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# NON-COMMUNICABLE DISEASE PREVENTION AND CONTROL: A GUIDANCE NOTE FOR INVESTMENT CASES

2019



**UN INTERAGENCY  
TASK FORCE ON NCDs**



@un\_ncd



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The principal authors were James Murray and Mark Bloch.

Additional contributors to the Guidance Note were as follows: Delia Itziar Belausteguigoitia and Rosa Sandoval (PAHO/WHO); Jill Farrington, Gauden Galea, Mark Goodchild, Christoph Hamelmann, Odd Hanssen, and Jeremias Paul (WHO); Andrew Black (Secretariat of the WHO Framework Convention for Tobacco Control); Julia Mensah and Patrick Lumumba Osewe (World Bank); Lika Gamgebeli, Ben Slay and Roy Small (UNDP); Evan Blecher (University of Illinois); Rotar Oxana (Federal Almazov North-West Medical Research Centre); Anna Kontsevaya (National Research Centre for Preventative Medicine of the Ministry of Healthcare of the Russian Federation); and Brian Hutchinson and Rachel Nugent (Research Triangle Institute International).

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## ABBREVIATIONS

<b>BCR</b>	Benefit-cost ratio
<b>CVD</b>	Cardiovascular disease
<b>FCM</b>	Friction cost method
<b>GDP</b>	Gross domestic product
<b>HCA</b>	Human capital approach
<b>ICA</b>	Institutional and context analysis
<b>LMICs</b>	Low- and middle-income countries
<b>NCDs</b>	Non-communicable diseases
<b>OHT</b>	One Health Tool
<b>PAF</b>	Population attributable fraction
<b>ROI</b>	Return on investment
<b>RR</b>	Relative risk
<b>UNDP</b>	United Nations Development Programme
<b>WHO</b>	World Health Organization

## PREFACE

Urgent action is needed to understand and mitigate the socioeconomic impacts of non-communicable diseases (NCDs) – principally cardiovascular disease (CVD), diabetes, cancer, and chronic respiratory disease – across the world.<sup>1</sup> NCDs account for significant levels of ill health in all countries. Each year fifteen million people die prematurely – between the ages of 30 and 69 – from NCDs, with over 85 percent of these deaths occurring in low- and middle-income countries (LMICs) [1].

NCDs are driven by forces that include rapid unplanned urbanization, globalization of unhealthy behaviours and population ageing. There are four main modifiable behavioural risk factors for NCDs: tobacco use, physical inactivity, unhealthy diet and harmful use of alcohol. The metabolic risk factors that increase the risk of NCDs are raised blood pressure, overweight/obesity, hyperglycaemia (high blood glucose levels) and hyperlipidaemia (high levels of fat in the blood). Various forms of pollution and limited access to health services are also risk factors for NCDs.

Crucially, most premature NCD deaths and a substantial amount of morbidity from NCDs are preventable and avoidable. In 2017, the World Health Assembly endorsed a set of affordable, evidence-based interventions for the prevention and control of NCDs in all Member States (NCD ‘best buy’ interventions) [2]. These were first published in the ‘WHO Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013-2020’ [3] and updated in 2017 [4].

Addressing NCDs is integral to the 2030 Agenda for Sustainable Development [5]. Sustainable Development Goal (SDG) target 3.4 calls for a one-third reduction in premature mortality from NCDs by 2030. Many other SDG 3 targets are important for NCDs.<sup>2</sup> Achieving the NCD-related SDG 3 targets can deliver shared gains across the development agenda, given the multidirectional relationship between NCDs, poverty, inequalities, economic growth, climate action and other SDG goals and targets. Progress in these areas would benefit NCD responses in turn.

Responding to NCDs requires action across sectors. WHO and UNDP, as part of a larger UN system-wide response, support whole-of-government and whole-of-society NCD responses. WHO, in line with its thirteenth General Programme of Work, provides technical assistance to the health sector to map the epidemic, set national targets, develop multisectoral policies and plans, and enable health systems to respond. UNDP, in line with its Strategic Plan 2018-2021 [6] and HIV, Health and Development Strategy 2016-2021 [7], supports NCD action within and beyond the health sector, leveraging its work to keep people out of poverty, strengthen effective and inclusive governance, and build resilient and sustainable systems for health.

The negative effects that NCDs have on health comprise just one aspect of the problem. Evidence shows that NCDs can reduce productivity, curtail economic growth and trap those affected in poverty, thereby holding back individuals, families and countries from realizing their social and economic potential. For LMICs, the economic costs of inaction on NCDs are estimated to exceed US \$7 trillion between 2011 and 2025 [8]. At the household level, NCDs can exacerbate poverty, perpetuate intergenerational deprivation and reinforce gender inequities.

Governments are requesting the assistance of the United Nations (UN) and partners to quantify the national-level costs of treating NCDs, the costs of NCD burdens on the economy, the costs of interventions to prevent and control NCDs, and the return on investment (ROI) of those

<sup>1</sup>According to June 2018 WHO figures, CVD accounts for the most NCD deaths globally, 17.9 million deaths annually, followed by cancers (9.0 million), respiratory diseases (3.9 million) and diabetes (1.6 million). These four groups of diseases together account for over 80 percent of all premature NCD deaths [1].

<sup>2</sup>For example, targets 3.a on implementation of the World Health Organization Framework Convention on Tobacco Control (WHO FCTC), 3.5 on the harmful use of alcohol, 3.8 on universal health coverage, 3.9 on pollution and 3.b on access to medicines.

interventions. This is especially important for LMICs, which are contending simultaneously with a moderate to high burden of infectious diseases, including HIV, tuberculosis, malaria, and water-borne diseases, as well as malnutrition and maternal and perinatal conditions. Heads of State and Government or their representatives have committed to develop national NCD investment cases in the 2018 ‘Political declaration of the third high-level meeting of the General Assembly on the prevention and control of non-communicable diseases.’<sup>3</sup>

This Guidance Note is a collaboration between WHO and UNDP.<sup>4</sup> It includes experiences of an initial set of investment cases carried out in fourteen countries.<sup>5</sup> There are two components to an NCD investment case – an economic component and an institutional and context analysis (ICA). This Guidance Note focuses on how to undertake the economic component of NCD investment cases. The ICA is referred to and summarized in this Guidance Note, and a more detailed description of the ICA method is annexed.

Investment cases are part of a UNDP-WHO Joint Programme to catalyze multisectoral action in Member States to reduce the burden of NCDs. The Joint Programme is part of the larger work of the UN Interagency Task Force on the Prevention and Control of NCDs.<sup>6</sup>

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<sup>3</sup> Specifically, in paragraph 24 they commit to: “Develop, as appropriate, a national investment case on the prevention and control of non-communicable diseases to raise awareness about the national public health burden caused by non-communicable diseases, health inequities, the relationship between non-communicable diseases, poverty, and social and economic development, the number of lives that could be saved and the return on investment” [44].

<sup>4</sup> With support from the Russian Federation.

<sup>5</sup> Barbados, Belarus, Cambodia, Fiji, Jamaica, Kyrgyzstan, Kazakhstan, Mongolia, Peru, Philippines, Saudi Arabia, Turkey, Uzbekistan and Zambia. More information on the NCD Investment Case missions in countries can be found at <http://www.who.int/ncds/un-task-force/en/>.

<sup>6</sup> Details on the Joint Programme can be found at <http://www.who.int/ncds/un-task-force/catalyzing-multisectoral-action-for-ncds-joint-programming-document.pdf?ua=1> and <http://www.who.int/ncds/un-task-force/flyer-ncds2030.pdf?ua=1>. Information on the work of the Task Force is available at <http://www.who.int/ncds/un-task-force/en/>.



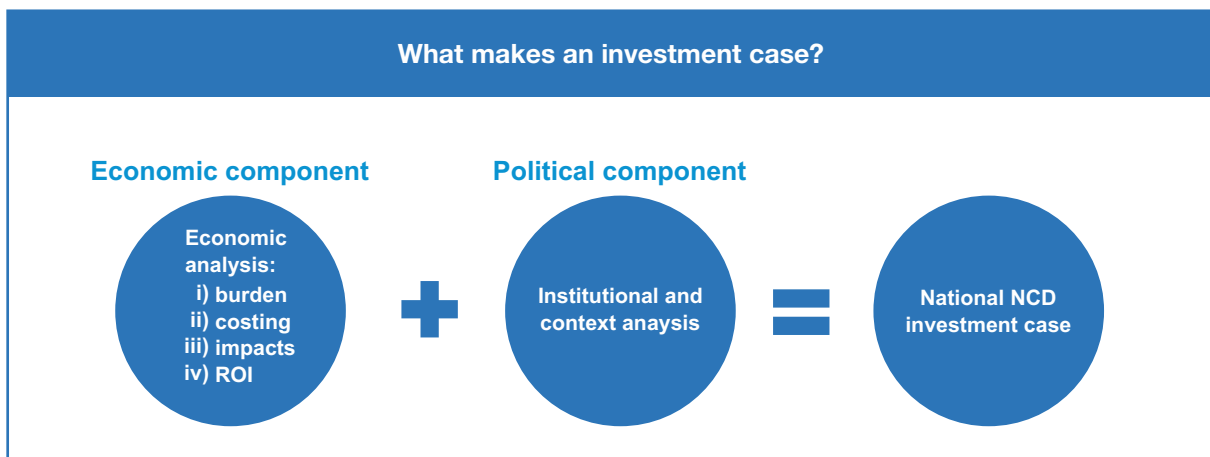
# 1. INTRODUCTION

## 1.1 What are NCD investment cases?

NCD investment cases are national economic and political analyses of current and potential interventions to prevent and control NCDs. The aim is to define the costs of inaction or the status quo response, identify priority areas of action, and quantify the benefits of these actions. Our case for investment incorporates both economic and political perspectives to ensure that the recommendations are made in the context of institutional capacities and economic and political environments.

The NCD investment case supports governments to identify and understand, scale-up and prioritize increased investments in NCD prevention and control. There are two major components of the investment case; an economic and a political economy component. They are quantitative and qualitative exercises respectively. A return on investment (ROI) analysis constitutes the economic component. It quantitatively evaluates costs of inaction (baseline or ‘business as usual’ scenario) and the potential returns to implementing a set of country-specific priority interventions. These interventions are either specified in a national plan of action on NCDs or derived from the full set of 88 cost-effective actions defined in Annex 3 of the ‘WHO Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013-2020’ [3,4]. The economic component is complemented by an ICA component to help understand the diverse range of institutions, actors and stakeholders that influence NCD-related policy in a particular context. The ICA provides recommendations to help ensure that the numbers, narratives and policy options emerging from the economic modelling are heard, understood and acted upon. The economic and ICA components together make the case for a whole of government, multisectoral response; identifying roles of responsibilities for institutions beyond the health sector alone.

Figure 1. What makes an investment case?



National NCD investment cases are context-specific and rely on significant inputs from national experts and, where available, local data in order to ensure a tailored and compelling case is developed. Not all countries have access to the same data, nor do all countries have the same local capacities and expertise. The exact approach for undertaking each investment case varies by country.

This Guidance Note details the economic component of the investment case to provide an approach that is as standardized as possible.

## 1.2 Audience and purpose

The primary audience of this Guidance Note is those undertaking or supporting the development of an investment case. It may also interest policymakers who wish to understand the tools and approach being used for the economic component of the investment case. The purpose is to provide a clear and succinct outline of each stage of the economic component of a national NCD investment case.

Economists working on an NCD investment case within the context of the WHO-UNDP Joint Programme on NCDs are expected to be familiar with the WHO OneHealth Tool (OHT), which is a WHO tool for estimating the costs and impacts of many of the recommended interventions [9].

Three appendices are currently in preparation to support this Guidance Note. They will provide technical detail on the economic models used for an NCD investment case. The first forthcoming appendix will explain how the costs and benefits of clinical and policy interventions are estimated in the OHT and NCD Costing Tool including the formulas used to monetize health benefits of interventions. The second will be a step-by-step user's guide to the NCD Cost and Impact Module of the OHT. The third will be a step-by-step user guide to the Excel-based dual economic impact and ROI model.<sup>7</sup>

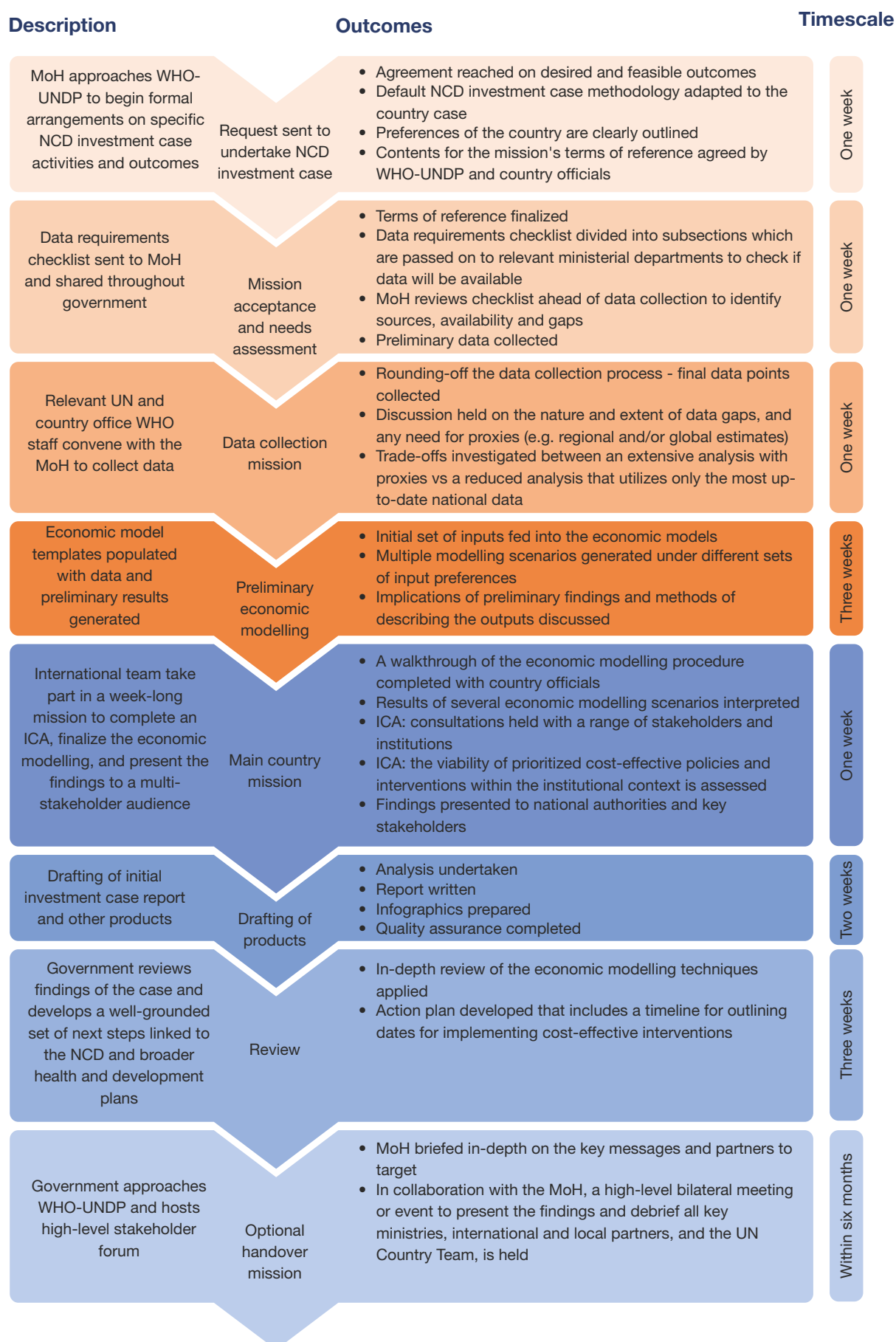
## 1.3 Overview of the investment case process

The investment case is ideally undertaken by a national and international team consisting of economists, social development specialists and epidemiologists (Figure 2). The involvement of country officials, including staff from the Ministry of Health, in the preparation, data mapping and collection, as well as analysis and planning, is essential for the successful development of a case. Full ownership of the case and its findings by the host government is a prerequisite for facilitating any needed policy changes.

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<sup>7</sup>The appendices will be published on the web once finalised.

Figure 2. Steps in developing an NCD investment case



## 1.4 Accounting framework

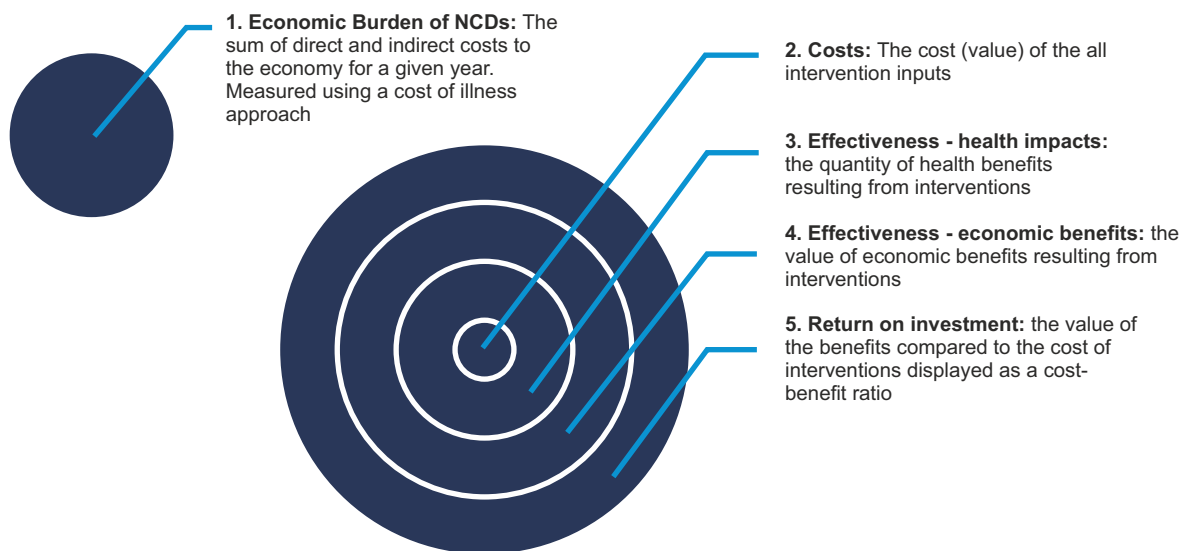
The economic component of the investment case includes an economic evaluation of a set of interventions. Economic evaluations are accounting exercises that determine the efficiency of several courses of action – in this case, health interventions – for comparative purposes. The use of a logical input-process-output model (Figure 3) can aid the understanding of economic evaluations in health (Figure 3). Interventions are shown to take a set of inputs which are causally linked to a set of outcomes.

Figure 3. An intervention in schematic form



Economic evaluations have a nested, or hierarchical, structure in the sense that the outer rings (Figure 4) require successively greater amounts of information, while building on the information contained in the inner rings. The outermost ring in Figure 4 is the ROI or benefit-cost ratio (BCR), which is the standard form of economic evaluation used in investment cases done in the context of the WHO-UNDP Joint Programme. This Guidance Note provides the instruction needed to complete each level of the hierarchy of economic evaluations.

Figure 4. Structure of the economic component of an NCD investment case



It is helpful to think in terms of a suitable accounting framework for economic evaluations. The term 'accounting framework' implies that units of something are being counted. Thus, we define Q as the quantity (the number of units) of any input or outcome. Additionally, consideration must be given to whether inputs and outcomes are: i) market-traded or ii) non-market-traded. This information is expressed visually in Table 1; the four cells constitute the basic structure of an accounting framework for an economic evaluation.

**Table 1. Generic accounting framework for an economic evaluation of a health intervention (showing example categories)**

	Inputs (Qs)	Outcomes (Qs)
Market-traded inputs and outcomes	<ul style="list-style-type: none"> <li>• Human resources</li> <li>• Equipment and machines</li> <li>• Medicines and consumables</li> <li>• Facilities</li> <li>• Other market-traded inputs</li> </ul>	(null)
Non-market-traded inputs and outcomes	<ul style="list-style-type: none"> <li>• Beneficiaries' travel time</li> <li>• Beneficiaries' waiting time</li> <li>• Volunteers' time, e.g. family carer's time</li> <li>• Other non-market-traded inputs</li> </ul>	<ul style="list-style-type: none"> <li>• Increased years of life</li> <li>• Increased health-related quality of life</li> <li>• Other non-market-traded outcomes</li> </ul>

Since a BCR is a specific type of economic evaluation, the generic accounting framework in Table 1 can be re-worked into a BCR-specific table of accounts. The defining feature of a BCR is that both inputs and outcomes are expressed in terms of economic value. The common metric used to establish economic value is price (P).

To count the inputs and outcomes in a BCR, we calculate **costs**  $\equiv P_{\text{inputs}} \times Q_{\text{inputs}}$ , that is, we multiply the unit prices for each unit of input by the number of units of inputs. Costs estimate the economic value of inputs that are required by the interventions. To count outcomes, we calculate **benefits**  $\equiv P_{\text{outcomes}} \times Q_{\text{outcomes}}$ . Benefits measure the economic value of outcomes.

For market-traded inputs and outcomes enumerated in the top row of the accounting framework (Table 1), market prices can be used for valuation in BCR. For non-market-traded inputs and outcomes enumerated, non-market estimates of prices are needed. To distinguish non-market from market prices, the former are called 'shadow prices' (suggesting that they cannot be directly observed in the market).

**Table 2. Generic table of accounts for a typical investment case in health**

	Costs (Ps x Qs)	Benefits (Ps x Qs)
Market-valued costs and benefits	<ul style="list-style-type: none"> <li>• Human resources costs</li> <li>• Equipment and machines costs</li> <li>• Medicines and consumables costs</li> <li>• Facilities costs</li> <li>• Other market-traded costs</li> </ul>	<ul style="list-style-type: none"> <li>• Productivity or labour-market benefits</li> </ul>
Non-market-valued costs and benefits	(null)	<ul style="list-style-type: none"> <li>• Increased years of life benefits</li> <li>• Increased health-related quality of life benefits</li> </ul>

A typical table of accounts for a BCR is shown in Table 2. Non-market-valued benefits are restricted to health ones (non-market-valued inputs are usually ignored). The estimates of prices (shadow prices) for non-market-valued benefits come from a variety of estimation techniques which are discussed later. None of these measures, however, are free from certain objections.

In addition to the BCR, a second kind of economic evaluation can be undertaken. It uses a similar table of accounts: a cost of illness analysis, which intends to measure the economic consequences of illness not only in terms of the 'direct' costs of treatment but also the 'indirect' costs that are the consequences of disease. Where a disease might be prevented, eliminated or treated but no action is taken, not only might the costs of treatment be counted as costs but also the foregone benefits that would have come from prevention (or elimination). Foregone benefits counted in a cost of illness analysis are usually only market-valued ones, in particular the labour market-mediated effects of disease on productivity. In effect, a cost of illness analysis re-labels benefits that could have been achieved by prevention (or elimination) as indirect costs (Table 3).

**Table 3. Generic table of accounts for a typical cost of illness study**

	Direct costs (Ps x Qs)	Indirect costs (Ps x Qs)
Market-valued costs	<ul style="list-style-type: none"> <li>• Human resources costs</li> <li>• Equipment and machines costs</li> <li>• Medicines and consumables costs</li> <li>• Facilities costs</li> <li>• Other market-traded costs</li> </ul>	<ul style="list-style-type: none"> <li>• Productivity or labour-market costs</li> </ul>
Non-market-valued costs	(null)	(null)

## 2. STEPS IN DEVELOPING AN INVESTMENT CASE

The main analyses that make up the economic component of an NCD investment case are represented in Figure 4. They are determining: (i) the economic burden of NCDs using a cost of illness approach; (ii) the costs of implementing a set of recommended actions to prevent and control NCDs; (iii) the health gains, and associated economic benefits of a healthier workforce; and (iv) benefit-cost ratios that represent the potential returns to investing in the interventions. Each successive analysis is an important step that requires access to additional data.

### 2.1 Economic Burden Analysis

The starting point for the investment case is doing an analysis to determine the current and projected economic burden of NCDs. This requires assessing both the direct and indirect costs of NCDs using a cost of illness approach. The cost of illness component reveals the extent to which NCDs are affecting the country's economic growth, by calculating the cost of illness as a share of gross domestic product (GDP) which was lost due to NCDs in the previous year, or in the most recent year with available data.

The cost of illness approach is underpinned by economic theory and provides methods to calculate the cost of NCDs at the national level. Direct and indirect costs are calculated independently of each other, and then added to calculate the total cost of NCDs to an economy.

- **Direct costs:** Direct costs are those in the health system. These are commonly represented by government and private sector health spending on medical staff salaries, equipment and procedures such as diagnosis and distribution of treatment [10].
- **Indirect costs:** Indirect costs typically make up the majority of the overall economic burden of NCDs. They include value of lost productive capacities from people who are absent from work (absenteeism), or work less effectively (presenteeism), due to NCD-related illness and ultimately mortality. This includes people who leave work to serve as caretakers (part or full-time) for family and/or friends burdened with NCDs. Indirect costs also include costs such as spending on transportation to access health services and various costs to employers in the event of illness and death [10].

#### Calculating the direct costs

Direct costs are those related to health care. The healthcare service would not be received without these public or private expenditures. These costs can be established through a bottom-up approach wherein data is collated from healthcare facilities regarding unit costs, staff salaries, health system costs and overheads occurring outside of direct service delivery. However, it is more practical and efficient to use a top-down method that uses national health accounts (NHAs). NHA data is available from WHO's Global Health Expenditure Database [45].

NHAs in most LMICs have developed NCD-specific sub-accounts. A global proxy of NCD spending in 13 countries is available where local data does not exist [11]. Data on spending for CVD, cancers, diabetes and chronic respiratory diseases is important for establishing cost comparisons across disease categories (Table 4).

Table 4. Share of total health expenditure spent on NCDs (%) [11]

	AUS	CAN	CZE	DEU	EST	FRA	GEO	HUN	IND	KOR	NED	SVN	USA
	2004/5	1998	2006	2006	2004	2002	2005	2006	2004	2006	2005	2006	2005
CVD	8.6	9.0	9.2	16.2	22	12.0	0.8	18.4	15.6	13.4	11.1	13.5	17
Cancer	4.7	3.1	5.5	7.9	9.4	7.1	1.9	8.2	4.7	7.7	5.5	6.7	7.2
Endocrine	4.4	2.1	2	4	5.4	3.9	0.01	6.1	4.8	4.1	2.7	2.4	4.4
Respiratory	4.8	4.5	3.2	5.4	7.2	7.3	0.4	5.8	8.9	10.8	4.9	6.2	6.6
Mental Health	9.6	6.2	4.6	17.4	5.2	13.5	3.0	7.8	5.3	6	20.3	7.1	9.5
Total	32	25	25	51	49	44	6	46	39	42	44	36	45

### Calculating the Indirect Costs

NCDs can have high costs to sectors other than health. For the labour force, there are losses from premature deaths, absenteeism and presenteeism. NCDs reduce the size and efficiency of the labour force while forcing employers to incur higher transaction costs in finding and hiring replacement workers.

A number of methods have been proposed to cost the instrumental loss of productivity to the market economy from avoidable morbidity and premature mortality, including the human capital approach (HCA) and the friction cost method (FCM). The longer that workers are absent from the workforce, the greater the economic impact. These different methods propose different approaches to valuing lost productivity. Jo (2014)[10] and Mattke et al. (2007)[12] provide a full explanation of these methods and discuss their relative strengths and weaknesses. This Guidance Note recommends that the HCA should be used as the starting point for discussions with national stakeholders.

#### Box 1. Methods for calculating the indirect costs of NCD mortality

##### Human capital approach (HCA)

The HCA calculates the future potential income of a worker that has withdrawn from the workforce due to death. This method calculates the total potential income that has been 'lost' as the sum of income that a worker would have accumulated between the age of his or her death, and the age at which he or she would have left the workforce had he or she not died [13]. This approach provides a much higher estimate than others as it factors in total potential income, which does not account for the fact that workers may be replaced, especially in countries of high unemployment.

##### Friction cost method (FCM)

The FCM assumes workers can be replaced. Unlike the HCA, the FCM only takes into account the time it takes for an organization to restore production levels. Costs only accumulate when employers are recruiting new workers to replace those that have died. This method includes the costs incurred through wages paid to the worker, as well as those costs incurred due to the firm losing output. The FCM uses a multiplier to account for this additional lost output. The FCM makes up for the flaws of the HCA, but has been criticized by academics as not being sufficiently grounded in economic theory [12]. The economic cost of NCDs generated by FCM is significantly smaller and assumes that workers that have been absent for a long while will eventually be replaced [14].



In addition to premature mortality among workers, productivity losses also accrue when workers with NCDs continue to work with reduced capacity. Evidence has shown that workers that remain in the workforce with an NCD are not as productive as they would be if they were entirely healthy [15], and that they miss more work days. Where accurate data on absenteeism and presenteeism is not available, assumptions can be extrapolated from recent relevant studies.<sup>8</sup> The work limitations questionnaire (WLQ) asks workers how many absent days they have had due to illness [17]. Other evidence is derived from administrative records [18]. There are three recommended approaches for measuring presenteeism: (i) self-assessment of perceived impairment; (ii) a comparison of productivity and work performance with that of colleagues, while considering levels of impairment; and (iii) an estimation of unproductive time at work [12].<sup>9</sup> The latter asks workers to summarize the extent of their 'impaired' productivity into a figure of the total number of unproductive hours (as if the worker was absent). This measurement method is the most easily monetized, but care needs to be taken with the conversion as errors can be introduced at this stage.

Available data is scarce for the calculation of productivity losses in LMICs as few relevant surveys have been carried out, making it difficult to establish comparable estimations. If such data is unavailable, this often means that the only option is to extrapolate the most reliable available data from other contexts. For example, for the NCD investment case in Barbados (a pilot case), national authorities used the rates of productivity loss based on workers in the United States as a proxy [19].

This Guidance Note recommends five steps to quantify the indirect costs of NCDs due to absenteeism and presenteeism:

- 1. Estimating the population disease burden:** This is done by combining demographic and epidemiological data to establish the current and projected prevalence, incidence, mortality and years of life lost due to NCDs. For calculating the current economic burden due to NCDs, prevalence and mortality are the most important data points. Where countries lack this data, Global Burden of Disease estimates should be considered as a proxy [20].
- 2. Estimating the workforce disease burden:** This is arrived at by determining the share of the debilitating effect of NCDs on a workforce. Labour force participation rates for each country are available from the International Labour Organization, and can be used as a proxy in the absence of local data. It is important to note, however, that these figures only measure the formal workforce. In countries with a large informal sector these data should be used with caution, as they will lead to an underestimate of the economic burden.
- 3. Counting unproductive working hours – estimating the quantity (q):** This is calculated as the number of unproductive working hours/days attributed to the inefficiencies of working with NCDs. To calculate this, absenteeism and presenteeism rates for people living with NCDs are required. If no local survey has been undertaken, the academic and grey literature should be consulted to ascertain the rate at which productive hours are lost due to NCDs. Some data may be available in-country within both public and private sector records, if accessible.
- 4. Valuing unproductive working hours – estimating the price:** This involves estimating the wage cost of an unproductive working hour to the economy. Where possible, wage differences among socio-demographic groups should be considered, as opposed to using homogenous wages. If the average wage in the country is unknown, GDP per capita can be used as a proxy.
- 5. Calculating the indirect costs:** quantity (q) multiplied by price (p) of unproductive working hours.

<sup>8</sup> See e.g. [16]. Guariguata, L, et al. 2012. "Diabetes, HIV and other health determinants associated with absenteeism among formal sector workers in Namibia." BMC Public Health; 12:44.

<sup>9</sup> Some of the main survey tools used to apply the three survey methods are the health and productivity, health and work performance, and work limitations questionnaires, as well as the work productivity short inventory.

<sup>10</sup> Details on labour force participation rate can be found at [https://www.ilo.org/global/statistics-and-databases/research-and-databases/kilm/WCMS\\_422090/lang--en/index.htm](https://www.ilo.org/global/statistics-and-databases/research-and-databases/kilm/WCMS_422090/lang--en/index.htm).

## Attributable fractions: associating costs with NCD risk factors

Data on NCD behavioural risk factors should be used to add a level of detail to the cost of illness analysis by enabling the calculation of population attributable fractions (PAFs). Ideally, the overall costs of NCD risk factors would be estimated using PAFs. For example, in the case of tobacco, the share of tobacco-related costs would first be calculated for each NCD, and then summed across all NCDs to estimate the total cost of NCDs directly attributable to tobacco use. The crucial data point for estimating PAFs is the relative risk (RR). However, national data on RR is not readily available in all countries. In this case regional/global RR data can be used as proxies but with caution as this is less reliable.

## Case Study - Kyrgyzstan

Table 5. Economic burden of NCDs in Kyrgyzstan (billion som), 2015

Cost	CVD	Chronic respiratory diseases	Cancer	Diabetes	Total for all NCDs
<b>Direct costs</b>					
Health care					
<i>Government expenditure</i>	1.64	0.71	0.82	0.49	3.67
Non-health care					
<i>Disability payments</i>	0.08	0.01	0.04	0.03	0.16
<b>Total direct costs</b>	<b>1.72</b>	<b>0.72</b>	<b>0.86</b>	<b>0.52</b>	<b>3.83</b>
<b>Indirect costs</b>					
Absenteeism	0.23	N/A	N/A	0.03	0.26
Presenteeism	1.53	N/A	N/A	1.10	2.63
Premature deaths	5.50	0.44	4.26	0.16	10.40
<b>Total indirect costs</b>	<b>7.26</b>	<b>0.44</b>	<b>4.26</b>	<b>1.29</b>	<b>13.29</b>
<b>Total burden</b>	<b>8.99</b>	<b>1.16</b>	<b>5.12</b>	<b>1.81</b>	<b>17.12</b>

Table 5 summarizes the total direct and indirect costs of NCDs in Kyrgyzstan. Economic losses due to indirect costs are almost four times larger than those due to direct costs. The government's estimated spending on the four main NCDs is already 3.83 billion som (approximately US \$55 million<sup>11</sup>), but additional losses to the economy (absenteeism, presenteeism, premature death) amount to 13.29 billion som (approximately US \$190 million). Actual indirect costs are likely to be greater, as it was not possible to estimate the costs of absenteeism and presenteeism for cancer and respiratory diseases.

The total drag on the economy of Kyrgyzstan is 17.1 billion som (approximately US \$245 million), which is equivalent to 3.9 percent of annual GDP.

<sup>11</sup> US \$ figures for Kyrgyzstan are calculated based on the 16 November 2018 exchange rate of 1 som to US \$0.014.

## 2.2 The costs of implementing actions to prevent and control NCDs

The second step of the economic component of NCD investment cases is to cost priority interventions. Intervention analysis seeks to develop a set of tailored recommendations to policymakers taking into account an agreed number of the priority interventions that may be in the country's national multisectoral NCD action plan, where this is available. These interventions should be in line with the 88 cost-effective interventions described in the updated Appendix 3 of the 'WHO Global Action Plan on the Prevention and Control of Noncommunicable Diseases 2013-2020' [4]. Where national response priorities have not yet been developed, these need to be determined through a review of the priority set of 88 interventions, initially focusing on the subset of 16 'best buys' deemed most cost-effective.

Once the priorities of the country are defined, the following should be undertaken to identify and cost an agreed set of interventions:

- **Situation analysis and scoping of investment case:** This establishes the current interventions in place in the country, those interventions intended for scale-up over the period of the investment case, and proposed new interventions to be implemented.
- **Review of intervention delivery practices:** This is a comparison between the WHO guidelines for an intervention and the actual practices occurring in the country, in order to adapt the costing structure to the local context.
- **Data collection:** Once the situation analysis is complete, epidemiological and economic data pertaining to these interventions is collated.
- **Costing of interventions:** This combines the data in the three previous steps into a projected cost of implementing the priority interventions over the period of the investment case (typically the cases cover a 15 year period).

At time of writing, the OneHealth Tool (OHT), developed by the WHO-led UN Interagency Working Group on Costing, is the main costing tool used in NCD investment cases (Box 2, next page). The OHT receives continual updates to ensure it applies the most up-to-date methods of economic evaluation in health systems modelling. The remainder of this section is organized by the steps above, providing for each step a series of actions for using the OHT to conduct the investment case costing analysis.

### OneHealth Tool, the situation analysis and scoping of an investment case

#### *Review of clinical interventions and national policies aimed at reducing the NCD burden*

This analysis highlights government successes in tackling NCDs through existing interventions (both clinical and multisectoral), capacity to strengthen NCD responses, and areas in which government action is constrained.

Additional tools underpinning and complementing Appendix 3 of the WHO Global NCD Action Plan 2013-2020 are available. The situation analysis and scoping exercise should also take into account evidence-based frameworks, policies and tools for tobacco control (e.g. the WHO FCTC [21], MPOWER [22]<sup>12</sup>) reducing harmful use of alcohol [23], increasing physical activity [24] and reducing unhealthy diets (e.g. SHAKE for salt reduction [25]).

<sup>12</sup>The WHO Report on the Global Tobacco Epidemic [48] surveys progress in implementing MPOWER measures.

The situation analysis and scoping exercise should also review the country's policies and programmes that are in place against the 'WHO Noncommunicable Diseases Progress Monitor' [26].

### Box 2. The OneHealth Tool

The OHT is the recommended tool to analyse cost and impact in NCD investment cases. It is expected that the economist or statistician carrying out the investment case would have received prior training in using the OHT.

#### Background

The OHT is a software tool designed to inform sector-wide national strategic health plans, and is the main economic modelling tool for NCD investment cases. While many costing tools take a narrow disease-specific approach, the OHT attempts to link strategic objectives and targets of disease control and prevention programmes to the required investments in health systems. The tool provides planners with a single framework for scenario analysis, costing, health impact analysis, budgeting and financing of strategies for all major diseases and health system components.

OHT outputs help planners answer the following questions:

- What are the health system resources that would be needed to implement the strategic health plan (e.g. number of nurses and doctors required over the next 5-10 years)?
- What is the cost estimate for the strategic plan, by year and by input?
- What is the estimated health impact?
- How do costs compare with estimated available financing?

The OHT was developed under the guidance of the UN Interagency Working Group on Costing (IAWG-Costing). WHO provided technical oversight while it was being developed. The first official version of the OHT was released in May 2012, and has to date been implemented in more than 35 countries.

#### Overview of the OHT features for investment cases

The OHT contains a costing module and a linked health impact module covering the four main diseases and four main behavioural risk factors for NCDs. For the purposes of the intervention analysis, an agreed set of cost-effective interventions are scaled up in the NCD impact module to reduce the morbidity and mortality attributable to NCDs. Furthermore, the OHT's costing modules are used to estimate the amount of financing that would be needed to implement this set of interventions.

The Spectrum NCD<sup>13</sup> manual provides a guide to the functional features of the NCD impact module; the module interface comprises several input editors, each with a particular feature. In this way, only the information that is relevant to a feature can be viewed and edited. For example, there are separate editors to model the impact of clinical and policy interventions, as well as a configuration editor that can make information 'invisible' and change its format.

The epidemiological framework of the NCD impact module is composed of a group of NCD models. A series of health states (e.g. disease-free, NCD episode, death) and transition rates (e.g. incidence, mortality, remission and function) are used for the model. Health states cannot be altered, but the transition rates and the initial distribution of the population across health states – the epidemiology – can be altered. While it is possible to edit basic epidemiological rates, this should be done with caution as a consistent set of rates requires a comprehensive calibration process.

## Current epidemiology and demography

Collecting national epidemiological data is the first phase in the intervention analysis, in order to determine the number of people that can benefit from the various interventions. The following data sources could be considered:

<sup>13</sup>The Spectrum is a Windows-based system of integrated policy models and serves as a core structure for OHT. Details on OHT can be found at <https://www.avenirhealth.org/software-onehealth.php>.

- **Demographic data:** Data on population, fertility, infant and child mortality, life expectancy at birth, international migration data and model life tables are gathered from the latest Revision of World Population Prospects [27].
- **Epidemiological data:** NCD diseases: Regional data on NCDs, e.g. prevalence, incidence and mortality, are obtained from the Global Burden of Disease Study Database [20].
- **Epidemiological data:** NCD behavioural risk factors: The WHO STEPwise approach to NCD risk factor surveillance is designed to help countries build and strengthen their surveillance capacity [28].

The priority of this stage is to acquire recent and up-to-date national data that reflects the epidemiology of the country concerned. In the event that national epidemiological data cannot be sourced, proxy data acts as a next-best option, if agreed with national partners.

### Potential interventions for NCD investment cases

The investment case team and national authorities should agree on the scope of the investment case. In doing so any emerging information from the ICA should be considered (ideally conducted simultaneously), as well as practical considerations such as data availability and comparability with the OHT or alternative selected models and tools, should these be required.

Interventions improve health outcomes by reducing behavioural and metabolic risk factors, and by treating NCDs, thus reducing subsequent morbidity and mortality. Expressed in terms relating to the NCD models, interventions increase the number of people remaining in a disease-free state and reduce the number of people dying from NCDs prematurely. However, there are different classes of interventions with different qualities and thus different sets of parameters as well as assumptions.

Policy-based interventions:

- **Policy prevention interventions:** Population-level policy interventions operate at the national level. These interventions primarily target behavioural risk factors for NCDs (e.g. tobacco use, harmful use of alcohol, unhealthy diet and physical inactivity) by influencing availability, access and consumption. Their goal is typically primary prevention. Rather than directly affecting the transition rates of NCDs models, the impact is evaluated using the PAF.

Clinical-based interventions:

- **Primary and secondary clinical prevention interventions:** Delivered through the health system (both public and private), these interventions target people with high levels of metabolic risk factors, such as high cholesterol, hyperglycaemia and high blood pressure, to prevent the initial incidence of CVD. Measured reductions in incidence of CVD are reflected by reductions in the proportion of people transitioning from a disease-free state to states of ischemic heart disease, diabetes (type 2), stroke, cancer and chronic respiratory disease.
- **Clinical treatment interventions:** These interventions, also delivered through the health system, target people who already have an NCD (in this instance, CVD and diabetes) and require treatment and/or care. The rate of transition from diseased state to a worsened condition or death is reduced through these interventions. Treatment interventions do not reduce the onset of disease.

Intervention scale-up is achieved through two main parameters – coverage and intensity. Coverage denotes the share of the disease-burdened population with access to a particular intervention. Current coverage in LMICs is typically suboptimal, thus there is both room and rationale to increase it. Coverage is the parameter used specifically for the scale-up of clinical interventions. Normally, policy and health system capacity determine the anticipated future rate of coverage. A limitation of coverage is that it cannot account for the quality of an intervention, which may differ from the WHO standard. The second parameter is intensity. It implies the level of robustness of policy interventions. On a 4-point scale, level 1 represents a poorly implemented policy, while level 4 represents a policy implemented to the WHO standard.

## Costing interventions

The default methodology for costing interventions in an investment case is a bottom-up 'ingredients-based' approach in which unit costs and resource quantities are used to develop estimates for the total cost of interventions.

The cost estimates reflect the resources needed for a country to implement interventions and are used to calculate ROI as per step four of investment case development. These estimates are intended to show, by year and intervention or intervention package, the inputs needed to produce the economic outputs which make up the complete investment case.

A goal of the intervention costing is to make cost comparisons between interventions, including between clinical and policy intervention types. The OHT enables such comparisons because, despite using tailored methodologies, it relies on WHO expert assumptions based on the same set of standards and delivery mechanisms. As such, use of external models and altering assumptions would make it difficult to establish a fair comparison of results between countries and regions.

All aspects of the NCD investment case are tailored to the needs of the country concerned to ensure national stakeholders' acceptance and interest. This implies that, in the costing analysis, a country should decide which methods and/or models are applied to establish intervention cost estimates. However, the experience gained by WHO in trialling methods to conduct cost-effectiveness analyses in low-resource settings shows that LMICs tend to underestimate the resource needs and thus total costs of health interventions. Based on these experiences, in ordinary circumstances, it is advisable to use WHO's costing methods employed in the OHT and NCD Costing Tool.

### Box 3. Situation analysis in the OneHealth Tool

1. **Updating demographic and epidemiological data:** The OHT contains default demography, epidemiology and coverage values. The accuracy of the default epidemiological and demographic data is to be checked and, where available, local up-to-date data used to make any adjustments.
2. **Identifying a portfolio of interventions for modelling:** It is useful to consider the interventions available with default data in the OHT, and to map country priorities to these. The OHT employs a set of interventions delivered using standard WHO guidelines. Not all countries will use the WHO guideline approach to intervention delivery, so the interventions should be checked against those occurring within the country. Interventions can be renamed, and additional interventions added as required.

## Clinical intervention costing

For clinical intervention costing, all individual cost items estimated are pertinent to healthcare facilities and patient treatment. Cost items fall into the following resource categories: costs incurred at the point of service, infrastructure, human resources, logistics, health information systems, financing policy and governance. Non-medical costs that affect the patient directly (e.g. transport, accommodation and food) are excluded from the list of cost items. Moreover, non-market-valued costs such as patient travelling and waiting are difficult to measure and therefore often omitted. The method used in the investment cases identifies two main clinical intervention costing categories:

- **Drug and supply costs:** This involves identifying the unit price of the intervention at the point of delivery, including drugs, supplies, and medical staff time.
- **Related health system costs:** This includes all other medical and non-medical resource costs that would normally be captured in the health system cost categories (e.g. infrastructure, human resources). Alternatively, in this case, all health system costs related to a clinical intervention are proxy estimated by the average cost of an outpatient visit.

It is suggested for economists to obtain the agreement of country-based staff at this stage in relation to the methodology used, including whether it would be acceptable to use proxy data on prices and intervention delivery assumptions.

## Policy intervention costing

Because population-level policy interventions are not delivered via the health system, the traditional costing method of quantifying resource use in service delivery is not applicable. Instead, cost components of policy interventions are captured in programme costs, defined as costs incurred at the administrative level outside the point of delivery of health care to beneficiaries [29].

### Box 4. The OneHealth Tool and intervention costing

1. **Comparing default delivery to local delivery practices:** This involves checking the target population and resource utilization defaults in the OHT against local clinical practice guidelines, or with local service delivery providers.
2. **Validating local prices:** Once the intervention delivery has been checked, the default prices within the OHT should be checked against local prices. This includes the price of drugs and supplies, as well as human resources and overheads.

*The WHO NCD Costing Tool for policy interventions*

The NCD Costing Tool is used to estimate the costs of a set of policy interventions. This tool is Excel-based, has a manual, and a global case study has been carried out which can function as a guide [30,31].

The tool assumes that there are four stages to enacting a policy: planning, policy development, partial implementation and full implementation. The costs incurred by a policy in any given year depend on that policy's stage of enactment. There is no explicit set of criteria to determine what stage of policy enactment a country is in. Thus, local country experts should be consulted.

## Projecting scale-up rates

NCD responses can take many forms and will need to incorporate a number of factors, not least country preferences, fiscal space and variations in planning horizons. While constructing a strategic plan, the national government, with MoH leadership and in collaboration with the key counterparts, should consider the following initial factors:

- **Level of ambition:** This factor relates to whether a scale-up plan is conservative, moderate or ambitious. A conservative plan reflects a realistic and achievable strategy by setting modest target levels of implementation. An ambitious plan scales up interventions above and beyond the projected capacity of the country.
- **Interventions and NCD risk factors:** Changing an intervention portfolio can be beneficial if the current set of interventions is deemed ineffective. One possible course of action, given that NCD strategies of LMICs are often health system-based, is to broaden the intervention portfolio by incorporating policies outside the health sector. Specific policies that target the most prevalent NCD risk factors could be chosen and incorporated into non-health sector strategies which deliver benefits at population level. Clinical interventions are particularly useful where there are many existing NCD cases. An existing treatment can be scaled up or a new treatment made available. CVD preventative interventions are a priority. WHO experts carry out national epidemiological CVD modelling using metabolic risk factors to generate country risk factor profiles [32]. These profiles can suggest the appropriate depth and breadth of CVD prevention interventions.
- **Strengthening human resource capacities:** Task shifting can raise the impact of clinical interventions [33]. Task shifting is a process of delegation whereby tasks are moved, where appropriate, to less specialized health workers. It results in more time for skilled health workers to concentrate on challenging tasks, as well as more tasks being performed by less specialized health workers.
- **Human rights-based approach:** A human rights-based approach identifies rights holders and their entitlements as well as corresponding duty bearers and their obligations. The approach works towards strengthening the capacities of rights holders to make their claims and of duty bearers to meet their obligations. Principles and standards derived from international human rights treaties should guide all development cooperation and programming of clinical intervention practices and policy formulation [34].
- **Quality:** Delivery practices in LMICs may differ from that of WHO guidelines. Lack of adequate staff training, a poorly governed health system and low adherence to rules and regulations may lead to clinical interventions being administered inefficiently. Resolving these inefficiencies is thus a path to improved health outcomes.
- **International and national goals:** Future actions can be guided based on an assessment of the progress of country efforts to fulfil commitments relating to national and international targets.

Investment cases tend to incorporate several of the above factors into a national strategic NCD plan. However, it is useful for those undertaking the investment case to generate multiple scenarios reflecting different timescales. A variety of preliminary results can be presented to country officials in the early stages of the investment case process. The various scenarios can be reviewed, with a single consolidated set of results then used to advocate for scaled-up action on NCDs.



A range of factors influences the type of strategic plan that any country pursues, including political commitment, governance structures, available financial and human resources, access to development assistance, and capacities and intentions to raise domestic financing for development. As a result, it is beneficial to apply appropriate scenario(s) and scale-up pattern(s) to a set of interventions.

#### Box 5. Coverage and intensity scale-up in the OneHealth Tool

**Coverage** is the modifiable parameter in the OHT that serves to scale-up clinical interventions. Coverage specifies the proportion of people living with an NCD who are getting treatment. Baseline and target coverages and the pace of scale-up are to be used when setting the parameters of the OHT clinical intervention scale-up plan.

For policy interventions, **intensity** is the key parameter used to enact or strengthen implementation. It reflects the quality of a policy intervention on a discrete 4-point scale [22]. Level 4 intensity is the WHO-recommended standard to which countries should aspire. The policy development process may go on for several years before a policy is actually implemented. The year in which implementation occurs has significant bearing on the results.

In general, as modelling scenarios go from conservative to moderate to ambitious, interventions are implemented at higher levels. However, along with target implementation, pace of implementation is a major element of scale-up. For clinical interventions, the OHT includes four scale-up patterns, to which pace of implementation normally adheres:

- **Exponential:** After an initial slow degree of health system development, coverage speeds up exponentially as the target year approaches. □
- **S-curve:** After a brief period of slow expansion, coverage escalates at a linear rate.
- **Front-growth:** This pattern assumes that much of the capacity to scale-up is already in place, meaning that coverage can escalate rapidly, i.e. within the short- to medium-term.
- **Linear:** This pattern assumes a gradual but sustained increase in coverage.

### 2.3 Health and economic benefits of implementing a set of interventions

Intervention impact analysis covers four steps:

- **Projected status quo scenario:** This evaluates the number of NCD-related episodes and deaths avoided in a 'business as usual' or baseline scenario.
- **Projected scale-up scenario:** This evaluates the number of NCD-related episodes and deaths avoided due to intervention scale-up.
- **Estimated incremental health impacts:** This assesses the difference in health impacts between the two scenarios.
- **Projected economic benefits:** This converts the incremental health impacts into economic benefits.

#### Health impacts

The main inputs in calculating health impacts are the chosen set of interventions and scale-up patterns. Health impacts are modeled by comparing two projected scenarios; one in which current epidemiology and intervention coverage is projected, and another in which intervention scale-up is projected. The difference between the health status of the population under the respective scenarios is the incremental impact. Countries can analyse individual or packages of interventions in these calculations.

Health impacts are measured through indicators, such as reductions in prevalence, incidence, mortality and healthy life-years lost. Although evaluating health impacts in itself constitutes an analysis, further steps are included in an investment case, such as the estimation of economic benefits and determination of benefit-cost ratios. Economic benefits are the product of a quantity of the health impacts and an assigned estimate of the per-unit value of a health impact. Reductions in premature mortality specifically are commonly measured and monetized. Incidence is also commonly measured, as it enables estimations regarding the economic benefits of reducing absenteeism and presenteeism. Further, healthy life-years gained can determine the social returns of investment.

At this stage, it should be decided which NCDs are assessed for their health impacts, for example cancer, CVD, diabetes, or 'all NCDs'. There are trade-offs between focusing on a small defined subset of NCDs versus a broader grouping. In general, a larger group of diseases demonstrates greater aggregate health impact. On the other hand, considering a larger number of diseases requires a deeper understanding of impacts on individual NCD models, which can prove challenging. Several factors should be considered. For example, pilot investment cases in Mongolia and Barbados focused on CVD and diabetes, due to their overwhelming contribution to the NCD burdens in those countries, as well as the availability of relevant studies/statistics to enable monetized calculations of productivity losses from CVD. The investment case in Viet Nam took a broader approach, estimating and monetizing the health impacts for a wide range of NCDs, but focusing only on reduced mortality.

#### **Box 6. Health impact projections in the OneHealth Tool**

Estimating the health impacts in the OHT involves projecting two scenarios - one in which the current implementation continues as is, and another in which interventions are scaled up as per the coverage rates discussed in Box 5. The difference between the two scenarios provides the incremental health impacts. Impacts are extracted in terms of avoided incidence, prevalence and mortality, and healthy life-years gained for a defined range of NCDs.

The NCD impact module of the OHT contains the following risk factors and diseases:

1. Tobacco;
2. Alcohol;
3. Sodium;
4. Trans fat;
5. Physical inactivity;
6. Cardiovascular disease;
7. Diabetes;
8. Asthma;
9. Chronic lung disease;
10. Breast cancer (not all regions);
11. Colorectal cancer (not all regions); and
12. Cervical cancer (not all regions).

The NCD impact module of the OHT is continuously advancing, and it is intended that the following will be integrated over time:

1. Sugar;
2. Environmental factors such as air pollution; and
3. Mental health conditions.

## Case study – Kyrgyzstan

Table 6. Estimated health impacts over a 15-year time horizon

Intervention package	Strokes averted	Cardiovascular events averted	Mortality averted	Healthy life-years gained
CVD clinical interventions	3 780	7 676	9 307	46 612
Tobacco interventions	2 155	1 987	1 537	11 013
Physical activity interventions	2 363	2 042	1 192	11 745
Salt interventions	2 155	1 699	1 161	15 493

In Kyrgyzstan, all intervention health impacts were estimated for the effect on reducing CVD-related causes. CVD clinical interventions have the greatest impact (9,307 lives saved over 15 years), followed by tobacco control interventions (1,537 lives saved). The physical activity and salt intervention packages each save lives to a similar degree as the tobacco control interventions.

### Economic benefits

NCD investment cases seek to ascertain not only the health impacts of interventions but also the economic benefits. While the OHT provides estimated health impacts, it does not currently have functionality for valuing (i.e. monetizing) health benefits. Thus, health impacts are extracted from the OHT and inputted to an Excel-based model which evaluates the economic benefits including benefit-cost ratios.<sup>14</sup>

Many of the issues surrounding the monetization of indirect and direct costs (Section 2.1) also apply to monetizing health impacts. However, there is an important distinction: the economic burden analysis estimates costs for a reference year and, depending on the approach agreed with the government (human capital approach or friction cost method), may or may not include costs related to future years, while the intervention analysis always considers the benefits accruing over a period of several years. The human capital approach is to be used in this context as it is the standard conversion method that is applied to determine the labour market impacts of health. Within the initial set of NCD investment cases two types of health impacts were monetized using the human capital approach: reductions in morbidity<sup>15</sup> and reductions in premature mortality.<sup>16</sup>

Monetizing health impacts, necessary for estimating economic benefits in an investment case, involves estimating the amount of working time gained as a result of reduced impairment, and then attaching a wage to the time gained. In the case of reduced morbidity, this can be difficult because the amount of lost working time by employees living with NCDs who continue to work is not easily identifiable. To date, research has not extensively explored the relationship between NCDs and worker productivity. Quantifying lost working time of premature mortality is more identifiable. For estimated economic benefits to be accurate and reliable, many factors must be considered:

<sup>14</sup>It is anticipated that a template version of the Excel model will soon be available as an appendix of this Guidance Note.

<sup>15</sup>Value of avoided absenteeism<sub>i</sub> = incidence of disease averted<sub>i</sub> x labour force participation rate x employment rate x net gain in GDP per worker from the disease averted, where: net gain in GDP per worker = GDP per employed person x (1-(work hours with the disease/work hours without the disease)).

<sup>16</sup>Value of avoided mortality<sub>i</sub> = D<sub>i</sub> x L x E x G, where D<sub>i</sub> = deaths avoided from intervention i at time t; L = labour force participation rate; E = employment rate; and G = GDP per employed person.

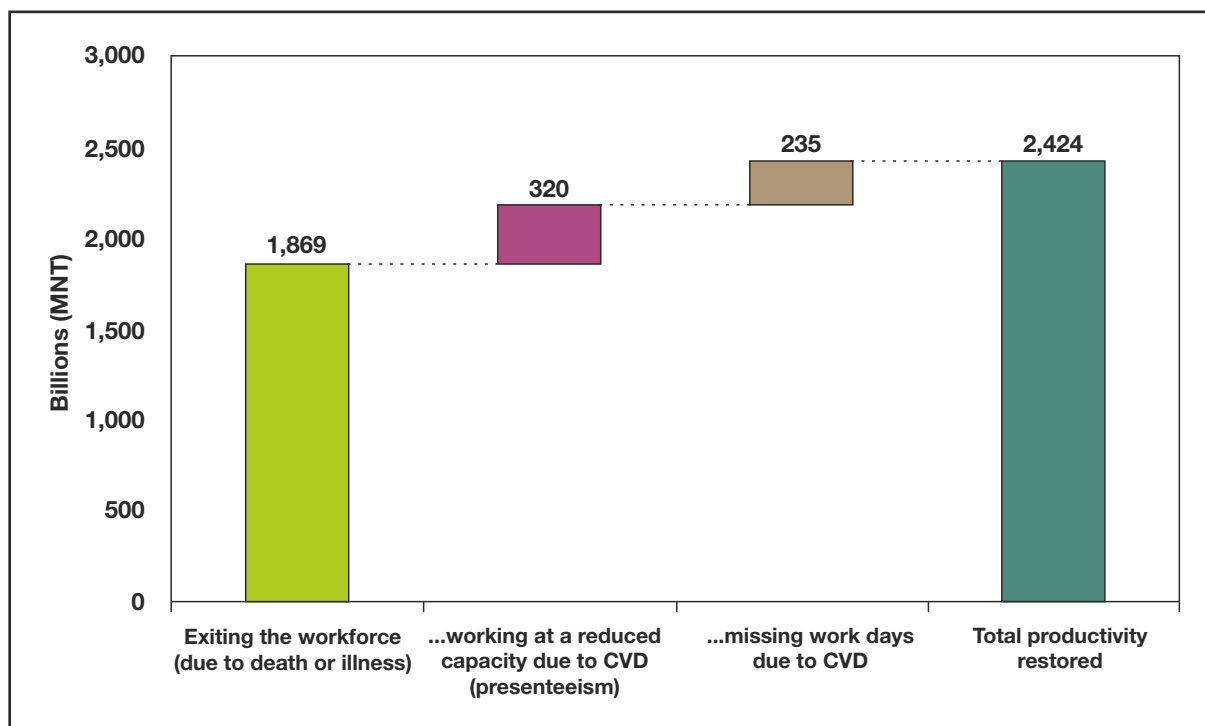
- **Workforce composition:** Avoided morbidity and mortality measured within the OHT reflect the entire national population. However, not everyone in the population works. It is therefore necessary to determine the overall share of the population that contributes to the economic benefits. A macro approach would consider economic indicators such as working age population, unemployment and labour force participation. At even greater depths, it would also consider those 70 years and over who are still working, and informal labour markets.
- **Wages:** Where possible, wage distribution across sectors, gender and age should be captured. Alternative methods rely on homogenous estimates, such as total GDP divided by the size of the workforce (GDP per worker).
- **Aging and labour productivity:** It is generally accepted that workers' productivity begins to decrease between ages 40 and 50 [35,36]. Productivity changes among aging workers is a crucial consideration because the avoided mortality increases as the population ages.
- **Age of death:** A determination is needed on the life expectancy of workers, as the longer a worker lives the greater the potential he or she has to generate economic output. For example, if the OHT calculates an avoided death in the second year of the scale-up period, the surviving person has the potential to generate economic output in all of the remaining years of the period.
- **Retirement:** Even if NCD responses support people to live longer, this does not guarantee that they will remain in the workforce. The assumption could be made that once a worker retires from the formal labour market, they stop working entirely. Furthermore, the national retirement age may or may not be an accurate estimator of the age at which people actually retire.
- **Gender/informal labour:** There are important gender differences in NCD outcomes and exposure to risk factors. For example, as tobacco use is typically higher among men, projected health and workforce impacts of scaled-up action could also be gendered. Moreover, job types and associated productivity could be gendered, e.g. men in some countries may be more likely to have employment that requires greater physical activity. The caretaking burdens of NCDs typically fall on women and girls. Productivity of informal labour should be considered and calculated alongside formal market productivity, where possible.
- **Upward trending indicators: wage growth/inflation:** Real wage growth and inflation can increase substantially over time, thus affecting the projected economic benefits of surviving workers. This should be captured where possible.

It is advised to use **workforce composition** and **wages** as a baseline to evaluate intervention impacts, as has been done in all NCD investment cases to date. Where possible, additional factors should be considered to strengthen the analysis.

An emerging trend is that, in comparison to avoided morbidity, avoided mortality accounts for a disproportionately large share of total projected economic benefits. However, both of these measures are informative and should be estimated.

## Case Study (economic impacts) – Mongolia [50]<sup>17</sup>

Figure 5. 15 year time-frame – Estimated economic output resulting from implementing tobacco, alcohol, salt, and CVD primary prevention interventions in Mongolia



The largest productivity gains in the Mongolian NCD Investment Case occur due to avoided mortality (77.1 percent of total productivity restored), followed by reduced presenteeism (13.2 percent) and reduced absenteeism (9.7 percent). Taken together, implementing the policy packages results in net present value of 2.4 trillion MNT (US \$990 million) in labour productivity gains over 15 years. The average annual productivity benefits of the CVD primary prevention (49.9 billion MNT), tobacco control (7.5 billion MNT), alcohol (12.4 billion MNT) and salt packages (81.6 billion MNT) are together equivalent to about one percent of Mongolia's 2015 GDP.

### 2.4 Return on investment

The final stage of economic modelling is to compare the results obtained in the previous steps, namely those relating to modeled impact, cost, and economic benefits. These results are then used to evaluate a set of benefit-cost ratios (BCRs). For this, the relevant estimates are extracted from the economic models (i.e. the OHT for clinical intervention costs and the NCD Costing Tool for policy costs) and are fed into the Excel-based model where the economic benefits were estimated. BCRs are then evaluated in the standard way:

$$\text{Benefit-Cost Ratio} = \frac{\text{Total economic benefits}}{\text{Total implementation}}$$

<sup>17</sup>The forthcoming appendices (see Section 1.2) will provide further information.

Critically, the analysis is able to compare BCRs between specific interventions, packages of interventions and between intervention periods (i.e. across time at key intervals). Results can easily be expressed on a per intervention basis or otherwise. NCD investment cases conducted so far have focused on two time horizons: a shorter period of 5 years, which aligns with standard political cycles in most countries, and a longer period of 15 years, which closely aligns with the 2030 Agenda and more specifically its NCD-related targets. The net present value of both costs and benefits is determined by applying a discount rate of 3 percent. Despite the focus on these two time periods, the investment case analysis is nonetheless capable of providing a BCR at each year over the full 15 year period. This can help policymakers consider trade-offs between treatment and prevention, at what stage globally committed targets are likely to be met, and when political capital for NCD action is likely to be highest. Results thus far are showing that countries need not wait for years to benefit from prevention measures. Benefits and returns from prevention interventions can accrue over a relatively short time-frame where NCD responses are most relevant and targeted.

Once an initial set of BCRs is obtained, earlier assumptions can be reviewed and modified to explore different scenarios and assumptions, which would result in a range of BCRs. After assumptions and data inputs have been finalized, results can be consolidated and informed policy discussions on key findings can be facilitated.

### Case Study (ROI) – Mongolia<sup>18</sup>

The investment case for Mongolia evaluated the ROI for four intervention packages, each composed of several interventions (Table 7). All four packages deliver positive returns over 15 years. Salt interventions are the highest, returning 16.9 Tugriks for every Tugrik invested in this period. The returns were smaller when counted only over the shorter period. The tobacco control and CVD clinical intervention packages incur a 'loss' (implied by a BCR of less than 1) over the 5 year period. These packages, however, are cost-effective over a longer-term 15 year perspective. In fact, at 15 years all interventions have a BCR greater than 1.

**Table 7. Costs, benefits and return on investment (billion MNT) at 5- and 15 years, by package in Mongolia**

Intervention package	5 years			15 years		
	Total costs	Total productivity benefits	ROI	Total costs	Total productivity benefits	ROI
<b>Salt</b>	<b>18.4</b>	<b>26.4</b>	<b>1.4</b>	<b>77.3</b>	<b>1.305</b>	<b>16.9</b>
<b>Alcohol</b>	<b>3.7</b>	<b>5.8</b>	<b>1.6</b>	<b>14.6</b>	<b>198.9</b>	<b>13.6</b>
<b>Tobacco</b>	<b>2.8</b>	<b>1.9</b>	<b>0.7</b>	<b>9.3</b>	<b>120.7</b>	<b>13.0</b>
<b>CVD clinical interventions</b>	<b>38.0</b>	<b>23.8</b>	<b>0.6</b>	<b>263.6</b>	<b>798.6</b>	<b>3.0</b>

## 2.5 Institutional and context analysis (summary)

The NCD ICA recognizes that policy decisions are rarely made based on social and economic data alone. Behavioural risk factors that drive NCD epidemics – particularly tobacco use, harmful use of alcohol, and unhealthy diet – are enmeshed with commercial and broader public-private interests that often conflict with attempts to improve public health by reducing the consumption of health-harming products. Many stakeholders, including non-health sectors of government, often fail to account for how their decisions and policies may exacerbate NCDs, and do not fully recognize the social and economic costs of NCDs. The result is that even the most proven and cost-effective NCD prevention and control policies (such as tobacco taxation) can be challenging to implement.

<sup>18</sup>The forthcoming appendices (see Section 1.2) will provide further information.

The NCD ICA was adapted from the ICA Guidance Note produced by UNDP's Oslo Governance Centre.<sup>19</sup> Its purpose is to help assess the political and economic dimensions of NCD policy adoption, implementation and enforcement, including how a robust ROI analysis would affect these dimensions. It aims to uncover the most promising policy pathways for countries to take (e.g. areas of general consensus, political appetite and opportunity) as well as areas where there are challenges and barriers. The overall goal is to help institutions within countries to examine/determine the political space for implementing priority NCD-relevant interventions, and for UNDP, WHO, and other partners to best advise on the specific strategies and approaches most likely to increase that space.

**Table 8. Basic NCD Institutional and Context Analysis framework<sup>20</sup>**

Step	Overarching question
1. Define the <u>scope</u> of the problem and assess the opportunities/challenges for responses.	“What are the needs, opportunities and challenges for NCD-related interventions?”
2. Determine institutional and governance <u>arrangements</u> and capacities.	“Who are the relevant actors, how do they operate, and are they capable, effective and efficient?”
3. Assess available and potential <u>resources</u> .	“What current and potential mechanisms, strategies and opportunities exist for financing NCD responses?”
4. Identify the political economy <u>drivers</u> .	“What are the political, economic and other priorities/incentives of the relevant actors – and how do these relate, broadly, to NCD-related interventions?”
5. Propose priority <u>actions</u> and identify key supporters and key opposition.	“Which cost-effective NCD-related interventions are most feasible given the political and economic context, and how are relevant actors likely to perceive them?”
6. Evaluate potential for change and identify enabling factors/ <u>strategies</u> .	“How likely to be implemented are the priority actions and what factors/strategies can expand the political space for adoption, implementation and enforcement?”

### Activities and outputs

With UNDP and WHO Country Office support, implementing UNDP's ICA Framework for the prevention and control of NCDs (available in full in the Annex) will help assess the political and economic dimensions of NCD-relevant policy adoption, implementation and enforcement. Specific activities and outputs include:

- **Conduct pre-mission desk research on the context of the participating country.** This should cover NCD burdens, including how NCDs and their risk factors are distributed across populations, and other relevant information (e.g. population size, development /poverty level, socio-economic profile, broader epidemiological trends). The desk review should at minimum include relevant results from the following WHO surveys: STEPS [28], Global Adult Tobacco Survey [46] and Global Youth Tobacco Survey [47]. The pre-mission desk research should also examine media coverage, if any, of NCD burdens, trends and policy responses (or lack thereof).

<sup>19</sup>In 2012, the UNDP Oslo Governance Centre published 'Institutional and Context Analysis – Guidance Note' [37]. UNDP has adapted this Guidance Note to develop a Guiding ICA Framework that can be applied to the unique challenge of determining policy for NCD prevention and control. The Framework is intended for UNDP, WHO and other partners who support national NCD costing exercises/investment case analyses, and participate in Joint Programming Missions to countries on NCDs. In 2017, UNDP updated its 2012 Guidance Note on ICAs in the context of the 2030 Agenda. The resulting Guidance Note, 'Institutional and Context Analysis for the Sustainable Development Goals' [38], incorporates experiences and lessons from an early NCD-specific ICA carried out in Mongolia.

<sup>20</sup>The full Guiding ICA Framework includes sample considerations for each step and overarching question. See Annex.

- **Conduct a comprehensive landscape analysis to determine factors such as:** existing and planned NCD prevention and treatment interventions; the governance structures, agencies, civil society organizations, private sector and other key stakeholders involved in the NCD response – and the influence/views of each; potential bottlenecks to NCD-relevant interventions, for example conflicts of incentives; existing and potential financing mechanisms/resources for NCDs; and promising approaches/strategies for implementing multisectoral prevention strategies.
- **Document results, experiences, recommendations and lessons learned in an ICA report.** The report should outline a clear plan for increasing the political space to adopt, implement and enforce NCD-relevant interventions, including by overcoming identified blockages, mitigating conflicts of interest between public and private actors, and ensuring increased policy coherence across sectors of government. The report will be finalized in consultation with UNDP, WHO and other designated colleagues/counterparts. Recommendations from the ICA can assist in the communications strategy that ensures that an investment case is heard, understood and acted on.

The Annex provides more complete information on the ICA methodology, including rationale, purpose, the full Guiding ICA Framework, and specific topics to cover, by stakeholder group, for the landscape analysis.



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## ANNEX

### Institutional and Context Analysis for the Prevention and Control of Non-communicable Diseases

#### Introduction and purpose

Non-communicable diseases (NCDs) – mainly cardiovascular disease, diabetes, cancer and chronic respiratory disease – are the single greatest cause of preventable illness, disability and mortality worldwide, responsible for more deaths than all other causes combined. Low- and middle-income countries account for 75 percent of NCDs deaths globally, and over 85 percent of premature deaths from NCDs [1]. With NCDs holding back not just health but social, economic and environmental objectives more broadly, the 2030 Agenda for Sustainable Development [5] recognizes that NCD trends and sustainable development cannot coexist. The Agenda calls for reducing premature mortality from NCDs by one-third, and strengthening implementation of the World Health Organization Framework Convention on Tobacco Control (WHO FCTC) [21] in all countries.

Meeting these ambitious targets will require more than strengthened leadership and action from the health sector. Experiences in addressing the social determinants of NCDs [39] demonstrate that policy choices spanning across government – on finance, trade, tax, labour, agriculture and education, for example – often have a greater bearing on NCD outcomes than do health care sector policies per se. Significant, complementary action from other sectors and stakeholders is therefore crucial. Multisectoral action has been endorsed as cornerstone of NCD responses in the 2011 Political Declaration on the Prevention and Control of NCDs [40] and in numerous other high-level political decisions.

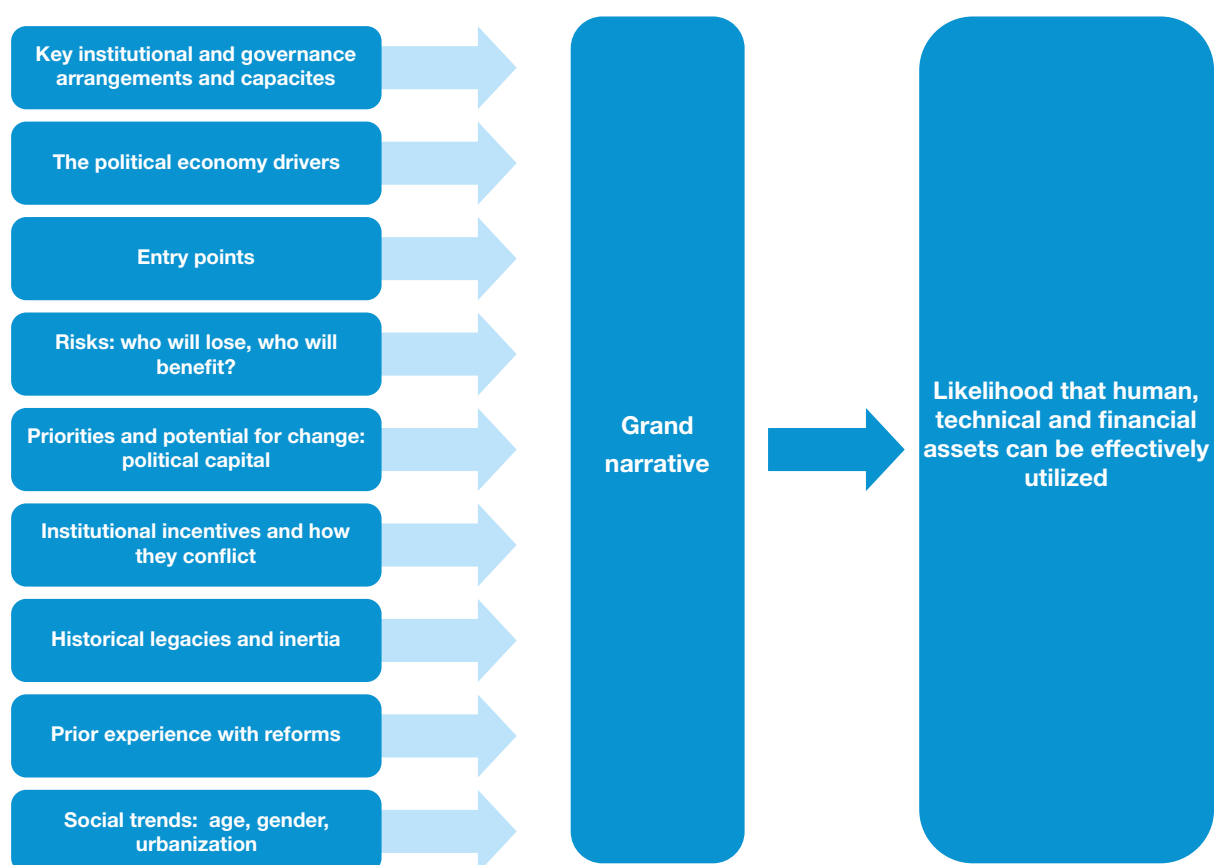
Securing support from non-health sectors for sustainable national NCD responses, while essential, presents unique governance challenges and requires a thorough understanding of political and institutional contexts. Behavioural risk factors that drive NCD epidemics – particularly tobacco use, harmful use of alcohol, and unhealthy diet – are enmeshed with commercial and broader public-private interests that often conflict with attempts to improve public health by reducing the consumption of health-harming products. Even well-intentioned stakeholders, including non-health sectors of government, often fail to account for how their decisions and policies may exacerbate NCDs, and do not fully recognize the social and economic costs of NCDs. Amongst these are the significant indirect costs from people who are no longer able to work, or who work less effectively, due to NCD-related death and disease. When stakeholders compare the economic benefits from an unaltered or minimally altered NCD environment solely against the public health gains of NCD prevention and control, the door opens for commercial interests to take advantage of any lax standards in managing industry-government relationships to ensure that their interests are preserved in public policy. The result is that even the most proven and cost-effective NCD prevention and control policies, such as those articulated in WHO's Best Buys [2], the 'WHO Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013-2020' [3]<sup>21</sup> and the WHO FCTC [21], can be difficult to implement.

Institutional and context analyses (ICAs) – sometimes referred to as political economy analyses (PEAs) – help provide the information needed to identify and address political and other contextual challenges, ideally during the planning phase of development programmes. An institutional and context analysis seeks to define how diverse institutions in a society shape the likelihood of programmatic success [37]. According to the World Bank, PEAs help programme designers and managers “focus on power and resources, how they are distributed and contested in different country and sector contexts, and the resulting implications for development outcomes” [41]. ICAs:

<sup>21</sup>Including its updated Appendix 3 [4].

- Seek to define the key institutional and governance arrangements and capacities, the political economy drivers, and entry points and risks relevant to an intervention. They also seek to evaluate priorities and potential for change;
- Can be applied at country, sector and project levels, and may consider factors such as institutional and governance arrangements, interests, incentives, historical legacies, prior experience with reforms, social trends, and how all of these factors effect or impede change; and
- Help to improve project design, increase the likelihood that human, technical and financial resources can be effectively utilized and project objectives delivered, explain the likely distributional aspects of reform efforts, and promote more thoughtful and effective multi-stakeholder engagement with client governments and other actors (see Figure 1).

Figure 1. How do diverse institutions in a society shape the likelihood of programme/policy success?



In 2012, the UNDP Oslo Governance Centre published 'Institutional and Context Analysis – Guidance Note' [37]. UNDP has adapted this Guidance Note to develop a Guiding ICA Framework that can be applied to the unique challenge of determining policy for NCD prevention and control. The Framework is intended for UNDP, WHO and other partners such as UNFPA and UNICEF who support national NCD costing exercises/investment case analyses, and participate in Joint Programming Missions to countries on NCDs. In 2017, UNDP updated its 2012 Guidance Note on ICAs in the context of the 2030 Agenda. The resulting Guidance Note, 'Institutional and Context Analysis for the Sustainable Development Goals' [38], incorporates experiences and lessons from an early NCD-specific ICA carried out in Mongolia.

### Purpose of the tool

This tool will help assess the political and economic dimensions of NCD policy adoption, implementation and enforcement, including how a robust return on investment analysis would affect these dimensions. The overall goal is to examine/determine the political space for implementing priority NCD-relevant interventions, and for UNDP, WHO, and other partners to best advise on the specific strategies and approaches most likely to increase that space. The findings will support the development, financing and implementation of national multisectoral NCD strategies, in furtherance of the SDGs, the high-level political declarations on NCDs and as stipulated in the 'WHO Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013-2020'. ICAs directly complement the economic component of investment cases and inform any associated advocacy and messaging. The economic component utilizes a costing model to measure the health and economic impacts/gains of various NCD-relevant interventions to generate a recommended set of cost-effective priority NCD interventions, but do not adequately take political context into account.

## Guiding ICA Framework for the prevention and control of NCDs

### The framework

Step	Overarching question	Sample considerations
1. Define the scope of the problem and assess the opportunities/challenges for responses.	“What are the needs, opportunities and challenges for NCD-related interventions?”	<p><b>1.1 How much and what type of policy attention do NCDs receive at national level?</b> Has the country stated priorities on NCDs? Are NCDs considered in national health and development planning processes/instruments? How responsive are these processes/instruments to epidemiological burdens and stated priorities on NCDs? Are there national NCD targets? If yes, how do these align with global NCD targets?</p> <p><b>1.2 What NCD-relevant policies and interventions already exist?</b> Is the country a Party to the WHO FCTC? If no, why not? If yes, what is the progress on implementation? Are there any laws regulating key NCD risk factors, including tobacco, alcohol and diet? What/who has been the catalyst/driver for these?</p> <p><b>1.3 What are – and have historically been – the challenges/barriers to the adoption, implementation and enforcement of NCD-related interventions?</b></p>
2. Determine institutional and governance arrangements and capacities.	“Who are the relevant actors, how do they operate, and are they capable effective, and efficient?”	<p><b>2.1 Which institutions, sectors of government and other stakeholders including industry (collectively 'actors') influence the country's NCD-related targets, plans and interventions?</b> What are their roles, responsibilities and capacities (defined and informal)? Is there clarity/agreement over these?</p> <p><b>2.2 What are the policy processes, structures and arrangements through which NCDs and health are governed?</b> What is the level/nature of interaction, coordination and cooperation among and between actors? What has driven this historically?</p> <p><b>2.3 How are NCD-related interventions understood and defined among actors?</b> Is there clear agreement as to what constitutes an NCD intervention? To what extent are multisectoral approaches and whole-of-society engagement recognized/valued?</p> <p><b>2.4 Which actors have generally supported NCD-related interventions, and which have generally opposed them?</b> What have been the common arguments for and against NCD-related interventions? Who makes them and are they successful?</p> <p><b>2.5 Relative to each other, which actors have the most/least political influence, money and resources?</b> How capable, effective and efficient is each actor in either advancing or impeding NCD-related interventions?</p>

Step	Overarching question	Sample considerations
<p>3. Assess available and potential <u>resources</u>.</p>	<p>“What current and potential mechanisms, strategies and opportunities exist for financing NCD responses?”</p>	<p><b>3.1 Are existing and planned NCD policies/interventions budgeted for?</b></p> <p><b>3.2 Is the country receiving – or has it previously received – ODA for NCD responses?</b> From regional and multilateral channels, such as the development banks? If yes, what for?</p> <p><b>3.3 Have innovative domestic financing strategies been considered and/or implemented</b>, including taxes on health-harming products, analyzing public expenditures across sectors to ensure coherence with NCD policies/objectives, identifying high-value integrated responses, etc.?</p>
<p>4. Identify the political economy <u>drivers</u>.</p>	<p>“What are the political, economic and other priorities/incentives of the relevant actors – and how do these relate, broadly, to NCD-related interventions?”</p>	<p><b>4.1 What are the main interests and priorities (political/economic/other) of the relevant actors?</b> What incentives drive their core business? Are these aligned with the country's NCD-related policy objectives? How are priorities shaped by political/election cycles?</p> <p><b>4.2 What type of exchanges/transactions do the relevant actors undertake, including with each other?</b></p> <p><b>4.3 Upon what main information do actors make their decisions?</b> What is the political appetite for, and responsiveness to, cost-effective analysis and evidence-based arguments?</p> <p><b>4.4 Are there international influences on domestic NCD policymaking (e.g. international trade agreements/disputes, multinational corporations, etc.)?</b> What broader social, economic and political trends/forces are relevant to national NCD responses?</p> <p><b>4.5 Does the country consider itself a policy leader in the region?</b> If so, how does this affect decision making and attitudes to policy risk management?</p>
<p>5. Propose priority <u>actions</u> and identify key supporters and key opposition.</p>	<p>“Which cost-effective NCD-related interventions are most feasible given the political and economic context, and how are relevant actors likely to perceive them?”</p>	<p><b>5.1 Based on the information collected, which cost-effective NCD-related interventions are most/least likely to be supported across a critical mass of actors?</b> What are the pros/cons of each, and how do they advance or impede (or not affect) the interests of the most influential actors?</p> <p><b>5.2 What are the most feasible entry points for introducing these interventions in the short-, medium- and long-term?</b></p> <p><b>5.3 Given interests, priorities and incentives, as well as historical legacies, which actors are most likely to support strengthened NCD responses, and which are most likely to oppose them</b> (i.e. which actors gain from the status quo, and which gain from a strengthened NCD response)?</p> <p><b>5.4 Which actors would bring the most traction to a strengthened NCD response, and which would be the most powerful opposition?</b> What specific arguments will the opposition likely make against the priority actions?</p>

Step	Overarching question	Sample considerations
6. Evaluate potential for change and identify enabling factors/ <u>strategies.</u>	“How likely to be implemented are the priority actions and what factors/strategies can expand the political space for adoption, implementation and enforcement?”	<p><b>6.1 Are the priority NCD-related interventions likely to be implemented within the existing political space?</b></p> <p><b>6.2 How can 'allied' actors be empowered/supported to promote the NCD-related interventions?</b> What other strategies and political/financial resources can improve the likelihood of success (e.g. can media, NGOs and/or civil society be engaged to counter the opposition's potential arguments)?</p> <p><b>6.3 What is the optimal timing, tailoring, and sequencing of the priority NCD actions</b> (e.g. how can key windows of political opportunity be maximized, such as national planning/programme processes)?</p> <p><b>6.4 Are there other promising approaches for expanding political support for sustainable NCD responses</b> (e.g. can certain private sector interests and/or broader social, economic and political forces be leveraged)?</p> <p><b>6.5 How can public awareness and debate be harnessed to drive policy change or influence institutional decisions?</b></p>

## Activities and outputs

With UNDP and WHO Country Office support, implement UNDP's Guiding ICA Framework for the prevention and control of NCDs (outlined in the table above) to assess the political and economic dimensions of NCD-relevant policy adoption, implementation and enforcement. Specific activities and outputs include:

- Conduct pre-mission desk research on the context of the participating country.** This should cover NCD burdens, including how NCDs and their risk factors are distributed across populations, and other relevant information (e.g. population size, development /poverty level, socio-economic profile, broader epidemiological trends). The desk review should at minimum include relevant results from the following WHO surveys: STEPS [28], Global Adult Tobacco Survey [46] and Global Youth Tobacco Survey [47]. The pre-mission desk research should also examine media coverage, if any, of NCD burdens, trends and policy responses (or lack thereof).
- Conduct a comprehensive landscape analysis** to determine factors such as: existing and planned NCD prevention and treatment interventions; the governance structures, agencies, civil society organizations, private sector and other key stakeholders involved in the NCD response – and the influence/views of each; potential bottlenecks to NCD-relevant interventions, for example conflicts of incentives; existing and potential financing mechanisms/resources for NCDs; and promising approaches/strategies for implementing multisectoral prevention strategies. See Table 1 (next page) for considerations and topics for stakeholder discussions. Also useful for discussions are the multisectoral NCD policy briefs developed by WHO and UNDP.<sup>22</sup>
- Document results, experiences, recommendations and lessons learned in an ICA report.** The report should outline a clear plan for increasing the political space to adopt, implement and enforce NCD-relevant interventions, including by overcoming identified blockages, mitigating conflicts of interest between public and private actors, and ensuring increased policy coherence across sectors of government. The report will be finalized in consultation with UNDP, WHO and other designated colleagues/counterparts. Recommendations from the ICA can assist in the communications strategy that ensures that an investment case is heard, understood and acted on.

<sup>22</sup>At time of writing, multisectoral briefs exist for heads of state/the executive branch, legislators, local government and ministries of communications, education, labour, trade, finance, agriculture, energy and environment, and youth and sports [42,43].



## ICA interviews and topics

The core of the ICA is the stakeholder interviews undertaken during the comprehensive landscape analysis. Experiences to date demonstrate the array of potentially relevant stakeholders to interview. Which particular stakeholder groups to meet should be determined on a case-by-case basis, accounting for national circumstance, MoH input and scheduling possibilities. Who to meet within stakeholder groups must also be considered. Though not always, technical staff may offer the best chance to uncover details on 'what is really happening', while Permanent Secretaries/Directors may be more politically guarded. On the other hand, Permanent Secretaries/Directors offer an opportunity to influence a higher-level audience. Ultimately the ICA team should endeavour to meet both political and technical staff (though not necessarily at the same time), as the ICA has a dual purpose of information extraction and advocacy.

The pros and cons of various approaches in conducting interviews must also be assessed. Table 1 below offers suggested – but not prescriptive – topic areas for various stakeholders. Indeed, some conversations may proceed best when structured against a sequential set of standard questions/areas, while others may feel stifled or forced if the conversation does not flow iteratively and uninterrupted. Moreover, in some cases a larger group of interviewers/facilitators (i.e. a larger stakeholder analysis team) may be appropriate, whereas in others a larger group may be intimidating and deter information extraction. Likewise, a multi-stakeholder forum may be ideal in some circumstances, whereas in others bilateral meetings are optimal. Finally, the use of computers for notetaking should be carefully considered. While it is critical to document information quickly and efficiently, fast and visible typing may not be welcomed by a stakeholder who is taking a perceived risk to provide/discuss sensitive information. More appropriate may be handwritten notes or quickly recording information post-interview. All of these (and still other) factors will need determination by the ICA mission team in real time.

**Table 1. Potential ICA interviews and topics to raise**<sup>23</sup>

Stakeholder	Topics (not exhaustive)
All	
All	Purpose of IC/UNIATF; stakeholder's current contribution to national NCD response, including collaborations with MoH + other stakeholders; opportunities to expand collaboration in light of IC findings; opportunities for NCD response integration or strengthening in specific strategies/plans; implementation of coordination/mechanisms; perception of 'grand narratives' in the country, e.g. what got the government elected, where is the political capital – and how NCDs tie to that.
Joint meetings with the whole investment case team	
MoH inception meeting	Status and directions of NCDs/national response; who are the key stakeholders within MoH/across gov & society; any sensitivities to be aware of; how and why would the MoH find an investment case useful?
UNCT inception meeting	UNCT engagement on NCDs (projects, partnerships, frameworks, UNDAF) and roles of agencies; opportunities for expanded support in the context of the investment case + SDGs and development partner interest.
NGOs (ideally a forum where many attend – then follow up bilaterally as needed)	Nature, extent and influence of contributions to national NCD response (e.g. service provision, advocacy, accountability); gaps and opportunities for expanded support in light of investment case findings; working relationship and trends with state institutions.
ICA interviews	
Consumer protection agency	Health-harming products – contents, addictive properties, package labelling, menu labelling, pictorial warnings, marketing (esp. to children); alternative medicines, information and legislation/regulation; nature of oversight and enforcement.

<sup>23</sup>The multisectoral NCD policy briefs developed by WHO and UNDP can provide additional information on topics, country experiences and statistics to raise with different stakeholders [42,43].

Stakeholder	Topics (not exhaustive)
Federation of employers	Economic impact of NCDs; workplace health and wellness programming; (mis)notions of job loss and reduced economic activity from stronger NCD action; broader support to the national NCD response.
Chamber of commerce	Economic impact of NCDs; workplace health and wellness programming; (mis)notions of job loss and reduced economic activity from stronger NCD action; broader support to the national NCD response; industry influence in policymaking + marketing practices particularly pertaining to children; codes of conduct knowledge and adherence; what more could members do in the NCD prevention and control space?
Transparency international (or similar NGO)	Industry influence in policymaking; policy coherence for NCDs; potential support to national NCD response/building capacities of key stakeholders (e.g. parliamentarians); codes of conduct.
Government accountability or anti-corruption agency	Industry interference in policymaking; policy coherence for NCDs; potential support to national NCD response/building capacities of key stakeholders (e.g. parliamentarians); codes of conduct.
Public health foundation (if existent)	Contribution to NCD response, including treatment vs. health-promotion focus; costs of services; sources of funding (e.g. taxation of health-harming products/private sector partnerships).
Ministry of tax and duties	NCD economics. Taxation of health-harming products; other innovative strategies (e.g. fuel tax, import/export duties); (mis)notions of job loss, reduced economic activity, regressivity, illicit trade; importance of regional economic commissions, trade agreements and standards.
World Bank and/or other IFIs	NCDs and development; purpose of IC; past, current and pipeline loans re: NCDs; opportunities for UNIATF technical support/synergy with investment case through loan design and support.
Executives of private sector entities	Economic impact of NCDs; private sector and NCDs (both influence and contributions, recognizing heterogeneity); workplace wellness; opportunity to fill private sector leadership vacuum; codes of conduct; corporate social responsibility and NCDs.
UNDP governance/anti-corruption/poverty reduction units (as applicable)	NCD social determinants/need for multisectoral governance; policy coherence for NCDs; industry interference in policymaking; potential support to national NCD response/building capacities of key government counterparts/through current and future projects; programme gaps and niche for UNDP.
UNDP CO management	NCDs as a development issue requiring a multi-sectoral and multi-UN agency response; purpose and opportunity of investment case mission; ability to strengthen existing projects/directions with greater focus on NCDs; UNDAF and UNCT roles and responsibilities.
Parliamentary committee on health or women's caucus	Social, economic and environment dimensions of NCDs, including inequities; deconstruct NCD myths; duty to protect vulnerable populations in addition to health-promotion; domestic resource raising opportunities; query degree of any industry influence on policy; parliamentary codes of conduct and disclosure; previous contested policy processes in public health and lessons learned.
Ministry of transport	Road traffic injuries, emergency response service, air pollution measurement and policy; co-benefit possibilities through NCD action, in both financing (e.g. \$ to emergency response) and projects (e.g. roads with walking/bike lanes); potential for expanded support to broader NCD agenda.
Ministry of education	NCDs and children; NCD risk factors in or near schools; importance of empowering children to turn the tide on NCDs; school feeding programmes; vending machine policy; NCDs in home economics curricula.
Ministry of culture, gender, entertainment and sports	NCDs and culture (e.g. alcohol consumption, body image perceptions, associations with traditional foodstuffs/dishes, celebrity endorsements for health-harming products vs. for pro-health behaviour;) women and NCDs (e.g. caretaking roles, tobacco industry advertising, second hand smoke exposure, links between alcohol and GBV, influence on children's behaviour); marketing/sponsorship of sport.
Local government	NCDs + urbanization; NCD coordination; opportunity for leadership/innovation; NCD economics; win-win possibilities (e.g. between housing and health).

Stakeholder	Topics (not exhaustive)
National and local media	Advertisement of health-harming products/restrictions + regulation; opportunities for engagement (e.g. reporting IC results, profiling people living with NCDs, calling out industry interference); conversation management through media channels; traditional health-related narratives as portrayed by media.
Ministry of foreign affairs and foreign trade	NCD economics (as multi-sided); health-harming products, access to medicines and trade; health obligations/human rights; need and possibility for policy coherence; regional and international influences, standards.
Ministry of labour	Economic impact of NCDs; workplace health and wellness programming; (mis)notions of job loss and reduced economic activity from stronger NCD action; broader support to the national NCD response.
Ministry of economic growth	NCD economics; (mis)notions of job loss, reduced economic activity, regressivity, illicit trade, etc.; taxation of health-harming products for health and revenue; other innovative strategies (e.g. fuel tax, import/export duties).
Ministry of agriculture	NCD economics; tobacco and diet/sugar-sweetened beverages/fruits and vegetables – fiscal policies, food and social policies, alternative livelihoods for tobacco growers; engagement with education/schools; import and export trends; environment and NCDs.



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