Addressing Wider Determinants of Health and Accelerating Progress towards Health Equity

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Background-Wider Determinants of

- **Environment and climate change**
- Agriculture, food production and
- Anti-microbial resistance
- Work conditions and occupational risk
- **Disasters and displacements**
- Equity scenario and actions

Background: Wider determinants of health

Health Care





20% of individuals health is determined by access and quality health care

80%

Source: Institutions for Clinical systems for Improvements. Going beyond clinical walls, solving complex problems

Wider determinants

of total individuals' health is determined by wider determinants

WIDER DETERMINANTS OF HEALTH 1. ENVIRONMENT AND CLIMATE CHANGE



Inter-connection of environment and health



Out of 133 disease analyzed by WHO, 101 were found to have linkage with environmental factors.

Source: Prüss-Üstün A, Wolf J, Corvalán C, Bos R, Neira M. Preventing disease through healthy environments: a global assessment of the burden of disease from environmental risks. World Health Organization; 2016.



Disease burden attributable to environmental factors



ENVIRONMENTAL FACTORS RESPONSIBLE FOR **23,69,446** DALYS IN NEPAL



Source: Global Burden of Disease 2019, Institute for Health Matrices and Evaluations

16% of DALYS

How climate change impacts health?



Source: IPCC. Climate Change 2022: Impacts, Adaptation and Vulnerability

Increases in extreme climate events increases disease risk

Droughts may increase unsafe water storage or usage leading to more fecal & mosquito-borne disease

> Floods increase mosquito habitat & cause sanitation problems

> > Water source contamination & risk of cholera

Heatwaves can increase pathogen & vector development

Storms overwhelm or destroy water infrastructure increasing fecal diseasess

Increased travel & trade

Wildlife

trade

War

Hunting

Ecosystem

damage

Habitat intrusion

Wildlife stressed & declining

Particulate matter pollution: the leading causes of deaths and DALYs

Deaths

39552 Particulate matt		Particulate matter pollution
34201 Low birth weight and sho		Smoking
	9554	Low temperature
Among rick factors	8685	Low birth weight and short gestation
Among fisk factors,	6996	Occupational particulate matter, gases, and fumes
Particulate matter	6026	Ambient ozone pollution
nollution attributor high	4705	Unsafe water source
pollution attributes fligr	4436	Secondhand smoke
number of deaths and	3757	Lead exposure
ΠΔΙVς	3640	Diet low in whole grains
Occupational ergono	3279	Child growth failure
lInsaf	3165	Diet low in legumes
Ambient ezer	3144	Diet high in sodium
Amplent 020	3102	Diet low in fruits
Lea	2669	Unsafe sanitation
Diet low in v 20000 30000 40000	D 10000	Source: WHO. 2022. Global Health Observatory

DALYs



Burden of air pollution

Ambient air pollution



Ambient air pollution 517,064 DALYs 1700 DALYs PER 100,000

source: institute for Health Metrics and Evaluations. GBD Compare (Burden of Disease Study) 2019

Household air pollution **21,603 deaths**

71 DEATHS PER 100,000 POPULATION

Household air pollution 651,814 DALYs 2143 DALYs PER 100,000

Particulate matter pollution plays role in leading NCDs



Both sex Male Female

- WHO. 2022. Global Health Observatory
- Global Burden of Disease Study 2019

Reduction in premature deaths from air pollution if measures are taken to reach 35 μ g/m3 as per target leads to:

26,500 deaths Can be prevented annually



Reduction in air pollution related deaths



Behavior change education, waste reduction, exposure reduction

Make more stringent criteria for air quality standards and regular monitoring

Wider Determinants of Health

2. ANTIMICROBIAL RESISTANCE



BURDEN OF ANTI-MICROBIAL RESISTANCE

Anti-bacterial resistance attributed death

- 6,413 deaths
- 20.08 deaths per 100,000 population
- 1,113 deaths under 5



- 23,204 deaths
- 76.29 deaths per 100,000
 - population
- 4,256 deaths under 5



- 230,685 DALYs
- 758.4 DALYs per 100,000



Source: Institute for Health Metrics and Evaluations, University of oxford. Measuring Infectious Causes and Resistance Outcomes for Burden Estimation

Anti-bacterial resistance associated death

Anti-bacterial resistance associated DALYs

• 859,516 DALYs • 2,835.9 DALYs per 100,000

Consumption of anti-bacterials in Nepal



- 79.8 DDD per 1000 inhabitants
- Rapid surge from 40.7 DDD in 2016

The WHO 13th General Programme of Work 2019–2023 set a target of at least 60% of total antibiotic consumption being 'Access' group antibiotics

DDD=Defined Daily Doses

ACCESS GROUP 21.6% of total antibacterials

WATCH GROUP 54.9%

oftotal antibacterials

RESERVE GROUP 0.5% oftotal

antibacterials

UNCLASSIFIED

15.4%

of total antibacterials

Are we regulating enough?

Consumption of anti-bacterials in Nepal



First in anti-bacterials consumption Among 57 countries for which data

are available



Source: World Health Organization. Global Health Observatory

Has fourth highest consumption of watch group anti-bacterials

Among 57 countries for which data are available

3 most common pathogens developing resistance

- Klebsiella pneumoniae ullet
- Staphylococcus aureus lacksquare
- Escherichia coli lacksquare

Klebsiella pneumoniae -Staphylococcus aureus -Escherichia coli Pseudomonas aeruginosa -Streptococcus pneumoniae -Acinetobacter baumannii Mycobacterium tuberculosis -Salmonella enterica serovar Typhi Enterococcus faecium -Enterococcus faecalis -Enterobacter spp. -Group B Streptococcus -Proteus spp. -Other enterococci · Serratia spp. Salmonella enterica serovar Paratyphi Citrobacter spp. -Shigella spp. -Haemophilus influenzae Non-typhoidal Salmonella -Group A Streptococcus -Morganella spp. -10



Addressing problem of anti-microbial resistance Public private partnership in addressing interconnectedness of people, animal and environment

Address sub-optimal and incomplete doses in community through awareness Enforcing regulation and pursuing legal actions to ensure prudent use of anti-microbials

Collaborate with Ministry of Agriculture and Livestocks to regulate use of anti-microbials in animals

Wider Determinants of Health

3. Agriculture, Food Production and

Nutrition



Burden attributable to Malnutrition



Malnutritional attributable deaths

- 12,329 deaths
- 41 deaths per 100,000 population
- 13 deaths per 100,000 by 2040



Malnutritional attributable DALYs

- 1299295 DALYs
- 4272 DALYs per 100,000



Burden attributable to dietary risk factors



Additional deaths from dietary risk factors

- 19232 deaths
- 63 deaths per 100,000 population
- 126 deaths per 100,000 population



DALYs attributable to dietary risk factors500826 DALYs

• 1646 DALYs per 100,000





Changing scenario

2019

High BMI 30 deaths per 100,000 population

Undernutrition 30 deaths per 100,000 population

source: institute for Health Metrics and Evaluations. GBD Compare (Burden of Disease Study) 2019 and GBD Foresight

2040

High BMI 71 deaths per 100,000 population

Undernutrition 20 deaths per 100,000 population

Will educating people about proper diet work?

As of 2021 **21.4 million Nepalese** cant afford healthy food

71% Of total population

Source: World Bank. Food Prices for Nutrition DataHub: global statistics on the Cost and Affordability of Healthy Diets

Nepalese need to pay more for healthy diet than global average Cost of healthy diet in Nepal is \$4.12 which is higher than global average of \$3.66 in 2017



COST OF HEALTHIER FOOD IS **2.2 times higher** than normal starchy rich food in Nepal

Climate change, food & nutrition

Climate change, through well established pathway, can impact food availabilty, and consumption



Broader actions for addressing wider determinants of health Agriculture, food and nutrition

Advocate for/collaborate climate resilient and sustainable agriculture and food ecosystem

healthy food market friendly trade and investment policies





Wider Determinants of Health

4. WORK CONDITIONS AND OCCUPATIONAL RISKS



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WORK CONDITIONS & OCCUPATIONAL RISKS

Occupational Risk Factors Attribute

10,366 Deaths

36 deaths per 100,000 population

Attribute

1,623 DALYs in nepal



source: institute for Health Metrics and Evaluations. GBD Compare (Burden of Disease Study) 2019





Occupational Risk Factors

493,545 DALYs

Leading Cause of DALYs

LEADING OCCUPATIONAL RISKS

Occupational Particulate Matter Pollution



23 deaths per 100,000 population

Asthmagens

948 deaths

3.12 deaths per 100,000 population

1.18 deaths per 100,000 population

source: institute for Health Metrics and Evaluations. GBD Compare (Burden of Disease Study) 2019

Occupational Injury

2062 deaths

6.78 deaths per 100,000 population

Occupational Carcinogens





DALYS ATTRIBUTABLE TO OCCUPATIONAL RISK FACTORS

Occupational Injury

154,609 DALYs

508 DALYS per 100,000

492 DALYS per 100,000

Ergonomics 121,843 DALYs 401 DALYS per 100,000

97 DALYS per 100,000

Occupational Particulate Matter 149,369 DALYs

Occupational Carcinogens 29,581 DALYs



Low back pain in Nepal



Prevalent Cases 2,060,649

Total DALYs 230,665 6775 DALYS PER 100,000



Wider Determinants of Health

5. HOUSING, DISASTERS AND DISPLACEMENT

Displacement

Between 2011 to 2021 **245 events**

leading to displacement

Most common causes of displacement 79% by earthquake 19% by floods

3.4 million population displaced

2% by landslide and storm



Displacement

Displacement could have life-time and inter-generational impact

Consider an example of Gorkha earthquake

Among those who earn, income is



income

Lower than non-displaced 66%

64% of those who lost income still unemployed 7 years after

Source: Asian Development Report. Disaster Displacement Nepal Country Briefing Report

51% displaced children encountered break in schooling

EQUITY SCENARIO AND ACTIONS



Inequalities appear at multiple level



Contact Coverage

Effectiveness coverage

People who use the service People who receive effective service provision

Zooming wealth-based inequalities in NMR

HIGHEST WEALTH QUINTILE

12 deaths perAchieved in1000 life births2016

IN LOWEST WEALTH QUINTILE 12 deaths per Will be achieved 1000 life birthsin 2067

Interpretation based on Kc A, Jha AK, Shrestha MP, Zhou H, Gurung A, Thapa J, Budhathoki SS. Trends for neonatal deaths in Nepal (2001–2016) to project progress towards the SDG target in 2030, and risk factor analyses to focus action. Maternal and Child Health Journal. 2020 Feb;24(1):5-14.

Rich and poor achieve the target **51 years apart**

What if we eliminate inequalities in NMR

Economic status



29% lower 4.9 points lower





Urban Rural



7.9% lower 1.4 points lower



Provinces

29% lower 5.1 points lower

Education

16% lower 2.8 points lower

Source: WHO, Health Equity Assessment Toolkit

Interventions for addressing inequities



Addressing wider determinants of health through policy interventions

Addressing individualMidstreamcircumstances and livinginterventionsconditions that lead toinequitable access

Interventions to address immediate health needs to improves access to use of quality

Take home message

- Health depends on wider determinants and health sector efforts alone can not ensure good health of citizens
- Multi-sectoral actions, considering health in all policies
- Municipal structure, with all sector under single leadership of Mayor could be an opportunity for intersectoral actions in health











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