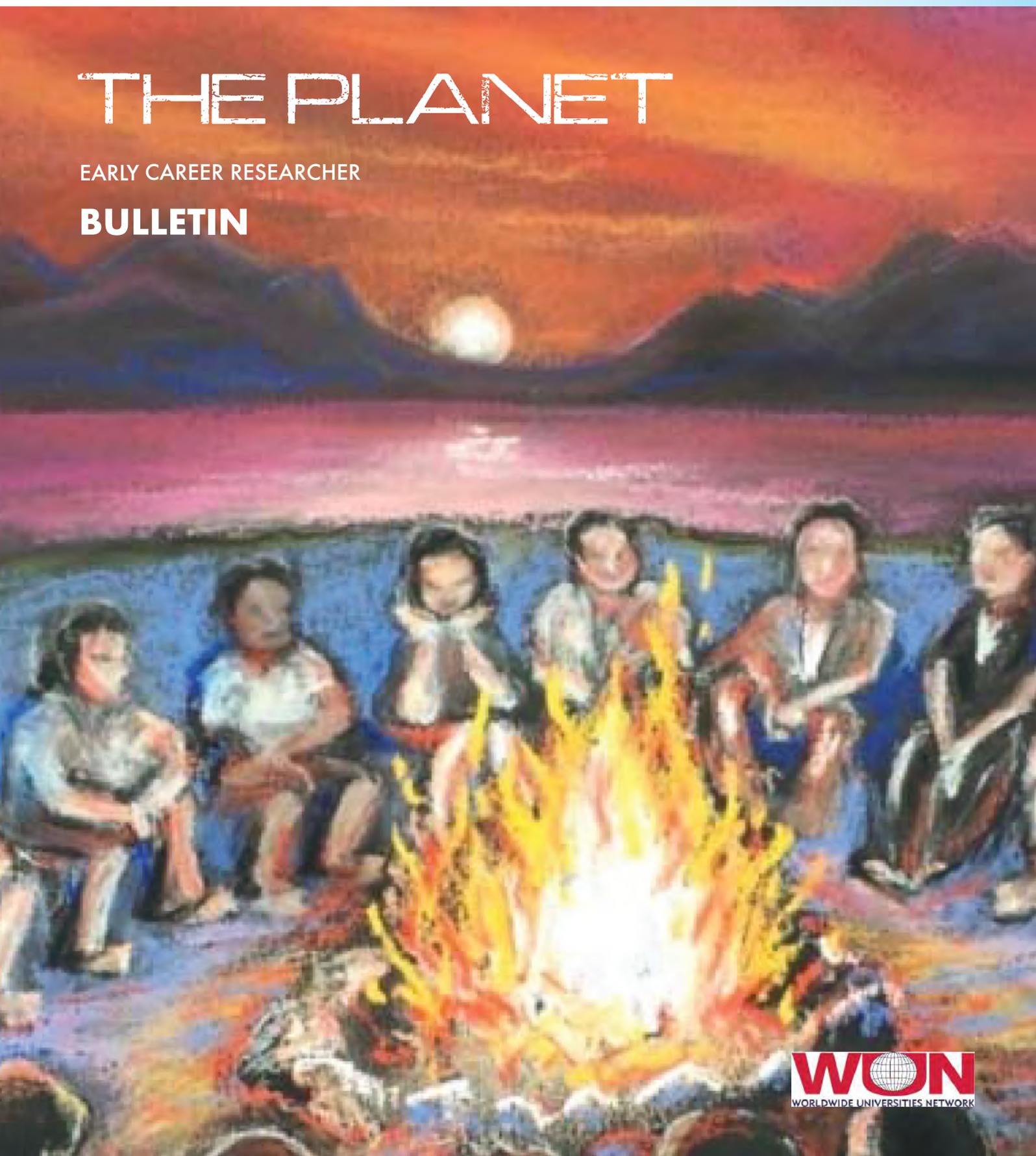


THE PLANET

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



'How slowing climate change saves lives'

A recent article in the Time covers this topic:

The article covers a recent modelling study published in the Lancet. The new research shows that 'millions of lives could be saved annually by 2040 if countries raise their climate ambitions to meet the Paris Agreement targets'. By adopting Paris-level climate plans and prioritizing health, nations could save millions of lives due to better diet, cleaner air, and increased exercise. The study focuses on nine nations which are home to half the world's population and 70% of the world's emissions (Brazil, China, Germany, India, Indonesia, Nigeria, South Africa, the United Kingdom and the United States).



'The study's findings come at a vital moment. Paris agreement signatory nations have just a few months before November's meeting in Glasgow, also known as COP 26, to update and revise their NDC pledges. "The report findings therefore provide an important further incentive not only for the world's leaders to make good on their climate commitments in new NDCs but also to align environmental and health objectives in Covid-19 recovery plans," says Margaret Chan, Former Director-General of the World Health Organization, in a Comment article also published in the special issue. "After all, healthier populations will prove more resilient to future health shocks."

To find out more, visit the news article and study here:

<https://time.com/5937651/climate-change-health-emissions/>

[https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196\(20\)30249-7/fulltext](https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(20)30249-7/fulltext)



Spotlight

Planetary Health Researcher Article



Author: Dr Byomkesh Talukder, PhD

Discipline: Planetary health

Inaugural Planetary Health Fellow, York Univeristy, Canada

At present, I am appointed as the Inaugural Planetary Health Fellow in the Dahdaleh Institute for Global Health Research at York University, Canada (<https://www.yorku.ca/dighr/>). I am also a part-time visiting scholar in the Department of Systems Design Engineering, Faculty of Engineering, Waterloo University, Canada. At the Dahdaleh Institute, I am leading three research projects entitled "Complex Adaptive Systems Modelling of Health Impacts of Climate Change"; "Agent-Based Modelling of Climate Change, Salinity, Health Impacts and Conflict in Coastal Bangladesh" and "Digital Technologies and Local Food Security: Smallholder Farmers in Odisha, India, In the Context of COVID-19".

These projects address the modeling of variables from six sub-systems to capture health impacts of climate change: ecological degradation, extreme weather events, infectious disease, agriculture and food security, disaster management and public health policy. These projects are designed on the complex adaptive system framework of systems thinking. The outcomes of these projects will be used for scenario planning, public health forecasting and community-based adaptation planning. I am also involved as a team member in projects entitled "Ecological Footprint and Health Indicators" and "Mapping Imported Food Supply Chains to Identify Climate Change-Related Health Risks" initiated by Dahdaleh Institute.

In my Mitacs Postdoctoral Fellowship (2016-2018), I developed a multi-indicator supply chain management framework for food convergent innovation in the dairy business at Parmalat Canada in collaboration with the Desautels Faculty of Management, McGill University, Canada. In my PhD dissertation, I carried out leading-edge research in sustainability assessment of food and agricultural systems using Multiple Objectives Decision Making techniques from the systems thinking perspective. I applied this method to evaluate and compare the sustainability of the coastal agricultural systems in Bangladesh through an extensive multidimensional data set I personally collected. This systems analysis work combines social, environmental and economic data to inform food and agricultural sustainability policy. In my dissertation, I also developed a multidimensional framework to design and develop sustainability indicators and indices.



Spotlight

Planetary Health Researcher Article



Author: Dr Byomkesh Talukder, PhD

Discipline: Planetary health

Inaugural Planetary Health Fellow, York Univeristy, Canada

My work has gained international attention, and I have been invited to share my research findings at key international conferences on sustainable development, planetary health, climate change, food and agriculture. Over a 10-year period, under my close supervision, more than 2000 civil servants of Bangladesh received training on various sustainability issues such as climate change agreements, climate change impacts and health, sustainable development, environmental management, disaster management, ecosystem-based adaptation, biodiversity, sustainable development.

Broadly my work experiences are in planetary health, health impacts of climate change, sustainable development and sustainability assessment, vulnerability assessment, agriculture, food security and health, multidimensional data management and analysis, multidimensional indicator design and development, multi-criteria decision analysis, systems thinking, complex adaptive systems, agent-based modeling, and system dynamics modelling.

The following are a few of my papers on Planetary Health issues:

Journal Papers

1. Talukder, B., Orbinski, J., Matthew, R., Bunch, J. M., vanLoon, G. W. & Hipel, K.W. (2021). Melting of Himalayan Glaciers and Planetary Health. *Current Opinion in Environmental Sustainability Journal*. Elsevier (Accepted).
2. Matthew, R., Orbinski, J., Chiotha, S. & Talukder, B. (2021). Climate Change and Infectious Disease in Sub-Saharan Africa's Peri-Urban Areas. *Landscape and Urban Planning*. Elsevier (Under Review).
3. Talukder, B., Boran, I., Bunch, J.M., Matthew, R., Chiotha, S., vanLoon, W.G., Hipel, W. K. & Orbinski, J. (2021). Planetary Health & COVID-19: A Multi-Mechanism Analysis. *One Health Journal*. Elsevier (Under Review).
4. Talukder, B., Orbinski, J., vanLoon, G. W., Hipel, K. W. & Chiotha, S. (2020). Health Impacts of Climate Change on Smallholder Farmers. *One Health Journal*. Elsevier (Under Review).
5. Talukder, B., vanLoon, G. W. & Hipel, K. W. (2020). Climate Change, Ocean Biodiversity and Planetary Health. *Environmental Research Journal*. Elsevier (Under Review).

COVID through my eyes by Manila Poudel (Nepal)

With a blink of an eye, COVID-19 took 2020 by storm. Everything was turned upside down, hampering many sectors including academia and the medical sectors. I believe that everything has its own purpose and the definition of each phenomena varies, which solely depends upon the individual's perspective. For the past 7 years, I have been working in the field of Biotechnology (which is very interesting!). However, the subject of so much interest and scope is not well-known by the people of my country (Nepal). The question mark on my degree by such people has always upset me mentally. All I could do was listen to them and act like a nerd. The reason for this was not because I didn't know anything, it was because of the lack of opportunities to showcase my knowledge and talent.

With the appearance of the first COVID-19 case in Nepal on January 23, 2020, the whole nation panicked. Survival was the only thing one could think of at that time. I do not want to remember all those lockdown periods watching the news about the infected and the deceased ones. Nonetheless, during this time, one good thing happened in my life for which I am and will forever be grateful for. For a country like ours, the terminology "PCR" became an overnight hit, which ultimately poured the light upon the importance of the Biotechnological field. With the increasing case rates, the demand for Biotechnologists also increased. I was lucky enough to serve the nation at such a unprecedented time.

Though I was ready physically, I was not ready mentally to process all those COVID samples in the laboratory. Each day when I arrived home from work, a question "are you safe?" used to pop in my head. It almost took a couple of weeks for me to actually get into the work with my heart. Despite the disease which is obviously awful, it is exciting to get inside the extraction room where you get to extract the RNAs and then run that genetic material in the PCR machine. It gives a kind of chill to me since I was always eager to work in such a field.



Nature based solutions

by Clair Cooper

In cities, the built and natural environment are important determinants of health, particularly among groups that are disadvantaged by relative poverty, unemployment, low status, gender, ethnicity and disability (WHO, 2012). Evidence of the impact of green and blue space provided by Nature-based Solutions (also referred to as NBS) play an important role influencing physical health outcomes such as overall general health, obesity, birth weight, child behavioural development, but also the prevalence of mental health conditions across society (see Lovell et al., 2018; Dzhambov, et al. 2018; Dempsey et al, 2018; Vaeztavakoli, et al., 2019). Research suggests contact with nature may support a reduction in the prevalence of cardiovascular, musculoskeletal, respiratory and other diseases, especially among groups with greater access to greenspace and low socio-economic status (James et al., 2014; Sandifer et al., 2015). While there are many studies that examine the relationship between different types of green and blue space and health, no study has compared the relationship and size of the effect between different types of NBS and health outcomes. To fill this gap, researchers at the NATURAVATION project, a four-year project funded under the EU Horizon 2020 Programme, conducted a study to examine the relationship between different types of green or blue space based on the terminology developed by Almassy et al. 2017. Ecological domains include green space that is connected to the external fabric of buildings such as green roofs and green walls; urban green space that is connected to grey infrastructure such as street trees or greenified alleys; urban parks such as neighbourhood greens, urban forests or pocket parks; greenspaces used for food production such as allotments or community gardens; indoor green spaces; blue spaces such as sea coasts and wetlands; green areas for water management including swales, raingardens and sustainable urban drainage systems, and lastly, derelict areas or vacant plots of land with patches of wilderness.

Using inferential statistics and size effect analysis, the study examined the relationship between different types of ecological domains and ecosystems services provided by NBS and health outcomes using data published by the Urban Nature Atlas (Naturvation, 2017) and mortality indicators for cities published by the Urban Audit (Eurostat, 2017). After adjusting for confounding due to material deprivation, Figure 1 on the following page shows some types of external green buildings such as green roofs and green walls, large urban parks and botanical gardens, seacoasts and green balconies are significantly associated with mortality due to respiratory or heart disease. Although relationship directionality is unknown, these findings are consistent with research that suggests NBS such as green walls play an important role in the removal of high concentrations of pollutants.

Nature based solutions continued...

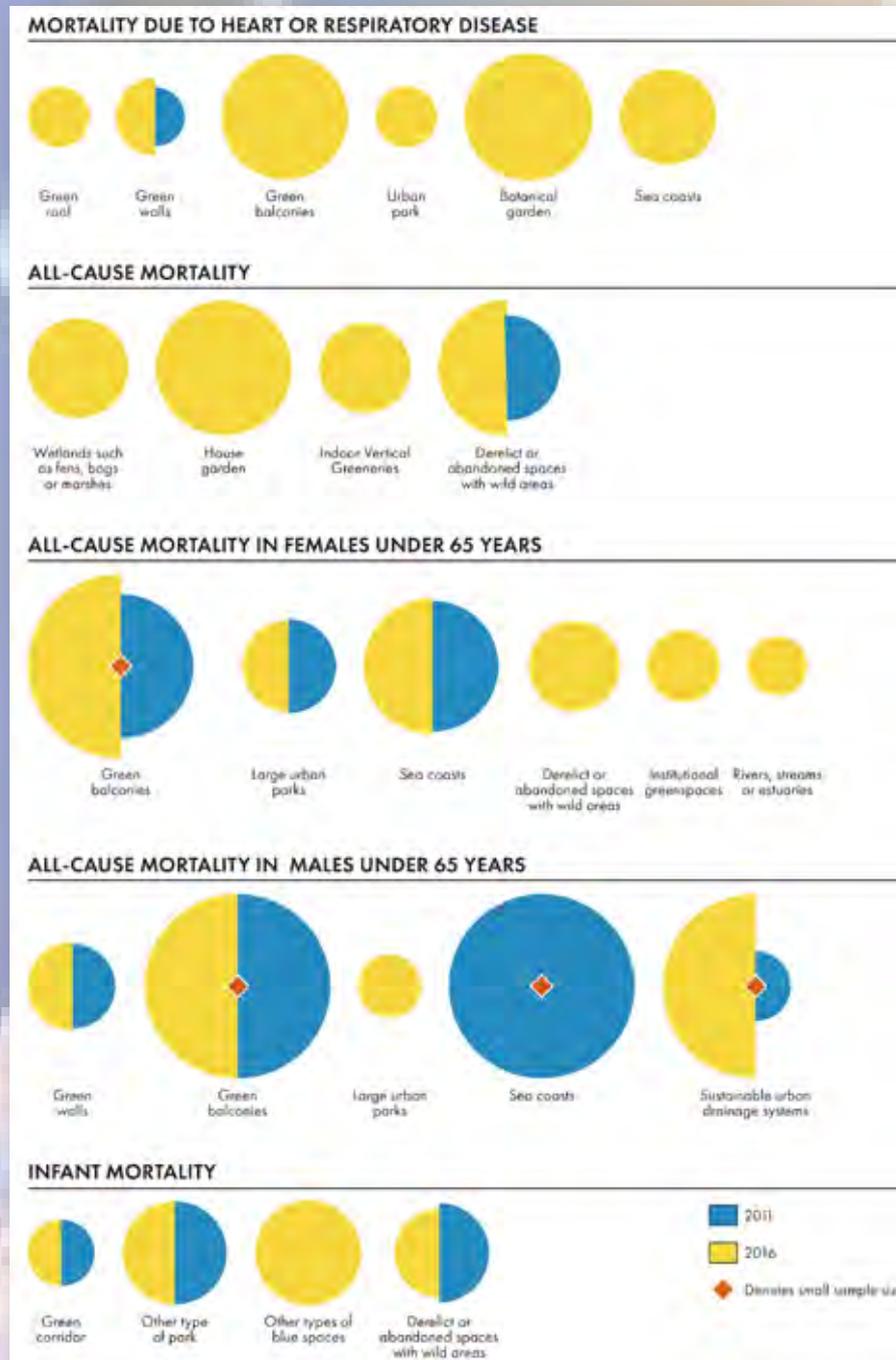


Figure 1. Association and size effect between ecological domains, mortality due to heart or respiratory disease, and all-cause mortality.

Nature based solutions

by Clair Cooper

All-cause mortality and blue spaces such as wetlands or fens, NBS connected to residential properties and derelict land or vacant plots with wild areas, were also moderately to strongly related to all-cause mortality, but when the study examined the relationship between gender and mortality we found different results. In women and men under 65 years of age, all-cause mortality was strongly significantly related to types of external green buildings such as green balconies, large urban parks and seacoasts, but the size of the effect was much weaker in men than women and their where differences too. For example, sustainable urban drainage schemes were significantly related to mortality in men but not women.

Further research needs to be undertaken to establish if there is a causal relationship between different types of NBS and mortality, but analysis of qualitative commentaries that accompany indicators published in the Urban Nature Atlas suggest NBS aim to influence health and well-being by reconnecting citizens with urban nature, improving liveability and establishing therapeutic landscapes in cities, but also aim to provide services that will increase the availability of environmental resources to aid climate adaption, improve access to greenspace, provide areas of shade and communal spaces to help facilitate social cohesion, but also regenerate urban space and stimulate green growth.

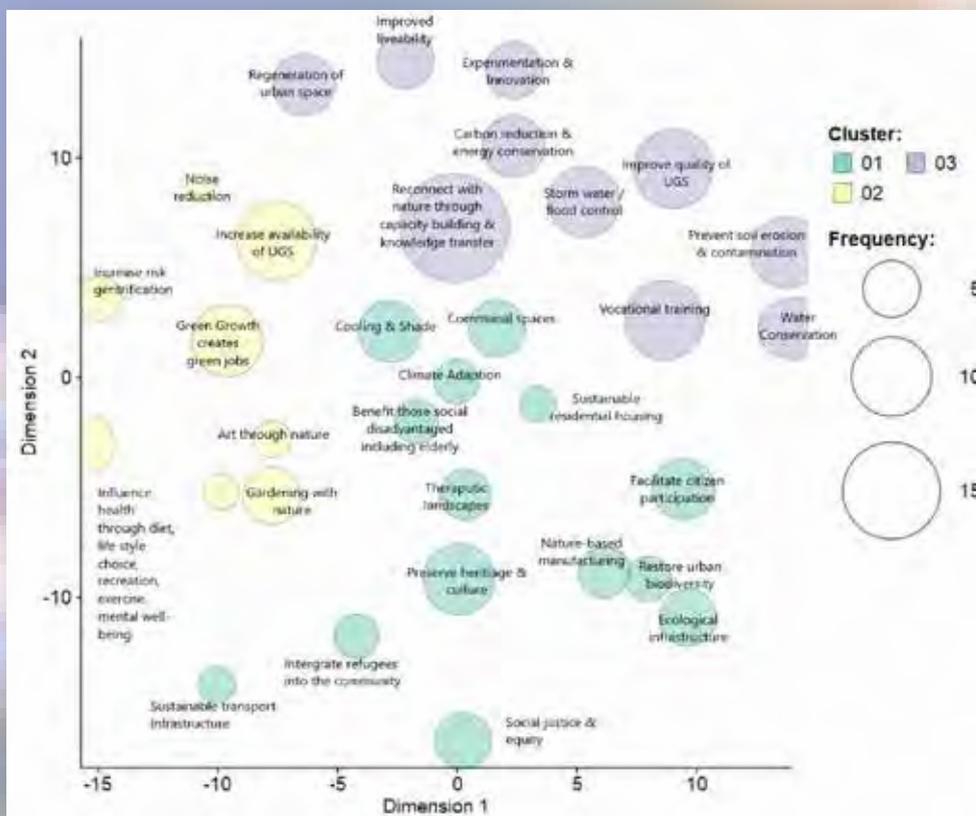


Figure 2. Pathways linking NBS and health.

inVIVO's Media Picks

Final Straw: Food, Earth, Happiness (74min)

This is a feature-length film, as well as an education and community action project that ran for nearly a decade. It deals with "natural farming" which is not really a way of farming, but a way of seeing ourselves in relation to the rest of the living earth.

The film and website are still available at www.finalstraw.org/



Food, Earth, Happiness (20 min / free)

The short, freely available version of the documentary. A journey through natural farms in Japan, Korea, and the United States that turns our perceptions of food (and life) upside down in simple and poetic ways. The filmmakers weave beautiful landscapes and an eclectic original soundtrack together with inspiring stories that give new relevance to age-old ideas about how to live with the earth.

https://www.youtube.com/watch?v=mEC_qqn6epg



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