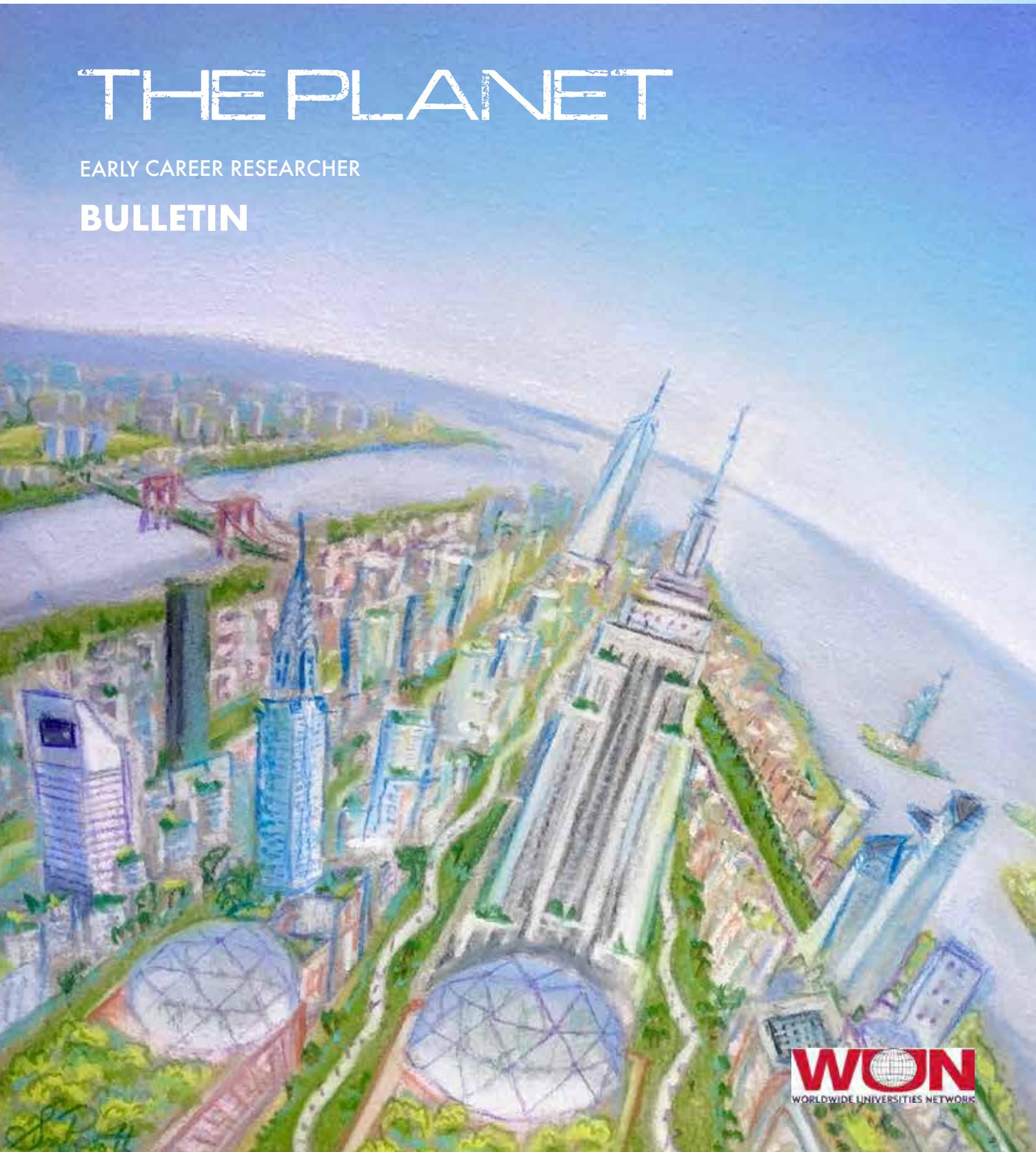


THE PLANET

EARLY CAREER RESEARCHER

BULLETIN



THE PLANET

The Planet is an Early Career Researcher (ECR) Bulletin published on a quarterly basis by inVIVO Planetary Health. *The Planet* contains global and local planetary health news stories, *Spotlight* - an ECR interview or article, advice from senior researchers, events and quizzes!

If you have any feedback or would like to contribute to *The Planet* in the future, contact our editors:

Jake: jmrobinson3@sheffield.ac.uk

The Planet Editors



Jake M. Robinson
PhD Researcher & inVIVO board member
Nature-based interventions; microbial ecology
University of Sheffield



Danielle MacCarthy
PhD Researcher
Urban nature; health; urban design
Queen's University Belfast



Jacob Mills
PhD Researcher
Microbial ecology; restoration
University of Adelaide

Background art throughout *The Planet* by Susan Prescott



Professor Susan Prescott
Pediatrician and Immunologist
Founder and President of inVIVO
Planetary Health

Planetary

Health in the News



Charging ahead: how to make sure the electric vehicle transition is sustainable and just

By Rachel Lee; source: The Conversation UK, reproduced under the CC licence.

Electric vehicles (EVs) are hitting the roads in ever greater numbers. Global EV sales were up by 168% in the first half of 2021 compared to 2020, and are expected to cost the same as – or even less than – combustion (petrol and diesel) cars by 2028 at the latest. Accompanied by proposed government bans on the sale of combustion vehicles in many countries, EVs will be increasingly commonplace over the next decade.

But EV uptake brings its own set of challenges. While the UK's national energy provider has assured consumers that there is "definitely enough energy" to facilitate mass EV adoption, the problem lies in how to sustainably and cheaply supply cars with power.

Our local networks were not designed to charge millions of cars with energy simultaneously and, as we move towards a zero-carbon electricity system with variable wind and solar generation, the energy may not be there when we need it most.

The key to handling this lies in ensuring EVs are able to affordably charge when there is plenty of wind and sun-driven energy available. Coordinating this requires significant planning and government investment into a smart charging network.

How to charge

When we decide how to charge an EV, a key consideration is the vehicle's "dwell time" at its charging location.

If the driver is at home for the night or at work for the day – and therefore in no rush to charge – they can use a seven kW charger, a standard home charger in the UK, to charge their car for a week's driving (about 250km) in an eight hour session. But if the driver decides to charge their car on the same charger while they pop to the supermarket for just 45 minutes, they'll only get around 30km of extra range: barely enough for a day's driving.

Planetary

Health in the News



Dwell times and charging speeds



How long cars parked at different chargers need to power up. Author provided

In the latter situation, a “DC Rapid” charger – which typically provides between 50 to 150kW – is more appropriate. While they are far more expensive – typically at least ten times the cost of a standard home charger – you get what you pay for: using these chargers will provide roughly a week’s driving in just 45 minutes. The problem with these rapid charges is that, as well as being expensive, they place large demands on electricity infrastructure which could lead to local blackouts. Since, on average, cars spend about 95% of their time parked, you’d ideally want them to be slowly charging from excess renewable energy during that time, with rapid charges reserved for long road trips and occasional emergency charges.

Planetary Health in the News



In future, cars might also help support their local electricity grid by discharging power at times of high demand when renewable generation is low – a technology known as “vehicle-to-grid”. To enable this technology, communication between chargers and cars needs to be a two-way street, allowing drivers to simultaneously charge up and support the grid.

Energy inequality

Access to power is also a financial issue. For those with off-street parking at home, staying plugged in is easy, but many don't have that option. That means plugged-in households will have access to low-cost travel, whilst those without home charging will face higher costs due to expensive street charging. In the UK, around 7 million households, many on lower incomes, fall into the latter group.

We must widen access to charging not just to help the grid, but also to reduce social inequity. Street chargers could be automatically assigned to the car owner's account when they plug in, enabling those without home charging to access a full range of services for the same cost as someone with a home charger.



Charger availability for EVs could lead to increased inequality. EVClicks

Planetary Health in the News



In the UK, we'd need about 750,000 street chargers to ensure that those without home chargers can charge once a week. If we want to make use of the energy storage in those cars to help balance production and consumption from the grid – and to achieve the UK's net zero target – I'd estimate we'd need up to 5 million chargers. That would require 500 new street chargers to be installed every day between now and 2050.



The Honda e, a new fully electric car, is an example of EV models hitting the market. EVClicks

Using our cars to help balance our grid will likely be cheaper than energy storage alternatives like pumped-storage hydroelectricity or liquid air storage, since we already have some of the infrastructure we need. But to make this happen, car manufacturers, network operators and energy suppliers – and the UK government – must coordinate to put the right chargers in the right places at the right time.



Spotlight

Early Career Researcher Article



Author: Adrián Rosales, National Officer for SCOCCE

Discipline: Planetary health

The Standing Committee on Climate Change and Environment (SCOCCE) was born with a clear goal of battling the greatest threat facing humanity in the twenty-first century: climate change. It is made up by students in the healthcare profession who together seek to protect health through strategies that can help prevent, reduce and mitigate the impacts of climate change on our world and contribute to the sustainable development of society. As climate change is undervalued in the health sector, SCOCCE seeks to take advantage of the unique position carried by future healthcare professionals in order to create initiatives that help strengthen both medical education as well as the actions that students, population and society can take to protect the environment.



Honduras is home to incredible biodiversity with over 400 species of birds and large areas of mangrove forests



Spotlight

Early Career Researcher Article



Author: Adrián Rosales, National Officer for SCOCCE

Discipline: Planetary health

The committee's approach is defined by three guidelines: provide healthcare students with the necessary knowledge on the effects of climate change on health, position the damage caused by climate change as a vital issue in human health and promote friendly lifestyles with the environment (including flora and fauna). SCOCCE's vision is a world where human beings can coexist in harmony with the environment, with healthcare professionals that have the necessary knowledge and skills to prevent and resolve the effects of climate changes in the health of the society. It carries as its mission to be a team of future healthcare professionals committed to the implementation of environmental protection activities and adaptation of strategies towards mitigating the effects of climate change to benefit the health of the society. SCOCCE IFMSA-Honduras plays a pivotal role as according to the Global Climate Risk Index, Honduras has been the most affected country by climate change in the last twenty years; also, being positioned by GermanWatch as the most susceptible country to the effects of climate change because of its geographic location positioned between the Atlantic and Pacific Oceans.

The effects of climate change are not only present in its landscape and beaches but are also present in its economy and development, ultimately affecting the health of its inhabitants. Concerning the committee's activities, SCOCCE has worked on the creation of the "ecoseries", a series of webinars open to the general public that aims to promote sustainable lifestyles, dealing with aspects of fashion, gastronomy, tourism, energy, among others. As well as more specific, individual webinars with the purpose of raising awareness and, more importantly, developing skills in people, such as the relationship between marine ecosystems and climate change mitigation, for example. Regarding medical education, SCOCCE has been part of the organization of an international symposium of health and environment where issues of planetary health, decarbonization of the health system, ecofeminism, direct and indirect impacts of climate change on health, and more were discussed. Also, SCOCCE recently launched the annual Photography Contest with the theme of nature and climate change and its effects on health, supporting small Honduran entrepreneurs, thus promoting the circular economy in the country.

Planetary Health researcher profile: Danielle MacCarthy

I am an interdisciplinary researcher at Queen's University Belfast with interests that span the health-nature relationship at nexus of built environment and urban nature and with broader interests in planetary health. I am currently in the final year of the PhD and closing phase of the project. I bring my urban planning and psychology background together to analyse the built and natural environment with respect to the role different types of urban nature play for physical activity in older adults in Belfast Northern Ireland and how the factors that shape ageing healthy are implicated in this urban environment – physical activity relationship.

Using a premise of salutogenesis as the driving theory to guide the research, I examine, isolate and highlight characteristics which engender wellbeing in older adults. Salutogenesis provides an important contribution to maintain and develop health among older people, however, research and application in practice has not always achieved the expected attention and impact (Maas et al, 2016). The approach nevertheless complements the World Health Organisation which defines active ageing as a process of optimising opportunities for health, participation, and security to enhance quality of life as people age (WHO, 2002).

Globally, around 3.2 million deaths per year are attributed to inactivity. In industrialised countries and increasingly in developing countries, levels of chronic health conditions are rising and levels of physical activity are declining. Simultaneously, we face ageing populations in most OECD countries, . Many studies to date have not explored the typologies of greenspaces and how they impact on physical activity in older adults.

My research utilises a mixed methods approach and examines 4 dimensions of urban nature; objective greenness, perceived nature, biodiversity indicator and psychosocial properties. I use GIS to map these typologies of urban nature and conduct regression models with objective and perceived physical activity data in addition to qualitative data through focus groups. The neighbourhood is considered a key activity space for older adults and as work by Hong (2019) outlines, it plays a key role in mitigating against NCD's. Having a greater understanding of the multiple dimensions of greenspaces within neighbourhood remains relatively understudied.

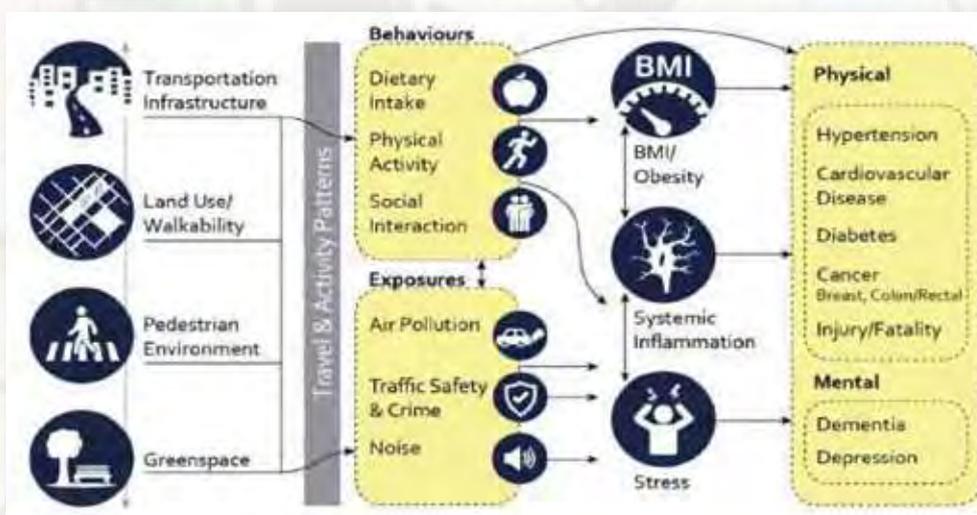


Figure 1. Hong (2019) Pathways from built environment to health

Planetary Health researcher profile: Danielle MacCarthy

At planetary scale, we have now entered the sixth mass extinction and face rapid biodiversity loss, highlighting the role of urban nature in neighbourhoods involved in the health-relationship inevitably engages with wider global concerns around how human habitats and human behaviours coexist with the natural environment. Questions around equity, conservation and preservation of natural environments and impacts on health are critical. My research brought me into contact with the inVivo network and ECR colleagues, who as an outcome of the Detroit 2019 inVivo conference and conversation, collaborated to write a paper entitled '*Traditional ecological knowledge in restoration ecology: a call to listen deeply, to engage with, and respect Indigenous voices*'.

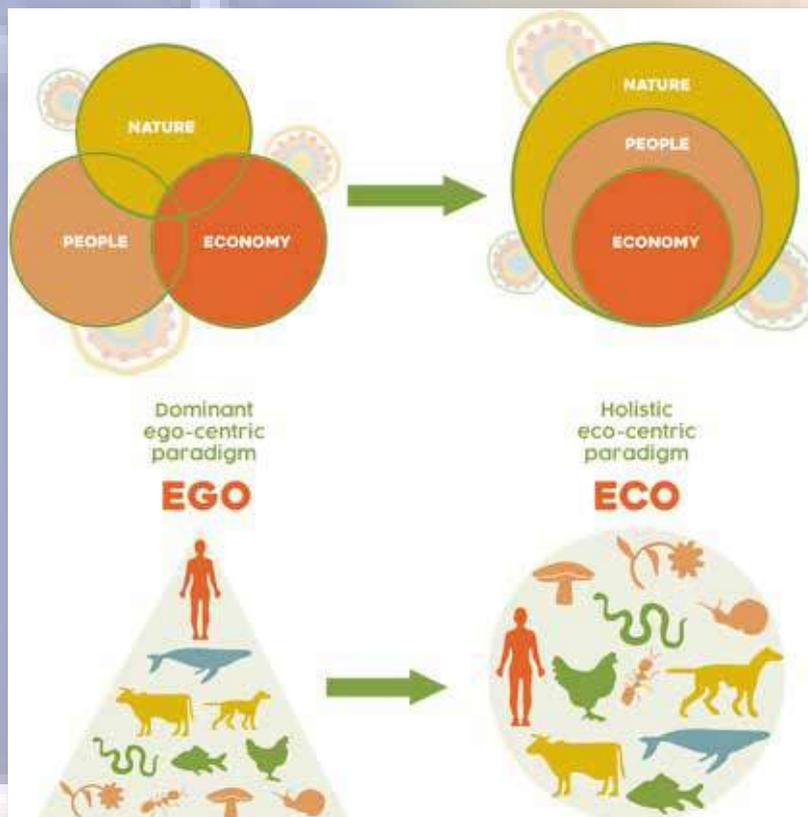


Figure 2. Top panel: the rights-of-nature paradigm versus current model of sustainability (adapted from Ito 2017); and bottom panel: ego- versus eco-centric views of nature (artwork by Barkindji, Malyangapa Designer Jasmine Craciun, 2020)

Being a part of this network has enabled me to foster these connections between disciplines and fields, to begin to understand and unlock the complexities in addressing the most pressing questions of our age and move towards planetary health. The pandemic in 2021 has brought a new urgency to an already intensely critical moment. Where 2020 became the tipping point, 2021 has escalated to a survival mode, with global climatic disasters converging with public health crises, begging for a new direction. Research and work in this field is essential and it feels crucial to be a part of this network at this moment.

Dmaccarthy01@qub.ac.uk
@wakingcities

Planetary Health Activists

Irish Doctors for the Environment by Dr Aoife Kirk (MBBchBAO MPH)



Climate change, once the domain of environmental activists and nature lovers alone, is now widely recognised as the serious threat that it is – to our planet, to our economy and to our health. The IPCC report released in August 2021 confirms that it is indisputable that human influence has warmed the planet (1), resulting in raised global surface temperatures, air pollution, rising sea levels and other knock-on effects. This projected rise in greenhouse gases will have significant knock-on effects to human health, unless urgent action is taken on large-scale level internationally.

Irish Doctors for the Environment (IDE) was established in September 2018 to co-ordinate a team of clinicians in Ireland who are passionate about climate action. We strongly believe that climate change and human health are irrevocably linked, and thus it is our responsibility as doctors to raise awareness of this link, to take action on environmental health issues and to encourage others, clinicians and our patients, to do likewise. We take our direction from the concept of 'Planetary Health' – a term coined by the Rockefeller Foundation Lancet Report as the "health of human civilisation and the state of the natural systems on which it depends" (2).



Planetary Health Activists

Irish Doctors for the Environment by Dr Aoife Kirk (MBBchBAO MPH)



From air pollution, to heatwaves, to ocean health, the links between the environment and human health are abundant. At IDE, we release a bi-monthly newsletter sharing articles, facts and resources on our social media and prior to COVID-19 pandemic, we held numerous educational events. We are actively involved in policy-making, through numerous submissions to Department of Health, local councils and international events. The group also endeavour to effect change in our workplaces, tackling issues such as waste management, energy use and sustainable food choices in hospitals, and hope in the future to expand our reach to bigger projects such as divestment by healthcare faculties. To get involved, sign up for our newsletter at www.ide.ie, follow us on Twitter at [@irishdocsenv](https://twitter.com/irishdocsenv) or our instagram handle [@irishdocsenv](https://www.instagram.com/irishdocsenv). Membership is at present available only to registered doctors in Ireland, however, anyone can receive the newsletter. For those interested in taking a more active role, contact us on irishdocsenv@gmail.com, or come along to one of our monthly meetings for more information.

There has never been a more exciting time to get involved in climate action – so why wait?



In Conversations with Irish Doctors for the Environment (PODCAST) we talk to a diverse range of inspirational people who share a deep commitment to their communities and the natural world that sustains them.



Announcing the Nova Institute Art Award for creatives of all ages!

We invite any work that seeks to **provoke or inspire change for the health of people, places, and planet**

Submit your work and creations now by email to: [**thenovaprize@gmail.com**](mailto:thenovaprize@gmail.com)

Why we think this is important:

Creativity of all kinds is vital for our future. Artists challenge the status quo, provide inspiration, and help create new narratives. Through our art we hold a mirror to societies that we may better see ourselves, celebrate what is beautiful, and understand what is broken. Bringing the conversation directly to the heart helps us all feel connected to something bigger with greater kindness, love, and compassion. Creativity provides new perspectives and possibilities for change, a stronger sense of community, belonging, and shared purpose towards overcoming challenges at every scale. This is something that everyone can be part of...because we can all find joy in creating!

Inviting people of all ages and perspectives to share:

Sharing creativity is also a special opportunity to invite children into important conversations about change and give voice to their hopes for the future. This helps remind us all what is important, encourage authenticity, and break down barriers. It creates a place of respect and meaning where we can find fulfilling self-expression as well as shared solutions and mutual benefits with the health of all people, places, and planet in mind.

Please share your creativity to help inspire and create this space.

We will create a virtual gallery to showcase all entries to an international audience on our website, and during the inVIVO Planetary Health annual conference! You can simply share your work for an award in the following categories:

Photographic Award

- Gold winner: \$500
- Silver winner: \$250

General Art Award: This includes all forms of painting, drawing, digital art, and 3-D creations (for ages 13 years and over).

- Gold winner: \$500
- Silver winner: \$250

Young artists award: This category is especially for pre-teen children (12 and under: please tell us your age!).

- Gold winner: \$100
- Silver winner: \$50

We look forward to your inspirations! For people who wish to share without entering an award, please indicate that you are "simply sharing" when you submit. You may submit more than one item. We look forward to sharing your submissions at the **inVIVO conference!**

THE PLANET



www.invivoplanet.com