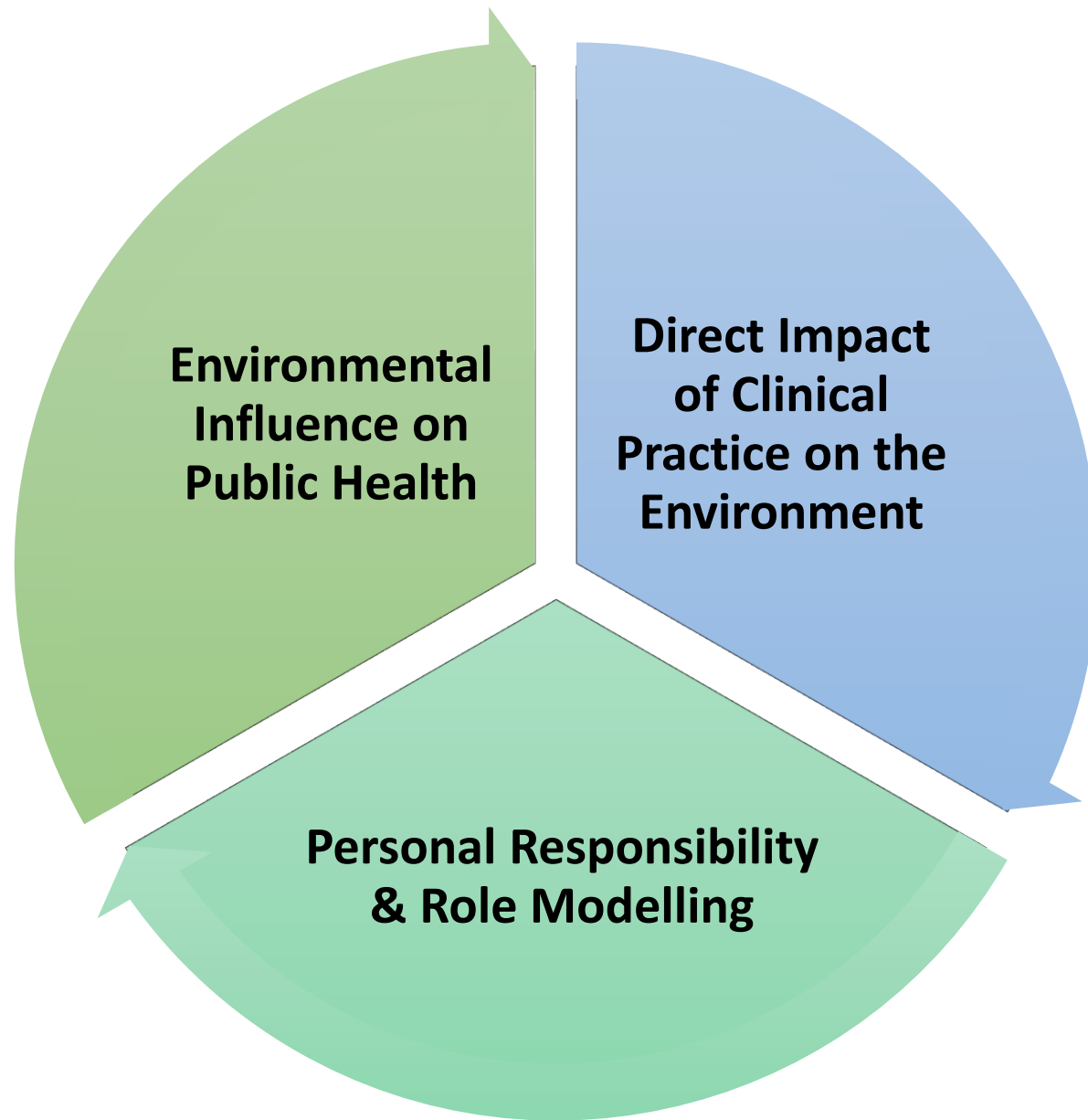




Starting the conversation:

# Sustainability in Healthcare



**Environmental  
Influence on  
Public Health**

**Direct Impact  
of Clinical  
Practice on the  
Environment**

**Personal Responsibility  
& Role Modelling**

**1** NO  
POVERTY



**2** ZERO  
HUNGER



**3** GOOD HEALTH  
AND WELL-BEING



**4** QUALITY  
EDUCATION



**5** GENDER  
EQUALITY



**6** CLEAN WATER  
AND SANITATION



**7** AFFORDABLE AND  
CLEAN ENERGY



**8** DECENT WORK AND  
ECONOMIC GROWTH



**9** INDUSTRY, INNOVATION  
AND INFRASTRUCTURE



**10** REDUCED  
INEQUALITIES



**11** SUSTAINABLE CITIES  
AND COMMUNITIES



**12** RESPONSIBLE  
CONSUMPTION  
AND PRODUCTION



**13** CLIMATE  
ACTION



**14** LIFE BELOW  
WATER



**15** LIFE  
ON LAND



**16** PEACE, JUSTICE  
AND STRONG  
INSTITUTIONS



**17** PARTNERSHIPS  
FOR THE GOALS



**THE GLOBAL GOALS**  
For Sustainable Development

# Biodiversity and human health

**Health** "is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity".

**Biological diversity** (biodiversity) is "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems."

**Biodiversity underpins ecosystem** functioning and the provision of goods and services that are essential to human health and well being.

The links between **biodiversity and health** are manifested at various spatial and temporal scales. Biodiversity and human health, and the respective policies and activities, are interlinked in various ways.



**Direct drivers** of biodiversity loss include land-use change, habitat loss, over-exploitation, pollution, invasive species and climate change. Many of these drivers affect human health directly and through their impacts on biodiversity.

**Women and men** have different roles in the conservation and use of biodiversity and varying health impacts.

**Human population** health is determined, to a large extent, by social, economic and environmental factors.

**The social and natural** sciences are important contributors to biodiversity and health research and policy. Integrative approaches such as the Ecosystem Approach, Eco-health and One Health unite different fields and require the development of mutual understanding and cooperation across disciplines.

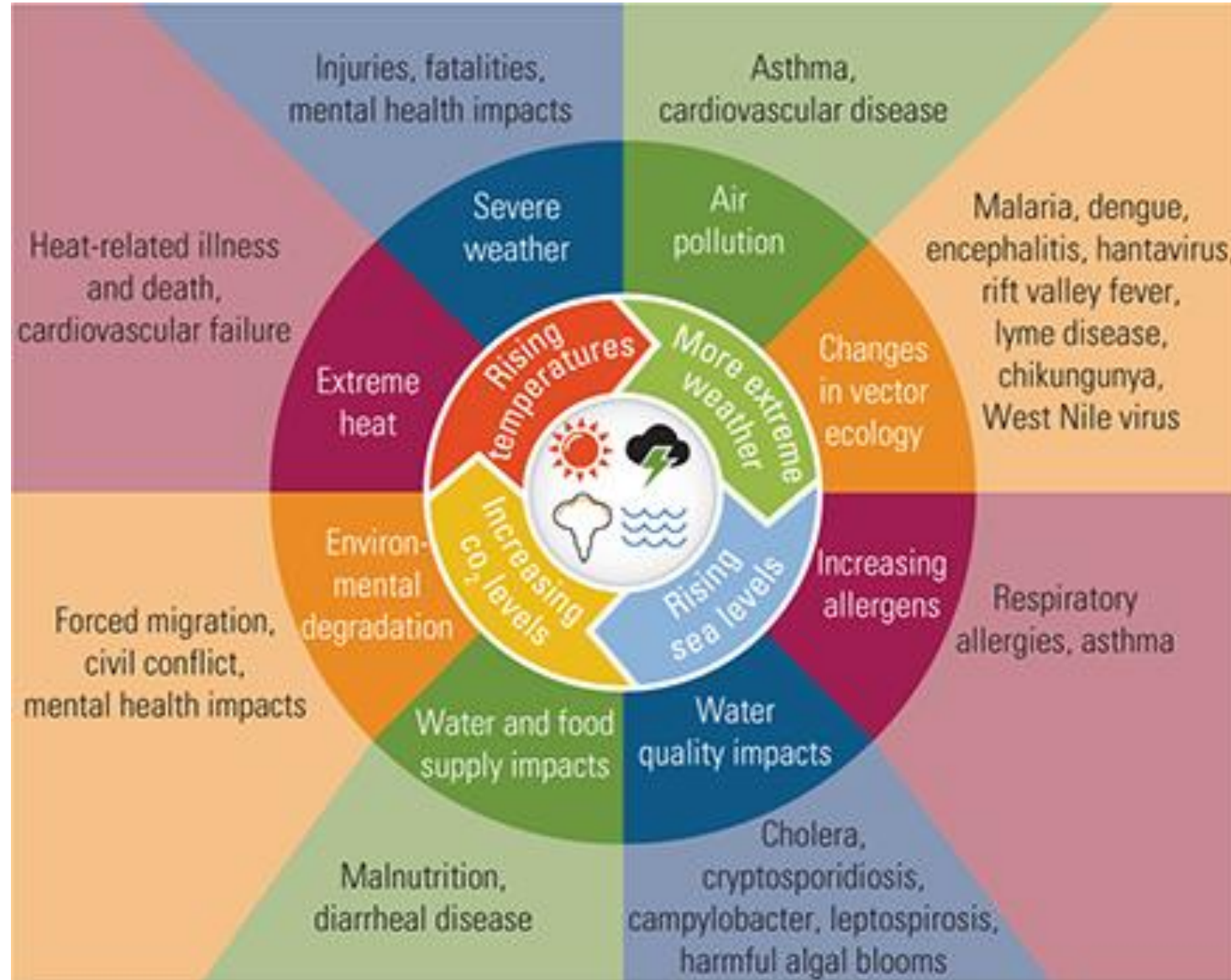


Malnutrition is the single largest contributor to the global burden of disease affecting citizens of every country in the world from the least developed to the most. Two billion people are estimated to be deficient in one or more micronutrients. At the same time, the consumption of poor-quality processed foods, together with low physical activity, has contributed to the dramatic emergence of obesity and associated chronic diseases.



# Micro organisms & Microbiomes

Humans, like all complex plants and animals have microbiota without which they could not survive.



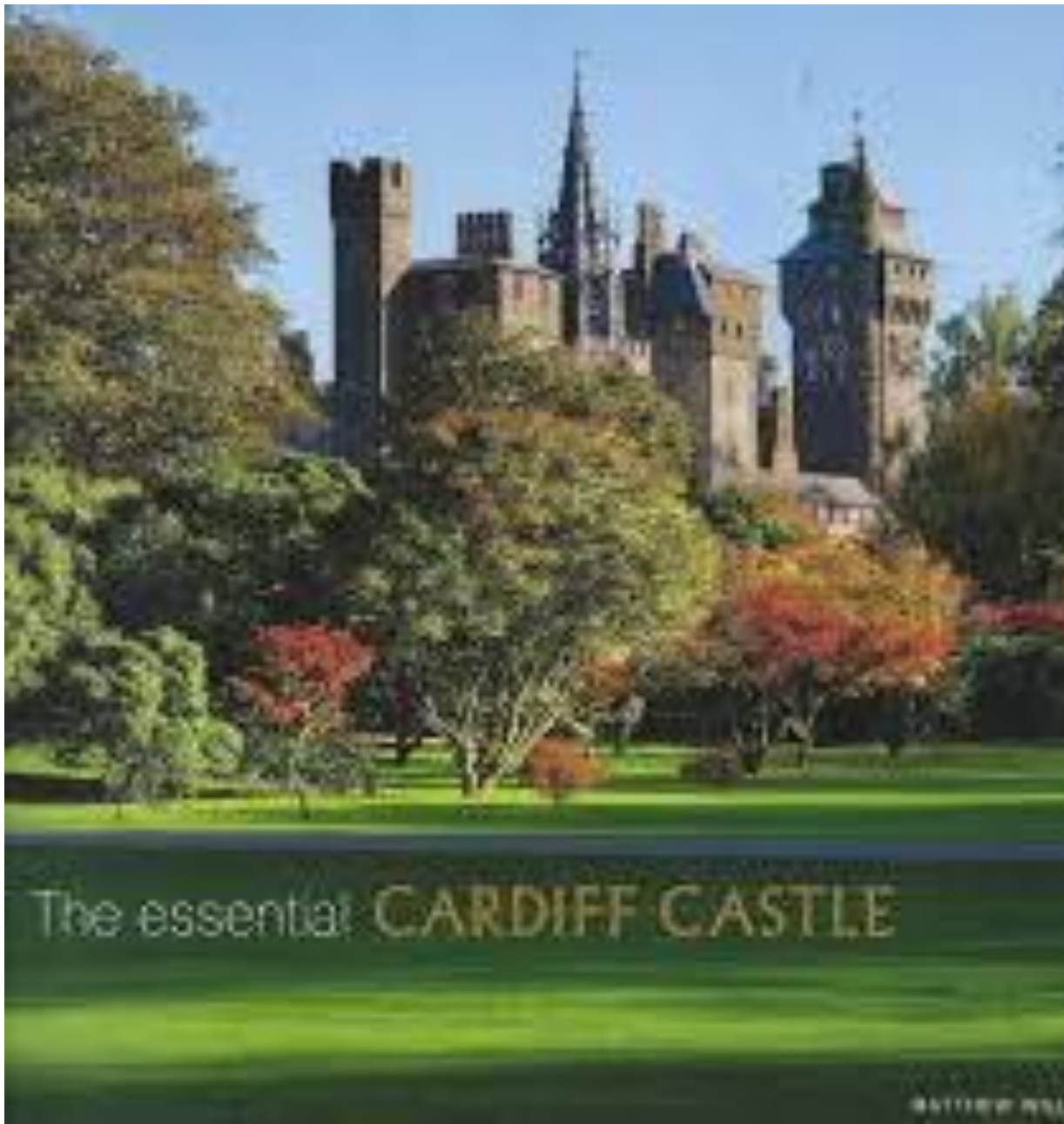


South Wales  
Valleys as an  
example











# Impact on health in South Wales

- Heart disease
- Respiratory illness
- Mental health issues
- Arthritis
- LBP
- Malnutrition
- Poor exercise levels
- High rates of smoking

Report reveals health inequalities in  
Wales. *BMJ*.1999;319(7213):806.

# Recovery...?

<https://www.biodiversitywales.org.uk/Nature-Recovery-Action-Plan>



# Has anything changed?

- A470
- Commuter networks
- Facilities
- COVID rates
- Obesity
- Diabetes
- Smoking
- Mental health issues

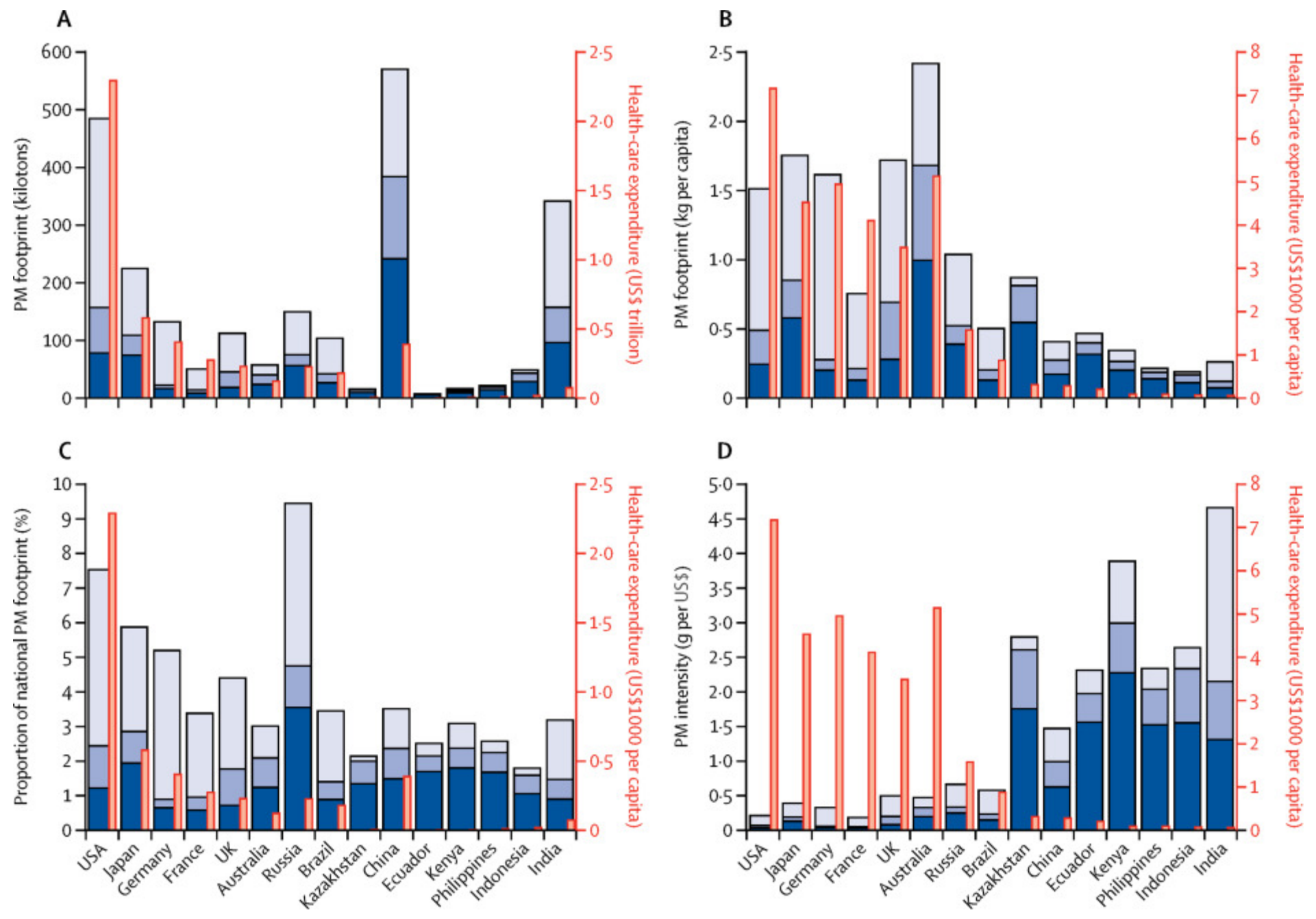


# IMPACT!

- <https://science.sciencemag.org/content/369/6509/1314>
- <https://www.ft.com/content/d5e27b1f-ba5a-4445-a329-1802cf70d619>









## 5 Ways of Treating Medical Waste

### Incineration



Typically for pathological waste and pharmaceutical waste. Never for plastics.

### Non-Incineration Systems

#### Thermal (Autoclaving)



Typically for sharps waste and infectious waste. Never for pathological waste.

#### Irradiative (Microwave)



Typically for sharps waste and infectious waste. Never for pathological waste.

#### Chemical



Typically for chemical waste and liquid waste (e.g. generated from laboratory cleaning).

#### Biological (Enzymes)



Undeveloped and rarely used technology for medical waste disposal.

Properly Disposing Of Your Medical Waste Prevents Infections and Diseases From Spreading, And **Keeps Our Earth Clean.**



# Sustainability in Healthcare



[www.un.org/sustainabledevelopment/sustainable-development-goals/](http://www.un.org/sustainabledevelopment/sustainable-development-goals/)



If there are **1 million PTs** in the world

(possibly more) & if on average each PT does **3 ultrasound (US)** treatments / day. Then as a profession we are providing **> 90,000,000 US treatments / month** or **> 1,035,000,000 / year** that's **> 1 billion!!!**

At 0.1 kWh a 10-minute US treatment will require approximately 0.02 kWh

kWh (kilowatt-hour) is the amount of energy an electrical device



requires to run for an hour. That's approximately... **18 million kWh / month** or **207 million kWh / year**



Average annual electricity consumption for a UK & European residential home is 3760 kWh

[USA 12,300 kWh, Canada 11,000 kWh, Australia 7000 kWh each year]

**207 million kWh would run 55,053 UK homes for a year!!!**

& the evidence for therapeutic US is ... uncertain

<https://www.ncbi.nlm.nih.gov/pubmed/31095336> | <https://www.ncbi.nlm.nih.gov/pubmed/27283591>





# How much does your commute cost (or save) society?

Every time you travel you put money into the system, but you also cost the system. Your contribution to and burden on the system differs depending on how you travel.

For example, when you ride the bus you pay a fare – money into the system. Your burden on the system includes the cost of operating the bus, and also less obvious impacts like emissions and noise pollution.

By looking at the ratio of what we put in versus what we cost the system, we see that different ways of travelling are more subsidized than others.

The practice of taking these less tangible costs and benefits into consideration and assigning them a dollar value is known as "full-cost accounting." While there are many ways of doing this, this infographic shows one example of how those costs and charges can be calculated.

IF WALKING  
COSTS YOU  
\$1



SOCIETY  
PAYS  
\$0.01



IF BIKING  
COSTS YOU  
\$1



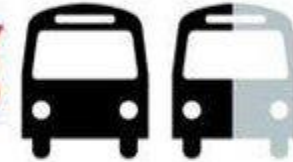
SOCIETY  
PAYS  
\$0.08



IF BUSSING  
COSTS YOU  
\$1



SOCIETY  
PAYS  
\$1.50



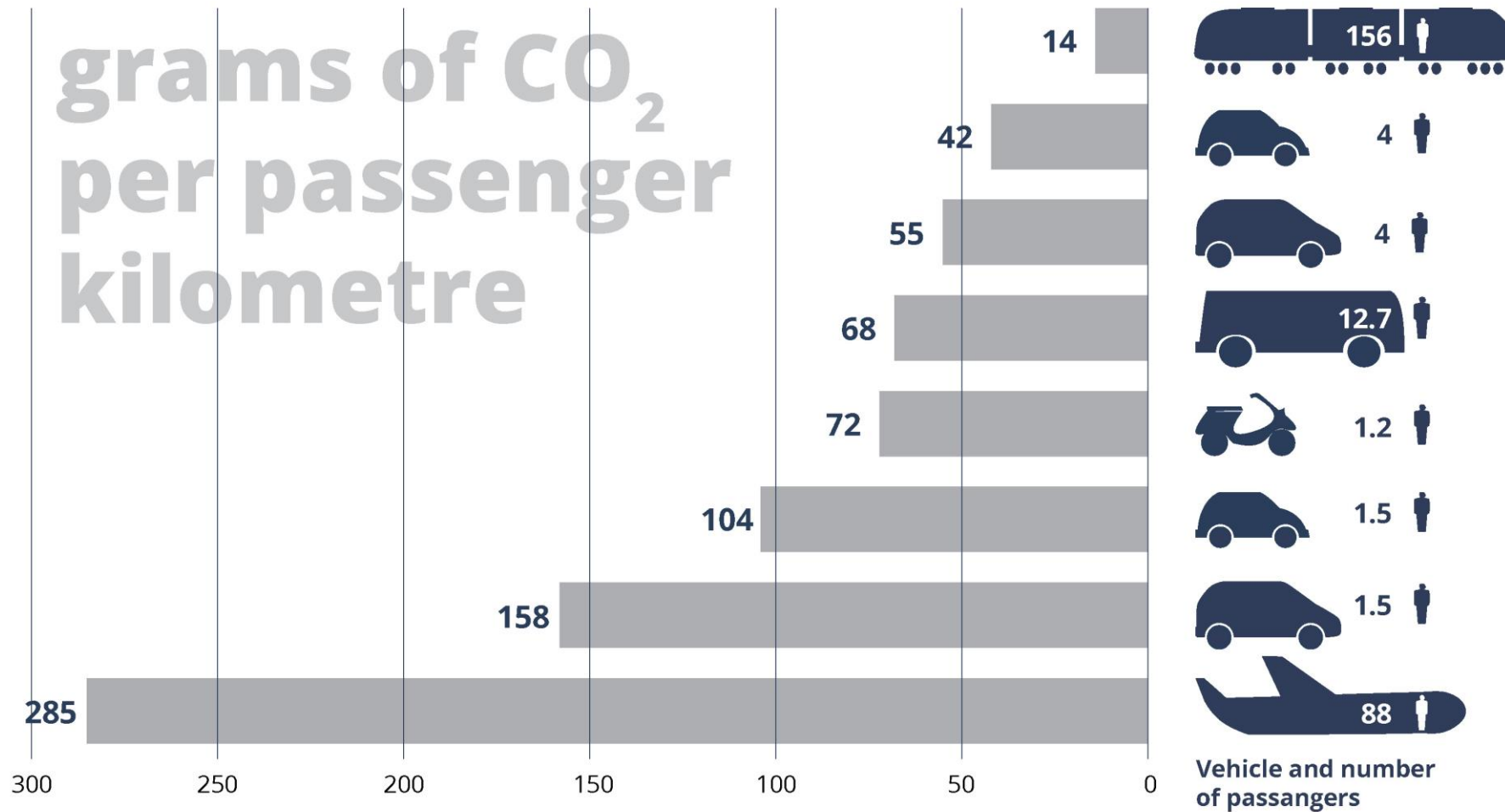
IF DRIVING  
COSTS YOU  
\$1



SOCIETY  
PAYS  
\$9.20



# CO<sub>2</sub> emissions from passenger transport



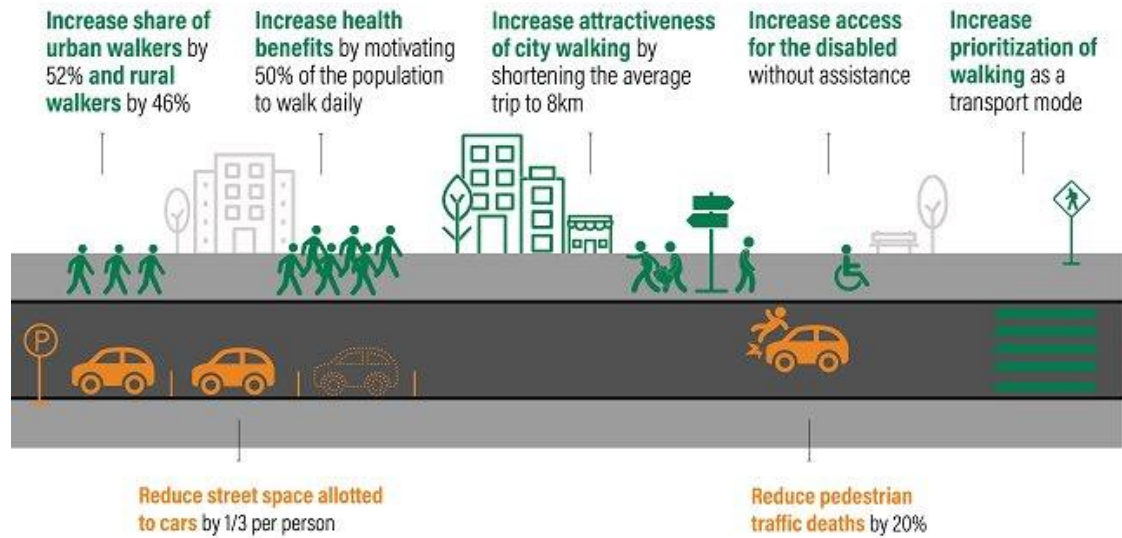
Note: The figures have been estimated with an average number of passengers per vehicle. The addition of more passengers results in fuel consumption - and hence also CO<sub>2</sub> emissions - penalty as the vehicle becomes heavier, but the final figure in grams of CO<sub>2</sub> per passenger is obviously lower. Inland ship emission factor is estimated to be 245 gCO<sub>2</sub>/pkm but data availability is still not comparable to that of other modes. Estimations based on TRACCS database, 2013 and TERM027 indicator.

Source: EEA report TERM 2014  
[eea.europa.eu/transport](http://eea.europa.eu/transport)






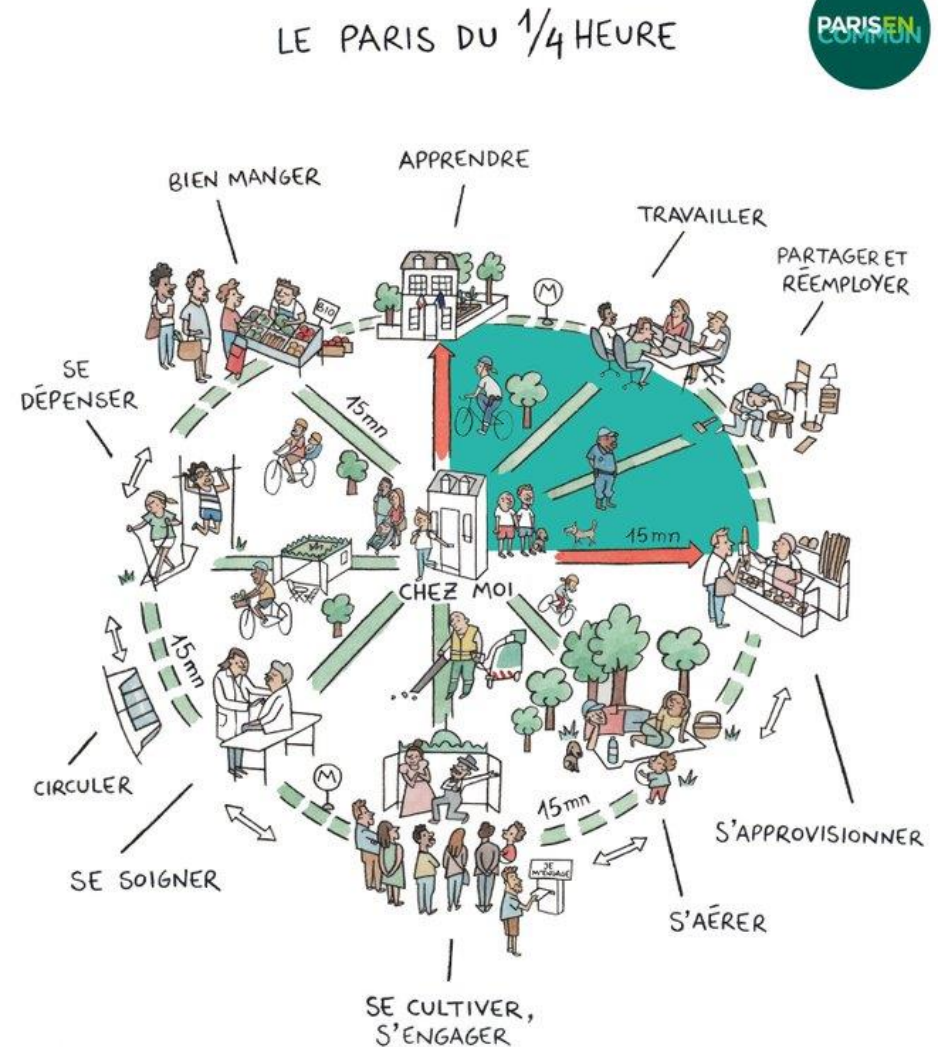
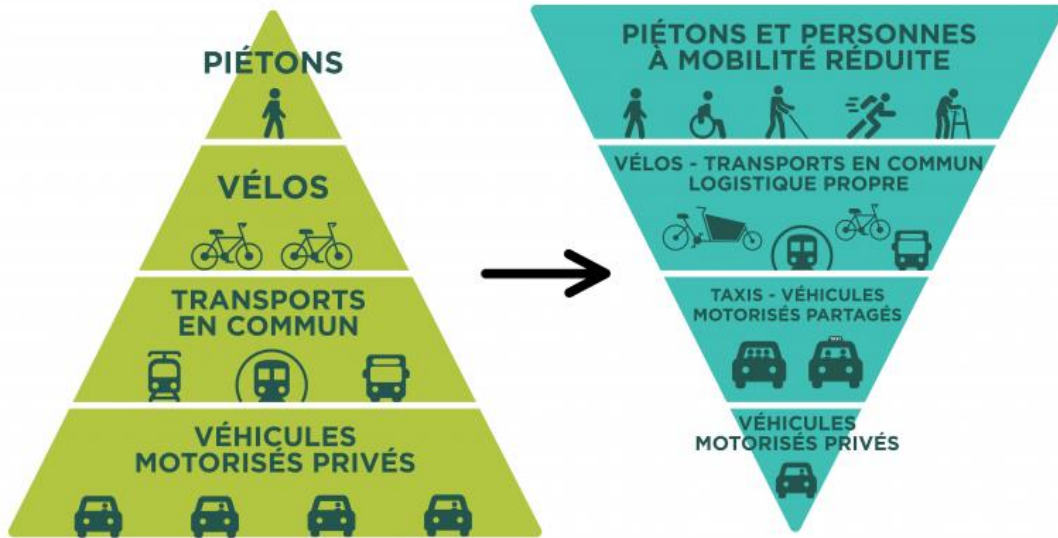
## 7 Goals of New Pedestrian-Friendly Policies in Germany



Source: German Federal Environmental Agency (UBA)

 WORLD RESOURCES INSTITUTE





La #VilleDuQuartDHeure, c'est quoi ? C'est la ville des proximités où l'on trouve tout ce dont on a besoin à moins de 15 minutes de chez soi. C'est la condition de la transformation écologique de la ville, tout en améliorant la vie quotidienne des Parisiens. [📌 #Hidalgo2020](#)

MICHAËL

# Benefits of Urban Trees

Research has linked the presence of urban trees to...



**PROTECTING BIODIVERSITY**  
including habitat for migrating  
birds and pollinators



**REDUCING OBESITY LEVELS**  
by increasing physical activity  
including walking and cycling



**REDUCING RATES**  
of cardiac disease, strokes, and  
asthma due to improved air quality



**MANAGING STORMWATER,**  
keeping pollutants out of waterways,  
and reducing urban flooding



**COOLING** city streets by 2-4° F,  
reducing deaths from heat and  
cutting energy use



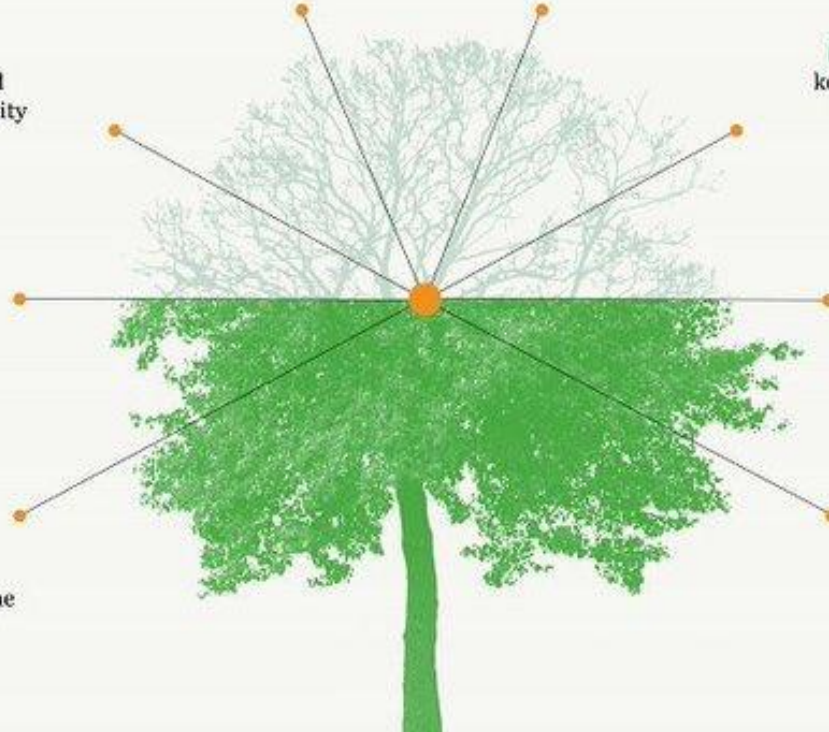
**INCREASING**  
neighborhood property values



**FILTERING** up to a third of fine  
particle pollutants within  
300 yards of a tree



**REDUCING STRESS** by helping  
interrupt thought patterns that  
lead to anxiety and depression









**EPT  
AGENDA  
2023**

#EPTAgenda2023

EPT AGENDA 2023

INDIVIDUAL SIGNATORIES

SUPPORTING ORGANISATIONS

PARTICIPATING INSTITUTIONS

*The time is now!*

## **Environmental Physiotherapy Agenda 2023**

The **EPTAgenda2023** is a global call to action aiming at the integration of environmental and sustainability perspectives into entry-level physiotherapy education programmes around the world. As a global initiative, it represents an unprecedented effort in pulling together the strength of the entire physiotherapy profession to simultaneously contribute to human and environmental health, functioning and flourishing.



[http://environmentalphysio.com/wp-content/uploads/2022/01/EPA-Poster\\_Why-PT-is-good-for-you-and-the-environment.pdf](http://environmentalphysio.com/wp-content/uploads/2022/01/EPA-Poster_Why-PT-is-good-for-you-and-the-environment.pdf)



[http://environmentalphysio.com/wp-content/uploads/2022/02/EPA-Poster2\\_How-to-make-your-PT-clinic-more-environmentally-sustainable\\_A4.pdf%20](http://environmentalphysio.com/wp-content/uploads/2022/02/EPA-Poster2_How-to-make-your-PT-clinic-more-environmentally-sustainable_A4.pdf%20)

# Where else to look...

- [WHO - Connecting Global Priorities: Biodiversity and Human Health: A State of Knowledge Review \(June 2015\)](#)
- [UN Sustainable Development Goals](#)
- @EnviroPhysio
- @EPTAgenda2023 <https://eptagenda2023.com/>
- Environmental Physiotherapy Association  
<http://environmentalphysio.com/>
- @PhysioSusnet  
<https://networks.sustainablehealthcare.org.uk/network/physio-susnet>
- Physio Declares @physio\_declares
- <https://www.greenhealthwales.co.uk/>



- Home Feed
- Inbox 11

Favorites

Environmental Physiother...

My communities

Online community within the university.

Contact me via email should you wish to join:

[morganj63@cardiff.ac.uk](mailto:morganj63@cardiff.ac.uk)

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Joined

## Environmental Physiotherapy Agenda

Conversations About Files Events

Start a discussion

- Discussion
- Question
- Praise
- Poll

Members



Info

Current in the UN Sustainable Development Goals, the extensive relationships are highly functional. The need for action across the globe is placed into a unified global effort.

More

Imagine a world where there is **NO POVERTY** and **ZERO HUNGER**.

We have **GOOD HEALTH AND WELL BEING**, **QUALITY EDUCATION**, and full **GENDER EQUALITY** everywhere. There is **CLEAN WATER AND SANITATION** for everyone.

**AFFORDABLE AND CLEAN ENERGY** has helped to create **DECENT WORK AND ECONOMIC GROWTH**.

Our prosperity is fueled by investments in **INDUSTRY, INNOVATION AND INFRASTRUCTURE** and that has helped us to **REDUCE INEQUALITIES**.

We live in **SUSTAINABLE CITIES AND COMMUNITIES** and **RESPONSIBLE CONSUMPTION AND PRODUCTION** is healing our planet. **CLIMATE ACTION** has capped the warming of the planet and we have flourishing **LIFE BELOW WATER** and abundant, diverse **LIFE ON LAND**.

We enjoy **PEACE AND JUSTICE** through **STRONG INSTITUTIONS** and have built long term **PARTNERSHIPS FOR THE GOALS**.