OUR CLIMATE,
OUR HEALTH.

NCDs & CLIMATE CHANGE
SHARED OPPORTUNITIES FOR ACTION

NCD Alliance

THE GLOBAL CLIMATE & HEALTH ALLIANCE

> “Climate change is the single greatest threat to sustainable development. Yet, too often, one important fact gets lost amid the fear: addressing climate change is one of our greatest opportunities.”
>
> Ban Ki-moon - 2013

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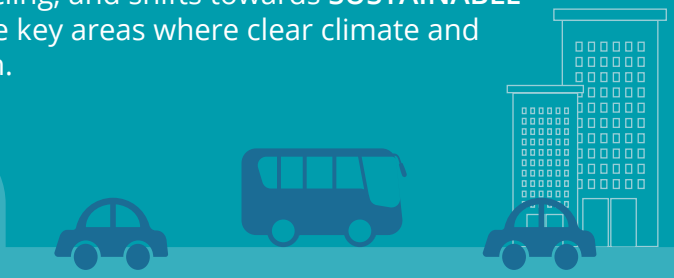
KEY MESSAGES

Climate change and NCDs are two of the **DEFINING CHALLENGES** of the 21st century

CLEAN ENERGY sources, promoting **ACTIVE TRANSPORT** including walking and cycling, and shifts towards **SUSTAINABLE FOOD SYSTEMS** are three key areas where clear climate and NCD co-benefits are seen.



INTERVENTIONS to combat climate change present key opportunities to effectively address NCDs – termed 'co-benefit' solutions.

A whole-of-society approach, from UN agencies to governments, civil society, the private sector, financial institutions, academia, local authorities, and communities, is required for the development, implementation, and follow up of **EFFECTIVE STRATEGIES**.

Government sectors - including those responsible for environment and health - must work together to ensure policy coherence, promoting mutually reinforcing policy **ACTIONS ACROSS MINISTRIES**.

INTRODUCTION

Climate change and non-communicable diseases (NCDs) are two of the defining challenges of the 21st century, each posing significant threats to health and sustainable development. Climate change is projected to have increasingly damaging effects on communities and economies over the coming decades, being set to cause several hundred thousand deaths annually by 2030[1]. At the same time, NCDs, including cancer, cardiovascular disease, chronic respiratory diseases, diabetes, and mental and neurological disorders are already responsible for 68 percent of global mortality[2] - a proportion which continues to grow.

INTERCONNECTED GLOBAL ISSUES: UNPARALLELED OPPORTUNITIES

Despite the worsening health impacts of climate change, the links between these two areas create as much an opportunity as a threat. NCDs share common risk factors, of which air pollution, physical inactivity and poor diet are major causes of morbidity and mortality. These three risk factors share some of the same origins and solutions as climate change, across sectors including energy, transport systems, food and agriculture, and emissions from industry, commerce and workplaces.

The issues of climate change and NCDs are both attributable in part to demographic changes, including rapid urbanisation and population growth. As of 2014, over half of the world's population lives in urban areas[3], bringing a dramatic transition in environments and working patterns. Development advances provide new technologies which enrich our daily lives, but also reshape our daily habits, and which tend to place increasing demands on energy resources. Meanwhile, sheer rates of population growth fuel rapidly rising demand for resources in all regions. Targeted investment of financial and technical resources to interventions of demonstrable success will be vital in averting greater economic and human cost in decades to come.

CLIMATE CHANGE, NCDS AND SUSTAINABLE HUMAN DEVELOPMENT

In September 2015, 193 world leaders committed to achieving seventeen Sustainable Development Goals (SDGs) and 169 targets to end extreme poverty, fight inequality and injustice, and protect our planet by 2030. Referred to as 'Agenda 2030 for Sustainable Development', health, NCDs and climate change feature prominently in this new set of goals. There is a dedicated target on NCDs under goal 3 for health, and goal 13 focuses exclusively on climate action.

However, as one of the basic principles underpinning the SDGs is that they are 'integrated and indivisible', progress on the NCD and climate change targets will be dependent on progress in many other sustainable development priority areas, and vice versa.

The synergies between NCDs and climate change are numerous, including in relation to poverty (SDG 1), food and nutrition (SDG 2), education (SDG 4), gender equality (SDG 5), and inequalities (SDG 10). For example, achieving SDG 1 to end poverty will require concerted action to reduce the impact of climate change, which threatens agricultural livelihoods, increases food prices, and causes catastrophic economic effects through natural disasters, as well as NCDs – which are alone predicted to result in costs of USD 47 trillion in the next two decades[4].

> "Climate change affects us all, but it does not affect us all equally. Those who are least able to cope are being hit hardest"
>
> Ban Ki-moon - 2013

Furthermore, the synergies with SDG 10 on inequalities are clear, with both climate and NCDs exacerbating inequalities, with the heaviest burdens borne by low- and middle-income countries (LMICs).

Climate impacts are most pronounced in developing nations, which have contributed least to its causes, and over 70 percent of NCD deaths occur in LMICs[5]. These same countries often lack adequate resources to cope – both in terms of adaptation to mitigate the effects of climate change, and the limited capacity of health systems to respond to the resulting burden of disease.

In December 2015, Member States met at the 21st UN Climate Talks (COP21) in Paris, with the aim of achieving an ambitious and universal agreement on climate change for the period after 2020, in order to limit average temperature increases to below 2°C. This provided a pivotal opportunity for the health community to emphasise the links between climate change and health, and to leverage commitment to mitigating climate impacts.

The newly adopted Paris Agreement is an unprecedented success, with countries committing to pursue efforts to limit global warming still further to 1.5°C, and with references on the need to protect human health embedded in the document[6]. The text provides a catalyst to further build much-needed political will, engage new audiences in finding the solutions to climate and health challenges, and capitalise on the many co-benefits of addressing climate and health in tandem, including through investment in sustainable solutions.

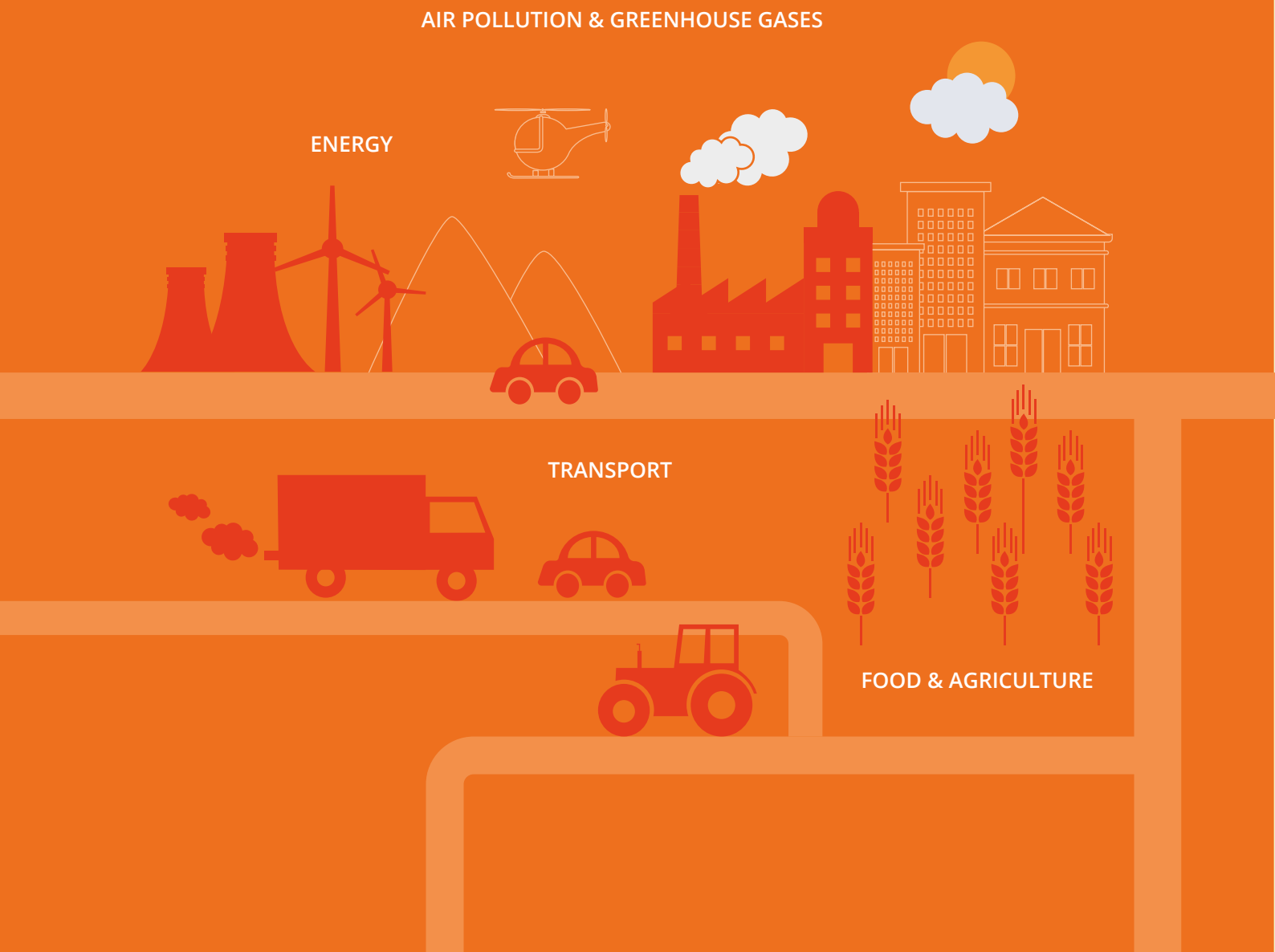
> "Given the potential of climate change to reverse the health gains from economic development, and the health co-benefits that accrue from actions for a sustainable economy, tackling climate change could be the greatest global health opportunity of this century... A public health perspective has the potential to unite all actors behind a common cause - the health and wellbeing of our families, communities, and countries."
>
> 2015 Lancet Commission on Health and Climate Change

KEY AREAS FOR INTERVENTION

Given that climate change and NCDs both have their root causes across multiple sectors, multisectoral collaboration from municipal to global levels is an essential part of the collective response. This can be achieved by interventions such as scaling up renewable energy, investment in active transport systems which promote cycling and walking, sustainable food and agriculture practices, energy-efficient buildings, and reduced industrial emissions.

There are benefits to applying these interventions across all settings. In particular, a targeted focus on cities, which serve as a nexus of activity across a range of sectors, has the potential to yield major benefits for both climate and health. This is particularly beneficial in terms of the high population concentrations reached and the way in which a range of interventions can be applied as a package. Advocacy targeted towards policy makers working at the municipal level, including mayors and local councillors, is therefore invaluable.

The following sections explore some of the specific connections between NCDs and climate change, as well as highlighting co-benefit solutions in tackling these twin challenges. The policy areas of focus are **air pollution**, **energy**, **transport** and **food systems**. There are many other areas, such as housing, workplaces, urban planning and industry in which synergies exist between climate mitigation and reducing exposure to NCD risk factors, but these four sectors provide key examples for an effective and integrated response.



Public health policies must be built into climate mitigation plans, and climate change issues addressed in public health plans. In the WHO South East Asia Region, governments have adapted the global NCD action plan to develop a regional NCD action plan for 2013-2020, which includes household air pollution as a key area for intervention alongside 'traditional' NCD risk factors including tobacco use, harmful use of alcohol, poor diet, and physical inactivity.

AIR POLLUTION

According to the World Health Organization, air pollution causes 7 million premature deaths annually. Of these, approximately 4 million are attributable to indoor air pollution, due primarily to unclean cookstoves, heating and lighting methods (using solid fuels such as charcoal, wood and crop waste)[7]. Around 3 billion people worldwide use unimproved cookstoves[7], and the resulting smoke inhalation is comparable to smoking two packets of cigarettes daily[8], significantly increasing the risk of stroke, respiratory diseases, ischaemic heart disease and lung cancer. Indoor air pollution disproportionately affects the health of women and children, as women are most often responsible for household tasks such as cooking, while their young children stay close by the stoves whilst they are cared for. Outdoor air pollution, attributable to factors including emissions from mechanised transport systems, power generation based on fossil fuels, poorly designed buildings, unregulated industrial processes, unsustainable agricultural practices, and poor waste management systems causes 3.7 million premature deaths annually [9].

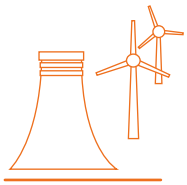
Both indoor and outdoor air pollution significantly increase the risk of stroke, ischaemic heart disease and respiratory diseases including COPD and lung cancer[7,8], and contribute in turn to rising temperatures and heat wave episodes, which lead to increasing rates of mortality from heart attacks or stroke as a result of heat stress, particularly in people with pre-existing NCDs[10]. By the end of the century, over 3 billion heat wave 'exposure events' are projected to occur each year – representing a more than 30-fold increase on current rates[11].

WHAT WORKS?

The impacts of indoor air pollution can be reduced by clean cookstoves, which are either more fuel efficient (though still using wood or charcoal), or are based on cleaner energy, such as ethanol or solar. Whilst such technologies can sometimes be unaffordable for people living in poverty, there are proven cost-effective solutions such as the 'Healthy Kitchen/Healthy Stove' project trialed in Peru[12]. This was founded on an innovative micro-loan mechanism based on animal husbandry, where families received animals on loan in addition to the stove on the agreement that over one year animals would be returned to pay for the loan and the stove.

Outdoor air pollution can be reduced by interventions in the three remaining areas set out in this brief: energy, transport, and food and agriculture systems. In the cases of transport and food, this action has additional synergies with combating other NCD risk factors in addition to reducing air pollution.

One additional intervention which reduces atmospheric carbon dioxide is tree planting. In urban areas, this has the added benefit of increasing walkability (the extent to which a given environment is pedestrian-friendly), while also providing protection from the sun and thus directly reducing exposure to UV rays associated with skin cancers.



ENERGY PRODUCTION

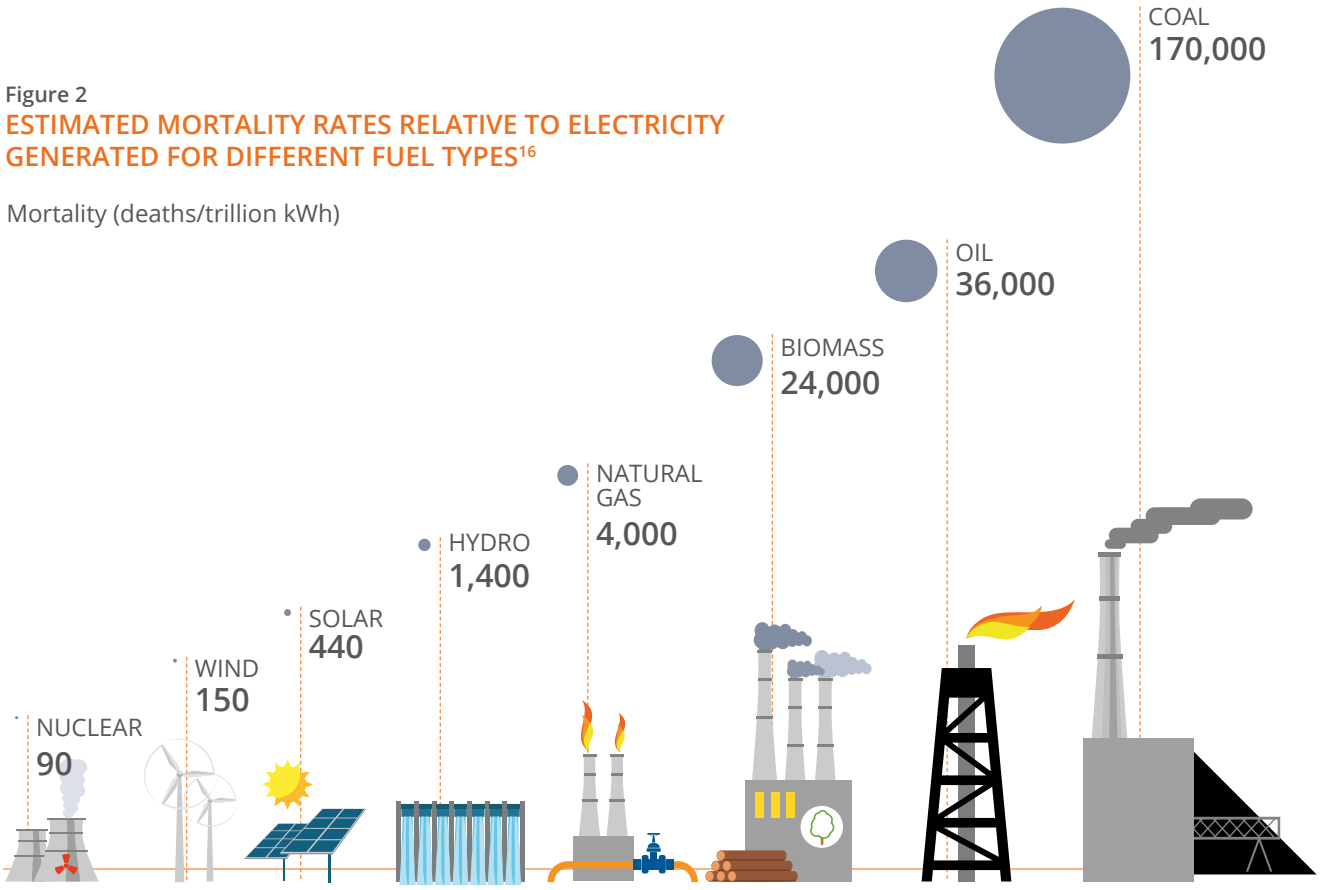
Fossil fuel emissions, including those resulting from electricity generation, motorised vehicles, heating and lighting, negatively impact health. In the United States, electricity production accounts for one third of the country's greenhouse gas emissions[13], with the greatest proportion generated by coal-fired power plants[14]. Coal's health and climate impact per unit of electricity produced is particularly high relative to other energy sources. Emissions from coal, and indeed other fossil fuels, are high in particulate matter, which includes substances such as black carbon and has been shown to contribute to many chronic health problems. Black carbon is part of a class of pollutants termed 'short-lived climate pollutants' (SLCPs), which have a particularly close link with both climate and NCDs on account of their significant impacts on respiratory and cardiovascular health, coupled with their rapid effects on warming [15].

As a result, there are sustained calls for a 'rapid phase-out' of coal from the global energy supply to mitigate its health impacts[11]. A transition towards renewable energy sources, which produce little to no emissions (such as wind, solar, geothermal and hydroelectric power) offers substantial health benefits, preventing NCDs, and directly reducing global warming.

As shown in figure 2, the mortality rates associated with production per trillion kilowatt hours (trillion kWhr) for coal are on average over 1,000 times higher than for the equivalent amount produced by wind[16]. This in turn has economic implications - for example, the total health impact of fossil fuels is estimated to cost the US economy between USD 362 to USD 887 billion annually, equivalent to 2.5-6.0 percent of GDP[17]. The financial gains to be made by switching to fossil fuels are significant.

One policy measure which could dramatically reduce the health costs of fossil fuel-related air pollution and tackle climate change would be to redirect substantial fossil fuel subsidies paid by governments instead towards renewable energy. For example, oil subsidies in Africa alone total USD 50 billion annually[18].

Figure 2
ESTIMATED MORTALITY RATES RELATIVE TO ELECTRICITY GENERATED FOR DIFFERENT FUEL TYPES[16]



WHAT WORKS?

In 2014, wind energy accounted for 39 percent of Denmark's overall electricity consumption, according to the country's Ministry of Energy, Utilities and Climate[19]. The figure makes the country the world's leading nation in wind-based power usage, placing the country firmly on track to reduce coal consumption by more than half by 2020.

Such a transition can be driven by increased investment in research and development into renewable energy technologies and an end to government subsidies of fossil fuels. Technological advances continue to make renewable energy methods more efficient, with a wind farm of turbines with the latest technological developments predicted to generate a saving of approximately 295 million Euros for Danish consumers over the next 11-12 years[20].

The transition to renewable energy is not only accessible to high-income countries; Uruguay now produces 94 percent of its electricity by renewable means. Furthermore, prices are in fact lower than in the past relative to inflation[21].

TRANSPORT

Urbanisation has brought with it changes in occupation and ways of life, leading to lower levels of physical activity and higher car use. Physical inactivity causes 3.2 million deaths annually[22] and correlates directly with car ownership, which also contributes to rising emissions. Total global annual passenger transport is set to more than double from from 33 trillion to 74 trillion km from 2000 to 2050[23].

Promoting active transport (i.e. forms of transport which involve physical activity, such as cycling and walking) has the dual benefit of reducing emissions and incorporating exercise into daily routine. The creation of better cycling networks, bike share schemes and more walkable streets, for example through pedestrianisation and lower speed limits, has been shown to help increase rates of active transport. If half of short trips were made by bicycle in the Upper Midwestern region of the United States alone, an annual USD 3.8 billion would be saved from avoided mortality and reduced health care costs[24]. To reinforce this, reductions in air pollution in turn create more appealing environments for exercise.

WHAT WORKS?

Bogotà in Colombia is a world-renowned sustainable city. Investment in public transport and accessible pathways have improved the urban environment, active travel and sustainability since 1995. A landmark feature is the 'Ciclovía', where 120km of road is car-free every Sunday, allowing people to walk, cycle, and otherwise exercise safely. Women participating regularly in the Ciclovía are seven times more likely to be physically active[25].

'Pedibus' systems originated in Australia, and encourage active transport by allowing children to walk safely to school in groups without all parents needing to accompany them. Volunteer parents lead children along a predetermined route, making 'stops' to pick up children according to a defined timetable. Early acquisition of physical activity habits lay the foundations for better lifestyle choices in adulthood.

Measures to discourage car use can be used alongside those to encourage active travel. In London, motorists must pay to enter central London during working hours, and data suggests that car journeys in the charging zone have fallen by a quarter. The 'congestion charge' is estimated to have reduced air pollution levels and saved 1,888 years of life among the city's seven million residents in its first five years[26], whilst cycle journeys across the city increased by 20 percent[27].

Public transport networks also encourage physical activity over shorter distances, and can be powered by clean fuels to reduce air pollution. Electric buses were introduced in Chicago in 2014. Investment in operating one electric bus is estimated to have the equivalent effect of removing 276 cars from the road, and to contribute USD 300,000 savings in fuel costs together with USD 660,000 savings in health costs over the 12 years the bus is in operation[28].

FOOD AND AGRICULTURE SYSTEMS

A global dietary transition from locally sourced, unprocessed foods to imported, often highly processed options is contributing to excessive energy intake, malnutrition, and increased greenhouse gas emissions. Hypertension, high blood glucose, overweight and obesity, and high cholesterol, which are principal health outcomes of such diets, are four of the top six causes of death globally, together accounting for over 15 million deaths annually[22].

In particular, excessive consumption of animal products – particularly red and processed meat - has detrimental impacts on both climate and health. In contrast, a plant-based diet has been shown to be positive for health and protective against NCDs. Overall, livestock production is responsible for 18 percent of global greenhouse gas emissions - more than all forms of transport combined. This is due to the combined effect of burning fuel to produce fertiliser to grow feed, for production and transportation of meat, clearing grazing land, and emissions directly from the livestock[29].

WHAT WORKS?

Changes to food and agriculture policies aimed at promoting more local, seasonal, plant-based diets – whilst ensuring that nutritional needs are met - can help to reverse some of the negative trends of recent years. Since 2009, Brazil's National School Meals Program (PNAE), which seeks to provide nutritious meals for the country's 45 million school children, has required 30 percent of food served in schools to be locally sourced from family farmers. Through this initiative, 83 percent of public schools in Brazil receive locally produced food, improving childhood nutrition through consumption of fruit and vegetables in place of processed foods, minimising emissions from food transport, and additionally supporting local farmers[30].

In developing countries in particular, access to fresh, healthy and affordable produce including vegetables and fruits can be maintained by protecting local markets. In many areas, local markets are being replaced by supermarkets and commercial centres, which typically offer a reduced selection of vegetables and fruit but a wide variety of processed and sweetened foodstuffs.

Interventions to reduce red meat consumption amongst groups with high levels of consumption offer a clear win-win for health, as red meat has a particularly high carbon footprint and is closely associated with cancer and cardiovascular disease. Education, including through media coverage, is of central importance – not only on the health impacts of consuming red meat, but also on nutritious alternatives such as pulses with vastly lower associated emissions.

CONCLUSIONS

It is clear that interventions to cut greenhouse gas emissions can go a long way to simultaneously reduce population exposure to many of the NCD risk factors. Recognition of these synergies is increasing, but progress in many areas of intervention (despite proven effectiveness) remains patchy. Intersectoral collaboration is key to ensuring that action on climate change also contributes to the goal of NCD prevention, and vice versa. Cities offer particular opportunities for cost-effective interventions and many are already taking the lead in this respect; Oslo, for example, has recently committed to having a car-free city centre within four years.

Climate change and NCDs in any setting cannot be addressed by any one ministry of government alone. The need for coordination across the environment, health, energy, transport, and food and agriculture sectors in order to ensure policy coherence is plain. Such advances will not be possible without deliberate action to shape rationale in other policy arenas for the protection and promotion of health. However, buy-in is also necessary from the whole of society - beyond government alone, and extending to civil society, private sector, academia and communities, as called for in both the Preamble and paragraph 134 of the Paris Agreement[6]. All sectors have a role to play, whether in advocacy, monitoring, education, or changes to operating practices and daily life, and the responsibility should be shared by all.

In addition to the economic reasons for investing in actions which are beneficial to health, synergies between climate and NCDs can also help in making the case for urgent action in short-cycle electoral systems. While climate benefits are typically seen decades later, health gains are often immediate and have clear, short-term economic savings associated with improved economic productivity, reduced healthcare costs and avoided premature deaths. Action to tackle climate change and NCDs in parallel is likely to be most effective as part of an integrated approach to sustainable development, further capitalising on the linkages between the 17 global goals of Agenda 2030, and - when well-planned - can produce dramatic co-benefits for both climate and health.

Stringent monitoring will be required to ensure progress on mitigating climate change and its impacts on health. To this end, an independent accountability mechanism proposed by the 2015 Lancet Commission on Health and Climate Change entitled 'Countdown to 2030: Global Health and Climate Action' will be key in tracking, supporting, and communicating progress[11].

KEY RECOMMENDATIONS

1 **At global and regional levels, ensure intergovernmental, multilateral, and whole of society cooperation to address climate change and NCDs.** In doing so, particular emphasis must be placed on co-benefit solutions with multiple advantages across climate change mitigation and health promotion.

2 **At country level, integrate priorities across national strategies and action plans to achieve policy coherence.** Public health considerations should be explicitly built in to climate mitigation plans, and *vice versa*. Ministries of Health and Environment must also sensitise other sectors to bring about comprehensive progress.

3 **Scale up development aid and technical assistance for climate change mitigation and adaptation, and NCD prevention and control.** At COP21, developed countries agreed to collectively provide a starting contribution of USD 100 billion to developing countries annually by 2020 to implement strategies for climate change mitigation and adaptation.

4 **Define and agree global research priorities.** Crucial research areas include analysis of effective ways to shift consumer demand from 'western' diets to predominantly plant-based diets; appropriate policies to transition from private motorised transport to healthier and cleaner transport alternatives[31].

5 **Quantify the health implications and related economic impacts of policy interventions across sectors.** Such data is instrumental in evidence-based decision making. This will require the establishment of appropriate data collection and monitoring mechanisms, which can also be used to ensure accountability at the level of individual sectors, municipal authorities, and national governments.

ABOUT US

NCD Alliance

NCD Alliance is a unique civil society network, uniting 2,000 organisations in more than 170 countries, dedicated to improving NCD prevention and control worldwide. Together with strategic partners, including the World Health Organization, the United Nations and governments, NCD Alliance works on a global, regional and national level to bring a united civil society voice to the global campaign on NCDs.

www.ncdalliance.org

The Global Climate and Health Alliance

The Global Climate and Health Alliance is made up of health and development organisations from around the world united by a shared vision of an equitable, sustainable future. It was formed in Durban in 2011 with the aim of tackling climate change and protecting and promoting public health. Our vision is a world in which the health impacts of climate change are kept to a minimum, and the health co-benefits of mitigating climate change are maximised.

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www.climateandhealthalliance.org

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