South Africa's updated draft Nationally Determined Contribution

Submission by the Public Health Association of South Africa (PHASA), the South African Medical Association, and Amref Health Africa - April 2021

Dear Climate Secretariat,

The Public Health Association of South Africa (PHASA), the South African Medical Association and Amref Health Africa welcome the opportunity to provide comments on South Africa's draft updated Nationally Determined Contribution. Climate change poses severe and numerous threats to human health. In South Africa, these include exposure to drought, heat (especially for outdoor workers), wildfires, flooding, food security, and mosquito-borne and other infectious diseases[1,2]. At the same time, action on climate change offers one of the greatest public health opportunities of the 21st century[3]. The draft NDC recognises the right to a safe and healthy environment. We strongly support this principle and seek to provide guidance on how to protect this central determinant of public health.

The COVID-19 pandemic has exacerbated existing health inequities, with those most affected by COVID often also the most vulnerable to climate change. Without mitigating and adapting to climate change, public health and the economy will both be jeopardised. The World Health Organization and associations representing over 40 million health professionals worldwide have called for a "green" and healthy recovery from the pandemic[4,5]. Yet, since March 2020, at least ZAR 9.1 billion million has been committed to support fossil fuel energy in South Africa compared to an unquantified amount for renewable energy[6]. Investments and policies which lock in our reliance on fossil fuels will delay our much-needed rapid decline in emissions. By contrast, public investment to promote health and climate related security can yield high returns, creating sustainable jobs and reducing inequalities[7]. Indeed, by the year 2050, IRP 2018 will have created almost 5,000 jobs through socio-economic and enterprise development. These socio-economic benefits for marginalised communities could even be doubled, by scaling up the adoption of renewable energy in line with the more ambitious low-carbon energy pathways[8]. Wise allocation of COVID-19 recovery funds to support the interrelated priorities of climate, health, economic stability and equity will deliver a safe and robust future for generations to come. Initiatives which deliver on these four mutually dependent objectives are highly relevant for inclusion in South Africa's 2021 NDC, which defines the nation's future trajectory on climate action.

Healthy and ambitious NDCs are thus a cornerstone of healthy recovery. Interventions that reduce emissions also offer immediate and local health benefits, such as improved air quality, healthier diets, and increased physical activity, as well as contributing to a just recovery. To drive progress towards the needed climate targets, the healthcare sector in South Africa, which accounts for 2.5% of national emissions, is already implementing solutions to mitigate climate change, with links to an international initiative for which a roadmap to reach net zero emissions by 2040 has recently been published[9,10,11.]

Despite the NDC's recognition of health and climate linkages, however, the upper limits of the reductions targets fall short of the Paris Agreement, and instead appear to be aligned with 3°C temperature increases[12]. We urge the government to consider implementing policies which yield both health and climate benefits, by bringing its reduction target range into line with a 2°C goal. Without early and thorough planning and implementation, the 2°C target in the draft NDC, as well as more ambitious targets of limiting warming to 1.5°C necessary in order to protect the public's health, will remain far out of reach.

By embedding health in its climate mitigation policies, an estimated 9450, 98900, and 35000 deaths annually can be avoided in South Africa by 2040 through improved air quality, healthier diets, and increased active travel respectively[13]. Moreover, economic returns from health savings in a low-carbon future can be substantial[14]. Indeed, the health benefits from reduced air pollution alone of meeting climate goals far outweighed the costs of action in a modelling study[15].

President Ramaphosa said in his 2021 State of the Nation Address "As we mobilise all of the resources at our disposal to support economic recovery, we cannot lose sight of the threat that climate change poses to our environmental health, socio-economic development and economic growth." South Africa and the world cannot afford to overlook human health and equity in confronting the climate crisis. The health narrative is compelling and can broaden support for timely policy adoption toward net zero emissions. A One Health approach offers a pathway forward, encompassing the health and climate intersections which are the focus of this submission, while also reducing the risk of zoonoses and antimicrobial resistance[16].

Our attached policy roadmap focuses on recommended mitigation policies across three sectors that offer benefits to health and equity: energy, food & agriculture, and transportation. Inclusion of these policies in the final NDC will accelerate a just transformation towards a better world and healthier life for all. Given the central requirement for NDCs to define pathways to greenhouse gas emissions reductions, this appendix focusses on mitigation co-benefits. Nevertheless, wider health-protective actions are also essential, including monitoring and surveillance of health risks and impacts; preparedness measures; and education, training and capacity building[17].

We express our firm support for the government to deliver ambitious and decisive action on climate change and health, and will be pleased to provide any additional information required.

Sincerely

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[1] Wright CY et al (2021) Major climate change-induced risks to human health in South Africa. Environmental Research, 196: 110973.
[2] Watts N et al (2020) The 2020 report of The Lancet Countdown on health and climate change: responding to converging crises. Lancet, 397: 129-170
[3] Watts N et al (2015). Health and climate change: policy responses to protect public health. Lancet, 386: 1861-1914
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[5] Global Climate and Health Alliance (2020). Over 40 million health professionals urge G20 leaders to put public health at the core of Covid-19 recovery. 2020. Available online athttps://climateandhealthalliance.org/press-releases/over-40-million-health-professionals-urge-g20-leaders-to-put-public-health-at-the-core-of-covid-19-recovery/ Retrieved 2 April 2021
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[7] Guerriero C et al (2020). Health and sustainability in post-pandemic economic policies. Nat Sustain, 2020. 3: 494–496.
[8] COBENEFITS (2019). Economic prosperity for marginalised communities through renewable energy in South Africa: Assessing the co-benefits of decarbonising the power sector. Available online at https://www.cobenefits.info/wp-content/uploads/2019/03/COBENEFITS_SA_Prosperity_Executive-Report_190322.pdf Retrieved 27 April 2021
[9] Global Green and Healthy Hospitals (2021). Members around the world. 2021. Available online at https://www.greenhospitals.net/members/?lang=en Retrieved 27 April 2021.
[10] Health Care Without Harm (2021). Global Road Map for Health Care Decarbonization. Available online at https://healthcareclimateaction.org/roadmap Retrieved 27 April 2021.
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[12] Climate Action Tracker (2020). South Africa. Available online at https://climateactiontracker.org/countries/south-africa/ Retrieved 24 April 2021.
[13] Hamilton I et al (2021) The public health implications of the Paris Agreement: A modelling study. The Lancet Planetary Health, 5(2), e74–e83. https://doi.org/10.1016/S2542-5196(20)30249-7
[14] Howard C et al (2020). The Paris agreement: Charting a low-emissions path for a child born today. The Lancet Planetary Health. 4(1), e4–e6. https://doi.org/10.1016/S2542-5196(19)30246-3
[15] Markandya A et al (2018). Health co-benefits from air pollution and mitigation costs of the Paris Agreement: A modelling study. The Lancet Planetary Health. 2(3), e126–e133. https://doi.org/10.1016/S2542-5196(18)30029-9
[16] World Health Organization (2017).One Health. Available online at https://www.who.int/news-room/q-a-detail/one-health Retrieved 30 April 2021
[17] Wright CY et al (2021). Major climate change-induced risks to human health in South Africa. Environmental Research, 196: 110973.

Comments on South Africa's draft updated 2021 NDC

Key Recommendations

- The upper limit of South Africa's NDC appears to be consistent with a 3°C temperature increase[18]. A rapid and just transition to enable achievement of the lower limit of the target range is vital to protect human health as well as climate. We further recommend that the NDC includes information on the level of greenhouse gas emissions reductions which are unconditional, and those which can be achieved with international financing.
- In 2021 more than ever, interventions which yield high returns on investment should be prioritised. As such, we highly recommend that the NDC includes consideration of co-benefit interventions which deliver benefits for the climate, public health, and the economy. Many such interventions can be found in the energy, food and agriculture, and transport sectors, detailed in the appendix.
- The acknowledgement of the healthcare sector as one which is highly impacted by climate change should be matched with an acknowledgement of the need for healthcare sector adaptation and resilience, as detailed in the National Climate Change Adaptation Strategy.

Detailed Recommendations

These comments are ordered to reflect the current draft text of South Africa's NDC. Paragraph numbering is in accordance with the first paragraph of every page (whether or not continued from the previous page) being numbered as "1". For text in tables, reference is made to the lettering system employed in the draft NDC.

Section 1b

- Page 2, final paragraph: We welcome the consideration of science and equity, and suggest that health is also considered as a guiding criterion for climate policymaking.

Section 1c

- Page 3, paragraph 3: We concur with the identification of health as one of the sectors most impacted by climate change. This is primarily on account of the increased burden on health services which will arise due to the health impacts of climate change, although damage to healthcare infrastructure during climate-related extreme events also presents an increasing risk in future. The economic implications of ill health, including in terms of impacts on labour productivity, are indeed extensive, with hours equivalent to 13,000 full time jobs due to be lost due to heat stress alone in 2030[19]. We suggest that the NDC includes mention of a budget to improve health sector adaptation and resilience.

Section 2

- Page 3-5: The text refers to the high dependency of South Africa's economy and energy system on coal (page 3, final paragraph). Air pollution from coal-fired power stations kills more than 2,200 South Africans every year, and causes thousands of cases of respiratory disease in adults and children annually. The estimated health costs of coal power generation in 2018 range from ZAR 11 billion up to ZAR 30 billion, negating apparent economic gains[20]. We urge a rapid and just transition to the abundant but currently underutilised renewable energy sources described (page 4, paragraph 1), made increasingly feasible by South Africa's progress since 2015 to make wind and solar PV available at declining costs (page 5, paragraph 1), together with a commitment to coal phase out by 2034, aligned with recommendations by Climate Analytics for African countries[21].
- Page 4, paragraph 1: We strongly agree with the importance of a well-resourced, just transition strategy. We agree with the principles of a just energy transition described by Project 90 by 2030[22].
- Page 4, paragraph 3: We also note the timeline set out for the long-term decarbonisation of the economy. We support the interventions described but strongly suggest that the timeline is accelerated and that work begins in 2021 on all areas described. The health gains of early action will be extensive, as described previously, while the consequences of delay will be severe.
- Page 4, paragraph 4: We propose that the co-benefit of reduced air pollution is recognised as a *health* co-benefit. Furthermore, we recommend inclusion of a target for air pollution reduction, adoption of clean air guidelines, and calculation of the health co-benefits and cost savings from air pollution reductions for different emission reduction scenarios.

- Page 5, paragraph 2: We strongly support the implementation of the Carbon Tax. We propose increasing the level of the tax to reflect the true cost of related emissions to public health and the economy. This should be done while ensuring reliable and affordable energy to all who need it. We propose that funds levied from the tax could be partly allocated to alleviate poverty and reduce inequities.

Section 3

- Page 5, final paragraph: We strongly support the attention drawn to the increasing burden of extreme weather events in South Africa, with annual averages of over 1200 heat-related deaths in people aged over 65 alone, 1.2 million person days of wildfire exposure, increasing drought, and increasingly suitable conditions for dengue transmission[23]. We propose the additional inclusion of data to support this statement, and emphasis of the related health impacts.
- Page 8: Aligned with effort #2 concerning an update of South Africa's Long Term Adaptation Scenarios, and building on the health related content on the National Climate Change Adaptation Plan, we strongly recommend reviewing the most recent WHO quality criteria for Health National Adaptation Plans (HNAP), published in February 2021[24].
- Page 8: Aligned with effort #4 concerning risk and vulnerability, we strongly recommend completion of a Health Vulnerability and Adaptation Assessment (V&A) aligned with the latest WHO checklist, published in April 2021[25].
- Page 8: Aligned with effort #5, we suggest that the government also use existing guidance to create climate-resilient water safety plans[26].
- Page 9, paragraph 1: We suggest including health in the list of sectors for which adaptations costs are calculated. As mentioned previously, health is rightly acknowledged in the draft NDC as a sector in which climate impacts are severe (on pages 3 and 10). It is therefore crucial that the health sector is also reflected in this section on costings.

Section 4

- Page 16, row 1: For the sake of transparency, we suggest that emissions reductions targets are expressed both in absolute numbers and in percentage terms as a reduction (as compared to actual emissions in e.g. 1990 or 2005). At a minimum, criteria b, e and f should be adhered to.
- Page 17, row 3(b): As well as naming the sectors covered by the emissions reductions targets in (b), we strongly recommend detailing future policies (in addition to existing policies already mentioned in the NDC) which could support achievement of emissions reductions in these sectors, and prioritising policies which benefit the climate and human health, in order to maximise returns on investment and improve equity. Detailed suggestions can be found in the appendix of policies in the energy, transport, and food and agriculture sectors which offer health and climate co-benefits.
- Page 17: We note the repeated emphasis in row (b) on lack of available data. We therefore propose that the NDC includes mention of a plan to strengthen existing monitoring systems in order to overcome these challenges.
- Page 18-19, rows 3(d), 4(d), 4(d)(i), 4(d)(ii): We regret the lack of focus on mitigation co-benefits, whether from adaptation, economic diversification, or other mitigation interventions. In the current global economic situation, win-win solutions, including those which benefit both health and climate change, are needed more than ever. We urge that such co-benefits are reflected in South Africa's NDC.
- Page 21, row 5(b): As stated previously, we highly recommend that the NDC includes specific policy goals to outline how the targets in its NDC will be achieved. Commitments to greenhouse gas reductions are indeed imperative, but lack weight unless supported by clear policy and planning.
- Page 21, row (e)(iii): We strongly suggest that the NDC takes into account age-class structure in forests in order to provide an accurate impression of the emissions produced after wood is felled and burned, and not only of the carbon absorbed during growth.
- Page 22, row (f)(iii): While a discussion of black carbon is not mandated in NDCs, we urge its inclusion. We recommend that the government prioritises the reduction of air pollution and Short-Lived Climate Pollutants, including methane and black carbon, in line with South Africa's emission reduction targets as outlined in its NDC, in order to reap extensive climate, health, and economic benefits. The Climate and Clean Air Coalition also provides support to governments to achieve this – we recommend contacting them for more information[27].

- Page 23, paragraph 1: We concur with the government's prioritisation of equity. We strongly suggest that health considerations should also be added here, including health equity, as this is crucial to inform the most ambitious reduction strategy that can simultaneously improve the lives and wellbeing of the population.
- Page 25, row 7(a): We support the attention afforded to food security in (a), especially since food production is already threatened by climate change - crop yield potential of winter wheat, soy bean and maize have fallen 5.4%, 8.9% and 10% respectively since the 1950's[28].
- Page 26: We welcome the establishment of the Presidential Climate Change Coordinating Commission. Such high-level leadership is invaluable in driving necessary cross-sectoral action. We urge inclusion of the health sector on this Commission, given the extensive health impacts of climate change and the opportunities yielded by co-benefit interventions.
- Page 27, paragraph 2: We urge clarification of which proportion of the NDC targets are unconditional. This is likely to be a prerequisite for attracting international finance in the first instance.
- Page 27-28: We welcome the government's leadership in implementing REI4P (page 27, paragraph 4), and strongly encourage continued scale-up to reduce greenhouse gas emissions and improve air quality. We support the prioritisation of public transport (page 28, paragraph 1), which greatly reduces per capita emissions of greenhouse gases and air pollutants, as well as increasing levels of physical activity.
- Page 29, paragraph 2: We welcome the development of the fair share framework. We note that according to Climate Action Tracker, only the lower limit of South Africa's greenhouse gas emission reduction target falls within the range aligned with South Africa's fair share of emissions reductions to limit global temperature rise to within 2°C. Increasingly ambitious action is required in order to align with the 1.5°C target, and we propose that the NDC mentions future aspirations to do so.

Section 7

- Page 29, paragraph 6: The NDC recognises the far-reaching socio-economic consequences of COVID-19. The pandemic has clearly demonstrated the impacts of health on national economies and operations. Ambitious and decisive action to protect both the climate and human health is urgently needed to avoid even greater health impacts of climate change in the near future.

[18] Climate Action Tracker (2020). South Africa. Available online at https://climateactiontracker.org/countries/south-africa/ Retrieved 24 April 2021.

[19] International Labour Organization (2019). Working on a warmer planet: The impact of heat stress on labour productivity and decent work. Available online at: https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_711919.pdf Retrieved 27 April

[20] COBENEFITS Study South Africa. (2019). Improving health and reducing costs through renewable energy in South Africa: Assessing the co-benefits of decarbonising the power sector. https://www.cobenefits.info/wp-content/uploads/2019/03/COBENEFITS_SA_Health_Executive_Report_190322.pdf

[21] Climate Analytics (n.d.) Coal Phase Out. Available online at https://climateanalytics.org/briefings/coal-phase-out/ Retrieved 24 April 2021.

[22] Just Energy Transition (n.d.). Project 90 by 2030. Available online at: https://90by2030.org.za/just-energy-transition/

[23] Lancet Countdown on Health and Climate Change (2020). Data Platform. Available online at: https://www.lancetcountdown.org/data-platform/ 27 Retrieved April 2021

[24] World Health Organization (2021). WHO Publishes Quality Criteria for Health National Adaptation Plans. Available online at https://www.who.int/news/item/10-02-2021-who-publishes-quality-criteria-for-health-national-adaptation-plans Retrieved 24 April 2021.

[25] World Health Organization (2021). Checklists to Assess vulnerabilities in Health Care Facilities in the Context of Climate Change. Available online at https://www.who.int/publications/i/item/checklists-vulnerabilities-health-care-facilities-climate-change. Retrieved 27 April 2021.

[26] World Health Organization (2017). Climate-resilient water safety plans. Managing health risks associated with climate variability and change. Available online at https://www.who.int/water_sanitation_health/publications/climate-resilient-water-safety-plans/en/ Retrieved 27 April 2021

[27] Climate and Clean Air Coalition (2021). About. Available online at https://www.ccacoalition.org/en/content/coalition Retrieved 24 April 2021

[28] Lancet Countdown on Health and Climate Change (2020). Data Platform. Available online at: https://www.lancetcountdown.org/data-platform/ Retrieved 27 April 2021

Appendix: Co-benefit Policies for Health, Climate and Equity

Prepared by Nova Tebbe, Madison Xiong and Professor Jonathan Patz with review and input from domestic and international experts and the Global Climate and Health Alliance.

Policy Recommendation	Health Impact	Equity Impact	Political Landscape
Energy			
Adopt the Climate Justice Charter	+	+	Moderate
Programs for Weatherized and Retrofitted Buildings and Housing	+	+	Moderate
Renewable Energy Feed-in Tariff	+	+	Moderate
Food and Agriculture			
Incentivize Urban and Community Agriculture	+	+	Moderate
Pass the Peoples' Food Sovereignty Act	+	+	Moderate
Transportation			
Electrification of Public Transit	+	+	Moderate
Complete Streets in Planning and Design	+	+	Moderate

Energy

Adopt the Climate Justice Charter

Policy Avenue: Legislation	**Health Impact:** +
Political Landscape: Moderate	**Equity Impact:** +

South Africa's economy and history is rooted in mining and fossil fuels, particularly coal, creating an extractive economy that degrades the environment and exacerbates negative health outcomes. South Africa must transition to a regenerative economy, rooted in justice (climate, environmental, social, intergenerational etc.), workers' rights, and health. This transition must also include relying on renewable energy, phasing out fossil fuels, and restoring degraded and polluted mining and energy production facilities to transform into a regenerative economy. The Climate Justice Charter[29], created in collaboration between several civil society organizations, must be adopted by the South African government to ensure a transition from an extractive economy to a regenerative one, rooted in justice and health.

Health Impact: +

Health and justice are intrinsically linked, with both being central to the other. Inequality creates more barriers to a healthy life due to a lack of access, resources, and systemic racism. By rooting policy in justice, it becomes easier to live a healthy life. Breaking down these barriers gives everyone the opportunity to live in safe housing, have healthy food and quality water, and have a quality job with workers' rights.

Equity Impact: +

Fossil fuels have not only led to determinantal environmental and health impacts, but they also disproportionately impact frontline communities who face climate change directly. Specific focus on frontline, low-income, and fossil fuel working communities is vital to equity and justice. Ensuring principles of just transitions, such as eco-centric living, participatory democracy, socialized ownership, decoloniality among others, will allow everyone, not only the affluent, to benefit in the transformation to a regenerative economy.

Political Landscape: Moderate

Over 235 organizations have endorsed the Climate Justice Charter, created in collaboration by the South African Food Sovereignty Campaign and the Co-operative and Policy Alternative Center.[30] In October of 2020, the Climate Justice Charter was presented by the Climate Justice Charter Movement to the Parliament of South Africa to be adopted. South Africa has a history of creating and adopting similar charters, such as the Freedom Charter (1955)[31] and the Women's Charter for Effective Equality (1994)[32].

[29] Co-operative and Policy Alternative Center & South African Food Sovereignty Campaign. (2020). Climate Justice Charter. https://www.safsc.org.za/wp-content/uploads/2020/08/Final-Climate-Justice-Charter_EN_August2020.pdf

[30] South African Food Soverignty Campaign. (n.d.). SAFSC » Climate Justice Charter. Retrieved April 28, 2021, from https://www.safsc.org.za/climate-justice-charter/

[31] African National Congress. (2011, June 29). The Freedom Charter. https://web.archive.org/web/20110629074215/http://www.anc.org.za/show.php?id=72

[32] Women's National Coalition. (1994). Women's Charter for Effective Equality. http://www.kznhealth.gov.za/womenscharter.pdf

Programs for Weatherized and Retrofitted Buildings and Housing

Policy Avenue: Legislation	**Health Impact:** +
Political Landscape: Moderate	**Equity Impact:** +

As climate change impacts worsen, improving housing to be more climate resilient while also being more efficient to reduce overall energy expenditure and hence combustion of fossil fuels or depletion of other natural resources. Retrofitting and weatherizing buildings includes improving insulation , efficient lighting, and advanced heating and cooling systems.[33] Buildings account for 32 percent of energy use worldwide with as much as 80 percent of the energy consumed wasted because of lights and electronics being kept on as well as gaps in the building's envelope.[34] Investment in resilient infrastructure, with particular focus on housing and buildings, through grants and programs is essential for communities to adapt to climate change impacts and the transition towards renewable energy.

Health Impact: +

Housing is vital for living a healthy life as it is the place where most people gather, spend time, and cook. Substandard housing gives rise to various health concerns such as respiratory diseases including asthma, cardiovascular diseases, injuries, mental health impacts, and infectious diseases.[35] In addition, a lack of access to efficient and quality heating and cooling systems can lead to more health concerns with increased incidences of extreme weather events. When housing and buildings in general are retrofitted and weatherized, health co-benefits emerge. Project Drawdown estimates that solutions in the building sector, such as building retrofitting and enhancing efficiency, can prevent 73.7 to 141.2 gigatons of CO_2.[36] This can drastically reduce greenhouse gas emissions and improve air quality.

Equity Impact: +

With 12.7 percent of households in South Africa living in informal dwellings and 15 percent of South African households without connections to the main electricity supply, there is a need to equitably improve housing and make it more sustainable and resilient.[37] Mobilizing a workforce towards weatherizing and retrofitting housing and other buildings will create jobs, including for frontline, low-income, and fossil fuel working communities.

Political Landscape: Moderate

The city of Cape Town created a ceiling retrofit project in low-income communities to improve existing housing by making them more energy efficient and reducing financial burdens on residents.[38] In 2011, the historic township of Cato Manor in Durban received a green retrofit as part of a project with the Green Building Council of South Africa to upgrade low-income communities with thirty low-cost houses with sustainable design and efficiency measures.[39]

[33] Project Drawdown. (2020, February 6). Building Retrofitting @ProjectDrawdown #ClimateSolutions. Project Drawdown. https://drawdown.org/solutions/building-retrofitting
[34] Project Drawdown. (2020, February 6). Building Retrofitting @ProjectDrawdown #ClimateSolutions. Project Drawdown. https://drawdown.org/solutions/building-retrofitting
[35] WHO | Housing impacts health: New WHO Guidelines on Housing and Health. (n.d.). WHO; World Health Organization. Retrieved April 28, 2021, from http://www.who.int/phe/news/note-media-housing-health-guidelines/en/
[36] Buildings: ProjectDrawdown. (2020, February 5). Project Drawdown. https://drawdown.org/sectors/buildings
[37] Department of Statistics. (2020). General Household Survey 2019. Republic of South Africa. http://www.statssa.gov.za/publications/P0318/P03182019.pdf
[38] Ghojeh, M., & Sarfatti, C. (n.d.). Inclusive Climate Action in Practice: How to jointly tackle climate change and inequality with case studies from leading global cities. C40 Cities. https://cdn.locomotive.works/sites/5ab410c8a2f42204838f797e/content_entry5ab410fb74c4833febe6c81a/5c4204754722d40016c4eda6/files/C40_Inclusive_Climate_Action_in_Practice.pdf?1547830389
[39] Green Building Council of South Africa. (2012). Improving Lives by Greening Low-Cost Housing: Case Study Report of the Cato Manor Green Street Retrofit. https://gbcsa.org.za/wp-content/uploads/2018/01/Improving-lives-by-greening-low-income-homes-Case-Study-2012-FINAL.pdf

Renewable Energy Feed-in Tariff

Policy Avenue: Legislation	**Health Impact:** +
Political Landscape: Moderate	**Equity Impact:** +

The transition from fossil fuels to renewable energy (RE) requires local, community-driven action in building RE infrastructure in South Africa. Policies must support and incentivize all communities to invest in RE projects, not just affluent businesses with a profit motive. Feed-in Tariffs allow the South African government to offer long-term contracts with a guaranteed price for electricity generated by RE to ensure an equitable return on investment, with particular incentives for small-scale, community-driven projects and initiatives, such as giving communities purchasing power to develop small-scale RE projects without the need of a corporation.

Health Impact: +

With coal supplying almost 70% of South Africa's total primary energy consumption, air pollution and other environmental pollutants present major threats to health.[40] Air pollution accounts for an estimated 4.2 million deaths globally per year due to stroke, heart disease, lung cancer, and acute and chronic respiratory diseases.[41] In South Africa, the estimated health costs of coal power generation in 2018 range from ZAR 11 billion up to ZAR 30 billion.[42] However, these health impacts and costs can be reduced by a rapid decarbonization pathway as much as R100 billion in absolute savings.[43] Investing in RE infrastructure will also improve the built environment, create local jobs, and help reduce energy insecurity and poverty.

Equity Impact: +

Previous feed-in tariffs have focused on large and affluent businesses to rapidly increase RE infrastructure. However, this leaves out small-scale and community-driven projects from the benefits of the tariffs, thus contributing to inequality in the transition. Incentivizing small-scale and local RE projects that improve the built environment and equity by giving communities purchasing power is essential to a just transition.

Political Landscape: Moderate

In 2009, South Africa approved the country's first RE feed-in tariff that allowed Eskom to purchase energy from qualified RE generators at a specific price.[44] There is also support for local RE projects such as the Off-grid Solar Home System Programme to help households beyond the reach of the national grid to access electricity.[45] The Community and Household Options in Choosing Energy Services (CHOICES) project, funded by the Renewable Energy and Energy Efficiency Partnership (REEEP) sought to empower communities, specifically in rural areas, to make sustainable energy choices to reduce energy poverty and stimulate local development.[46]

[40] EIA. (2017). South Africa. U.S. Energy Information Administration. https://www.eia.gov/international/analysis/country/ZAF
[41] World Health Organization. (n.d.). Air pollution. WHO: Air Pollution. Retrieved April 28, 2021, from https://www.who.int/westernpacific/health-topics/air-pollution
[42] COBENEFITS Study South Africa. (2019). Improving health and reducing costs through renewable energy in South Africa: Assessing the co-benefits of decarbonising the power sector. https://www.cobenefits.info/wp-content/uploads/2019/03/COBENEFITS_SA_Health_Executive_Report_190322.pdf
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[44] International Energy Agency. (n.d.). Renewable Energy Feed-in Tariff (REFIT) – Policies. IEA. Retrieved April 28, 2021, from https://www.iea.org/policies/4786-renewable-energy-feed-in-tariff-refit
[45] Off-grid Solar Home System Programme South Africa. (n.d.). GNESD: Energy Access Knowledge Base. Retrieved April 28, 2021, from https://energy-access.gnesd.org/projects/29-1-sarah-best-sustainable-development-advisors-for-the-international-institute-for-environment-and-development-2011-remote-access-expanding-energy-provision-in-rural-argentina-through-public-private-partnerships-and-renewable-energy-a-case-study-of-the-per.html
[46] CHOICES: Community energy in South Africa. (2010, October 31). International Institute for Environment and Development. https://www.iied.org/choices-community-energy-south-africa

Food and Agriculture

Incentivize Urban and Community Agriculture

Policy Avenue: Legislation	**Health Impact:** +
Political Landscape: Moderate	**Equity Impact:** +

Resilient food systems are essential as climate change worsens and more extreme weather events impact crop yield and food insecurity. Small-scale and local agriculture allow more communities to be involved with their food system and gives opportunities for urban areas to grow their own food. Incentivizing urban and community agriculture that allows city-dwellers and local farmers to participate in the food system can improve food insecurity, food deserts and help transition to more plant-based diets.

Health Impact: +

Urban and community agriculture will give more availability of fruits and vegetables to people in low-income and frontline communities and can help fight hunger in food insecure areas. Areas used for community agriculture can also increase the number of green spaces in urban areas which has the added benefit of improving mental and physical health.[47] In addition, the urban heat island effect, where temperatures are warmer in cities than in surrounding areas,[48] can be reduced by having more areas dedicated to urban and community agriculture which increases vegetation.

Equity Impact: +

Urban and community agriculture can help revitalize infrastructure and food systems in low-income and frontline communities. It gives more ownership over food that is consumed and can offer more choices when it comes to food options which are usually limited in food insecure areas. It can also help cultivate communities that are the most marginalized and vulnerable groups, particularly for elderly women.[49]

Political Landscape: Moderate

In the Sustainable Development Network and African Sustainability Academy's Sustainable Neighbourhood Design Manual[50], the Sustainability Institute wrote a chapter outlining how urban agriculture can address food insecurity specifically mentioning positive impacts to the urban economy and communities.[51] In addition, the Johannesburg Inner City Partnership already has a Sustainability and Urban Agriculture Initiative.[52] Organizations such as Abalimi Bezekhaya have been promoting small scale urban farming in Cape Town since 1982.[53]

[47] World Health Organization. (n.d.). Urban green spaces and health—A review of evidence (2016). Retrieved April 29, 2021, from https://www.euro.who.int/en/health-topics/environment-and-health/urban-health/publications/2016/urban-green-spaces-and-health-a-review-of-evidence-2016

[48] Council for Scientific and Industrial Research. (n.d.). Planning cities to better manage rising temperatures | CSIR. Retrieved April 29, 2021, from https://www.csir.co.za/planning-cities-better-manage-rising-temperatures

[49] Rogerson, C. M. (1993). Urban agriculture in South Africa: Scope, issues and potential. GeoJournal, 30(1), 21–28. https://doi.org/10.1007/BF00807823

[50] African Sustainability Academy. (n.d.). Manuals. Sustainable Development Network. Retrieved April 29, 2021, from https://sdnafrica.org/manuals/

[51] Haysom, G. (n.d.). Urban Agriculture and Food Security. Sustainability Institute. https://sdnafrica.org/wp-content/uploads/Chapter-8.pdf

[52] Sustainability & Urban Agriculture Initiative. (n.d.). The Johannesburg Inner City Partnership. Retrieved April 29, 2021, from https://www.jicp.org.za/joburg-in-the-press/sustainability-urban-agriculture-initiative/

[53] Abalimi Bezekhaya. (n.d.). Abalimi Bezekhaya. Retrieved April 29, 2021, from https://abalimibezekhaya.org.za/

Pass the Peoples' Food Sovereignty Act

Policy Avenue: Legislation	**Health Impact:** +
Political Landscape: Moderate	**Equity Impact:** +

Access to quality and healthy food is essential in the transition to a regenerative economy rooted in justice and health. As climate change worsens and extreme weather events increase, food resiliency will become vital. Ownership over one's food and a more local food system can increase availability of healthy foods and also address the challenges faced by food insecure areas. The Peoples' Food Sovereignty Act must be passed in order to deeply transform South Africa's food system to ensure the right to food in the constitution, biodiversity, and ownership by communities.[54]

Health Impact: +

Transforming the food system to a more local, community-owned system increases availability of fruits and vegetables in areas that experience food insecurity and food deserts. It also promotes biodiversity in the diet, specifically protecting seed biodiversity by promoting the consumption of indigenous and culturally appropriate food for everyone. In addition, community-centred food systems can improve the built environment and create more sustainable and livable communities.

Equity Impact: +

Promoting democratisation of food systems and support of active citizen's intervention in food sovereignty gives more people power who have been historically left out and marginalized. Giving power across communities instead of corporate interests can maximise equity and justice in the food system.

Political Landscape: Moderate

Civil society organizations, such as Four Stories About Food[55] and Alliance for Food Sovereignty in Africa[56], have been advocating for and sharing stories of issues surrounding food and food sovereignty. In addition, the South African Food Sovereignty Campaign introduced the Peoples' Food Sovereignty Act at a Peoples' parliament in 2016.[57]

[54] South African Food Sovereignty Campaign. (n.d.). Peoples' Food Sovereignty Act. Retrieved April 29, 2021, from https://www.safsc.org.za/peoples-food-sovereignty-act/
[55] Four Stories About Food Sovereignty. (n.d.). Retrieved April 29, 2021, from https://www.fourstoriesaboutfood.org/
[56] Alliance for Food Sovereignty in Africa. (2018, September 11). AFSA. https://afsafrica.org/about-us/
[57] South African Food Sovereignty Campaign. (n.d.). Peoples' Food Sovereignty Act. Retrieved April 29, 2021, from https://www.safsc.org.za/peoples-food-sovereignty-act/

Transport

Electrification of Public Transit

Policy Avenue: Legislation	**Health Impact:** +
Political Landscape: Moderate	**Equity Impact:** +

Electrification of transportation through renewable energy sources such as solar and wind is vital for South Africa's transition to a regenerative economy. Transportation is a leading contributor to South Africa's greenhouse gas emissions, second only to electricity and heat.[58] With personal gasoline-powered vehicles contributing most to the problem, electrifying public transportation, such as buses and trains, is essential to decrease emissions while also investing in the built environment and making roads less congested. Grant funding and other incentives can spearhead the electrification of buses, passenger rail, and fleet vehicles, while strict conditions of any such financing can ensure that these modes are powered by renewable sources.

Health Impact: +

Air pollution is one of many impacts that gasoline-powered vehicles have on health, contributing to an array of health impacts such as asthma and other lung-related illnesses. Health effects are compounded when high numbers of private vehicles, lead to severe congestion, and issues of road and pedestrian safety arise. When transportation is electrified, specifically investing in public transportation, health is improved not only because emissions decrease but also because road safety improves. According to Project Drawdown, public transit alone can reduce 7.51-23.36 $GtCO_2$ worldwide, even without taking into account the additional benefits of fully electrifying public transport with renewable energy sources [59]

Equity Impact: +

Personal vehicles can be expensive, especially private electric vehicles, and can exacerbate inequities in transportation, particularly for low-income and frontline communities. Investing in equitable and adequate public transit improves access to mobility, livability, and sustainability for everyone, especially in urban areas.[60] While South Africa has installed some public transit infrastructure, such as its bus and passenger rail system, continued expansion of such services will lead to greater access and overall safety of mass transit.

Political Landscape: Moderate

In 2018, Cape Town became the first city in Africa to have electric public transportation, adding 11 electric buses into its bus rapid transit service and specifically using renewable energy sources.[61] Also in 2018, a report by the Financing Sustainable Cities Initiative was given to the City of Tshwane to provide an overview of how the city can move towards electric buses for public transportation.[62]

[58] Greenhouse gas emissions by sector. (n.d.). Our World in Data. Retrieved April 29, 2021, from https://ourworldindata.org/grapher/ghg-emissions-by-sector

[59] Project Drawdown. (2020, February 6). Public Transit @ProjectDrawdown #ClimateSolutions. Project Drawdown. https://drawdown.org/solutions/public-transit

[60] Project Drawdown. (2020, February 6). Public Transit @ProjectDrawdown #ClimateSolutions. Project Drawdown. https://drawdown.org/solutions/public-transit

[61] Transport, F. on. (2018, March 22). Cape Town: The first city in Africa to go electric on public transport. Focus on Transport and Logistics. https://focusontransport.co.za/cape-town-the-first-city-in-africa-to-go-electric-on-public-transport/

[62] Weston, M. (2018). Introducing Electric Buses to the City of Tshwane. Financing Sustainable Cities Initiative. https://cff-prod.s3.amazonaws.com/storage/files/UAML1026tWDaZ6oh81kU1AKbWrE5NDVrvgyKT0SU.pdf

Complete Streets in Planning and Design

Policy Avenue: Legislation	**Health Impact:** +
Political Landscape: Moderate	**Equity Impact:** +

Complete streets describes an approach by which streets and urban centers are intentionally designed for equitable forms of transportation, including walking and cycling, to create increasingly multi-modal systems and more livable communities.[63] Transforming South African transportation infrastructure and urban planning to improve walkability, cyclability, and public transit both reduces greenhouse gas emissions and supports physical activity.

Health Impact: +

Infrastructure and urban planning focused on active transit can have an array of health benefits such as reducing risk of depression and anxiety, managing weight, and reducing risk of cardiovascular disease, type 2 diabetes, and some commonly occurring cancers.[64] Complete streets also specifically reduces vehicle-related and risk to pedestrians and cyclists when bicycle-centered infrastructure is included.[65] With more opportunity for active transport and less need for personal vehicles, greenhouse gas emissions are reduced and road safety improves.

Equity Impact: +

Poor transportation and urban planning can lead to streets that are congested, unsustainable and dangerous, particularly for low-income and frontline communities. Prioritizing active transport and public transit in planning allows communities to travel to work and access amenities without a car, breaking down barriers to various social determinants such as education and jobs. Ensuring complete streets and safe active transit infrastructure is essential to improve all communities' health and well-being.

Political Landscape: Moderate

In 2013, the City of Johannesburg implemented complete streets into its street design to give more recognition for the rights and needs of all road users.[66] A report from the Gauteng City-Region Observatory in 2018 describes how South Africa should be "taking streets seriously" by giving examples of how streets are central to community activities and the local economy.[67]

[63] City of Johannesburg. (n.d.). City of Johannesburg Complete Streets Design Guideline. https://www.joburg.org.za/departments_/Documents/transport/department%20project/Complete%20Streets%20Design%20Guideline%20Manual.pdf

[64] CDC. (2021, January 22). Benefits of Physical Activity. Centers for Disease Control and Prevention. https://www.cdc.gov/physicalactivity/basics/pa-health/index.htm

[65] Reynolds, C. C., Harris, M. A., Teschke, K., Cripton, P. A., & Winters, M. (2009). The impact of transportation infrastructure on bicycling injuries and crashes: a review of the literature. Environmental health : a global access science source, 8, 47. https://doi.org/10.1186/1476-069X-8-47

[66] City of Johannesburg. (2013, October 18). All Roads Lead to "Complete Streets" In City of the Future. https://www.jra.org.za/documents/pressrelease/18.pdf

[67] Harber, J., Parker, A., Joseph, K., & Maree, G. (Eds.). (2018). Taking Streets Seriously (GCRO Research Report No. 8). Gauteng City-Region Observatory. https://cdn.gcro.ac.za/media/documents/GCRO_Report_8_Taking_Streets_Seriously_FA.pdf