



Ambiente e Salute, Pisa, 15-16 giugno 2016

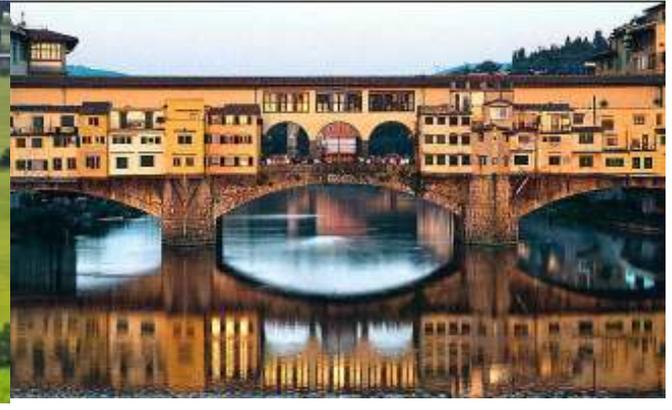


La componente ambientale come fattore di benessere della popolazione

Gaetano Privitera

*Dipartimento di Ricerca Traslazionale e delle Nuove
Tecnologie in Medicina*

Università di Pisa

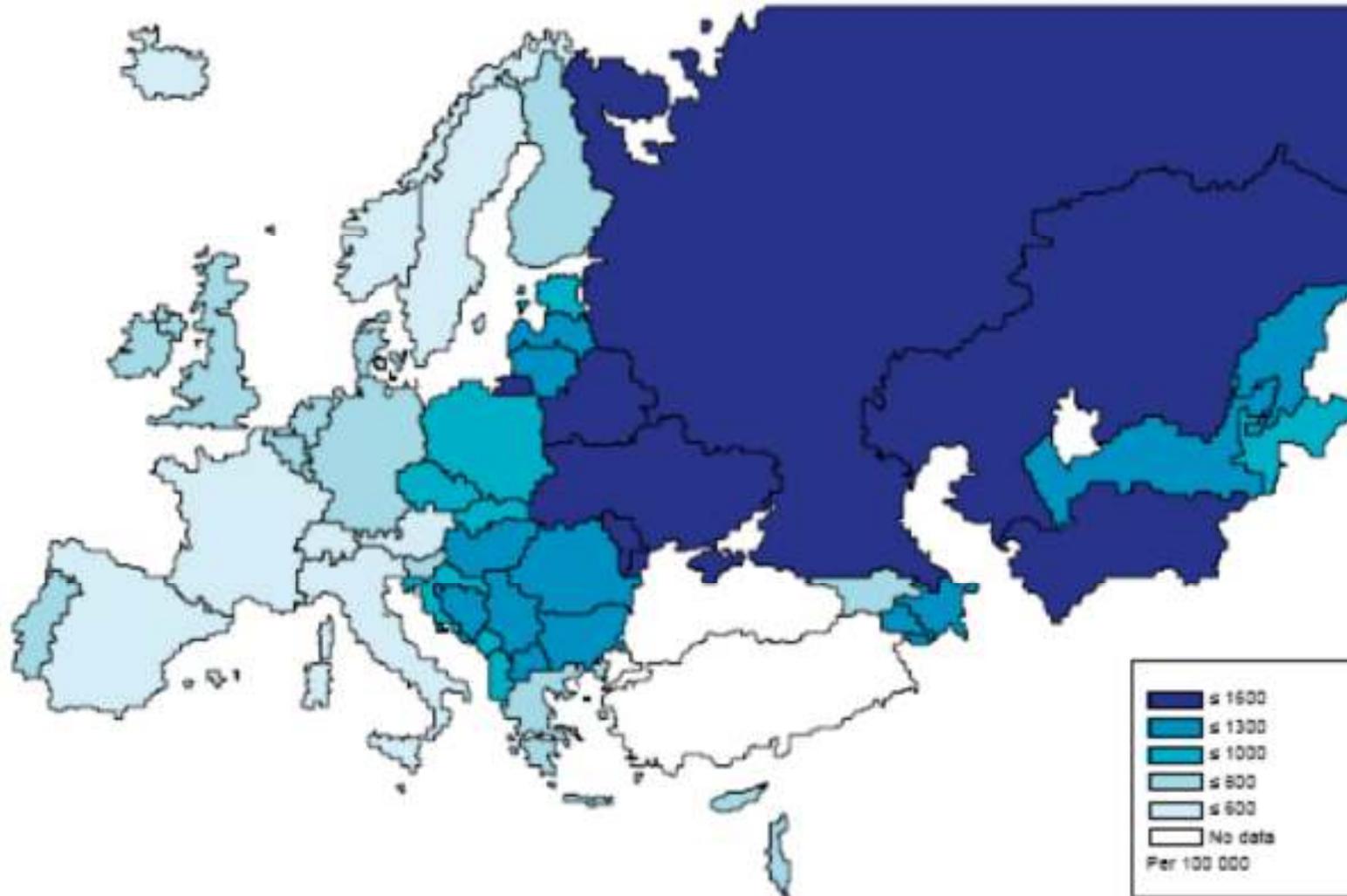


Italy: a Country of Beauty and World Cultural Heritage



Socio-demographic parameters

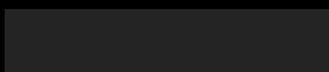
Deaths from all causes





ITALY LIFE EXPECTANCY HISTORY

GOOD



POOR

World Rank

	Male	Female	All	M	F	All
1960	66.7	71.7	69.1	22	24	21
1970	68.7	74.6	71.6	15	14	13
1980	70.7	77.4	73.9	17	12	13
1990	73.6	80.3	76.9	11	7	8
2000	76.6	82.6	79.5	6	4	4
2013	80.3	85.2	82.9	8	6	5

Tabella 2. Cifre chiave per l'Italia da OECD Health Statistics 2014

	Italia			Media OCSE		Classifica tra i paese OCSE*
	2012		2000	2012	2000	
Stato di salute						
Aspettativa di vita alla nascita (anni)	82.3		79.9	80.2	77.1	5 su 34
Aspettativa di vita uomini alla nascita, uomini (anni)	79.8		76.9	77.5	74.0	7 su 34
Aspettativa di vita alla nascita, donne (anni)	84.8		82.8	82.8	80.2	5 su 34
Aspettativa di vita a 65 anni, uomini (anni)	18.5		16.7	17.7	15.6	10 su 34
Aspettativa di vita a 65 anni, donne (anni)	22.1		20.7	20.9	19.1	5 su 34
Mortalità per malattie cardiovascolari (tassi standardizzati per età per 100.000 ab.)	256.0	[2010]	373.6	296.4	427.5	18 su 24
Mortalità per cancro (tassi standardizzati per età per 100.000 ab.)	216.4	[2010]	244.7	213.1	242.5	13 su 34
Fattori di rischio per la salute (comportamentali)						
Consumo di tabacco tra gli adulti (% di fumatori regolari)	22.1		24.4	20.7	26.0	12 su 24
Consumo di alcol tra gli adulti (litri pro capite)	6.1	[2010]	9.3	9.0	9.5	31 su 34
Tassi di obesità tra gli adulti, dati auto-riferiti (%)	10.4		8.6	15.4	11.91	26 su 29
Tassi di obesità tra gli adulti, dati misurati	-		-	22.7	18.7	-

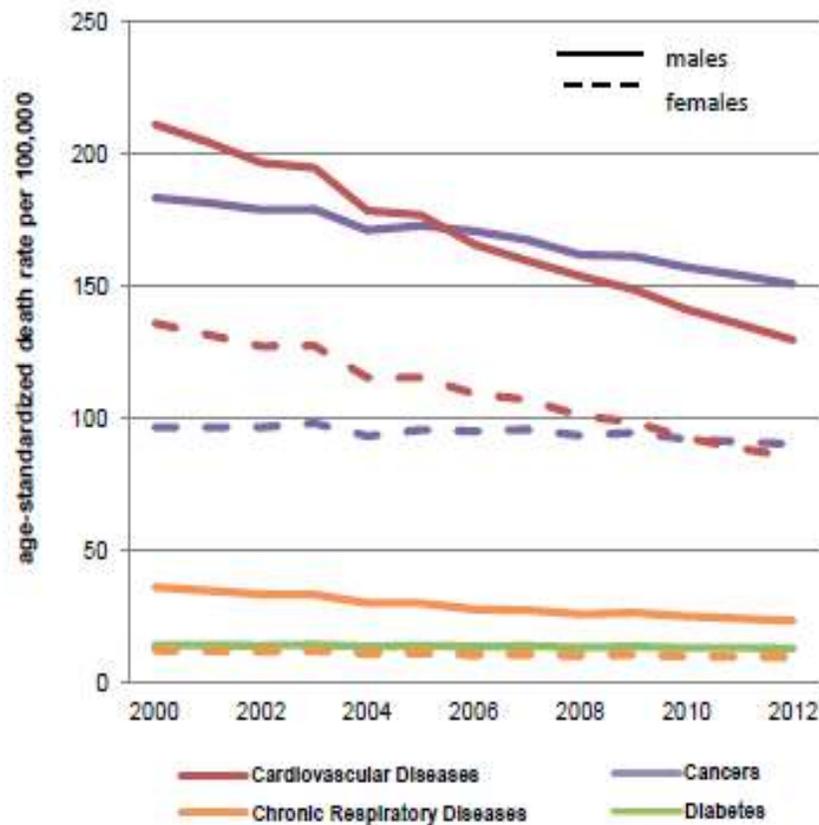


Italy

Total population: 60 885 000

Income Group: High

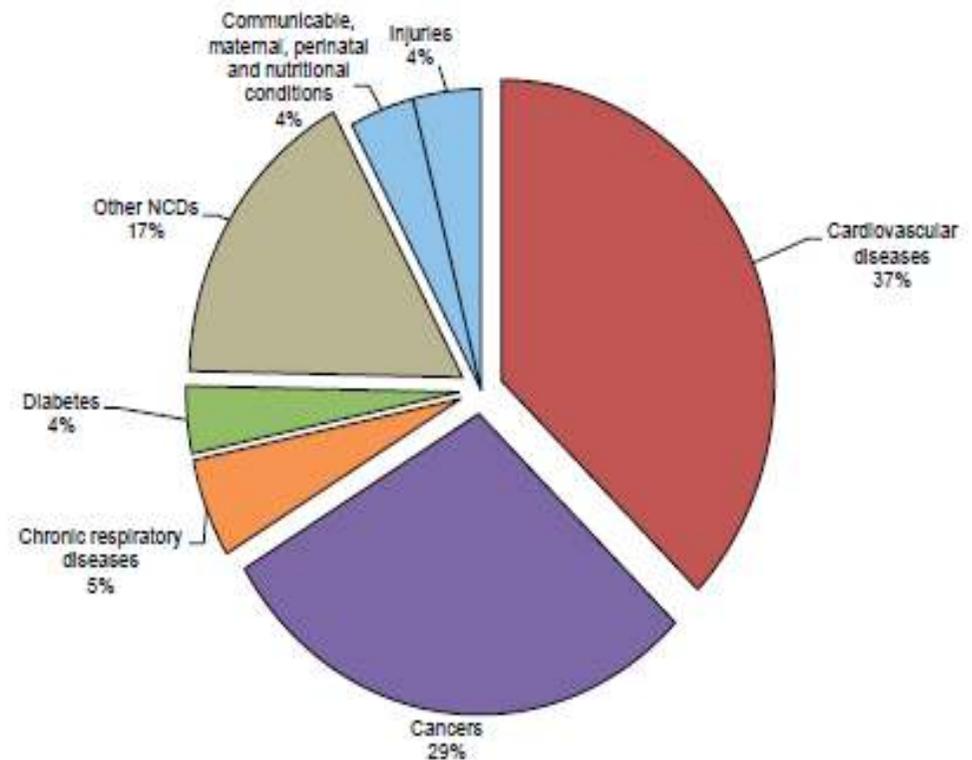
Age-standardized death rates



Percentage of population living in urban areas: 68.4%

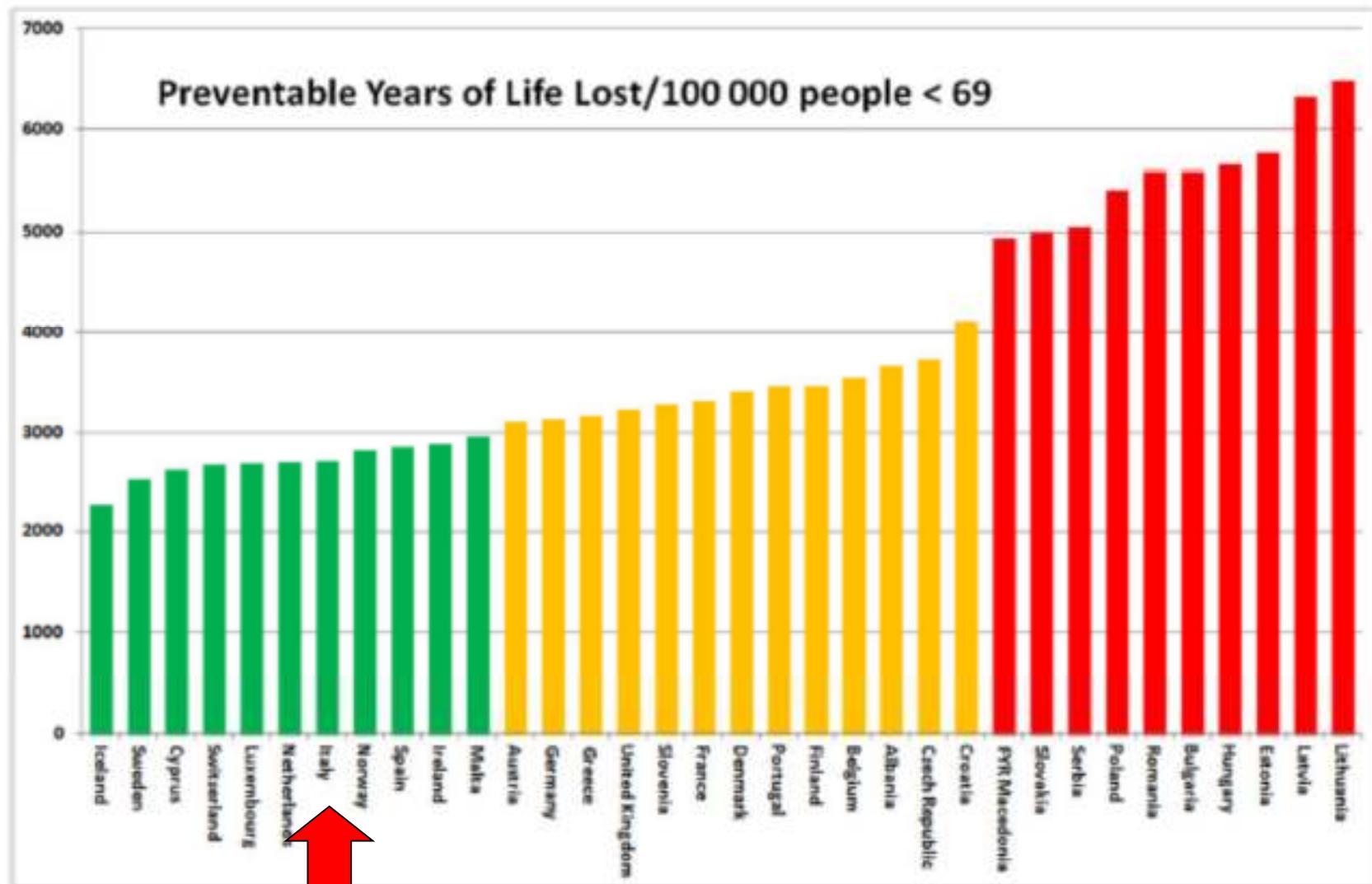
Population proportion between ages 30 and 70 years: 55.0%

Proportional mortality (% of total deaths, all ages, both sexes)



Total deaths: 573,000

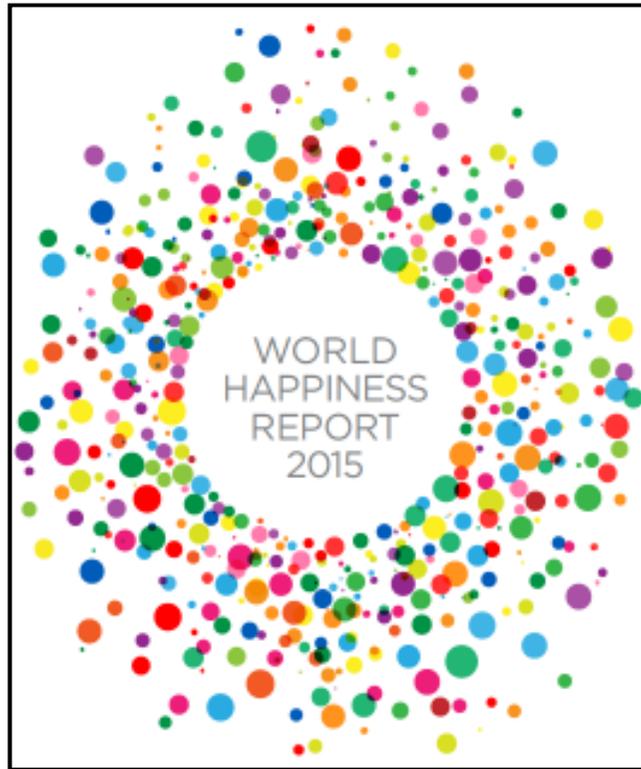
NCDs are estimated to account for 92% of total deaths.



Sources of data: OECD Health Data 2011; Non-OECD: WHO HfA July 2011 SDR all causes per 100000, ages 0-64. CUTS data.

Nonetheless...

**Grey areas
and
Future Threats**



Italy ranks 50

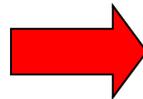


Figure 2.2: Ranking of Happiness 2012-2014 (Part 1)

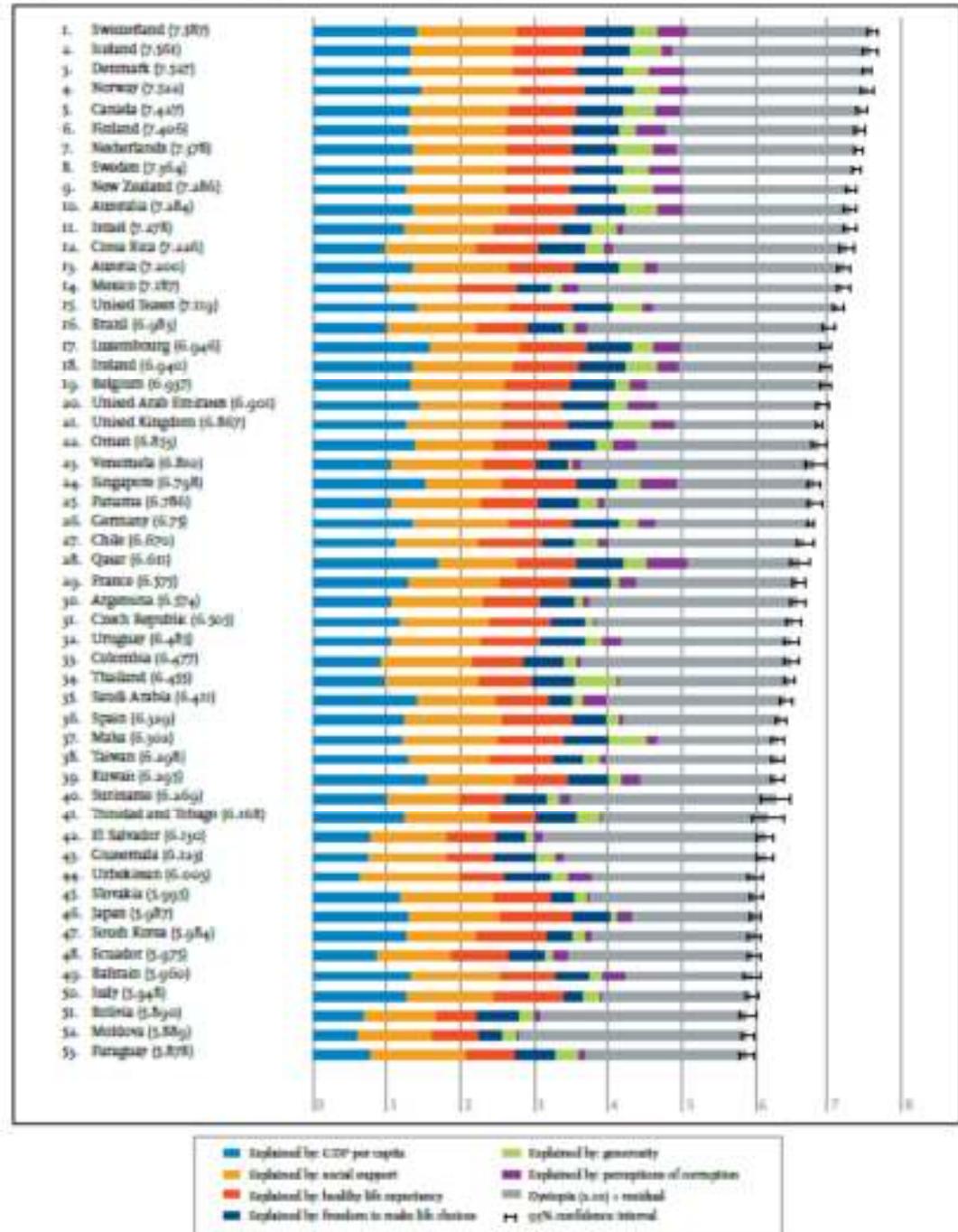
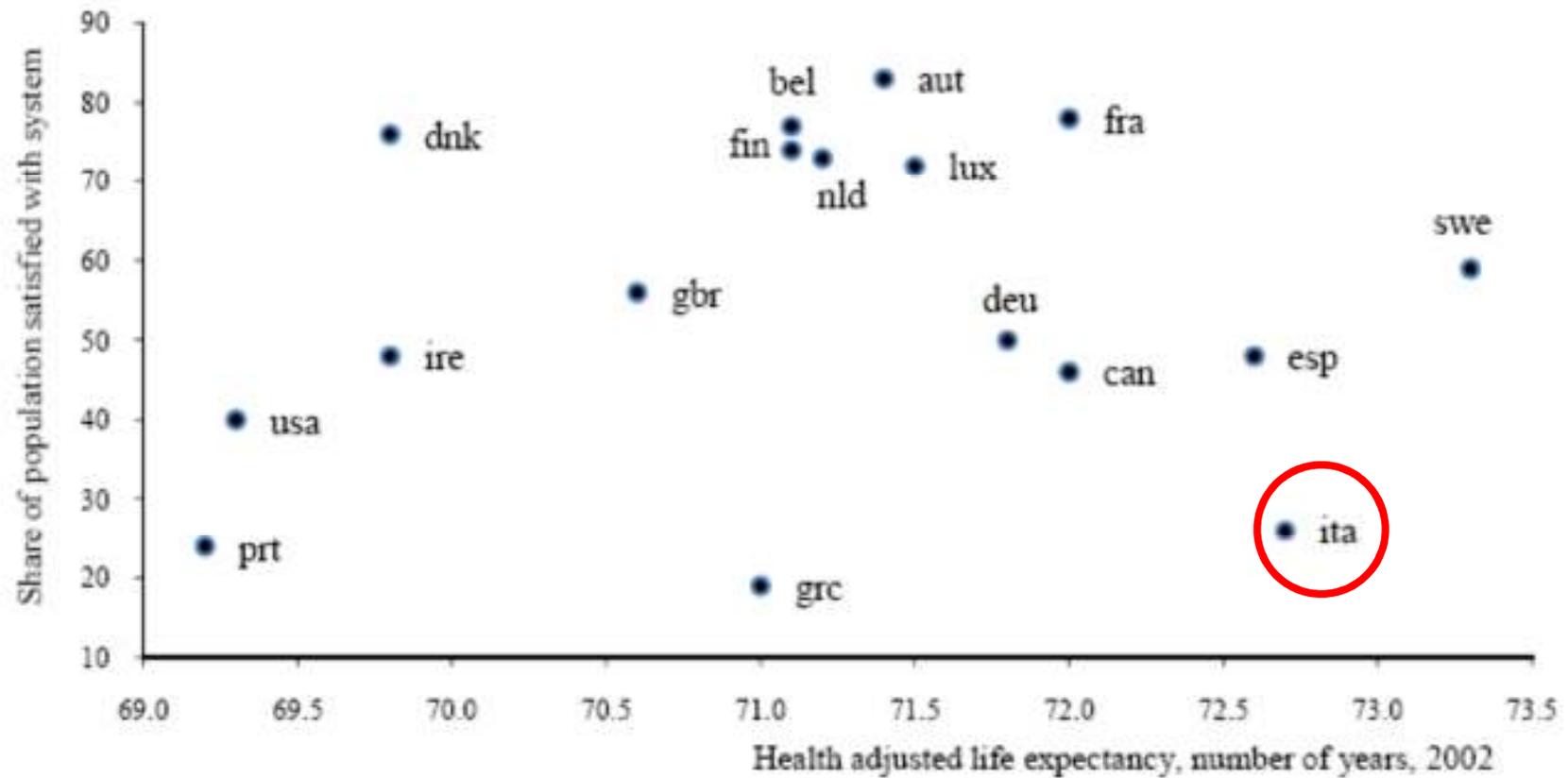


Figure 5. Public satisfaction and health adjusted life expectancy



Source: OECD Health Data 2007 (Public's satisfaction with health care system, seventeen countries, 1999-2000).



**Global Threats darken the
Future of Italy too**

Environment and Well-Being

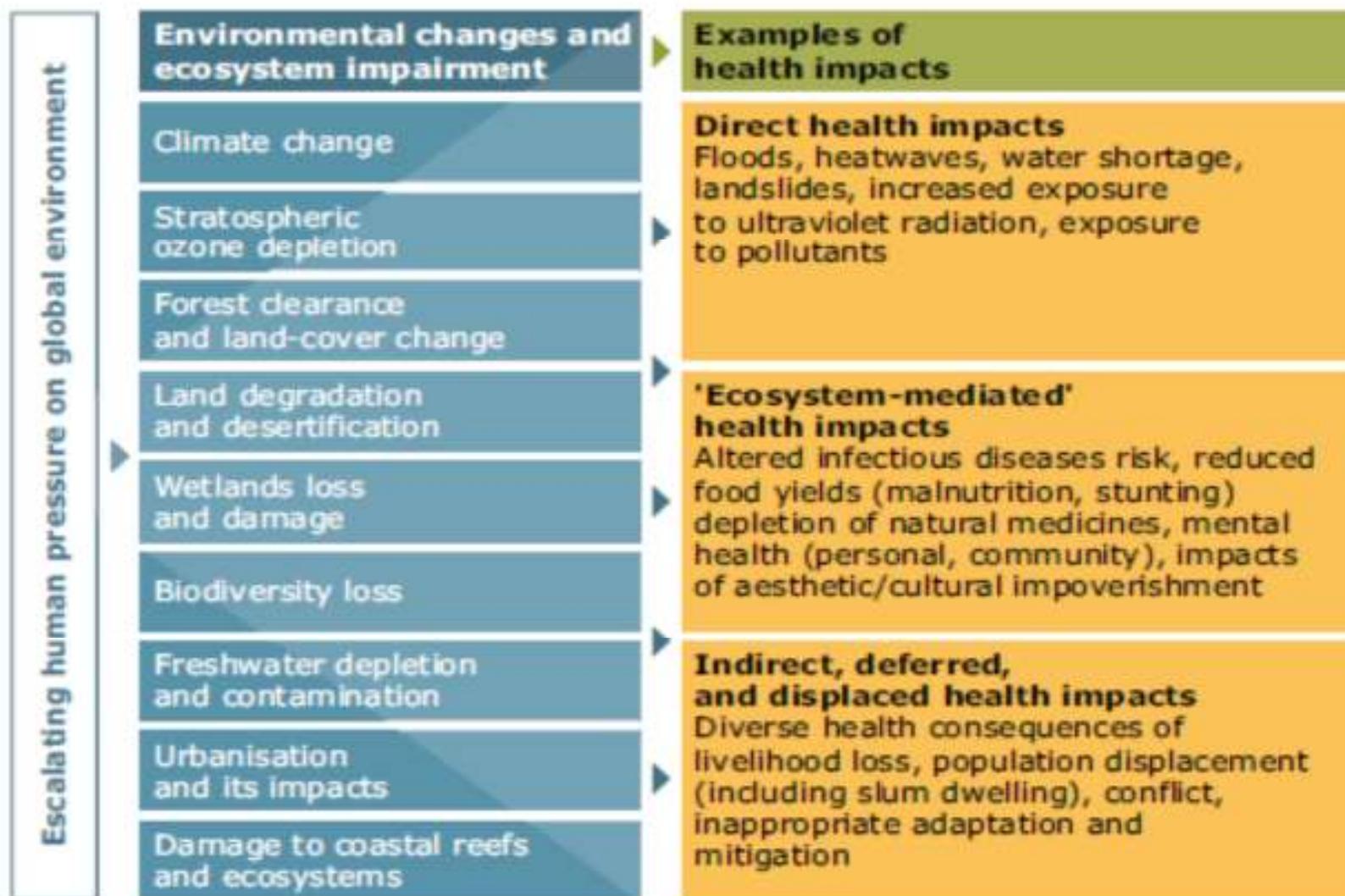
- **Livelihoods:** Ecosystems provide services on which poor communities rely disproportionately for their well-being and basic needs. **These communities also depend on the environment to earn incomes in sectors such as agriculture, fishing, forestry and tourism, through both formal and informal markets.** Livelihoods can be sustainable or not, depending on the way the environment is managed
- **Resilience in the face of environmental risks:** Poor people are more vulnerable to natural disasters and environmental shocks that threaten their livelihoods and undermine food security. Improving the ways in which environmental resources such as forests are managed increases the resilience of poor people and their livelihoods when facing environmental risks.
- • **Health:** Environmental conditions account for a significant portion of health risks to poor people. **Environmental risk factors, such as occupational exposures to chemicals and indoor air pollution from household solid fuel use, play a role in more than 80 per cent of the diseases** regularly reported by the World Health Organization.
- • **Economic development:** Environmental quality contributes directly and indirectly to economic development and employment. These contributions are particularly important in developing countries in such sectors as agriculture, energy, forestry, fisheries and tourism.

Figure 5.1 The health map



Source: Barton and Grant (8).

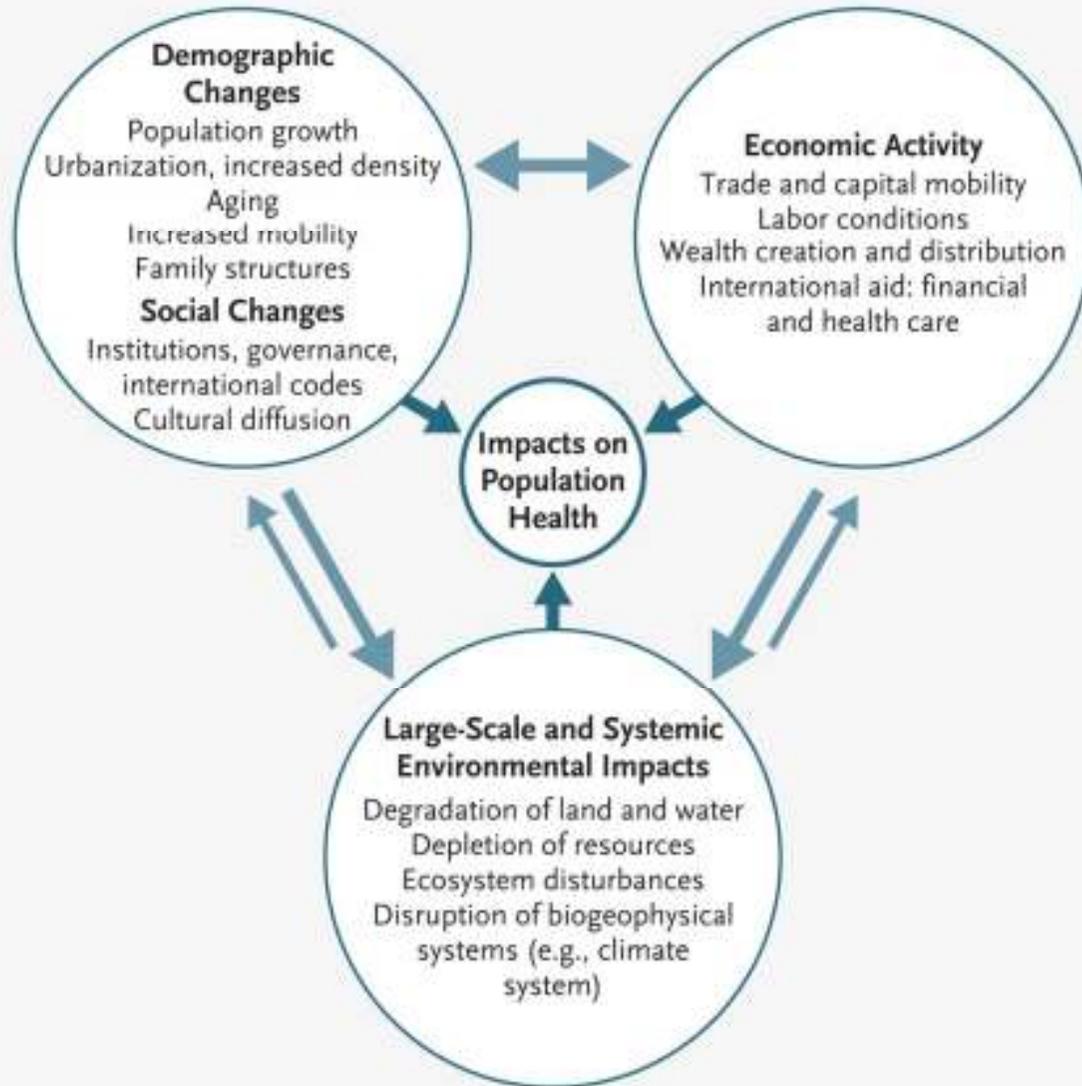
Figure 5.6 Harmful effects of ecosystem change on human health



Note: Not all ecosystem changes are included. Some changes can have positive effects (food production, for example).

Globalization and Global Changes

Increases in interpopulation connectivity and increases in scale and intensity of action and impact



Influence on Human Health of Changes Related to Globalization.

McMichael AJ.
N Engl J Med
2013;368:1335-1343



The NEW ENGLAND
JOURNAL of MEDICINE

PRIORITY RISKS TO ENVIRONMENT AND HEALTH

- Climate change
- Vector-borne disease
- The urban environment
- Indoor air pollution and household energy
- Water, health and ecosystems
- Toxic substances

Categories of Climate-Change Risks to Health, According to Causal Pathway.

Table 1. Categories of Climate-Change Risks to Health, According to Causal Pathway.

Risk Category	Causal Pathway
Primary	Direct biologic consequences of heat waves, extreme weather events, and temperature-enhanced levels of urban air pollutants
Secondary	Risks mediated by changes in biophysically and ecologically based processes and systems, particularly food yields, water flows, infectious-disease vectors, and (for zoonotic diseases) intermediate-host ecology
Tertiary	More diffuse effects (e.g., mental health problems in failing farm communities, displaced groups, disadvantaged indigenous and minority ethnic groups) Consequences of tension and conflict owing to climate change–related declines in basic resources (water, food, timber, living space)

McMichael AJ. N Engl J Med 2013;368:1335-1343



The NEW ENGLAND
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Table 2. Indicators of Early Health Effects of Climate Change.

Increases in annual numbers of deaths and hospitalizations due to extreme heat, observed in a range of high-income and low-income countries

Increases in rates of injuries and deaths due to the rising frequency of weather disasters in many regions

Extensions in the geographic range of several vector-borne infectious diseases or their vectors, including tick-borne encephalitis in Sweden, the tick vector of Lyme disease in eastern Canada, and malaria in the western Kenyan highlands

Although less certain, increases in the tempo of coastal outbreaks of cholera relative to the warming of coastal waters and El Niño events

Increases in the price of some staple foods, especially in vulnerable, food-insecure regions, leading to nutritional deprivation in low-income households

Indicators of Early Health Effects of Climate Change.

**McMichael AJ.
N Engl J Med
2013;368:1335-1343**



**The NEW ENGLAND
JOURNAL of MEDICINE**

Concern over Zika virus grips the world

In the past week, the world has mobilised to tackle the latest threat to global health security—Zika virus, now spreading rapidly in the Americas. Udani Samarasekera and Marcia Triunfol report.



Worldwide concern over Zika virus (panel) and its temporal and geographical association with clusters of birth and neurological conditions escalated this week, with WHO declaring a Public Health Emergency of International Concern.

No doubt not wanting to repeat mistakes made in the west African Ebola outbreak, WHO was quick to raise the alarm. Briefing the WHO Executive Board on Jan 28, WHO Director-General Margaret Chan said Zika virus, now “spreading explosively” in the Americas, was deeply concerning for the organisation. Although a causal relation between infection with the virus and birth malformations and neurological syndromes has not been established, it is strongly suspected,

constituted a Public Health Emergency of International Concern.

On Feb 1, Chan said that WHO had accepted the committees’ recommendation. She explained that declaring an emergency would allow for a coordinated global effort to get underway, enabling surveillance for microcephaly to be standardised and research to be intensified. Chan said that there was no reason to introduce restrictions to travel or trade, but

“...any country in the dengue belt that has *Aedes aegypti* should be looking at whether there is Zika and put in place measures to detect neurological conditions’.”

Chile), an area encompassing around 500 million people.

WHO estimates that there will be 3–4 million cases of Zika infection (including asymptomatic cases) in the Americas in the next 12 months. The figure comes from mathematical modelling based on dengue dynamics in the region and Zika infections in Brazil. An estimated 2 million cases of dengue occurred in the Americas in 2015. But unlike the dengue virus, which has been circulating in the region since the 1980s, Zika is new to the Americas and it is circulating at a very high intensity. The Brazil Ministry of Health estimates that 440 000–1 300 000 suspected cases of Zika virus infection occurred in the country in 2015.



CD/Science Photo Library

Published Online
February 2, 2016
[http://dx.doi.org/10.1016/S0140-6736\(16\)00257-9](http://dx.doi.org/10.1016/S0140-6736(16)00257-9)

For *The Lancet's* Zika virus Resource Centre see www.thelancet.com/campaigns/zika

Transmission



Vector borne transmission by *Aedes* mosquitoes

- Sylvatic vector in Africa: *Aedes spp.*
- Primary vector in urban settings: *Aedes aegypti*
- Competent vector: *Aedes albopictus*

Other routes of transmission

- Trans-placental transmission
- Sexual transmission through semen
- Potential risk of transmission via blood transfusion

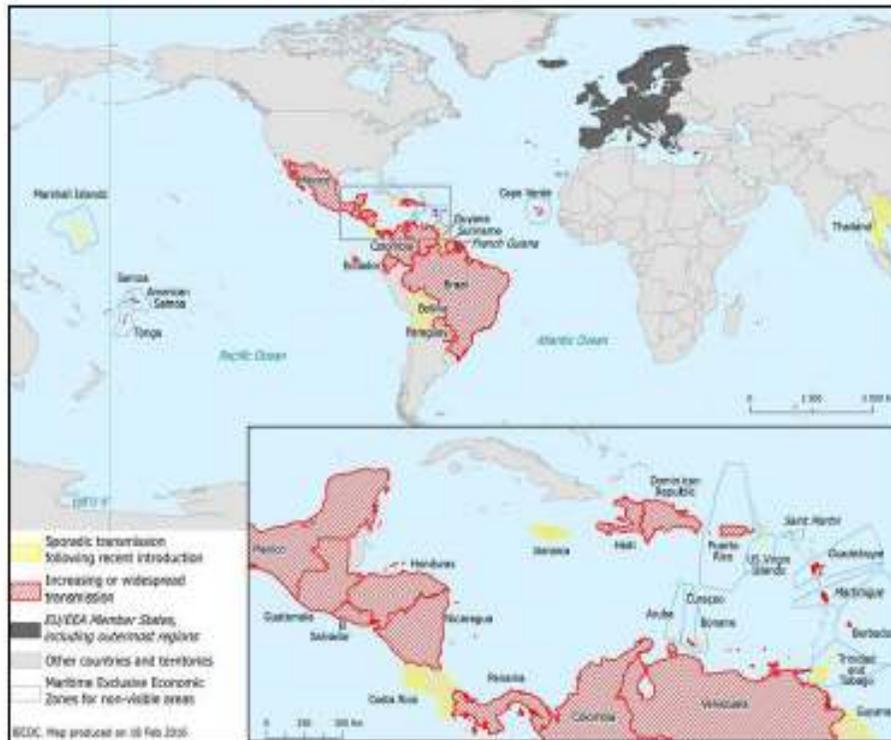


Current outbreak

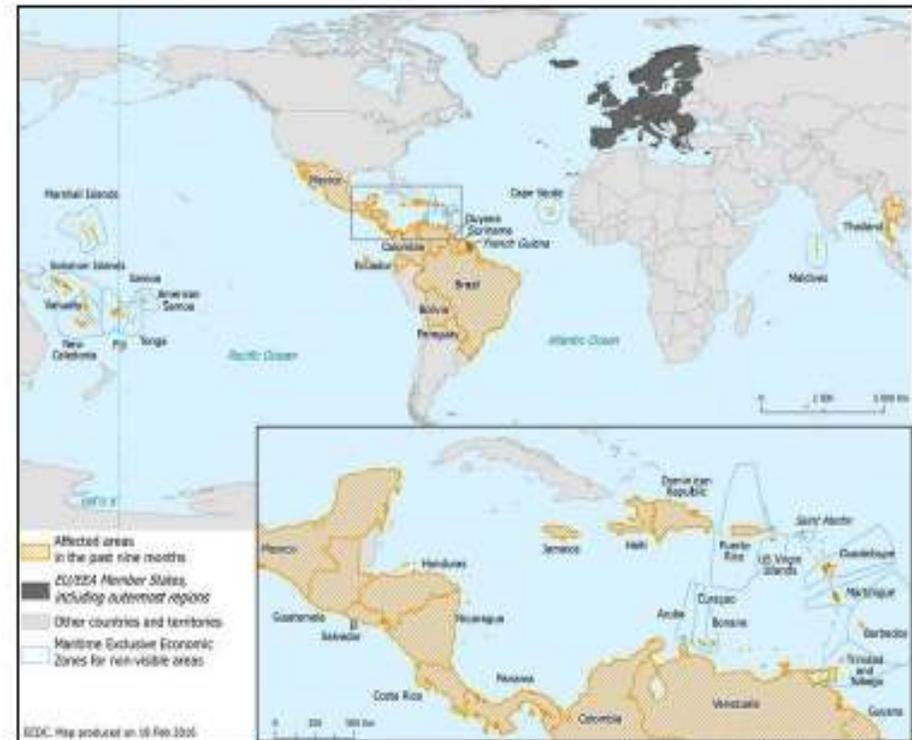


Reported confirmed autochthonous cases of Zika virus infection

In the past 2 months



In the past 9 months



Aedes mosquitoes in Europe

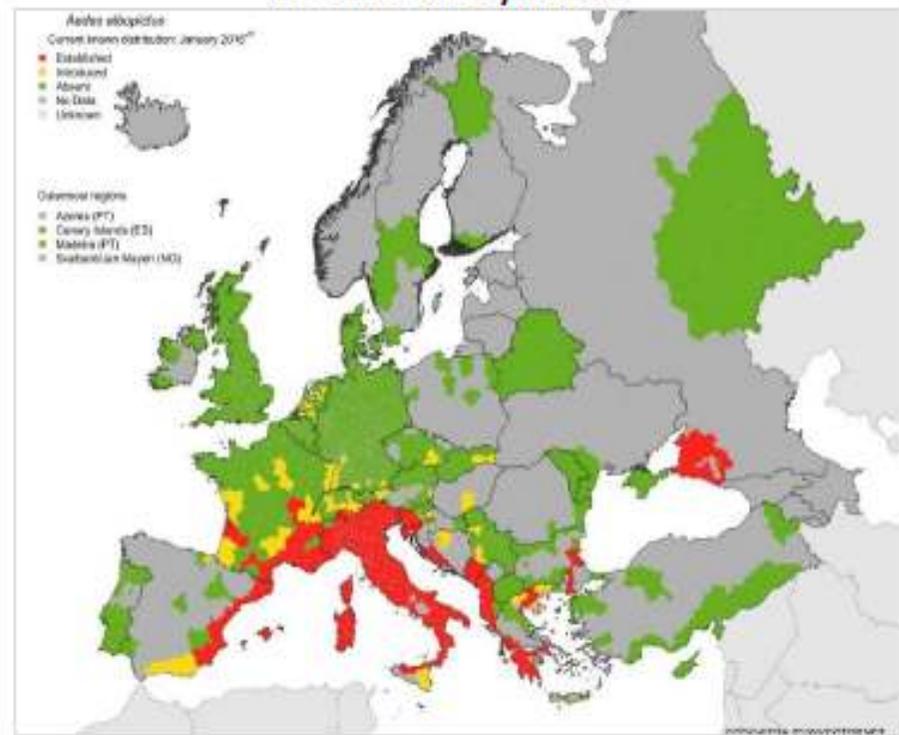


Distribution of the *Aedes mosquito* as of January 2016

Aedes aegypti



Aedes albopictus



Established

Introduced

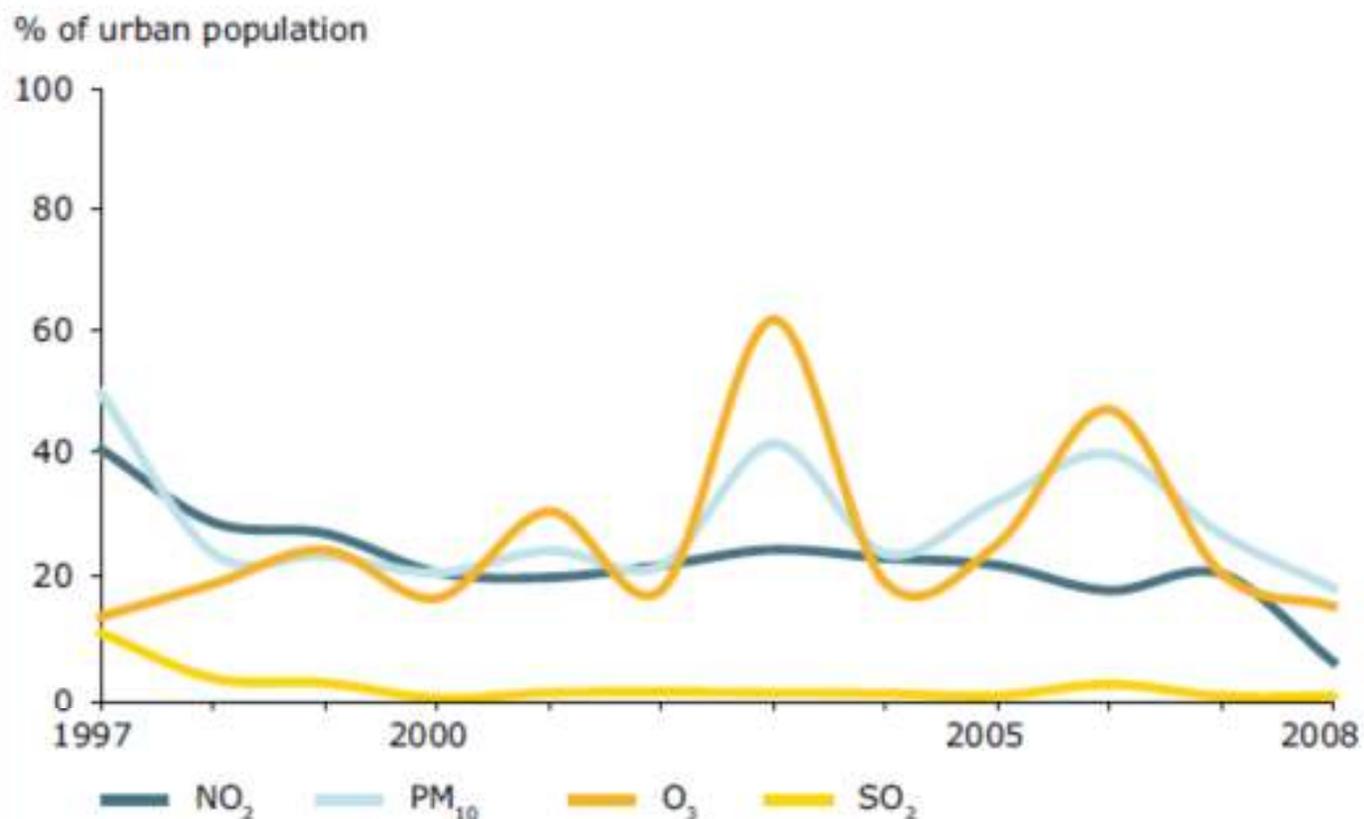
Absent

No data/unknown

L'ambiente urbano



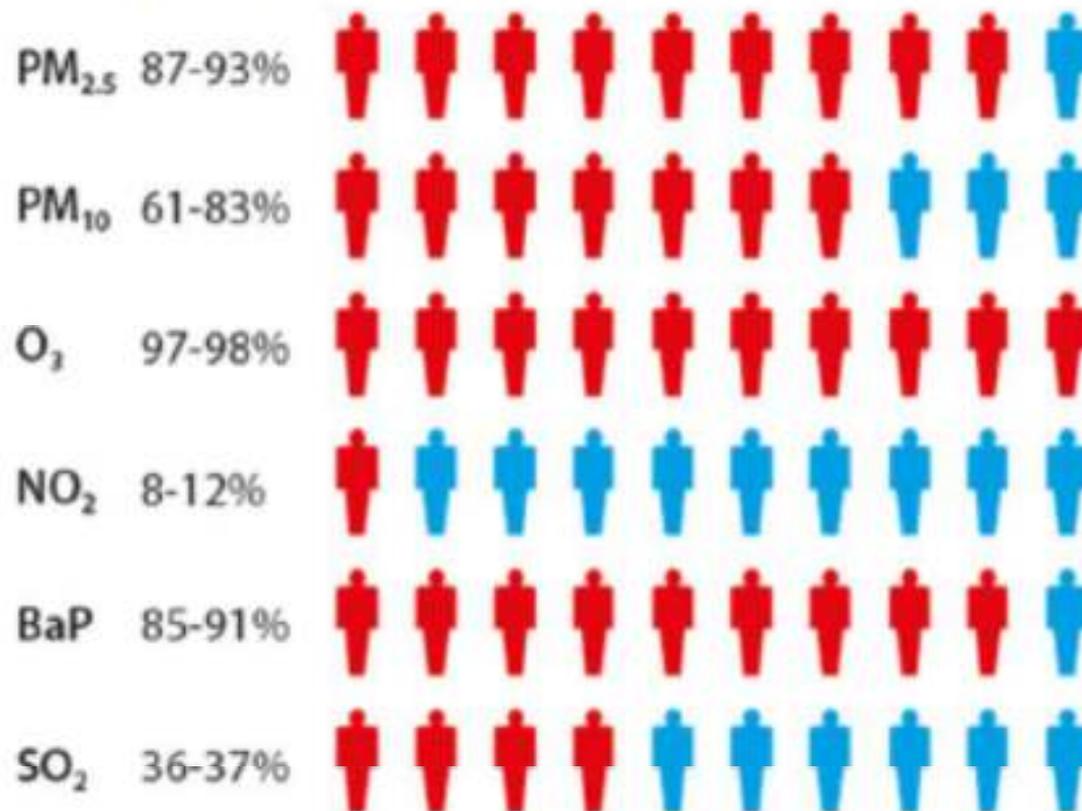
Figure 5.3 Percentage of urban population in areas where pollutant concentrations are higher than selected limit/target values, EEA member countries, 1997–2008



Note: Only urban and sub-urban background monitoring stations are included. Since O₃ and the majority of PM₁₀ are formed in the atmosphere, meteorological conditions have a decisive influence on the airborne concentrations. This explains at least partly inter-annual variations and for example the high O₃ levels in 2003, a year with extended heat waves during summer.

Source: EEA AirBase, Urban Audit (CSI 04).

The proportion of the population living in areas exceeding World Health Organization air quality guideline values



Source: European Environment Agency (EEA), *Air Quality in Europe: 2015 Report*, EEA Report 5/2015 (Copenhagen, 2015).

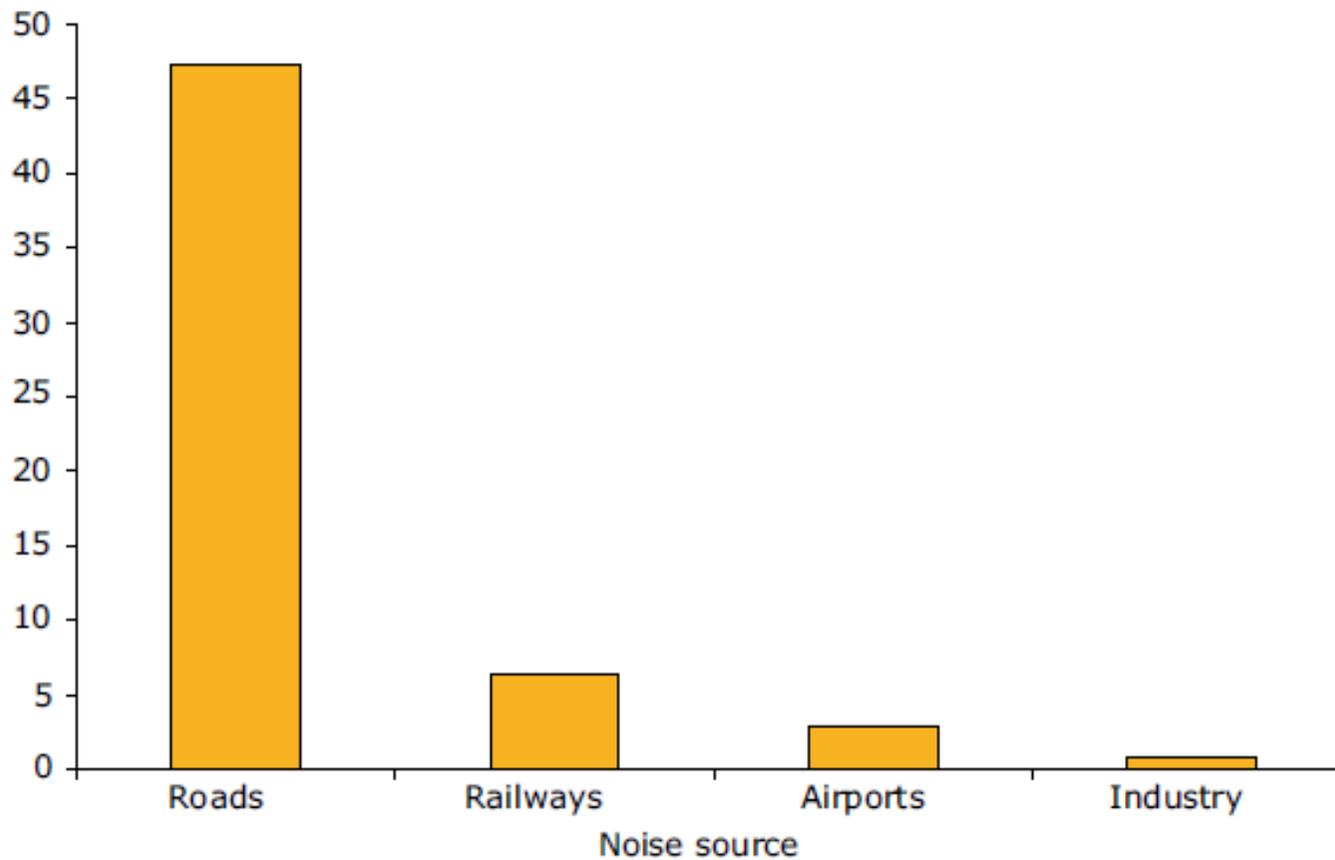
Note: The proportion of the population living in areas exceeding WHO air quality guideline values varies by pollutant, with over 87 per cent of the European Union population exposed to high levels of PM_{2.5} and 98 per cent to high levels of ozone.

Abbreviations: BaP = benzo(a)pyrene; NO₂ = nitrogen dioxide; O₃ = ozone; PM₁₀ = particulate matter of 10 micrometres or less; SO₂ = sulphur dioxide.

Figure 5.4 The reported long-term (yearly average) exposure to day-evening-night noise (L_{den}) of more than 55 dB in EU-27 agglomerations with more than 250 000 inhabitants

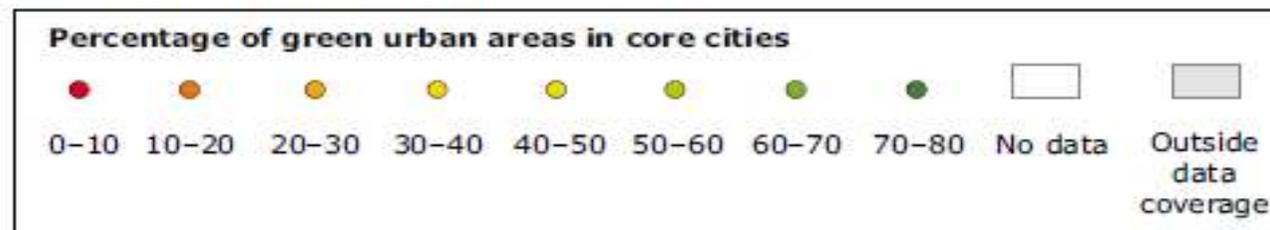
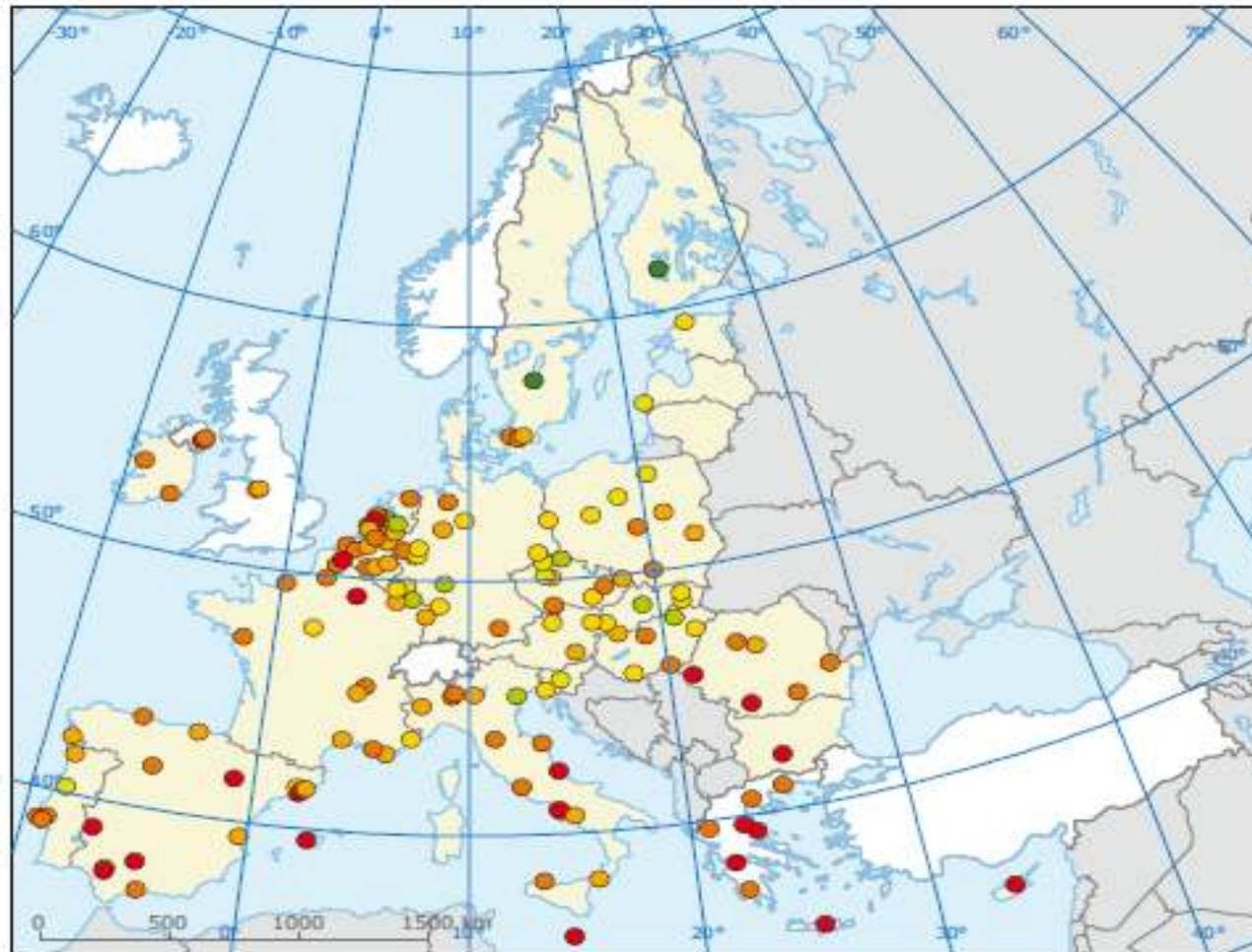
Noise exposure (> 55 dB L_{den}) in agglomerations > 250 000 inhabitants

Number of people in millions



Source: NOISE (*).

Map 5.2 Percentage of green urban areas in core cities (1)



Source: EEA, Urban Atlas.

Pollution and Health

- **WHO estimates that, in 2012, household air pollution caused 4.3 million deaths, ambient air pollution caused 3.7 million deaths, and unsafe water, poor sanitation, and inadequate hygiene caused 842.000 deaths.**
- **Contaminated soil at active and abandoned mines, smelters, industrial facilities, and hazardous waste sites has killed tens of thousands of people and injured hundreds of thousands more.**
- **By contrast, HIV/AIDS causes 1.5 million deaths per year, tuberculosis 1.2 million deaths per year, and malaria fewer than 1 million deaths per year.**
- **The health effects of pollution fall most heavily upon the world's poor, and more than 90% of pollution related deaths occur in low-income and middle-income countries (LMICs)**

Air pollution and lung cancer incidence in 17 European cohorts: prospective analyses from the European Study of Cohorts for Air Pollution Effects (ESCAPE)
Lancet Oncol 2013; 14: 813–22

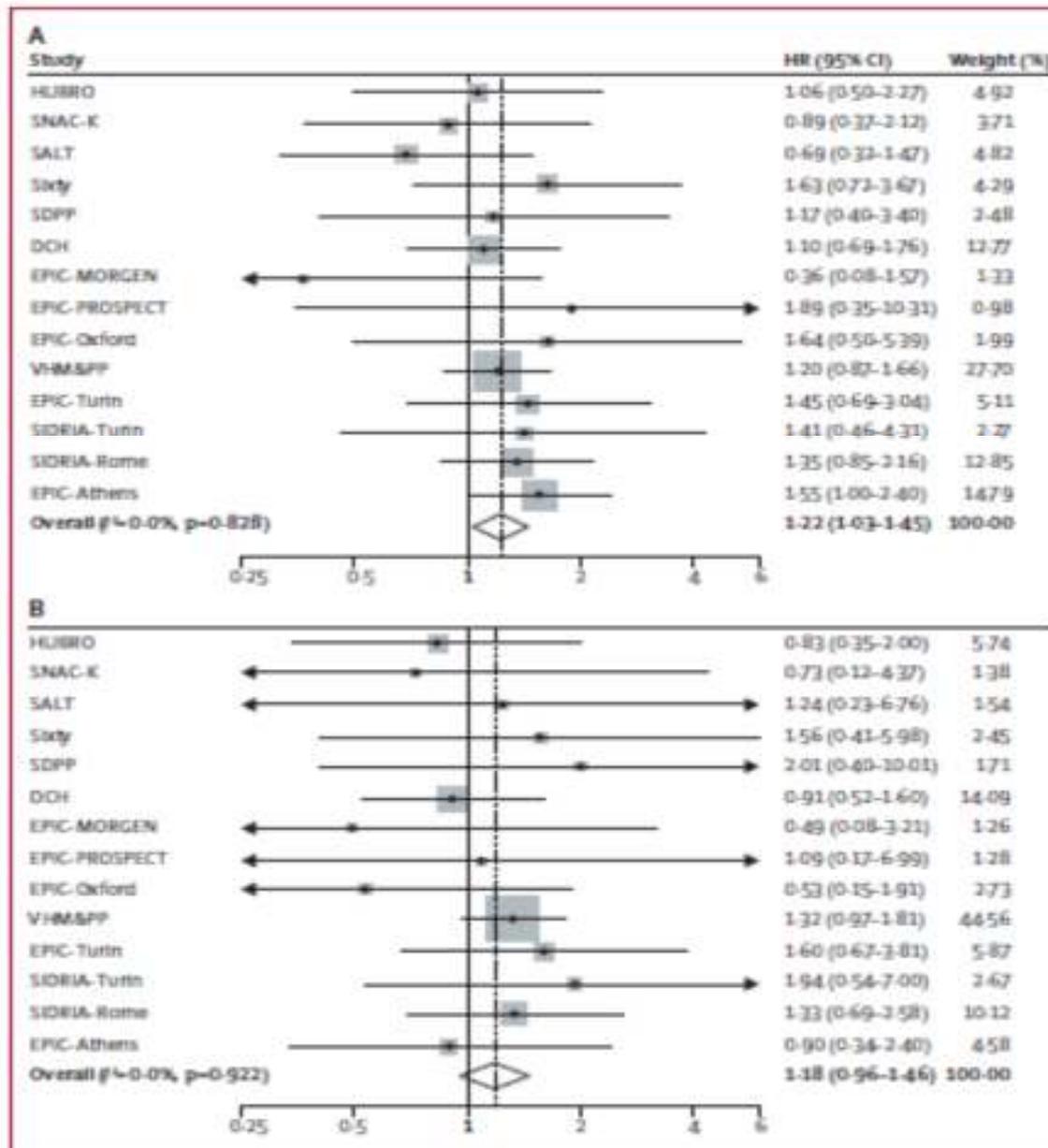
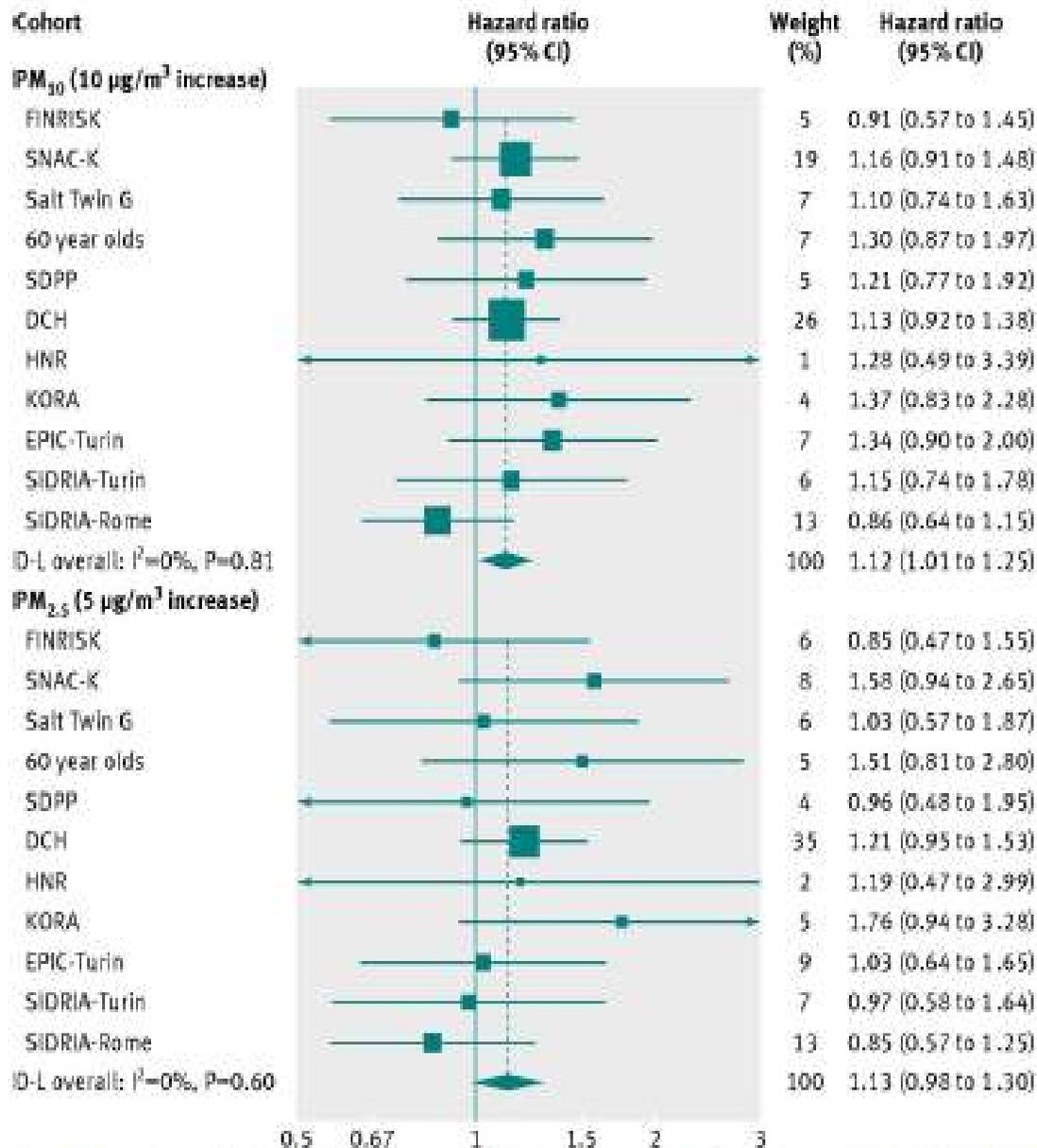


Figure 3: Risk for lung cancer according to concentration of particulate matter in each cohort study
HRs for lung cancer according to PM₁₀ concentration (A) and PM_{2.5} concentration (B) in each of the cohort studies, based on confounder model 3. Weights are from random effects analysis. Datapoints show HR; lines show 95% CI; boxes show the weight with which each cohort contributed to the overall HR; vertical dashed line shows overall HR. HR= hazard ratio. PM₁₀= particulate matter with diameter <10 µm. PM_{2.5}=particulate matter with diameter <2.5 µm.



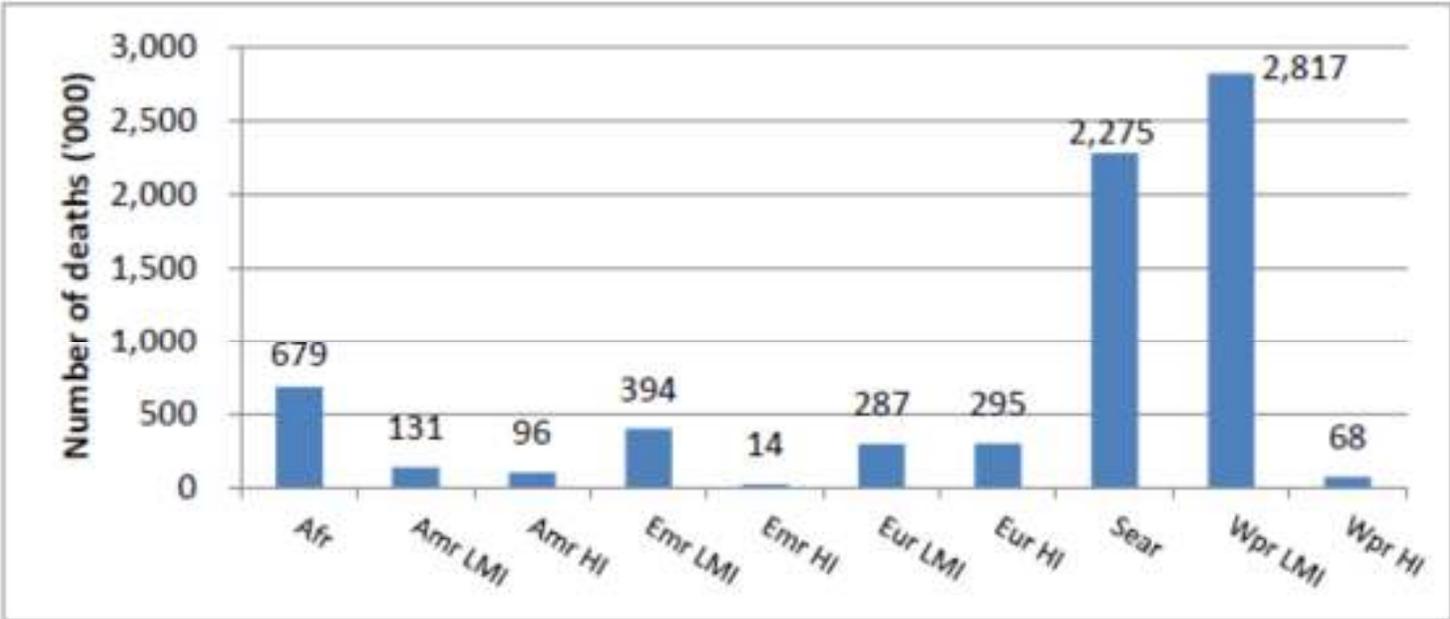
Long term exposure to ambient air pollution and incidence of acute coronary events: prospective cohort study and meta-analysis in 11 European cohorts from the ESCAPE Project
BMJ 2014;348:f7412

Hazard ratios of incident coronary events per 10 µg/m³ PM₁₀ and 5 µg/m³ PM_{2.5}.

Air Pollution-Caused Deaths

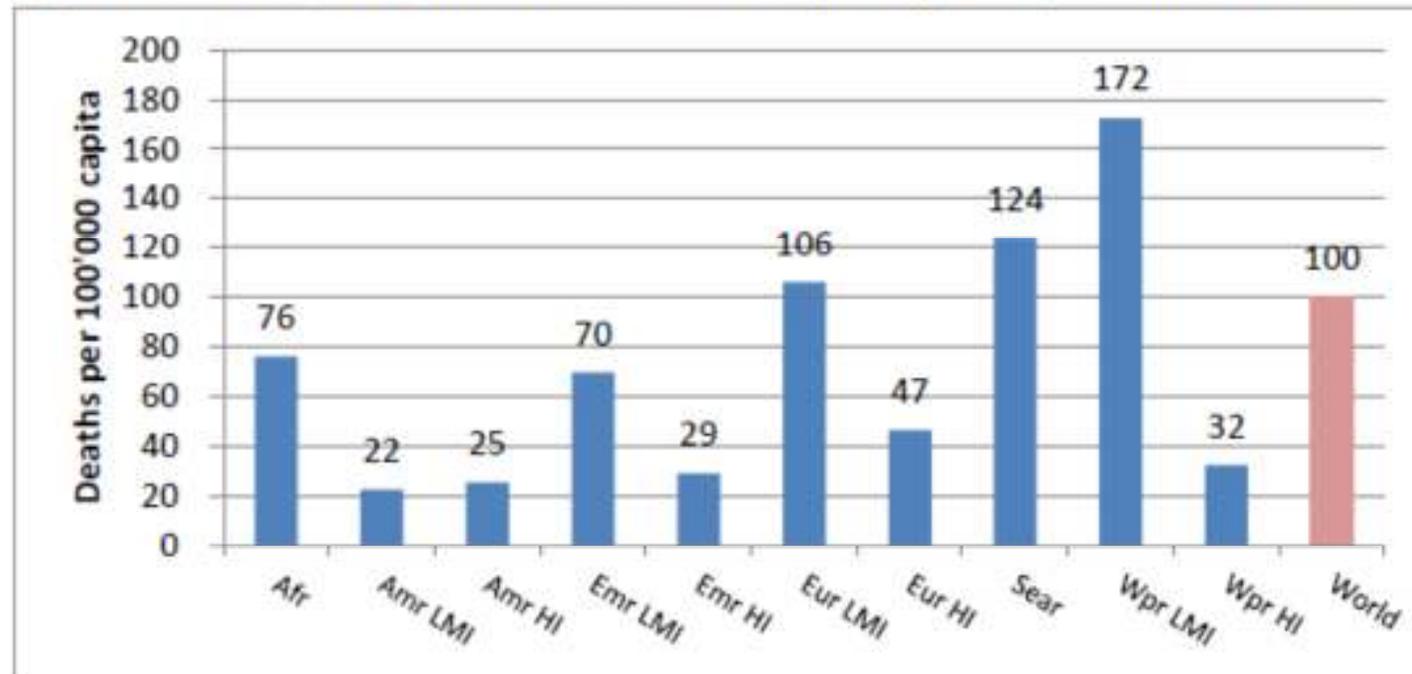
- **Outdoor air pollution-caused deaths – breakdown by disease:**
 - 40% – ischaemic heart disease;
 - 40% – stroke;
 - 11% – chronic obstructive pulmonary disease (COPD);
 - 6% - lung cancer; and
 - 3% – acute lower respiratory infections in children.
- **Indoor air pollution-caused deaths – breakdown by disease:**
 - 34% - stroke;
 - 26% - ischaemic heart disease;
 - 22% - COPD;
 - 12% - acute lower respiratory infections in children; and
 - 6% - lung cancer.

Figure 1. Total deaths attributable to the joint effects of HAP and AAP in 2012, by region



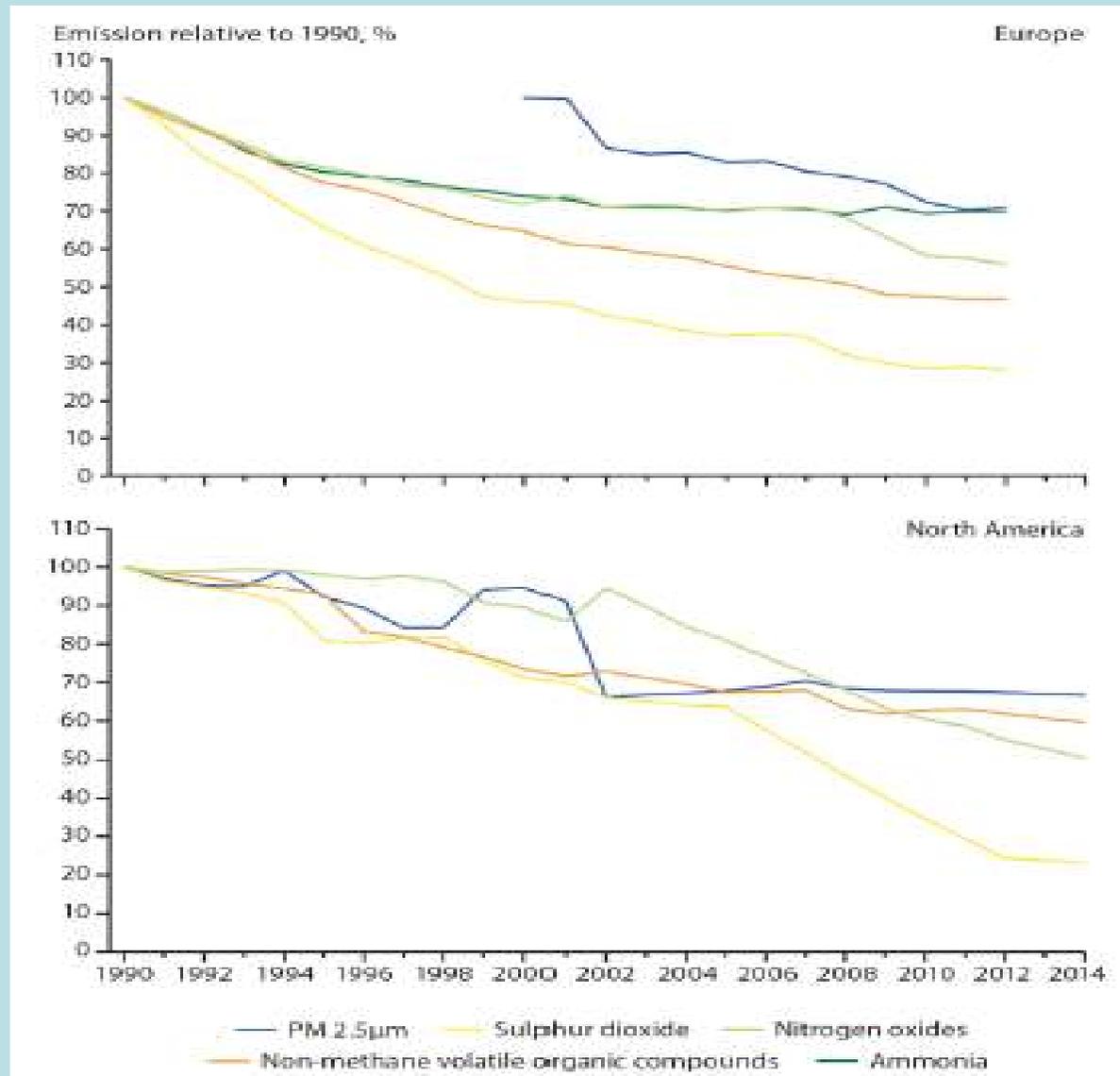
HAP: Household air pollution; AAP: Ambient air pollution; Amr: America, Afr: Africa; Emr: Eastern Mediterranean, Sear: South-East Asia, Wpr: Western Pacific; LMI: Low- and middle-income; HI: High-income.

Figure 2. Deaths per capita attributable to the joint effects of HAP and AAP in 2012, by region



HAP: Household air pollution; AAP: Ambient air pollution; Amr: America, Afr: Africa; Emr: Eastern Mediterranean, Sear: South-East Asia, Wpr: Western Pacific; LMI: Low- and middle-income; HI: High-income.

The decline of air pollutants over recent decades



Original Article

Association of Improved Air Quality with Lung Development in Children

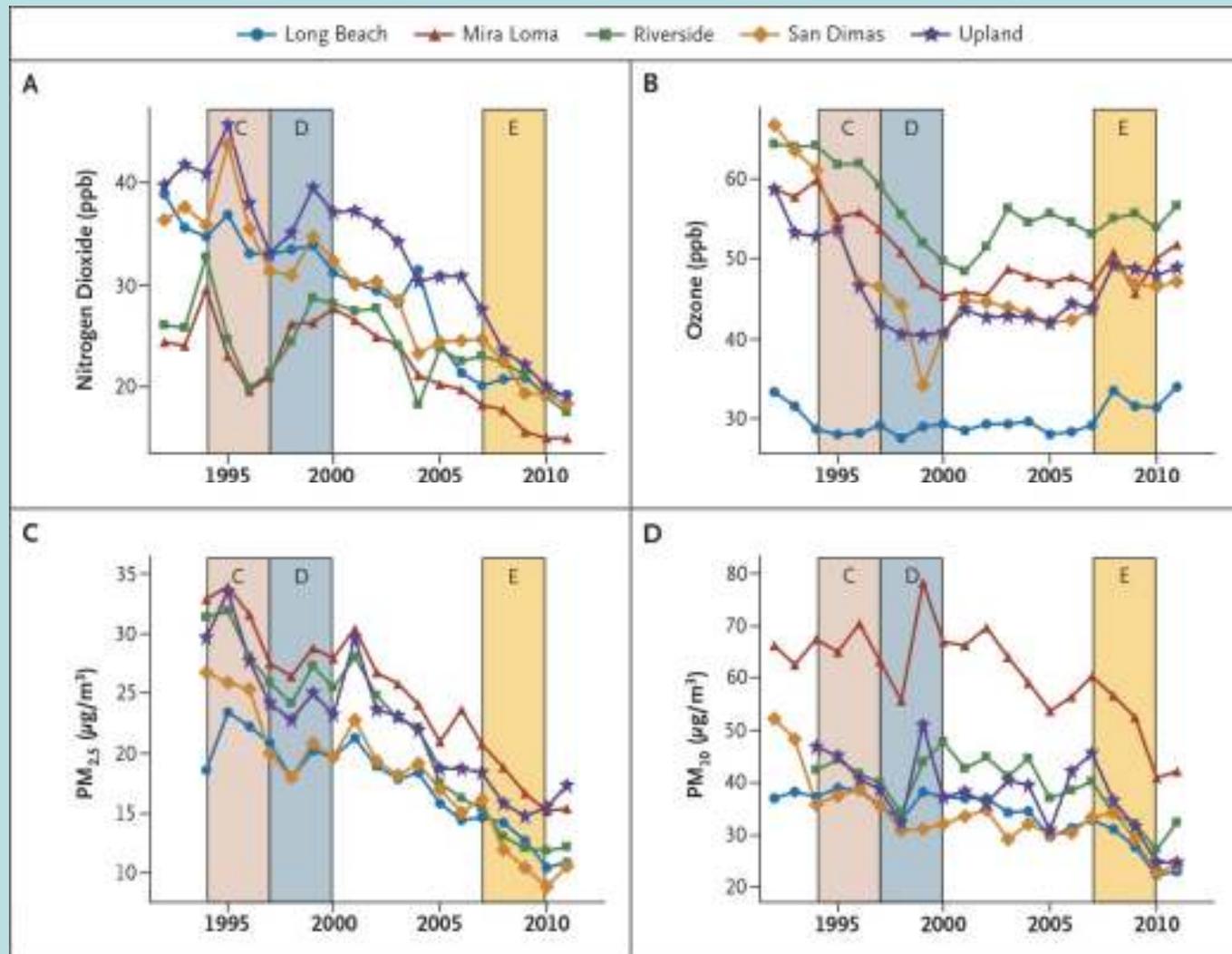
W. James Gauderman, Ph.D., Robert Urman, M.S., Edward Avol, M.S., Kiros Berhane, Ph.D., Rob McConnell, M.D., Edward Rappaport, M.S., Roger Chang, Ph.D., Fred Lurmann, M.S., and Frank Gilliland, M.D., Ph.D.

N Engl J Med
Volume 372(10):905-913
March 5, 2015



The NEW ENGLAND
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Levels of Four Air Pollutants from 1994 to 2011 in Five Southern California Communities.

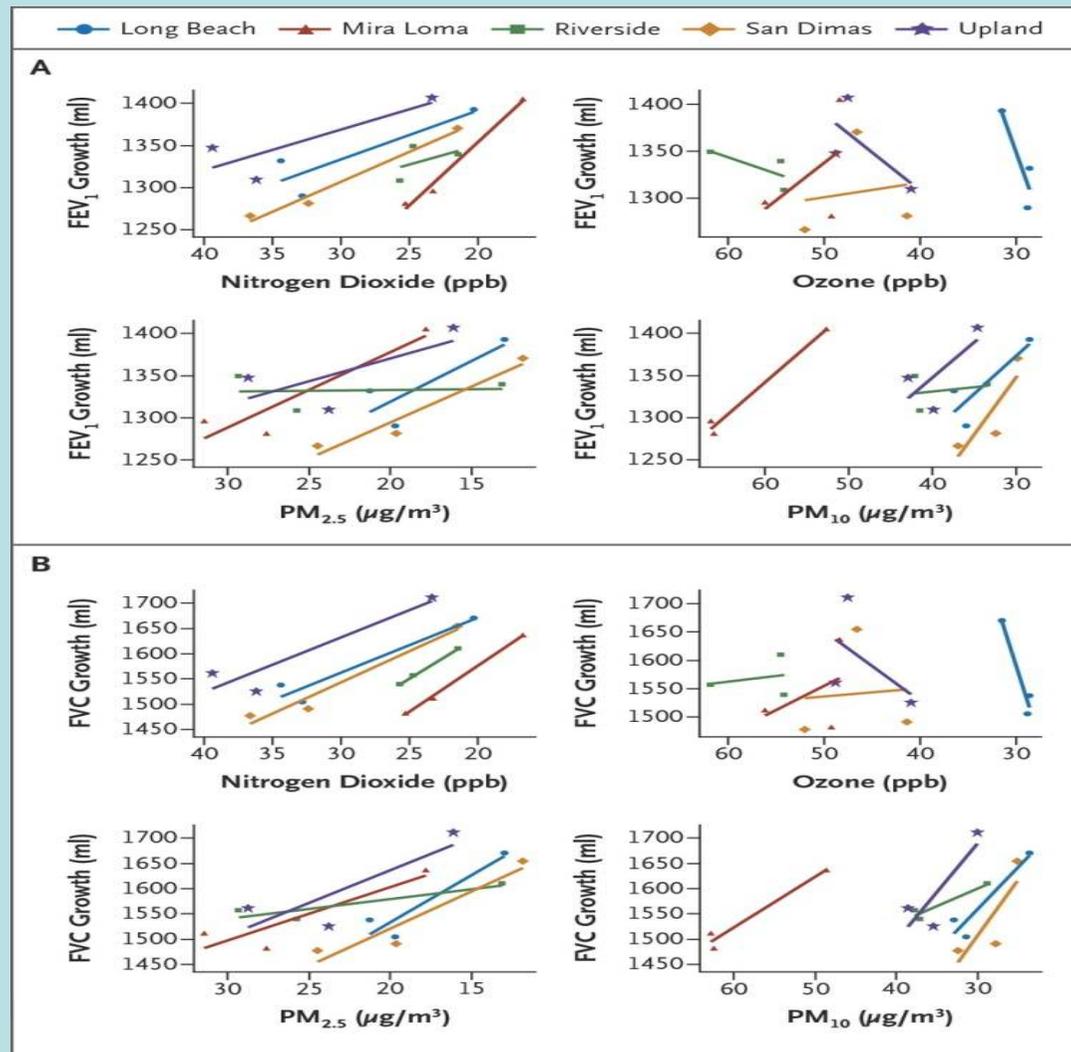


Gauderman WJ et al. N Engl J Med 2015;372:905-913



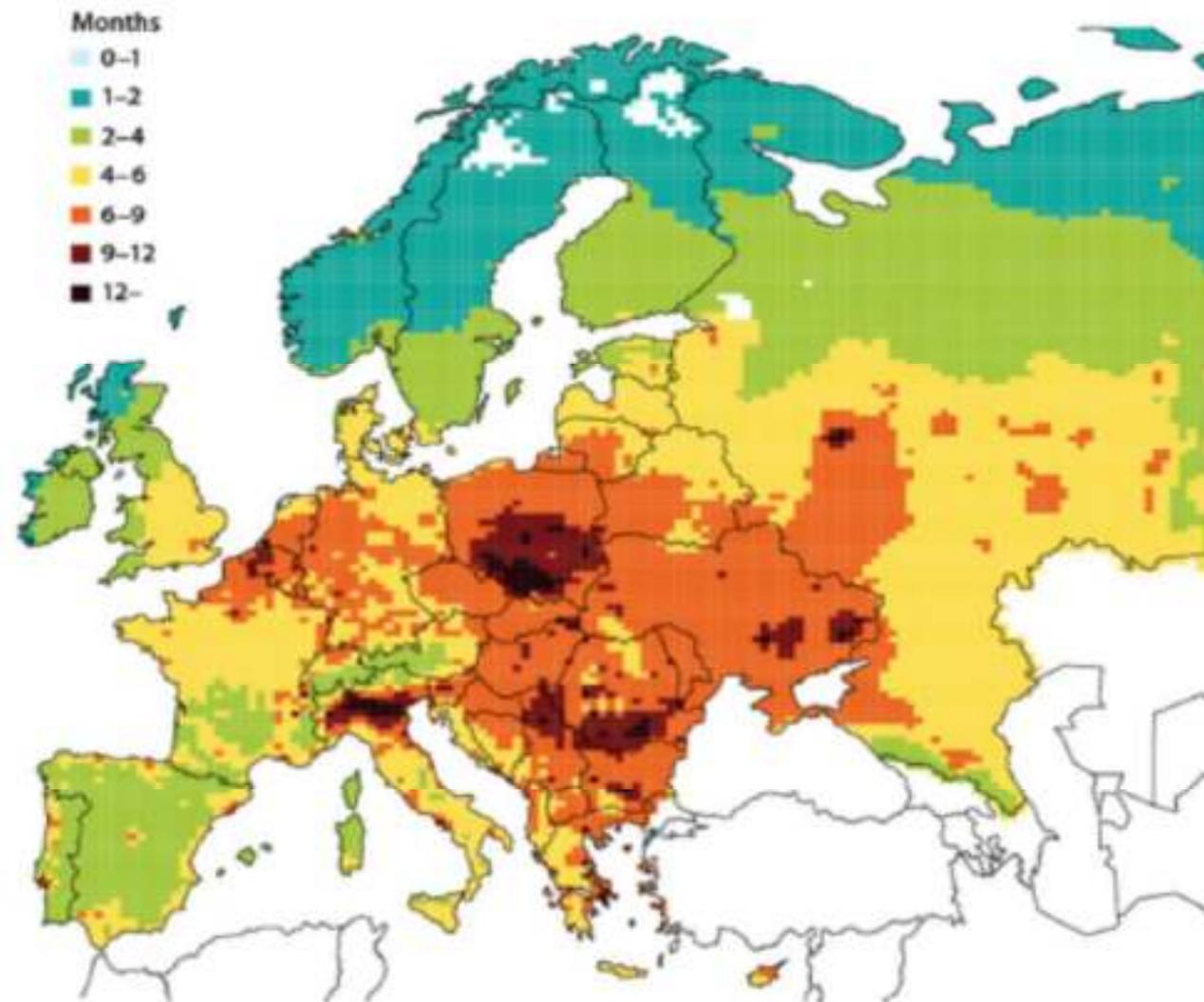
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Mean 4-Year Lung-Function Growth versus the Mean Levels of Four Pollutants.



Gauderman WJ et al. *N Engl J Med*
2015;372:905-913

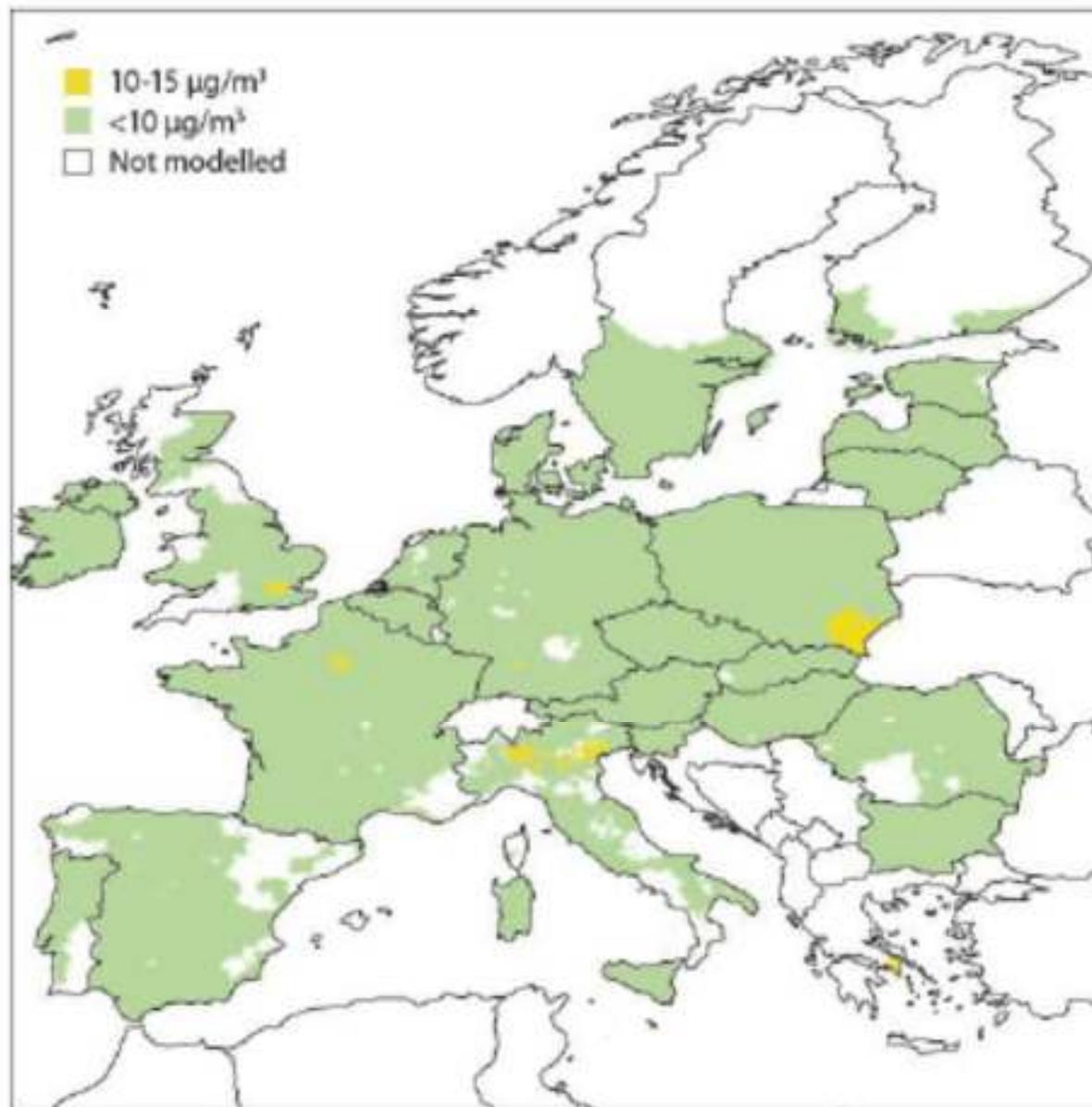
Loss in life expectancy due to fine particulates (PM_{2.5})



Source: Markus Amann, ed., *TSAP-2012 Baseline: Health and Environmental Impacts*, TSAP Report No. 6 (Laxenburg, Austria, International Institute for Applied Systems Analysis, 2012), available from <http://pure.iiasa.ac.at/10150/>.

Note: Loss in life expectancy due to fine particulates (PM_{2.5}) is highest in north-western continental Europe, Eastern Europe and the Po Valley.

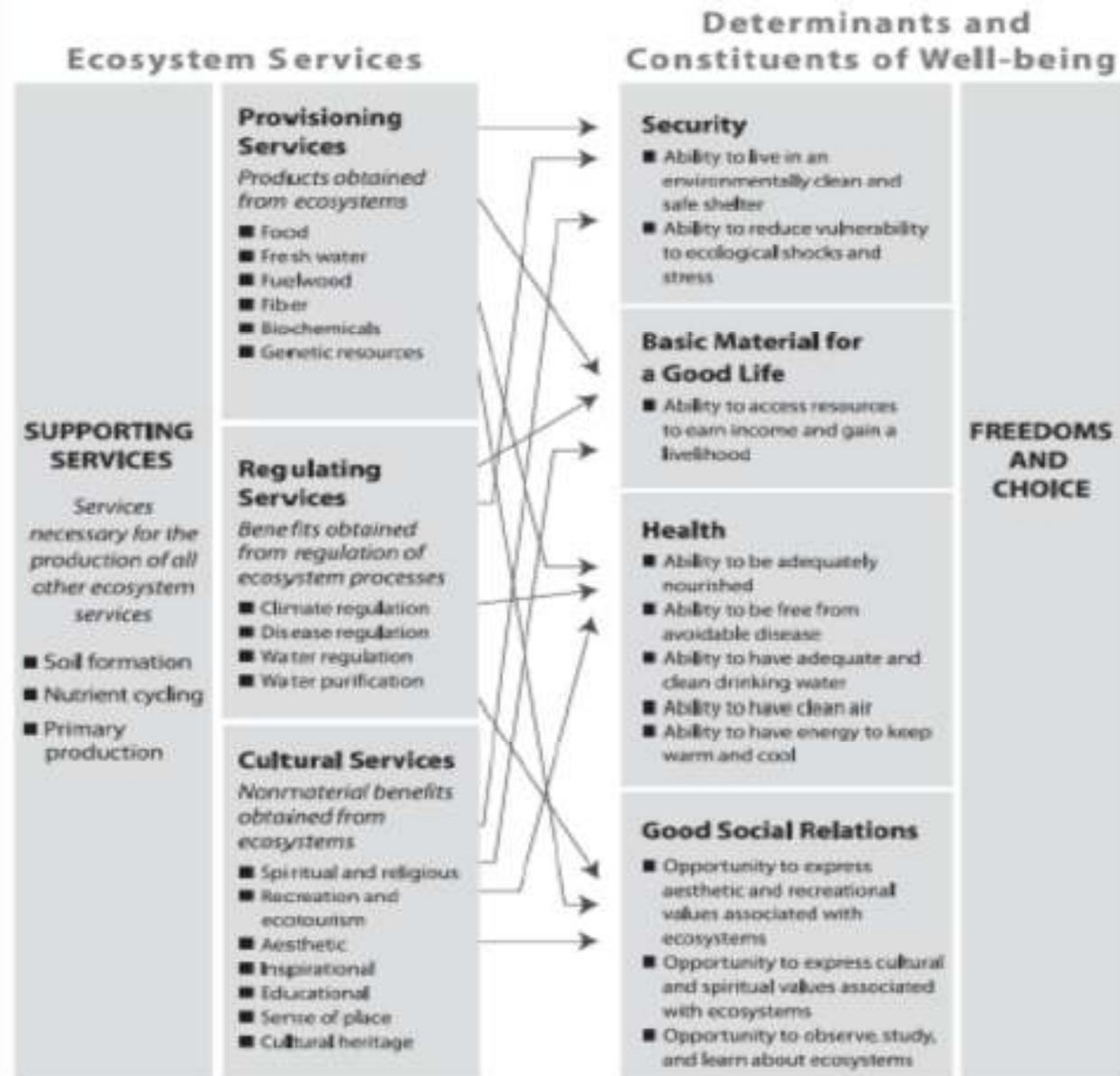
Projected PM_{2.5} concentrations in 2050 after the implementation of climate and energy policies by the European Union countries



A broader perspective is needed to address ecosystem and health links and emerging challenges

Much progress has been achieved through dedicated approaches to improving the quality of the environment and reducing particular burdens on human health — but many threats remain. The predominant drive for material well-being has played a major role in the biological and ecological disturbances witnessed today. Preserving and extending the benefits provided by the environment for human health and well-being will require continuous effort to improve the quality of the environment. Furthermore, these efforts need to be complemented by other measures, including significant changes in lifestyle and human behaviour, as well as consumption patterns.

FIGURE 1. OVERVIEW OF THE MILLENNIUM ECOSYSTEM ASSESSMENT CONCEPTUAL FRAMEWORK



(Source: MEA, 2003)

- **It is important to understand the key ecosystem services that are crucial for maintaining well-being.** While ecosystems provide a number of services relevant to the well-being of people, it is important to identify those ones that provide the highest relevance. This could include any of the provided services, including cultural services that are important for many indigenous communities (Rowcroft, 2006).
- **It is important to understand the key drivers behind changes in ecosystem services.** Quality and availability of ecosystem services could be the outcome of many drivers, including global processes, such as climate change; regional processes, such as industrial development in proximity of the community; and also local processes, such as unsustainable land use and harvesting. It is important to understand these drivers so we can target possible causes of the problems instead of only dealing with the impacts.
- **A spectrum of policies are needed to improve the well-being of the people.** To address the complex relationships between ecosystem services and well-being, often different types of policies are needed, including those that: improve regulating and provisioning; cover gaps in ecosystem services if the availability of food, other products, land and pastures are limited for communities; and assist in governance issues and conflict-resolution to ensure functioning policies targeting ecosystem services that often span across communities and regions.
- **Ecosystem-based policies should be a key component of the policy spectrum.** Many of the policies needed to improve the well-being of communities could directly involve ecosystems and ecosystem services, for example: restoring wetlands could provide water quality and adopting sustainable harvesting practices for fish; other animals and plants could provide sustained provisioning and regulating services such as food, products to sell; water levels preventing flash flooding; and creating habitats for species. Policy development processes need to explore the opportunities for ecosystem-based measures.
- **Deliberation with the community members is necessary to uncover relationships between ecosystem services, well-being and possible policy choices.** Linkages between community well-being and ecosystem services are often specific to the communities—including the drivers of changes in available services. Therefore, community participation and involvement are needed to assess the linkages and identify feasible and acceptable policy choices.



**World Health
Organization**

SIXTY-NINTH WORLD HEALTH ASSEMBLY
Provisional agenda item 13.5

A69/18
6 May 2016

Health and the environment

**Draft road map for an enhanced global response to
the adverse health effects of air pollution**

Report by the Secretariat

The proposed road map is organized into four categories:

(a) **Expanding the knowledge base:** Building and disseminating global evidence and knowledge relating to: the impacts on health of air pollution, the effectiveness (in health terms) of policies, and interventions to address air pollution and its sources that have been undertaken by different sectors. This includes identifying knowledge gaps and the promotion of innovation and research needed to address the impacts of air pollution on health.

(b) **Monitoring and reporting:** Enhancing systems, structures and processes needed to support monitoring and reporting on health trends associated with air pollution and its sources, and fulfilling the requirements of the resolution, while contributing to the monitoring of progress with respect to the Sustainable Development Goals, in particular, targets 3.9, 7.1 and 11.6.

(c) **Global leadership and coordination:** Leveraging health sector leadership and coordinated action at the global, regional, country and city levels in order to enable an appropriate and adequate response to this major public health problem, and ensuring synergies with other global processes, such as the implementation of the Sustainable Development Goals and follow-up to the Paris Agreement.

(d) **Institutional capacity strengthening:** Building the capacity of the health sector in order to analyse and influence policy and decision-making processes in support of joint action on air pollution and health, for example, to support the development of strategies and action plans to reduce household and ambient air pollution health risks, through setting relevant policies at national level or in cities, as well as to support the implementation of recommendations from WHO air quality guidelines.

Economic Commission for Europe

Eighth Environment for Europe Ministerial Conference

Batumi, Georgia, 8–10 June 2016

Item 2 (b) of the provisional agenda

**The environmental dimension of the 2030 Agenda for Sustainable
Development — moving forward in the pan-European region:
keeping the pan-European environment under review**

Summary of key findings and policy messages of the pan-European* regional assessment of the Sixth Global Environment Outlook

**Note by the Sixth Global Environment Outlook High-Level
Intergovernmental and Multi-stakeholder Advisory Group****

1. The pan-European regional assessment of the Sixth Global Environment Outlook argues for more urgent action, both through existing policies and the implementation of the 2030 Agenda for Sustainable Development (2030 Agenda), to address the challenges that the region is facing.
2. Regional and global multilateral environmental agreements have improved regional environmental conditions, access to information and public participation. Further improvements are feasible through better implementation and improved access to justice.
3. The region's resource footprint is unsustainable, owing to its overuse of natural resources and its trading patterns with other regions. Ecological, societal and economic resilience will be negatively affected in coming decades by global megatrends that are largely outside the region's direct control and influence.
4. Environmental challenges are now more systemic, multifaceted, complex, uncertain and intertwined with socioeconomic factors. Four of nine planetary boundaries have been crossed due to human-induced changes: i.e., climate change; biodiversity loss; land-system change; and altered phosphorus and nitrogen cycles. Poor air quality, climate change, unhealthy lifestyles and the disconnection between society and natural environments increasingly affect human health in the region and give rise to new risks.
5. Resilient ecosystems, efficient resource use, clean air, sufficient clean water, sustainable management of chemicals and waste and sustainable cities are essential for a healthy planet and healthy people. However, neither environmental policies alone nor economic and technology-driven efficiency gains will be sufficient to achieve sustainability. More ambition is needed. The 2030 Agenda and its Sustainable Development Goals recognize this reality.

Overview of the Environmental subprogramme's relative bearing for each SDG¹



How to create conditions for adapting physicians' skills to new needs and lifelong learning

Tanya Horsley, Jeremy Grimshaw and Craig Campbell

Competenze emergenti

Social/cultural

- Intercultural skills
- Team work
- Self management
- Entrepreneurship and innovativeness

Technical

- ICT and e-skills (both at user and expert level)
- Skills/knowledge related to new materials and new processes
- Health and green skills (related to health and climate and environmental solutions)

Managerial

- Intercultural management
- International value chain management
- International financial management
- Green management (implementing and managing climate and environmentally friendly policies and solutions).

Alcuni esempi di nuove attività richieste agli operatori della Sanità Pubblica

- **Partecipazione alla produzione di VIA e VIS;**
- **Partecipazione alla definizione dei Criteri Ambientali Minimi (CAM) In relazione a quanto indicato all'art. 34 *“Criteri di sostenibilità energetica ed ambientale”* del D. Lgs. 18 aprile 2016, n.50 (obbligatoria!);**
- **Partecipazione ad azioni di “Green Procurement”;**

The green economy in action

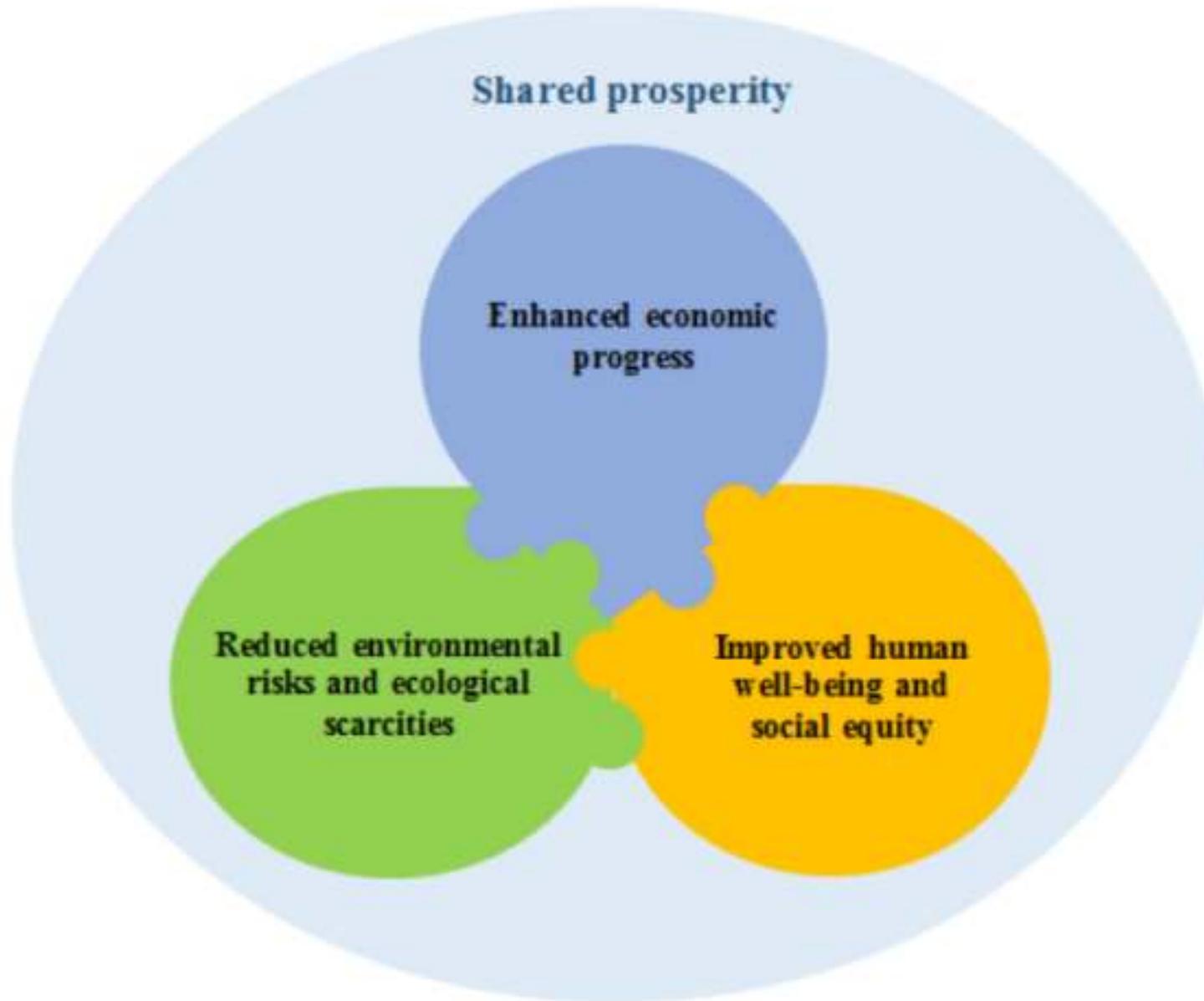


TABLE 2. EXAMPLES OF DIFFERENT TYPES OF POLICIES AND MEASURES TO HAZARDS SUCH AS FLOODING AND HEAVY RAINFALL, INCLUDING ECOSYSTEMS-BASED, INFRASTRUCTURE AND CAPACITY-DEVELOPMENT MEASURES

INFRASTRUCTURE AND CHANGES IN PRACTICES	ECOSYSTEM-BASED MEASURES	GOVERNANCE, TRAINING AND CAPACITY DEVELOPMENT
<p>Increasing the capacity of water/ sewage pipelines to account for access water and limit overflowing</p> <p>Building small and medium dams</p> <p>Building resistant roads to withstand flooding, permafrost thawing</p>	<p>Prompting sustainable non-forest product extraction to allow natural regeneration agriculture, organic farming and appropriate technology to reduce degradation</p> <p>Erosion control by encouraging vegetation planting and water storing</p> <p>Restoring vegetation around river beds to limiting flooding</p>	<p>Sustainable water management</p> <p>Farmer education—water harvesting and contour farming</p> <p>Training centres and microfinance to develop skills for off-farming-season activities</p> <p>Vocational training—especially for youth, in places with low levels of education</p> <p>Developing extension services to provide information about seasonal weather changes sea-ice changes, status of permafrost</p> <p>Health awareness programs and mobile clinics</p>

Source: Bizikova, et al., 2010 (modified)

**I tuoi riedificheranno le antiche
rovine, e tu rialzerai le fondamenta
di molte generazioni passate; così
sarai chiamato il riparatore di
brecce, il restauratore dei sentieri
per abitare nel paese.**

Isaia.58.12