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"Compiling of the *Profile of Health and Well-being* and *Highlights on Health and Well-being* publications for the WHO Regional Office for Europe – description and critical analysis of the process of creating the Maltese reports"

Master thesis

M.Sc. Health Sciences

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Abbreviations and acronyms

AIDS	Acquired Immune Deficiency Syndrome
CARINFONET	Central Asian Republics Health Information Network
CIS	Commonwealth of Independent States
DALYs	Disability-adjusted life years
DIR	Division of Information, Evidence, Research and Innovation
EU	European Union
EU-13	Members of the EU after May 2004
EU-15	Members of the EU before May 2004
EUROSTAT	European Statistics
GBD	Global Burden of Disease
GHO	Global Health Observatory
HAW	Hamburg University of Applied Sciences
HFA-DB	Health for All – database
HFA-MDB	Health for All – Mortality database
HIV	Human Immunodeficiency Virus
ICD	International Classification of Disease
IHME	Institute of Health Metrics and Evaluation
ILOSTAT	International Labour Organization´s central statistics database
MA	Moving averages
MoH	Ministry of Health
NCDs	Noncommunicable diseases
SCHIN	Small Countries Health Information Network
SDGs	Sustainable Development Goals
SEEHN	South-eastern Europe Health Network
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations International Children´s Emergency Fund
WHO	World Health Organization

1 Introduction

Population health data is the foundation of strong health information systems and is essential for successful health policies. Yet, health data is not an end in itself as only through data preparation, analysis and presentation the essence hidden in vast data sets can unfold and guide decisions of policy makers all over the world. The World Health Organization (WHO) is the United Nations´ agency responsible for human health and executes, among other functions, the provision of reliable health information for the public and its Member States *(1).*

The *Profile of Health and Well-being* and the complementary *Highlights on Health and Well-being* publication series was introduced in 2015 by the WHO Regional Office for Europe to provide overview of the health status and trends of the European Member States. In the context of the at hand thesis the author, in close collaboration with WHO Europe and the Maltese Ministry of Health (MoH), compiled the Maltese *Profile of Health and Well-being* and *Highlights on Health and Well-being* publications. These reports form separate parts of this thesis and are not published here, but by the WHO Regional Office for Europe. Drafts of both reports are attached confidentially for grading and can be found in the appendices 3 and 4.

The at hand paper forms the third part of the thesis and intends to inform and guide the future work of the envisioned WHO collaboration at the Hamburg University of Applied Sciences (HAW). HAW Hamburg students, with the support of HAW supervisors, will compile similar reports for other European Member States as anticipated by the future WHO and HAW collaboration. First, the at hand paper provides significant background information on the WHO, the current European health policy and the overall structure of the *Profile of Health and Well-being* and *Highlights on Health and Well-being* publications. The second chapter represents the methodological part and should be studied closely by future authors as it gives step-by-step instructions for the compilation process. Finally, a critical review, potential challenges and recommendations are given in the last two chapters. The information provided in the third chapter are based on the author´s experiences and are therefore not universal.

1.1 World Health Organization

The World Health Organization (WHO) was established in 1948 as the specialized agency of the United Nations (UN) serving as the leading and coordinating authority for international health matters and Public Health *(1).* Acting on its overall objective, namely *"the attainment by all people of the highest possible level of health" (1),* the WHO exercises (among others) the following functions:

(a) to act as the directing and coordinating authority on international health work;
(b) to assist Governments, upon request, in strengthening health services;
(c) to establish and maintain such administrative and technical services as may be requested, including epidemiological and statistical services;
(d) to promote and conduct research in the field of health;
(e) to provide information, counsel and assistance in the field of health *(1)*.

To ensure the widest possible availability of authoritative information and guidance on health matters, WHO ensures international distribution and translation of its documents and publications.

At present, WHO comprises 194 Member States with its headquarters located in Geneva (Switzerland). The Organization is present in over 150 country offices and six Regional Offices covering the American, African, European, Eastern Mediterranean, South-East Asian and the Western Pacific Region (Fig. 1) *(2).* Additionally, more than 700 institutions such as universities, research centers and collaboration centers, are supporting WHO´s work, which is characterized by close partnership with other UN agencies, donors, foundations, academia, nongovernmental organizations and the private sector *(2).*

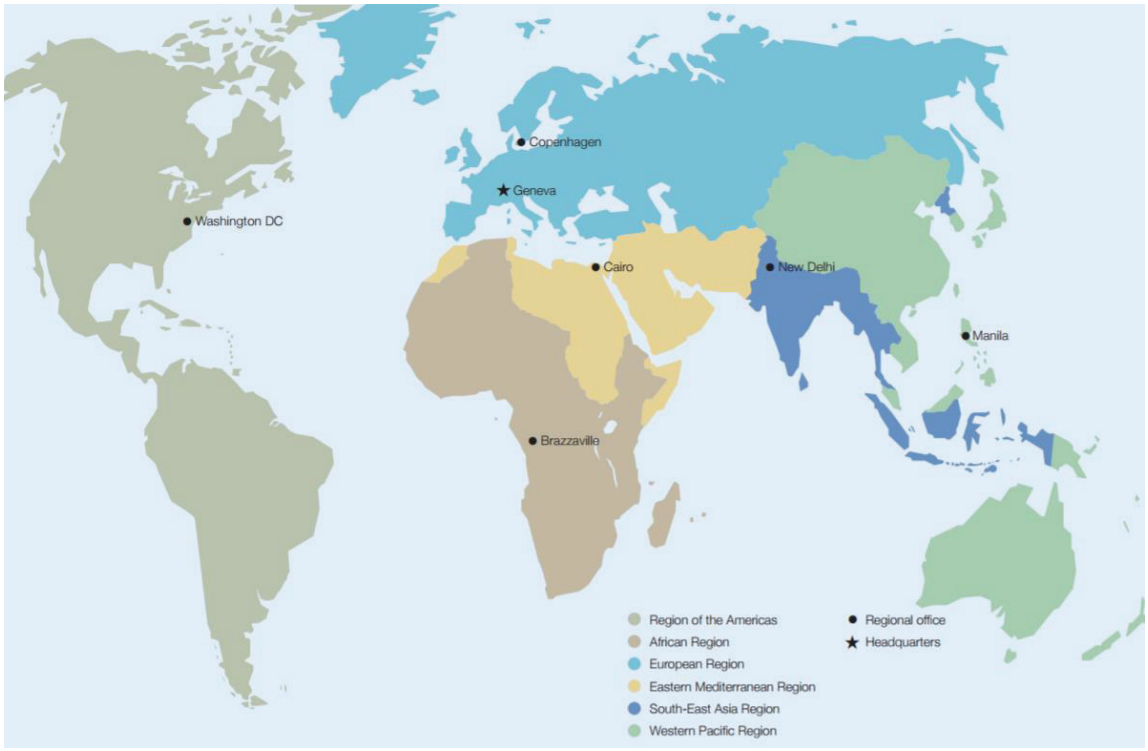

Figure 1: WHO at a glance – Headquarters and Regional Offices *(2)*

1.1.1 Regional Office for Europe

The Regional Office for Europe is one of the six Regional Offices of the WHO. It is located in Copenhagen, Denmark and works in the European Region, a vast geographical area that encompasses 53 countries (Member States) and stretches from Greenland to the Russian Federation *(3).* The geographical variation is matched by a great diversity of people, cultures and health situations. While the rapidly growing burden of noncommunicable diseases (NCD´s) has been ongoing for the last decades, the reemerging threat of communicable disease, such as tuberculosis and HIV/AIDS are further challenges in the European Region *(4).* The work of the Regional Office for Europe is guided by Health 2020[1], the Region´s policy framework which was adopted by all 53 Member States in September 2012 *(3).* Moreover, the 2030 Agenda for Sustainable

[1] Further information in 1.2 “Health 2020 Policy” chapter.

Development[2] provides the Regional Office, the WHO as well as the UN as a whole with global goals that integrate economic, social and environmental dimensions *(5).*

Since 1st of February 2010, Dr. Zsuzsanna Jakab is the Regional Director of the WHO European Region (Fig. 2).

Figure 2: Dr. Zsuzsanna Jakab, WHO Regional Director for Europe *(6)*

Overall, the Regional Office is comprised of six divisions:

1. Division of Administration and Finance;
2. Division of Communicable Disease and Health Security;
3. Division of Noncommunicable Diseases and Promoting Health through Life-course;
4. Division of Health Systems and Public Health;
5. Division of Policy and Governance for Health and Well-being;
6. Division of Information, Evidence, Research and Innovation *(7).*

1.1.2 Division of Information, Evidence, Research and Innovation

The Division of Information, Evidence, Research and Innovation (DIR) is currently led by Dr. Claudia Stein (Fig. 3). The overall vision of DIR is *"knowledge for health" (8).* The

[2] The 2030 Agenda for Sustainable Development was adopted on 27th of September 2015 by Heads of State and Governments of the United Nations. Overall, 17 Sustainable Development Goals (SDGs) and 169 targets demonstrate the scale and ambition of Agenda 2030 *(5),* which includes eradication of poverty and hunger, the combat of inequalities and peace. The 2030 Agenda build upon the achievements of the Millennium Development Goals *(5).*

Division gathers and analyses health data and evidence and turns them into customized policy tools that Member States of the Region can use to improve citizens´ health (8).

Figure 3: Dr. Claudia Stein, Director of DIR *(9)*

DIR´s work focuses on:

(a) monitoring and analyzing health information;
(b) translating research evidence into health policies;
(c) managing and sharing knowledge;
(d) levering e-health and innovation *(8).*

With the implementation of UN´s Agenda 2030 for Sustainable Development in late 2015, the WHO introduced *Well-being* as an important dimension of health *(10).* DIR is focusing on the indicator well-being and its measurement, especially in terms of cultural context of health *(8).*

1.1.3 Profile Series and Accompanying Highlights on Health and Well-being

With the implementation of the Health 2020 policy in September 2012, the WHO Regional Office for Europe has introduced two new publication series, namely the *Country Profile of Health and Well-being* and its consolidated form, the *Highlights on Health and Well-being* to document countries progress toward the Health 2020 goals (Fig. 4). These two publications followed on from the *Highlights of health* series, which ran a decade earlier with the aim of addressing the need for analyses of health situations and trends in the Region.

Figure 4: Profile and Highlights series for Slovenia (2016)

The new series are produced in collaboration with Member States and provide comparative analyses of the situation and trends in health and well-being in each country. The publications provide recent data on mortality, morbidity, premature mortality and exposure to key risk factors while giving a special emphasis to all core Health 2020 indicators, including well-being *(10).* While the *Country Profiles of Health and Well-being* are more detailed and are written in a statistical and epidemiological manner, the complementary *Highlights on Health and Well-being* present the main findings from the longer *Country Profiles of Health and Well-being* and have policy-makers as the target audience. Each report compares the analyzed country to one or more reference groups of countries, which are usually all WHO European Member States and one or two additional country groups (e.g. Members of the European Union, Nordic countries, small countries, etc.). The selection of the reference groups is done by the Regional Office and the Member State.

To make the comparison as valid as possible, data are taken from a single source, namely the WHO European Health for All database[3] (HFA-DB) of the Regional Office *(11).* Some data, however, must be assembled from additional databases, this applies only to a selected number of indicators which will be presented in the following sub-chapters.

[3] The European Health for All (HFA) database covers data since 1970 and is being updated annually. The database can be accessed under: https://gateway.euro.who.int/en/hfa-explorer/

1.2 Health 2020 Policy

The Health 2020 policy framework was adopted by all 53 European Member States on the 12th of September 2012, during the 62nd Regional Committee for Europe in Malta *(12).* The policy framework followed on from the *"Health21- Health For All policy approach for the WHO European Region"* which was adopted by the world health community in May 1998 *(13).* However, Health21 was rather a policy approach with clear goals but not measurable through targets and indicators. Hence, the European Region was lacking an overarching umbrella – a coordinating policy with clear values and responsibilities. The current Regional Director of the WHO European Region, Dr. Zsuzsanna Jakab, envisioned a unique health policy for the European Region, a policy that would not only coordinate the European health policymaking, but also express values that need to be shared between policies (e.g. address inequalities, increase well-being, whole of government approach, intersectional engagement) *(12)*. Therefore, Health 2020 is unique as it views "health" in a broader more social sense.

The Health 2020 policy aims to support action across government and society to*:*

> *"significantly improve the health and well-being of populations, reduce health inequalities, strengthen public health and ensure people-centered health systems that are universal, equitable, sustainable and of high quality" (14).*

Within the policy, two strategic objectives are formulated:

1. improving health for all and reducing health inequalities;
2. improving leadership and participatory governance for health *(14).*

In order to make the strategic objectives and hence the impact on health measurable, six targets are formulated. They are of quantitative and qualitative nature:

1. Reduce premature mortality in the European Region by 2020.
2. Increase life expectancy in the European Region.
3. Reduce inequalities in health in the European Region.
4. Enhance the well-being of the European Region population.
5. Ensure universal coverage and the right to the highest attainable level of health.
6. Set national goals and targets related to health in Member States *(14).*

The Health 2020 targets are further supported by appropriate and measurable indicators, that are reported as regional averages *(10).*

The WHO European Region strongly encourages the European Member States to align their health policies, strategies and actions with Health 2020 so the policy can become an overarching regional framework. The implementation of Health 2020 in countries is now the fundamental priority challenge for the European Region *(14).*

1.2.1 Health 2020 Indicators

Overall, 20 core and 17 additional indicators are formulated within the Health 2020 policy to measure progress with the six targets *(10).* Most rates reported for an indicator are age-standardized and the core indicators are comparable across the WHO European Region to ensure regional target monitoring. Member States report their data annually or biannually to the Regional Office, which then validates the information and ensures a synthesized and analyzed presentation of data to Member States and the public in the HFA database *(10)*.

The *Country Profile of Health and Well-being* and the *Highlights on Health and Well-being* report merely on the core indicators of the Health 2020 policy, a complete list can be found in Table 1.

Table 1: **Core Health 2020 indicators for monitoring policy targets**

Target	Core indicators
1) Reduce premature mortality by 2020	1.1. Age-standardized overall premature mortality rate (from 30 to under 70 years) for four major noncommunicable diseases (cardiovascular diseases, cancer, diabetes mellitus, chronic respiratory diseases); by sex
	1.2. Age-standardized prevalence of current tobacco use among people aged 18 years and over
	1.3. Total (recorded and unrecorded) per capita alcohol consumption among people aged 15 years and over
	1.4. Age-standardized prevalence of overweight and obesity in people aged 18 years and over (defined as a BMI ≥25 kg/m^2 for overweight and ≥30kg/m^2 for obesity)
	1.5. Age-standardized mortality rate from all external causes and injuries; by sex
2. Increase life expectancy	2.1. Life expectancy at birth; by sex

3. Reduce inequalities in health	3.1. Infant mortality per 1000 live births; by sex
	3.2. Proportion of children of official primary school age not enrolled; by sex
	3.3. Unemployment rate (%); by sex
	3.4. National and/or subnational policy addressing the reduction of health inequities established and documented
	3.5. GINI coefficient (income distribution)
4. Enhance the well-being	4.1. Life satisfaction among adults aged 15 years and over; by sex
	4.2. Availability of social support among adults aged 50 years and over
	4.3. Percentage of population with improved sanitation facilities
5. Ensure universal coverage and the "right to the highest attainable level of health"	5.1. Private household out-of-pocket expenditure as a proportion of total health expenditure
	5.2. Percentage of children vaccinated against measles (1 dose)
	5.3. Percentage of children vaccinated against poliomyelitis (3 doses)
	5.4. Percentage of children vaccinated against rubella (1 dose)
	5.5. Total health expenditure as a percentage of gross domestic product (GDP)
6. National targets and goals set by Member States	6.1. Establishment of process of target-setting documented
	Evidence documenting: (a) national health strategy aligned with Health 2020
	(b) implementation plan
	(c) accountability mechanism
Source: Targets and indicators for Health 2020. WHO Regional Office for Europe, 2014 *(10).*	

1.2.2 Databases and other Data Sources

The WHO HFA database is the main data source for the compilation of the *Profile of Health and Well-being* and *Highlights on Health and Well-being* publications and must, in the process of assembling the publications be preferred over any other data source. HFA database is the official database of the WHO Regional Office for Europe, which through constitution, is authorized by the European Member States to report on the health situation in the Region *(1).* The data is prepared and validated by WHO, and hence represents internationally approved and valid health information.

Yet, for some specific indicators of the Health 2020 policy, which are reported in the *Profile of Health and Well-being* and *Highlights on Health and Well-being* publications (e.g. smoking prevalence, life satisfaction, risk factors, percentage of urban and rural population, percentage of unmet needs, etc.) additional data sources must be used.

When selecting additional data sources, the following general selection criteria are crucial:

(a) Official and published WHO sources and databases are number one choice (e.g. GHO);
(b) Select databases of official UN agencies, such as ILOSTAT, EUROSTAT, UNDP, UNICEF, etc.;
(c) Select official and published documents, preferably published by the Ministry (of Health) of the according country;
(d) Each data source should be approved by WHO and HAW, and it is the common task to assess data quality and identify gaps and flaws in representation.

Besides the HFA database, the following additional data sources must be used:

1. Institute for Health Metrics and Evaluation (IHME) provides country level data on key risk factors via the Global Burden of Disease (GBD) tool. The GBD tool can be accessed under http://www.healthdata.org/data-visualization/gbd-compare.
2. WHO Global Health Observatory (GHO) database provides data on the Health 2020 indicators 1.2, 1.3, 1.4. The GHO database can be accessed under http://www.who.int/gho/en/.
3. Gallup World Poll is an American research-based company, that provides global data on opinion polls. This database is to be used for Health 2020 indicators 4.1 and 4.2. WHO/DIR will provide these data.
4. Data provided by Member States directly: for Health 2020 indicators 3.4 and 6.1 WHO/DIR and the Member State will provide these data.

A deeper introduction of the afore mentioned databases and technical instructions on how to use these databases in the planned future collaboration of WHO and HAW Hamburg will be given in the upcoming chapter 2.4.

1.3 Structure of the Thesis

The at hand master thesis followed on after the completion of the author´s internship position at DIR at WHO Regional Office for Europe. Overall, the thesis is build up of three parts. The Maltese *Profile of Health and Well-being* and the *Highlights on Health and Well-being* publications represent the first two parts of the thesis and will be published by the WHO Regional Office for Europe. The latest drafts of both publications are attached confidentially for grading and can be found in appendices 3 and 4.

The at hand paper represents the third part of the thesis and provides a theoretical and technical overview over the process of compiling the WHO *Profile of Health and Well-being* and the corresponding *Highlights on Health and Well-being* publications.

It starts with an overall introduction of the WHO, presenting the current Health policy of the WHO Regional Office for Europe and introduces the reader broadly to the *Profile* and *Highlights* series. The second chapter presents the methodological part of the thesis and serves as a step-by-step instruction, pointing out challenges and explaining the process of compiling both publications to future authors. The third chapter gives insight into the practical work and critically evaluates the process of researching, writing and reviewing the *Profile of Health and Well-being* and *Highlights on Health and Well-being* publications. The information provided in chapter 3 are based on the author´s experience gained, during the internship position at DIR and while writing the Maltese reports and is therefore not universal. Finally, conclusions and recommendations for the future HAW collaboration center are given in chapter 4.

The objectives of the thesis are as follows:

(a) to provide a technical step-by-step guideline for future compilations of WHO´s *Profile of Health and Well-being* and *Highlights on Health and Well-being* publications, in the context of the envisioned future WHO and HAW Hamburg Collaboration;

(b) to evaluate the compilation process, based on the experience gained when writing the Maltese reports in order to identify potential challenges and solutions.

2 Process of Compiling a Profile of Health and Well-being and Highlights on Health and Well-being Publication

This chapter represents the methodological part of the thesis and provides a step-by-step instruction for the process of compiling the *Profile of Health and Well-being* and the corresponding *Highlights on Health and Well-being* publications for the WHO Regional Office for Europe. The steps presented in this chapter reflect the work-flow which was applied for the compilation of the Maltese reports by the author. However, the process is approved by the WHO Regional Office for Europe, DIR, the division responsible for production of the afore mentioned health reports, and HAW Hamburg supervisors Christine Faerber and York F. Zoellner, and applies to the compilation of the *Profile of Health and Well-being* and *Highlights on Health and Well-being* publications for other European Member States.

Figure 5 gives an overview over the compilation process for both publications.

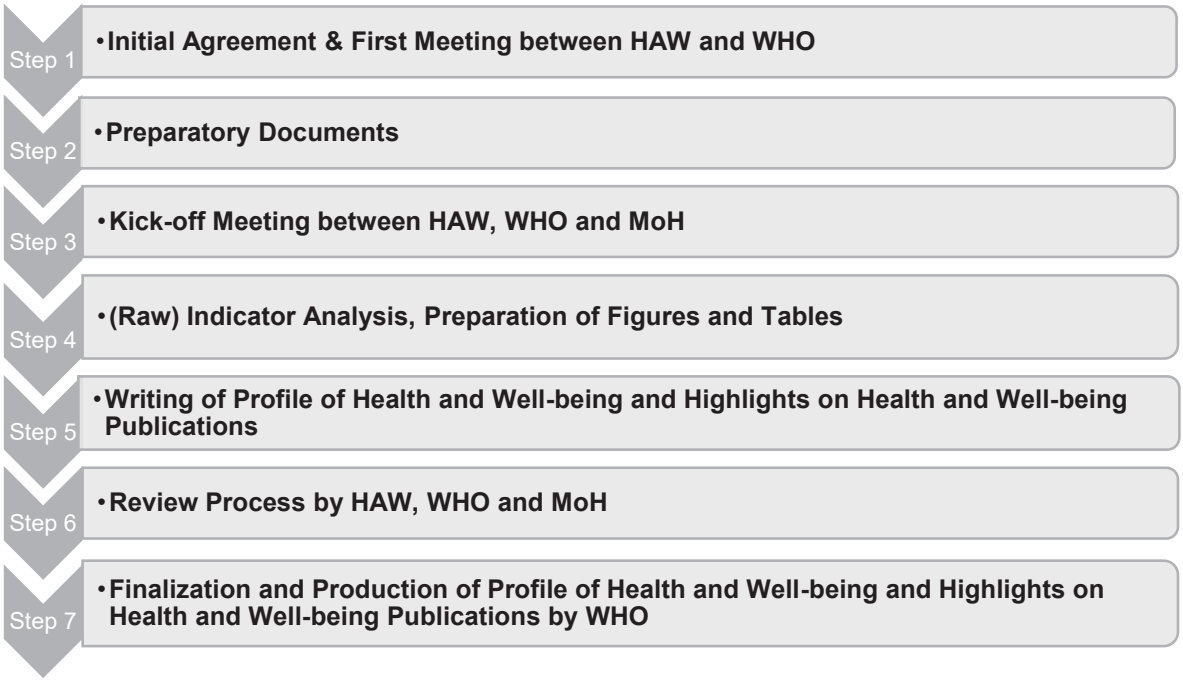

Fig. 5: Overview of compilation process for the Profile and Highlights publications *(author´s illustration)*

2.1 Step 1: Initial Agreement & First Meeting between HAW and WHO

WHO/DIR reaches internal agreement on country and appoints responsible person at DIR for the project. Ministry of Health (MoH) of the country appoints country responsible for the project. HAW appoints responsible student and 1st and 2nd supervisor. Then a first meeting between HAW and WHO is scheduled.

Topics discussed at first meeting between HAW and WHO *(via Skype)*

- Project plan (Profile & Highlights)
- WHO Europe publication writing
    - Template in word
    - Language style
    - References
    - Data preparation
    - Confidentiality
- Communication with MoH & kick-off meeting with MoH
- Content of Profile & country specifics
- Logistics & communication
    - Dropbox
    - Skype
    - Email

A common Dropbox folder is created for the project where all documents can be shared and uploaded. The HAW student is responsible to draft a meeting protocol with clear action points and timelines for each party involved. This document, after WHO clearance sets the next work steps.

Table 2: **Involved parties and responsibilities**

Involved party/person	Responsibility
1) WHO/DIR	*General* • Correspondence with MoH • Clearance and distribution of all documents • Provides templates, references, data necessary for the project
1.1 Dr. Claudia Stein	• Clears products and sensitive issues with MoH officials and Minister of Health • Responsible for final publication
1.2 WHO/DIR officer	• Holds office, supervises the project and provides technical assistance • Communicates with MoH

2) HAW	*General* • Data analysis and compilation of publication • Correspondence with WHO/DIR
2.1 HAW Supervisor	• Clears correspondence with WHO and any drafts of HAW student, especially drafts/ questions regarding further process • Supervises and assists the project • Provides technical assistance to HAW student • Ensures quality and timely delivery
2.2 HAW Student	• Drafts meeting protocol with action points and timelines after each meeting between WHO, HAW and MoH • Project documentation • Conducts background research • Conducts data analysis (excel) • Writes drafts of reports and manages the compilation process

Important issues to consider:

- **Communication:** Direct communication between HAW student and WHO only after approval of HAW supervisor.
- This is a **prestigious publication** of high visibility and relevance for the Member State, WHO and HAW Hamburg. Work very diligently.
- **Confidentiality:** Information shared with HAW by WHO/DIR and MoH is confidential and must not be passed on outside of the project team. Keep any confidential information safe to avoid access to public view.

2.2 Step 2: Preparatory Documents

Before the kick-off meeting with MoH (Step 3), the HAW student needs to prepare the following preparatory documents, as basis for discussion:

1. **Project Plan** - provides overview, with timeline, responsibilities and project milestones (appendix 1)
2. **Analysis Plan** – provides first insight into HFA data, Health 2020 indicators, data quality, additional data sources and is the basis for step 4 (appendix 2)
3. **List of content (Profile) -** list of content is mostly set by WHO standards, but after conducting background research on country additional topics can be suggested to WHO and MoH by HAW

HAW supervisor clears all preparatory documents and forwards them to WHO/DIR for review. The WHO clearance process might take several rounds of reviewing and correction. Yet, the process is helpful for mutual understanding and ensures agreement

at an early project stage. The preparatory documents provide a basis for discussion for step 3 and introduce the HAW student and supervisor to the Health 2020 policy, the indicators and the main project requirements.

Background Research and selection of literature:

The *Profile of Health and Well-being* and *Highlights on Health and Well-being* publications contain a set list of references, which are used in every publication such as official policy papers on Health 2020, Health 2020 indicators, HFA database, etc. (see previous publications). Yet, country specific literature must be included. HAW student conducts research in official WHO and UN databases and notes main findings and questions. These need to be addressed during the kick-off meeting with WHO and MoH (step 3).

2.3 Step 3: Kick-off Meeting between HAW, WHO and MoH

WHO schedules the meeting between all involved parties and shares the cleared preparatory documents before the meeting.

Topics discussed at kick-off meeting between HAW, MoH and WHO *(via Skype)*

- Introductions
- Outline of publication
    - Indicators (data quality & availability)
    - Major topics to highlight
    - Major policies & events in the country which might be important
- Reference groups
- National Data sources
    - Additional references

Step 3 represents a project milestone. After the kick-off meeting a meeting protocol with clear action points for all involved parties and timelines needs to be drafted by HAW student. After HAW and WHO clearance, the document will be shared with MoH.

The selection of reference groups is met by WHO and MoH and depends on country´s:

- **Geographical features** (e.g. Eurasian, Nordic, South-Eastern or Central Asian Region);

- **Political features** (e.g. time of EU admission, former Soviet republics);
- **Country size** (e.g. small countries with less than 1 million inhabitants).

For each publication 2-3 reference groups are selected. The WHO European Region as a whole (WHO/EURO) is always included. An overview of potential reference groups is given in Table 3.

Table 3: **Potential reference groups**

Reference group	Group description	Abbreviation
WHO European Region	Includes all 53 Member States of the WHO European Region.	WHO/EURO
Members of the European Union	Includes all 28 members of the EU.	EU
Member of the EU before May 2004	Included all 15 members of the EU before EU enlargement in May 2004.	EU15
Members of the EU after May 2004	Includes all 13 countries that joined the EU after May 2004.	EU13
Commonwealth of Independent States	Confederation of 8 member states, located in Eurasia and which were former Soviet Republics (Georgia excluded).	CIS
Central Asian Republics Health Information Network members	Network that included Kazakhstan, Kyrgyzstan, Tajikistan and Turkmenistan.	(CARINFONET)
South-eastern Europe Health Information Network members	Network that includes Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Montenegro, Republic of Moldova, Romania, Serbia and the former Yugoslavian Republic of Macedonia.	(SEEHN)
Nordic countries	Includes Denmark, Finland, Greenland, Iceland, Norway and Sweden.	/
Small countries	Includes Andorra, Cyprus, Iceland, Luxembourg, Malta, Monaco, Montenegro and San Marino. The group is characterized by a population of less than 1 million people.	(SCHIN)
Source: WHO Health For All database, 2017 *(16).*		

2.4 Step 4: (Raw) Indicator Analysis, Preparation of Figures and Tables

After agreement on rough content and procedure, HAW student can begin with the indicator analysis. It is conducted in Excel and is based on the analysis plan (appendix 2). Previous Excel analyses files will be provided by WHO as templates.

2.4.1 HFA – Database

The WHO Health for All (HFA) family of database is one of WHO´s oldest data sources, as Member States of the WHO European Region have been reporting essential health data since the mid-1980s *(16).* HFA is based on reported, not estimated, data and provides many indicators, relevant for the Region´s population health, including most Health 2020 indicators and the SDGs. The database covers indicators on basic demographics, health status, health determinants and risk factors, as well as health care resources, health expenditure and more *(16).*

Since 2015, the integrated HFA database is part of the *European Health Information Gateway*[4], a website that presents data in themes, makes it easy for users to visualize and use integrated information discovery tools *(16).* Moreover, analysis of data and its presentation in graphs and tables can be displayed for each Member State (regional) and subregional (for EU-15, EU-13, CIS[5] and other potential subgroupings) as well as ranges *(10).* Data in HFA is being updated annually to ensure the widest data availability and timeliness.

Practical steps for HFA data download and analysis:

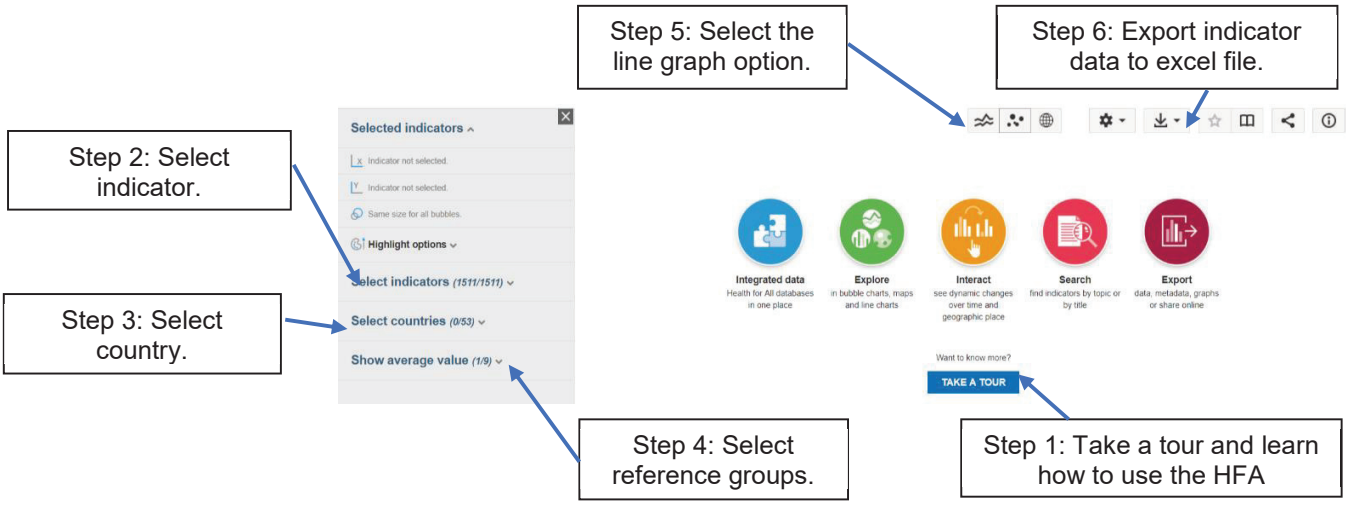

Fig. 6: HFA database interface and first selection *(author´s illustration)*

[4] The European Health Information Gateway can be accessed via https://gateway.euro.who.int/en/.
[5] EU-15: the 15 countries belonging to the EU before May 2004; EU-13: the 13 countries that have joined the EU since then; CIS: Commonwealth of Independent States *(10).*

Most indicators can be found in the HFA database. Use your analysis plan to monitor your analysis and to make sure you are selecting the correct indicator (! HFA has 1511 indicators in total). Check indicator code. The HFA database can be accessed under https://gateway.euro.who.int/en/hfa-explorer/. ***"Take a Tour"* (step 1)** before working with the HFA database as it explains the main functionalities.

HFA data download:

Step 2: Select indicator – select one or more indicators to visualize. To help you find indicators you are interested in, filter the repository by source database or subject. You can also assign the indicator to one of the axes.

Step 3: Select country – select the country you are interested in or several countries if you want to compare trends over time.

Step 4: Select reference groups – you can add average values for country groups (reference groups).

Step 5: Select line graph option – to see trends over time you should select the line graph option. The *Profile of Health and Well-being* and *Highlights on Health and Well-being* publications present mostly line graphs.

Step 6: Export indicator data to excel file – download the raw data for the selected indicator and safe it to a separate folder. (Saving example: HFA_raw excel files → Health2020 indicators → HFA_617_EN Gini coefficient). Create a separate folder for each chapter/topic to ensure clear arrangements and traceability.

HFA data analysis:

Once you have downloaded and saved the raw HFA indicator data you can start analyzing it. Create a new excel file for the *Profile of Health and Well-being* publication analysis and name it accordingly. Use the WHO country code and date (here: MLT for Malta) (example: MLT Profile_excel analysis_20171123).

Open the raw HFA excel file and study the different sheets as they provide additional information on the data set. Especially the *"Labels"* and *"Classification"* sheets are important and should be looked at if you are unsure if this is the right indicator and data set. The sheet *"Data (measure)"* contains the raw data for all countries and country groups for the selected indicator. Use the "Find" option in excel to find the country or reference group you are looking for by searching for the WHO country code (capital letters). Now simply copy the data from the HFA excel file and paste it into your *"Profile excel analysis"* file. Double check data gaps in raw HFA dataset as they disappear by copy and pasting!

Important issues to consider:

- **Latest format:** Use latest format provided by WHO and make sure to apply the right format to all graphs and tables from the beginning.
- **Time to display:** Consult with WHO from which year on to display data in graphs. Representation of time needs to be harmonious throughout both publications.
- **Explore HFA indicators:** Take your time and play with the HFA database. Analyze different indicators as you might find interesting trends which should be proposed to WHO and MoH.
- **Excel-options:** Do not use the "smoothed graphs" option in Excel.
- **Gender analyses:** Analyze your data for both sexes combined and separately for females and males. You will discover interesting findings which will enrich your writing and deepen the analysis.
- **Smoothing:** Do not apply the smoothing method to indicators. Consult with WHO first. Smoothing is done at the end (see note below).
- **Data gaps:** If data is incomplete for certain indicators/countries display the data gaps in graphs. Mind the gaps during data download and transfer.
- **Missing data:** If you discover great data gaps for certain indicators, countries or reference groups ask WHO if these data will be provided directly by the Member State or with the next HFA update.
- **Clarity:** Keep the Excel sheet and graphs as clean and clear as possible. Stick to previous examples.
- **Questions occur during the process:** Note and collect questions, while working with the raw HFA data. Collect your questions and share your list with your HAW supervisor and the WHO, but avoid spamming.
- **Specificity:** Keep your country specifics in mind (e.g. small country, data quality and availability, reference group, etc.) – if things are unclear, consult with HAW supervisor and WHO.

- **Database updates:** HFA and other databases are updated regularly, usually around the month of September. Be aware you might be asked to update your draft. Consult with WHO on HFA updates to avoid double work.

Data smoothening and reporting moving averages:

Certain health indicators are effected by small number of events (<10 cases – WHO threshold), unstable rates and hence show strong fluctuations in data series. Especially small countries (less than 1 million inhabitants) face challenges in reporting on indicators which are effected by year to year fluctuations *(17).* Such fluctuations prevent gaining a clear picture of real trends and indicators such as maternal, neonatal and infant mortality and various communicable diseases are common candidates.

To overcome annual fluctuations, the reporting of Moving averages (MA) needs to be applied for selected indicators *(17).* MA is a data smoothening method to average indicator values by a fixed number of years (3-year or 5-years). This has the effect of controlling for fluctuations due to seasonal effects, small numbers or sample sizes, rare events or outliers and thus to highlight long-term patterns *(17).*

How to identify MA candidates:

- **WHO/SCHIN threshold** of “small number” is set at 10 or less cases. Apply MA if indicator shows annual number of 10 or fewer events.
- **Disaggregation by sex:** if at least one data point for one of the sexes has a small number, it is a candidate for MA *(17).*
- **Consult with WHO**: propose potential candidates for MA after the excel analysis. However, WHO has the last decision whether to apply MA and if the 3- or 5-year MA is appropriate.

How to apply the MA method in excel:

- Create a new column for the smoothed data and name it accordingly.
- **3-year MA:** add the raw values for the first three years and divide by 3.

- =(B2+B3+B4)/3 → insert the formula in the **third** cell of the MA-column.

- **5-year MA:** add the raw values for the first five years and divide by 5.
  - =(B2+B3+B4+B5+B6)/5→ insert the formula in the **fifth** cell of the MA-column.
- Select the cell with the formula and copy to the last year (Fig. 7).

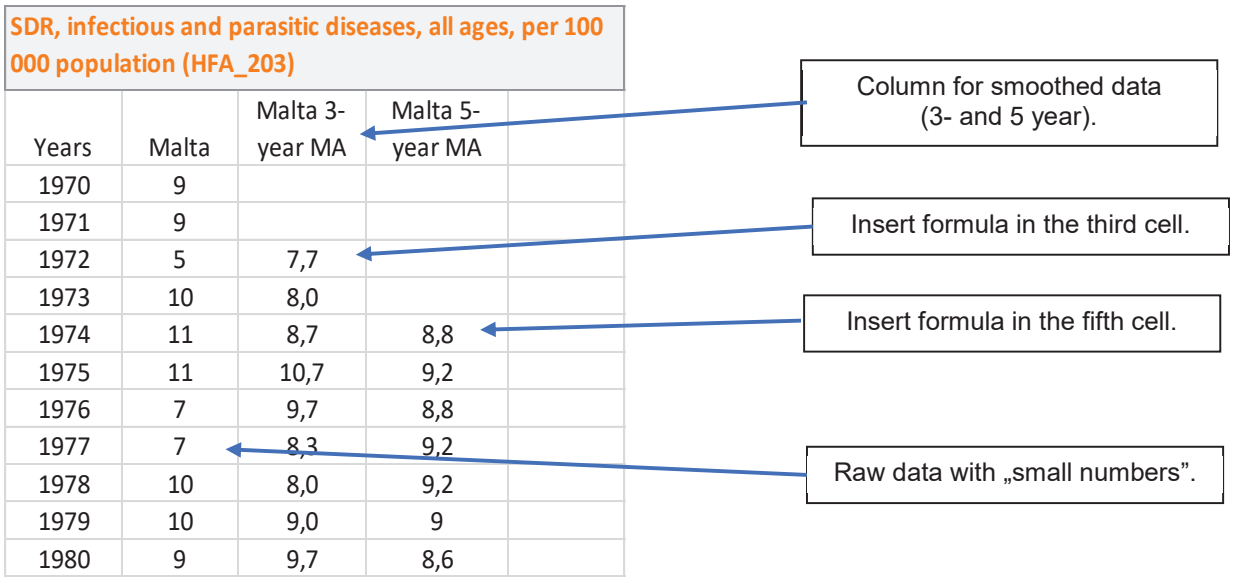

Fig. 7: Example on how to apply MA in Excel *(author´s illustration)*

2.4.2 IHME and the GBD Compare Tool

Each *Profile of Health and Well-being* publication provides a chapter on key risk factors and the associated disease burden, which is measured in disability-adjusted life years (DALYs). WHO estimates for the number of DALYs attributable to selected risk factors apply only at the regional level. For this reason, the estimates produced by the *Institute for Health Metrics and Evaluation (IHME),* which are available at country level, should be used *(18).*

IHME is an independent population health research center at the University of Washington that provides comparable measurement of world´s most important health problems *(18).* The center makes the information freely available to facilitate evidence based, informed decisions by policy makers. The Global Burden of Disease (GDB) Compare tool is to be

used to review country level data for key risk factors (http://www.healthdata.org/data-visualization/gbd-compare).

Practical steps for GBD Compare Tool:

The GBD Compare tool is provided by IHME under: http://www.healthdata.org/ and can be accessed through *Results → Data Visualizations → GBD Compare*. A new window will open after selecting the GBD Compare tool. Follow the instructions below (Fig. 8) to display the ranking for the risk factors for your country.

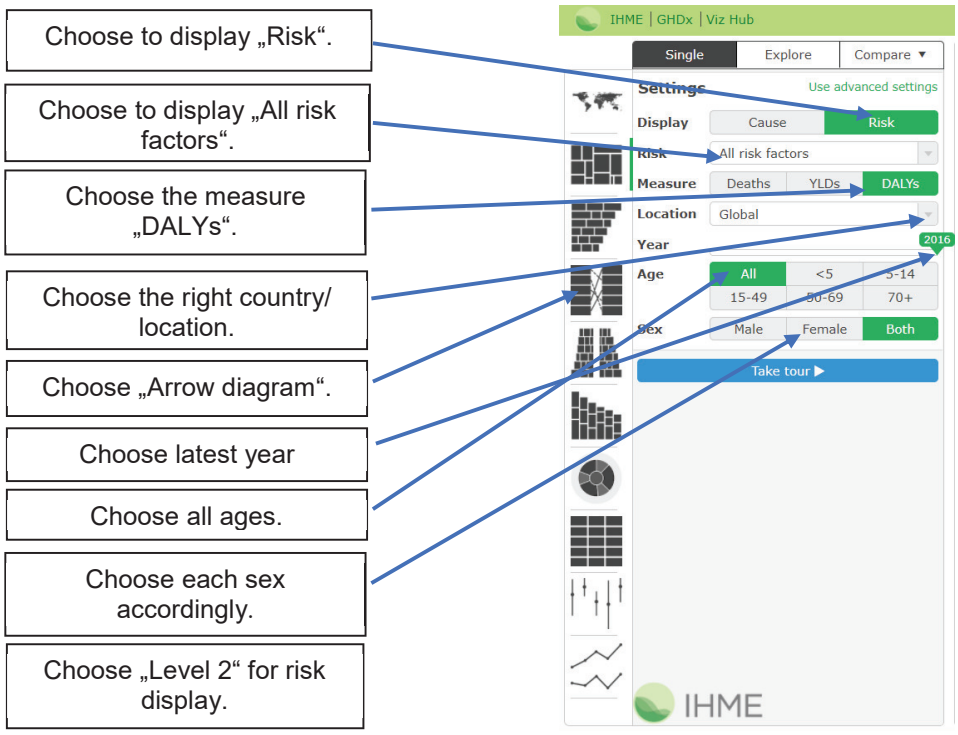

Fig. 8: Instruction for GBD Compare selection *(author´s illustration)*

After selecting the correct options, the GBD Compare tool will display the risk factor ranking for your country. By scrolling through each risk factor, a small window will appear with the main information for each rank. Now simply insert the data for each rate (DALYs per 100,000) and the confidence interval (shown in brackets) into your table (usually table

2 in the *Profile of Health and Well-being* publication). This process must be done separately for both sexes.

2.4.3 WHO Global Health Observatory

The WHO Global Health Observatory (GHO) is WHO´s oldest gateway to health statistics for its 194 Member States *(19).* The database covers global health themes, including health-related SDGs, mortality, and burden of disease, health systems, environmental health, noncommunicable diseases, infectious diseases, etc. Data can be accessed via the GHO data repository (http://apps.who.int/gho/data/node.home) which is organized by themes *(19).*

Practical steps for GHO analysis:

The Health 2020 indicators 1.2, 1.3, 1.4 and "prevalence of insufficient physical activity" are potential indicators which must be researched within the GHO. However, depending on the country the availability can vary. The GHO database can be accessed under: http://www.who.int/gho/en/. The indicators mentioned above can be found under: *noncommunicable diseases → risk factors → tobacco/ alcohol/ overweight/obesity /physical inactivity.*

Example for *"physical inactivity":*

Select the indicator *"physical inactivity"* → (Adults aged 18+ years) View data → Download complete data sets as CSV table or Excel. Filter the CSV or excel file for your country and select the correct indicator data. Display data for both sexes combined and separately for females and males.

Be aware that GHO is an outdated, not very user-friendly database and sometimes you will need to klick through several pages to find the data you are looking for. In case you can´t find the data you are looking for ask WHO officer for technical advice.

Preparation of tables:

Prepare a separate document (word) for all tables that need to be included in the *Profile* of Health and Well-being publication. Usually, each report contains 4 tables:

1. **Tab. 1:** Selected demographic indicators
2. **Tab. 2:** Top 10 risk factors and the associated age-standardized burden of disease for *country*, by sex, 2016
3. **Tab. 3:** Key indicators on health resources, use of health services and health expenditure
4. **Tab. 4:** Core indicators for monitoring Health 2020 policy targets

Make sure to compile the tables in the right format and stick to the wording and writing style provided by WHO in previous publications. Step 4 will take up to 1-1.5 months.

2.5 Step 5: Writing of Profile and Highlights Publications

Step 5 can begin simultaneously with step 4. Overall, the writing of the *Profile of Health and Well-being* publication will require the main political consultation and approval from HAW, WHO and MoH, who must agree on critical, country specific topics. Keep in mind that HAW can only propose interesting maybe controversial findings, but WHO and MoH will make the decision if to include proposed topics.

Use the approved list of contents as basis for the *Profile of Health and Well-being* draft. WHO will provide templates of latest reports. Stick to the language. Read through the last, already published reports to get an idea of the WHO writing style and use the *WHO style guide* for guidance *(20).*

Important issues to consider – *Profile of Health and Well-being*:

- The *Profile of Health and Well-being* publication should have around 45-60 pages.
- The *County Profiles* are statistical publications, so adjust the language accordingly.
- Collect all your questions during the writing process and address HAW supervisor on respective issues.

- Schedule weekly check-in meetings with WHO to resolve open questions and ask for advice. Always send your draft 2 days before the meeting to WHO.
- If you have questions related to MoH, let WHO handle the communication.
- If unsure about indicators or data, consult with WHO and HAW supervisor.
- Validate HFA data with original or other data sources if unsure (see note below).
- Do not start to work on the *Highlights on Health and Well-being*, before finishing at least the 1st draft of the *Profile of Health and Well-being* publication and got a "Go" from your HAW supervisor.
- Work very diligently regarding calculations, wording, grammar and spelling.

HFA data validation:

HFA database collects data from various sources (e.g. GHO, EUROSTAT, World Bank, ILOSTAT). The underlying data source for each indicator can be found in the raw data sheets which can be downloaded from HFA (see step 4) or in the "Targets and indicators for Health 2020" publication *(10).* During data analysis, you might see values which appear to be illogical or contradictory. Research the values in the underlying data sources or, if the indicator is country reported, address this topic with WHO/DIR, who will correspond with MoH. Data flaws can appear in HFA.

It might take 1-2 months to finalize a first draft of the *Profile of Health and Well-being* report. HAW supervisors review the 1st draft and only then the document can be forwarded to WHO/DIR for review. Send the "*Profile"* excel-analysis file together with the word-document. Once the 1st draft of the *Profile of Health and Well-being* is done, start working on the *Highlights on Health and Well-being* report.

Important issues to consider – *Highlights on Health and Well-being*:

- The *Highlights on Health and Well-being* publication should have 20-25 pages.
- Create a separate word and excel file for the "*Highlights"*.
- The *Highlights on Health and Well-being* are based on the findings and analysis of the longer *Country Profile*. Yet, the outline of the *Highlights on Health and Well-being* is set by WHO.
- Collect a list of topics which might be interesting to highlight and consult with your HAW supervisor. These topics can be proposed to WHO.

- The *Highlights on Health and Well-being report* has policy makers as target audience. So, avoid too many numbers, comparisons or statistical language. The language should be clear and straight forward.
- Do not include new findings or topics to the *Highlights on Health and Well-being* report, which were not mentioned in the *"Profile".*
- Use previous *Highlights on Health and Well-being* publications as examples.
- Be sensitive to the needs and problems expressed by MoH, address problematic issues with HAW supervisor and WHO (e.g. HIV in Russia, maternal mortality in Malta, overweight in Malta, data quality).
- Mention challenges and offer solutions.

It might take 2-4 weeks to finalize the 1st draft of the *Highlights on Health and Well-being* publication. Once the 1st draft is assembled and HAW supervisors have internally agreed on the draft, send the document together with the corresponding excel-analysis file to WHO for review.

2.6 Step 6: Review Process by HAW, WHO and MoH

Step 5 and 6 can happen simultaneously, since the *Profile of Health and Well-being* publication will be the first one to review. The review process with WHO is circular and usually several rounds of revision and correction will be needed. The review process is a political process, which includes sensitive decisions, diplomacy and respectful handling of country´s wishes. During this step, the Director of DIR, Dr. Claudia Stein, will be actively involved.

Involved parties in review process:

1. 1st draft is reviewed by WHO/DIR officer.
2. Comments and corrections provided by WHO/DIR officer in track-changes need to be corrected by HAW student and supervisor also as track-changes. This process is circular and will take several rounds.
3. Once the draft is cleared by WHO/DIR officer, it will be forwarded to the Director of DIR, Dr. Claudia Stein.
4. After the next round of corrections, the draft will be send to technical divisions within the Regional Office for Europe for approval of data trends.
5. The draft is then send to the contact person at MoH.
6. Once the contact person at MoH approves the draft, it is then send further to the Minister of Health for final approval.

HAW team is asked to deal with comments provided at any stage and correct the draft. It is important to edit the document as track-changes. This step might take up to one month or even longer. This depends on WHO and MoH capacity, but can also be influenced by internal political problems (e.g. HIV in Russia). The finalization of the reports can get stuck at this point.

2.7 Step 7: Finalization and Production of Profile and Highlights Publications by WHO

Once final agreement on both reports has been reached by HAW, WHO and MoH, DIR proceeds with the finalization and production of both publications.

The finalization process at WHO will involve the following:

1. English language editing by WHO translators
2. Typesetting & WHO layout
3. Final clearance by Director of DIR (Dr. Claudia Stein)
4. ISBN issuance
5. Print & online publications

Regarding publication:

The work is an official WHO publication. HAW student will be first author, HAW supervisor(s) 2nd (and 3rd). You may not publish any findings on your own. If you write the publications as part of your research project, internship or master thesis, you must add your last draft of publications, and excel calculations as appendices which may NOT BE PUBLISHED.

3 Process Evaluation of Researching, Writing and Reviewing the Maltese Profile and Highlights Publications

This chapter gives insight into the practical work and critically evaluates the process of researching, writing and reviewing the *Profile of Health and Well-being* and *Highlights on Health and Well-being* publications. The information provided in this chapter aim to show transparent structures while preserving confidentiality. All information provided are based on the author´s experience gained, during the internship at DIR and while writing the Maltese reports and are therefore not universal. The latest drafts of the Maltese *Profile of Health and Well-being* and *Highlights on Health and Well-being* publications are attached confidentially in appendices 3 and 4.

3.1 Indicators and Focus on Public Health Topics

For the most part, the indicators used in both publications were set by WHO and reflect WHO´s Health 2020 policy. So, the indicator selection was very limited and did not allow much room for extension. Future authors need to keep in mind that the *Profile of Health and Well-being* and *Highlights on Health and Well-being* publications are standardized publications for all WHO European Member States and are meant to ensure the widest comparability possible. However, future authors should focus on country specific Public Health topics (e.g. overweight/obesity, HIV/AIDS, rising cancer prevalence, data quality, smoking, gender differences, etc.) to apply the report to the specificities of the country. These “hot” topics should be discussed with WHO and MoH to understand the (historic) reasons and developments in the country and usually MoH and WHO are willing to share literature to support the findings. If needed, WHO will mention sensitive, country specific topics which should be avoided or mentioned regardfully (e.g. HIV/AIDS and data quality in the Russian Federation). Remember that WHO is an advising and supportive agency without legislative power, so critique should be expressed with the highest respect to the country. The role of HAW is to consult, suggest and point out interesting topics but eventually, WHO, MoH and the Minister of Health need to approve the content of both publications.

Malta experience:

The Maltese project partner, Dr. Neville Calleja, who was responsible for the project was very open about the (historic) health trends in Malta and was willing to provide literature at any project stage. Even controversial topics, including elevated maternal mortality, various infectious diseases associated with boat migrants, overweight and obesity and diseases among gay men, were openly communicated and included in the reports.

Yet, timely communication and sharing of data and literature was not always given. Occasionally, friendly reminders were sent.

Limitations in indicator selection

The *Profile of Health and Well-being* publication covers four main topics (demographic and economic information, health status and burden of disease, health system, Health 2020 targets). The topic of "health status and burden of disease" is the most extensive part which covers indicators on (healthy) life expectancy, morbidity, infant and maternal mortality, leading causes of death, premature mortality and major risk factors. The indicators cover a wide spectrum of country based health statistics, yet are not exhaustive. Further, various indicators reporting on health systems are WHO estimates and not actual country reported values. These values should be interpreted with caution as they can be biased.

The scope of the *Profile of Health and Well-being* publication allows limited disaggregation of data for both sexes and different age groups with premature mortality (0-64 years) being the only insight into age-specific mortality. Further, the HFA database does not provide data for different population groups (e.g. native population, migrants, socioeconomic status). So, far-reaching, exhaustive analyses are not possible with the data provided in the HFA database. Even if you find official country specific data in other UN databases, it will be difficult to include these data into the reports (e.g. EUROSTAT, UNICEF, UNDP, etc.) as then both reports will not be official WHO publications and logos of other

organization must be included on the cover. This is one of the reasons why the HFA database is to be used as the main data source.

The indicator *"well-being"* is a relatively new indicator and represents target 4 within the Health 2020 policy. The measurement of well-being is challenging and so far, only 3 indicators were formulated to measure well-being:

1. Life satisfaction among adults aged 15 years and over → score based on poll/survey;
2. Availability of social support among adults 50 years and over → % based on poll/survey;
3. Percentage of population with improved sanitation facilities → based on WHO/UNICEF data.

Additional (subjective) indicators are currently discussed by WHO to expand and specify the measurement of well-being. However, the currently used indicators do not satisfy a complete and far-reaching measurement of well-being. This point is important as both publications state to report on *"Health and Well-being".*

Malta experience:

During the raw analysis in HFA, I have discovered increased "incidence of alcohol psychosis" in Malta. This topic was addressed during the kick-off meeting with Malta, however Dr. Neville Calleja had no profound explanation for this trend. Eventually, this indicator was not included neither in the analysis nor in the report, as "alcohol psychosis" is not a Health 2020 indicator.

"Maternal mortality" is a Health 2020 indicator and the Maltese data showed alarming peaks in maternal mortality throughout the last thirty years. Dr. Neville Calleja has shared the historic background for this trend, which was interesting and surprising to me. Yet, in the final report the topic was not presented adequately due to WHO standards and page limitations.

3.2 Data sources

Since both reports are official WHO publications, the HFA database is the main data source which is preferable over any other data source. This ensures comparability but is also a limiting factor. The HFA database relies on country reported data and data quality varies in different countries. Most CIS countries and many south-eastern countries in the European Region struggle to produce high quality population health data as registration and reporting systems are inaccurate, outdated or not in place. Future authors should be aware of changes in coding practices or the registration process within a country, since this leads to short-term analytical problems when attempting to compare trends against historic patterns. Further, differences in data quality can occur even within a country (e.g. reporting in private and public health sector in Malta). The question of data quality is highly important and needs to be addressed with WHO and MoH as it influences data interpretation and comparison in both reports.

Furthermore, one needs to clarify which ICD (International Classification of Disease) revision is used in the country. Most countries in the European Region are using the tenth revision (ICD-10) codes for cause of death which is the currently used version in the Region and globally. However, some countries are still using the outdated ninth revision (ICD-9). This limits comparability and must be mentioned in the report.

The IHME estimates for the number of DALYs attributable to selected risk factors needs to be interpreted with caution as the concept of DALYs is highly controversial. The wide variations in values and the great amount of assumptions in the calculation process are two major disadvantages of DALYs. The width of the confidence interval provided with the DALY value indicates the amount of insecurity that comes with each DALY measure. Usually, countries with poor registration systems show a great amount of insecurity which limits reliability.

Malta & Russia experience:

The Maltese health data is of very good quality and WHO has indicated the commitment and pioneering role of the Maltese Health Ministry in questions of health information, especially within the SCHIN network of which Malta is an active and dedicated member. The Maltese data showed almost no gaps and was available for most indicators. During my analysis, I had to validate several indicators and the values for these indicators accorded with the underlying data sources.

Yet, during my internship at DIR, where I was involved in the preparational work for the Russian Profile of Health and Well-being publication, the question of data quality was the most controversial one. Not only did the Russian Federation use the outdated ICD-9 revision, but the country was coding diseases in an imprecise manner to cover the dramatic increases in the incidence of HIV/AIDS infections.

Hence, the question of data quality is very important and will be answered differently in every Member State as national health information and surveillance systems are diverse.

3.3 Reference groups

The selection of reference groups is done by WHO and MoH and depends on several country specific factors. While most reference groups (e.g. Nordic countries, CIS, SEEHN, EU-13, EU-15) are based on geographic, historic or political factors and provide legitimate comparisons, the reference groups of SCHIN is merely based on country size. Statistically the compilation of small countries is justified, as small countries face similar challenges in data collection and reporting (reporting of MA for small numbers), but there are no geographic or historic factors which would justify SCHIN as a reference group. Hence, SCHIN reference group is complex and might limit comparison as regards content.

Further, it is important to analyze the countries proportion or weighting within the reference group (e.g. Russian Federation the biggest CIS country, Cyprus the biggest SCHIN country, etc.) as countries with a proportionally big population size will influence the overall trend within the reference group.

Malta experience:

For the Maltese reports three reference groups were selected by WHO and MoH (WHO/EURO, EU and SCHIN). While data was mostly available for WHO/EURO and the EU, availability for SCHIN was limited and data for all indicators regarding "premature mortality" were only available till 2009. So, I had to address the issue of limited data availability in the report and how it would influence the analyses. When describing "premature mortality" indicators, SCHIN values were not mentioned for comparison as comparing data from 2009 and 2016 would be meaningless. However, this topic was frequently discussed with WHO and MoH and helped me understand the challenges of reporting small or fluctuating numbers in small countries.

The topic of data smoothening (MA) was the most discussed during the reviewing process and unfortunately "Small countries Health Information Network" has not finally agreed on the method. This protracted the reviewing process and hence, project finalization.

3.4 Coordination process

Overall, the coordination process of the project is dynamic and depends on the project stage. WHO welcomes a proactive and committed working style and certain project steps will demand more independent work from the HAW student while others will be totally guided by WHO. The following factors should be considered:

1) Communication between HAW and WHO

- **Email** – daily, weekly or as needed. To resolve open questions, to provide technical support, after reviewing or to exchange information relevant for the project.
    - WHO officer answers emails on a daily or even hourly bases. To ensure work-flow and timely delivery of drafts/technical support, HAW is asked to respond timely. Email communication should be straight forward and clear. Collect questions (preferable as bullet points) in one email to avoid spamming and attach necessary documents. Feel free to send a friendly reminder if some questions were not answered. Paying attention to these basic guidelines will ensure smooth and efficient communication.
- **Skype meetings** – monthly or as needed. Skype meetings are scheduled before/after project milestones are accomplished. Skype meetings help to set and agree on next working steps and discuss major topics/questions.
    - WHO is proposing a meeting agenda and HAW team is welcome to add topics. It is important to share documents beforehand so both parties have enough time to go through the material to ensure productive discussions. Take notes during the meeting. They will be the basis for the meeting protocol, HAW needs to draft and will guide the next working steps. Remember, WHO staff and HAW supervisors work on a tight schedule so it´s important to be prepared, on time and focused. Paying attention to these basic guidelines will create a productive and pleasant communication.
- **Communication involving MoH –** as WHO is handling communication with MoH, little direct communication between HAW and MoH will occur (exc. Kick-off meeting). Depending on the country and the responsible person at MoH, communication can be challenging with regards to response time and provision of data and literature. However, WHO is interested in timely project finalization and will handle communication accordingly. Regarding the communication of country sensitive topics (e.g. HIV/AIDS in Russia, HIV/AIDS in Maltese gay community, diseases introduced by migrants, maternal mortality in Malta, etc.) political dealings and the general frankness of MoH will influence how open data and information will

be shared by the country. However, sensitive topics should be handled and formulated with respect and diplomacy.

2) Documentation and task monitoring

Overall, HAW student is responsible to document the project progress, to check on project development (see project plan) and to monitor tasks. A Gantt Chart can be helpful, yet is not necessary if you are an organized person. Consult with your HAW supervisor and WHO if unsure about the process or the next working steps. An outside look can provide solutions that you were not aware off. Do not forget: everyone involved is interested in a positive outcome (high quality publications)!

3) Documents and data sharing

All necessary documents, data set, templates and publication drafts were uploaded and shared via Drop Box. Access to the Drop Box folder was given to WHO and the HAW team. Make sure to upload the latest analyses and *Profile/Highlights* drafts into the folder by using a consistent saving phrase (e.g. MLT_Profile_20171023). Edit documents in track-changes as this is the only way for the HAW supervisor and WHO officer to track your edits. Especially in the final rounds of review when documents are getting longer and the corrections more specific, track-changes will ensure an effective work flow.

Malta experience:

The overall project coordination was efficient, professional and always friendly. Since I have spent six months at the WHO Regional Office for Europe (DIR) during my internship, the general WHO communication and working style were familiar to me. Additionally, the project country, Malta and Dr. Neville Calleja were chosen carefully by Dr. Claudia Stein, as she knew from sustained experience that Malta would be a supporting and uncomplicated country to work with. However, delays in data sharing and during the review process occurred, mostly due to Dr. Neville Calleja´s busy work schedules. Yet, friendly reminders from WHO and HAW were helpful and advanced work.

3.5 Challenges and solutions

1) Sudden changes in project requirements by WHO

Internal WHO changes in policies might lead to amendments in format (e.g. graphs or tables), phrasing (e.g. how to compare properly, how to phrase sensitive topics) or even the outline of the publications. You can also be asked to delete entire paragraphs, either by MoH request or simply because WHO has updated their policies or publication standards. Changes need to be addressed at any project stage even if great amount of work/writing has been accomplished.

- Address questions regarding word-format, graphs and tables layout right from the start and work with WHO preliminaries.
- Work with templates and stick to the wording in latest published publications.
- If WHO asks you to rephrase entire paragraphs or certain wordings, ask for examples on how to rephrase.
- Feel free to ask your HAW supervisor for support at any stage and especially in case of critical or high-level decisions. Your supervisor is there to safeguard you.

2) Project delays due to duty travel, committees, sick leave

HAW supervisor, WHO staff and MoH personnel are tied up in work and project delays can occur due to duty travel, big conventions (WHO Regional Committee, World Health Assembly, etc.) or sick/annual leave. Usually, WHO officer will update you on duty travels with clear dates and when to expect an answer.

- Address this topic during the first meeting with WHO and include foreseeable occasions into the project plan.
- Be flexible with your work and divide it to different work packages so you can continue your work independently.
- Be clear about your own situation and inform WHO, HAW and MoH about sickness, vacations, pregnancy and other challenges.

3) WHO language

WHO language is specific, politically correct and standardized. It takes time to adopt the correct writing style regarding abbreviations, phrases, descriptions etc. Do not feel discouraged if WHO deletes sentences or entire paragraphs you have been contemplating about.

- Read through latest published publications and stick to the wording for all introductory paragraphs (e.g. Health 2020, introduction chapter, premature mortality chapter).
- Use easy and straight forward language when comparing trends over time. Avoid wording such as *"2-fold higher or 1.4-fold increase"* and use rather *"2 times higher or increased by 40%".*
- Avoid judging statements such as *"unfavorable trends, better, worse, remarkable progress"* and use factual language such as *"increased, decreased, unchanged trends, remained stable".*
- Compare each indicator to **all** reference groups and make sure to mention the reference groups in the same order. This should be harmonious throughout both publications even if it seems repetitive. If data is missing or limited for certain reference groups, comparison will also be limited. Make a note on data availability and mention how it effects comparison.
- Use factual language in the text (e.g. higher than, lower than) and point to positive or negative deviations (e.g. decreasing, increasing).
- Send your draft to your HAW supervisor after you have finalized one or two chapter(s) and ask for feedback. You can then send the draft to WHO officer.

4) Data updates in HFA

Data in the HFA database is updated annually around the month of September. WHO might ask you to update the excel analysis, graphs and the written report to ensure the publications report on the latest data. This is troublesome but needs to be done.

Malta experience:

The compilation process of the Maltese reports was affected by several WHO changes in format but also by my personal situation. I was working on the excel analysis when I discovered that I am six weeks pregnant. Tiredness and nausea had influenced the work on my thesis as I had to take a one month break. In addition to my personal circumstances, I had to deal with sudden changes in WHO templates which affected all graphs, tables and certain wording in the reports. When I started the project in March 2017, WHO shared the Bulgarian report with me, which was the latest finalized report by that time. In August 2017, the template, however changed and the Georgian publications became the standard I had to follow. It took me two weeks to edit all graphs, tables and the wording in both reports to adjust them to the Georgian example.

Finally, in September 2017 the annual update in the HFA database was the last change I had to work on as again all graphs, tables and the entire written document had to be double checked and updated. Eventually, it took me two weeks to complete the update so the final Maltese publications report 2016 data. However, the fact that I had to edit my entire work for the second time was depletive and lowered my motivation towards the end.

Concluding, the review process was the longest and most exhausting part of the compilation process. First, I dealt with the comments provided by my HAW supervisor and DIR. After the reports were sent out to the technical divisions at WHO Europe, it took another 4-5 weeks for all division to check the documents and to provide feedback. So, the review process lasted approximately 2-2.5 months and felt everlasting at some points.

4 Conclusions & Recommendations for WHO Collaboration Center at HAW Hamburg

The *Profile of Health and Well-being* and the complementary *Highlights on Health and Well-being* publications are official and prestigious WHO publications. They are flagship publications for DIR and hence their finalization is of great importance for the division. Further, they are of highest importance for the Member State, its MoH and the country´s administrator in charge of the project. While the outline, the health indicators and the overall style are very much standardized, the country specifics will influence the research and compilation process and final reports. Each Member State differs in size, Public Health challenges, the historic trends, health policies and every health care system will have an individual impact on population´s health. The challenge of compiling the *Profile* and *Highlights* series, is to reflect the diversity of the European Region and the uniqueness of each country, within the given WHO frame.

From a methodological and statistical point of view, the compilation of the reports is less challenging and can be performed by HAW students with proficient English and excel skills. Data analysis is confined to basic descriptive statistics, yet accuracy and writing style (narrative) will influence the quality of each report. It takes time to adopt the WHO language and writing style as it is very specific and explicit. Close communication with HAW supervisor and WHO and constant feedback loops are needed to ensure timely delivery of high quality publications.

The selection of HAW student and supervisors is essential and will influence project outcome. Both, HAW student and HAW supervisors, should have proficient English skills and a clear, data oriented writing style. Students should have a proactive attitude and the ability to address challenges openly. Students, who tend to lose themselves in excessive descriptions might struggle to put the message in a nutshell and hence meet the publication requirements (45-60 pages).

Further, close communication with WHO officer is important to ensure an efficient work-flow and to avoid misunderstandings. The HAW student must update HAW supervisor and WHO officer on project status, ask questions and inquire feedback. This will facilitate the review process for all parties and minimize redundant double work.

Finally, stick to WHO requirements as WHO is the last authority to approve both publications. During research, you might find controversial and critical information and your researcher instinct will urge you to write these down. However, if this undesired by WHO or MoH it is better to avoid it in the first place. You might address these aspects in your master thesis or internship report.

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Appendix 1 – Project Plan

Introduction

In 2012, the WHO European Member States adopted Health 2020, a policy framework supporting action across government and society for health and well-being. With the implementation of Health 2020, the WHO Regional Office for Europe has revitalized the previous Highlights on Health and adjusted them to two new publications: The *Profile of Health and Well-being* (CP) and its succinct version *Highlights on Health and Well-being* (HoH). The Profiles on Health and Well-being give an overview of a country´s health status, providing the latest data on mortality, morbidity and exposure to major risk factors together with trends over time. CP´s are developed in close collaboration with the WHO Member States.

In the scope of the given project the CP as well as the HoH for Malta will be developed. The responsibility of drafting both reports and conducting all necessary analyses lies with Christina Altergott (M.Sc Health Sciences student, Hamburg University of Applied Sciences, Hamburg, Germany). However, the project will be strongly supported by the WHO Regional Office for Europe and the Maltese Ministry of Health.

Involved parties/ Contact

WHO Regional Office for Europe/ Division of Information, Evidence, Research &

[redacted]

Appendix 1 – Project Plan

Responsibilities

	WHO Europe	Ministry of Health, Malta	Christina Altergott, HAW (master student)	Prof. Dr. Christine Färber, HAW (thesis supervisor)
Project coordination (overall)	A	I	R	C
Project tracking & documentation for the thesis	C	I	R	A
Technical input, analysis support & guidance	A	C	R	C
Academic mentoring and guidance	C	-	R	A
Communication facilitator btw. MoH Malta & HAW	A, R	C	C	C
Background research on Malta	A	C	R	C
Raw & adjusted indicator analysis	A	C	R	C
Report writing	A	I	R	C
Report review and clearance (WHO)	A	I	I	I
Manuscript language edit, translation, design, typesetting, printing	A, R	I	I	I
Launch & promotion	A, R	R	I	I

R = responsible (who is working), A = accountable (who clears), C = consulted (who is involved), I = informed (who is copied)

Workflow

I Phase *"Planning & preparations"*

- Administrative Preparations
- Preliminary project plan and timeline
  - Analysis plan, preliminary outline, Health 2020 indicator list
- Background research on health situation in Malta
- Discussion with WHO Europe and MoH, preparation of analysis plan and project plan
- Clearance by WHO Europe and MoH Malta * of the analysis plan and project plan for each publication

II Phase *"Raw indicator analysis"*

- Raw indicator analysis in Excel & tables and figures preparations *
  - Discussion on indicator smoothening with WHO Europe

Appendix 1 – Project Plan

- Kick-off Meeting with Malta MoH counterpart
  - Discussions on additional data sources to be included
  - Discussion of additional references
  - Discussion on indicator smoothing (MA)

III Phase *"Final indicator analysis"*

- Adjusted analysis on selected indicators & smoothening
- Analysis refinement & selection of final indicators, tables, figures *

IV Phase *"Writing of CP and HoH"* (could be concurrent or sequential)

- Preparation of 1st draft (CP) *
- Discussions on content for HoH publication
- Preparation of 1st draft (HoH) *
- Clearance by WHO Europe and MoH Malta * of both drafts of each publication (could be concurrent or sequential)
- Internal review of both publications by WHO Europe, revisions
- Clearance by MoH Malta *
- Clearance by WHO Europe

Conducting all necessary analyses and writing both reports is the responsibility of Christina Altergott. After providing the 1st draft of the CP/HoH the document will be reviewed by WHO Europe and the MoH, Malta, and revised by Christina Altergott. This process might be repeated several times.

VI Phase *"Production"*

- Finalization of CP publications (clearance of content, editing, translation, design, and publishing clearance)
- Finalization of HoH publication (clearance of content, editing, translation, design, and publishing clearance)
- Printing, distribution

Once both publications are cleared and approved by WHO Europe and the MoH, Malta, a linear process of editing, designing, proofreading, providing ISBN and printing follows.

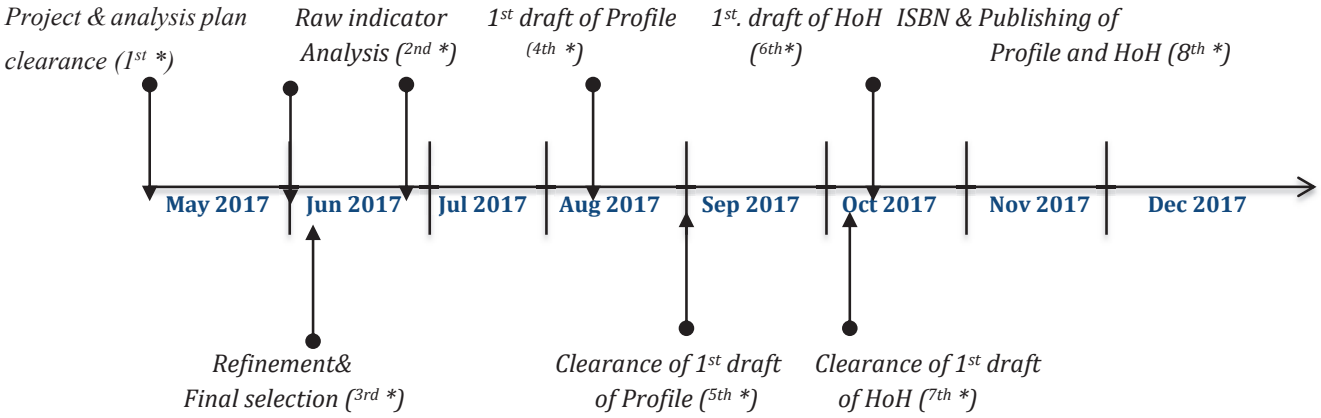
- Public launch and promotion (WHO Europe and country) *

Milestones & deliverables

1st Milestone * - Clearance of project plan, analysis plan by WHO and MoH Malta
2nd Milestone * - Raw indicator analysis & tables and figures preparation
3rd Milestone * - Indicator analysis refinement & selection of final indicators
4th Milestone * - 1st draft of Country Profile (confidential attachment to thesis)
5th Milestone * - Clearance of 1st draft of Country Profile by Malta
6th Milestone * - 1st draft of Highlights on Health (confidential attachment to thesis)
7th Milestone * - Clearance of 1st draft of Highlights on Health by Malta
8th Milestone * - ISBN & Publishing of CP and HoH publications

Appendix 1 – Project Plan

Timeline



Communication & data sharing

Overall, the WHO (Ms. Tina Dannemann Purnat) will be facilitating communication with the Ministry of Health, Malta. The main communication methods are:

- Weekly check-ins to resolve open questions, share information and update on project status *(via Skype or email)*
- Dropbox for document and data sharing

The data for the Profile of Health and Well-being will be drawn mostly from WHO Europe´s Health for All (HFA) database and other internal WHO Europe sources. Further, data can be drawn from the national (Maltese) database (health.gov.mt). However, WHO Europe and the MoH Malta will confirm any additional data sources to be included into analysis plan.
Only official (published) documents should be used as references for the Profile publication (WHO, European Observatory on Health Systems and Policies, the Organisation for Economic Co-operation and Development (OECD), the Institute for Health Metrics and Evaluation (IHME) and other international sources).

In order to ensure transparency and documentation of all relevant decisions, agreements and the communication overall, Christina Altergott will be responsible of the documentation of the process throughout the project. Christina Altergott will share summary of action points and decisions after each meeting. All relevant documents will be uploaded and shared via Dropbox.

Confidentiality

Information that is shared with HAW by MoH and WHO Europe is confidential must not be passed on outside of the project team, except with the express agreement of all parties.

Confidential information should be kept safe to avoid access to public view. Unauthorized disclosure of confidential information may lead to disciplinary action.

Appendix 2 – Analysis Plan

Contents		Analysis Plan				
		Measure Code	Data Source	Indicator Code	Description	MA
Acknowledgements						
Abbreviations and acronyms						
Summary of situation and trends in health and well-being in Malta						
References						
Introduction						
Selected demographic and economic information						
	Mid-year population	HFA_1	HFA	pop.Publish.T	Mid-year population, by sex	NO
	Percentage aged 0-14 years	HFA_10	HFA	E999901.T	% of population aged 0-14 years, by sex	NO
	Percentage aged 15-64 years		HFA		% of population aged 15-64 years, by sex	NO
	Percentage aged 65 years and over	HFA_13	HFA	E999902.T	% of population aged 65+ years, by sex	NO
Not relevant for Malta	Percentage urban	HFA_26	HFA	E998003.T	% of urban population	NO
	Population density (subnational)	HFA_27	HFA	E998002.T	Average population density per km^2	NO
	Crude birth rate (live births per 1000)	HFA_16	HFA	E998004.T	Live births per 1000 population, by sex	NO
	Crude death rate per 1000	HFA_22	HFA	E998005.T	Crude death rate per 1000 population, by sex	NO
Birth rate – death rate	Natural population growth per 1000		HFA			NO
	Unemployment rate	HFA_29	HFA/ILOSTAT	E020501.T	Unemployment rate (%)	NO
Health status and burden of disease						

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Life expectancy						
	Life expectancy at birth (m/f)	HFA_43	HFA	E060101.T	Life expectancy at birth (years), by sex	NO
	Life expectancy at 65 years (m/f)	HFA_55	HFA	E060204.T	Life expectancy at 65 (years), by sex	NO
Healthy life expectancy and disability-adjusted life-years						
	Healthy life expectancy (m/f)	HFA_67	HFA	E040501.T	Disability-adjusted life expectancy (world health report), by sex	NO
Morbidity						
	Infectious diseases and vaccinations					
	Tuberculosis incidence per 100 000 pop.	HFA_305	HFA	E040301.T	Incidence of tuberculosis per 100 000	NO
	HIV infection incidence per 100 000 pop.	HFA_349	HFA	E050303.T	Incidence of HIV per 100 000	YES
	AIDS incidence per 100 000 pop.	HFA_347	HFA	E050312.T	Incidence of AIDS per 100 000	YES
	Percentage of children vaccinated against poliomyelitis	HFA_610	HFA	E280105.T	% of infants vaccinated against poliomyelitis	NO
	Percentage of children vaccinated against measles	HFA_609	HFA	E280104.T	% of children vaccinated against measles	NO
	Other diseases					
	Incidence cancer	HFA_357	HFA	E991001.T	Incidence of cancer per 100 000, by sex	NO
	Alcoholic psychosis	HFA_389	HFA	E991202.T	Incidence of alcoholic psychosis per 100 000	NO
Infant and maternal mortality						
	Infant mortality rate per 1000 live births	HFA_74	HFA	E070100.T	Infant deaths per 1000 live births	YES
	Maternal mortality rate per 100 000 live births	HFA_96	HFA	E080100.F	Maternal deaths per 100 000 live births	YES

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Leading causes of death						
	Diseases of circulatory system (all ages)	HFA_101	HFA	E090102.T	Diseases of circulatory system, all ages, per 100 000, by sex (age-standardized death rate)	NO
	Malignant neoplasms (all ages)	HFA_128	HFA	E100102.T	Malignant neoplasms, all ages, per 100 000, by sex (age-standardized death rate)	NO
	External causes of injury and poisoning (all ages)	HFA_158	HFA	E110102.T	External causes of injury and poisoning, all ages, per 100 000, by sex (age-standardized death rate)	NO
	Infectious and parasitic diseases (all ages)	HFA_203	HFA	E993002.T	Infectious and parasitic diseases, all ages, per 100 000, by sex (age-standardized death rate)	YES
	Diseases of the respiratory system (all ages)	HFA_212	HFA	E993202.T	Diseases of respiratory system, all ages, per 100 000, by sex (age-standardized death rate)	NO
	Diseases of the digestive system (all ages)	HFA_227	HFA	E993402.T	Diseases of digestive system, all ages, per 100 000, by sex (age-standardized death rate)	NO
	Mortality rate from chronic liver diseases and cirrhosis	HFA_236	HFA	E991705.T	Chronic liver disease and cirrhosis, all ages, per 100 000, by sex (age-standardized death rate)	YES
	Mortality rate from diabetes mellitus	HFA_248	HFA	E993504.T	Diabetes, all ages, per 100 000, by sex (age-standardized death rate)	NO
Other major causes of death						
	Suicide and self-inflicted injury mortality rate	HFA_176	HFA	E120102.T	Suicide and self-inflicted injury, all ages, per 100 000, by sex (age-standardized death rate)	YES

	Homicides and unintentional injuries	HFA_185	HFA	E170402.T	SDR, homicide and intentional injury, all ages, per 100 000	YES
	Motor vehicle traffic accidents	HFA_167	HFA	E110202.T	SDR, motor vehicle traffic accidents, all ages, per 100 000	YES
Premature mortality						
	Diseases of the circulatory system (m/f)	HFA_98	HFA	E090101.T	SDR, diseases of circulatory system, 0–64, per 100 000	NO
	Death rate from ischemic heart diseases (m/f)	HFA_107	HFA	E090201.T	SDR, ischaemic heart disease, 0–64, per 100 000	NO
	Death rate from cerebrovascular diseases (m/f)	HFA_116	HFA	E090301.T	SDR, cerebrovascular diseases, 0–64, per 100 000	NO
	Death rate from malignant neoplasms (m/f)	HFA_125	HFA	E100101.T	SDR, malignant neoplasms, 0–64, per 100 000	NO
	Cancer of the trachea, bronchus and lungs (m/f)	HFA_134	HFA	E100201.T	SDR, trachea/bronchus/lung cancer, 0–64, per 100 000	NO
	Breast cancer (f)	HFA-MDB_462	HFA-MDB		Malignant neoplasm of breast, 0-64 years, per 100 000 population, by sex (age-standardized death rate)	NO
	Cancer of the cervix uteri (f)	HFA_143	HFA	E100301.F	Cancer of the cervix uteri, 0–64, per 100 000 (SDR)	NO
Risk factors and determinants of health						
	Alcohol consumption					
	Pure alcohol consumption, recorded litres per capita aged >15 years	HFA_426	HFA	E170101.T	Pure alcohol consumption, litres per capita, age 15+	NO

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	Tobacco smoking					
		Percentage of regular daily smokers in the population aged >15 years	HFA_622	HFA	rf.smoking.15.s.T	Age-standardized prevalence of current tobacco smoking among people aged 15 years and over, WHO estimates (%), by sex	NO
	Dietary intake, overweight, obesity and physical activity						
		Average number of calories available per person	HFA_440	HFA	E160300.T	Average number of calories available per person per day (kcal)	NO
		Percentage of people overweight/obese (males/females)	HFA_627 / HFA_630	HFA / HFA	rf.overweight.18.s.T / rf.obesity.18.s.T	Age-standardized prevalence of overweight (defined as BMI = 25 kg/m2) in people aged 18 years and over, WHO estimates (%) / Age-standardized prevalence of obesity (defined as BMI = 30 kg/m2) in people aged 18 years and over, WHO estimates (%)	NO/ NO
	Comparative risk assessment						
		Top 10 risk factors and the associated age-standardized burden of disease (DALYs) (m/f)		IHME			NO
Health system							
	Hospital beds per 100 000 pop.		HFA_476	HFA	E270205.T	Hospital beds per 100 000	NO
	Physicians per 100 000 pop.		HFA_494	HFA	E270201.T	Physicians per 100 000	NO
	Dentist per 100 000 pop.		HFA_509	HFA	E270203.T	Dentists (physical persons) per 100 000	NO
	Nurses per 100 000 pop.		HFA_515	HFA	E270202.T	Nurses (physical persons) per 100 000	NO
	Midwives per 100 000 pop.		HFA_520	HFA	E270209.T	Midwives (physical persons) per 100 000	NO

Public & private	Inpatient care dischargers per 100	HFA_534	HFA	E992902.T	Inpatient care discharges per 100	NO
	Average length of stay, all hospitals	HFA_540	HFA	E992901.T	Average length of stay, all hospitals (days)	NO
Public & private	Outpatient contacts per person per year	HFA_543	HFA	E992801.T	Outpatient contacts per person per year	NO
	Total health expenditure as percentage of GDP	HFA_565	HFA	E340103.T	Total health expenditure as % of GDP, WHO estimates	NO
	Public sector health expenditure as percentage of total health expenditure	HFA_572	HFA	E992751.T	Public-sector health expenditure as % of total health expenditure, WHO estimates	NO
Private is reflected here	Out-of-pocket expenditure as percentage of total health expenditure	HFA_584	HFA	E340402.T	Private households' out-of-pocket payments on health as % of total health expenditure	NO
Health 2020 targets						
Target 1: Reduce premature mortality by 2020						
	Premature mortality rate from cardiovascular disease, cancer, diabetes mellitus and chronic respiratory diseases, among people aged 30 to under 70 years (age-standardized estimate)	HFA_299	HFA	mort.NCD30_69.T	SDR, major noncommunicable diseases, 30-69 years, both sexes	NO
	Prevalence of tobacco use among adults aged 15 years and over (age-standardized estimate)	HFA_622	HFA	rf.smoking.15.s.T	Age-standardized prevalence of current tobacco smoking among people aged 15 years and over, WHO estimates (%), by sex	NO
	Pure alcohol consumption per capita among adults aged 15 years and over (recorded data)	HFA_426	HFA	E170101.T	Pure alcohol consumption, litres per capita, age 15+	NO
	Prevalence of overweight and obesity (BMI >25) adults aged 18 years and over (recorded data)	HFA 627 / HFA 630	HFA	rf.overweight.18.s.T / rf.obesity.18.s.T	Age-standardized prevalence of overweight (defined as BMI = 25 kg/m2) in people aged	NO

					18 years and over, WHO estimates (%) / Age-standardized prevalence of obesity (defined as BMI = 30 kg/m2) in people aged 18 years and over, WHO estimates (%)	
	Mortality rate from external causes of injury and poisoning (age-standardized estimate)	HFA_158	HFA	E110102.T	External causes of injury and poisoning, all ages, per 100 000, by sex (age-standardized death rate)	NO
Target 2: Increase life expectancy						
	Life expectancy at birth, in years	HFA_43	HFA	E060101.T	Life expectancy at birth (years), by sex	NO
Target 3: Reduce inequities in health						
	Infant mortality rate per 1000 live births	HFA_74	HFA	E070100.T	Infant deaths per 1000 live births, by sex	NO
	Proportion of children of official primary school age not enrolled (net enrolment rate)	HFA_618	HFA	ChildrenNotEnrolled.T	Proportion of children of official primary school age not enrolled, by sex	NO
	Unemployment rate (percentage)	HFA_29	HFA	E020501.T	Unemployment rate (%)	NO
	National policy addressing reduction of health inequities established and documented					
	Gini coefficient	HFA_617	HFA	GINI	GINI coefficient (income distribution)	NO
Target 4: Enhance well-being of the population						
	Overall life satisfaction among people aged 15 years and over		UNDP	HDI	Human Development Index	NO
	Availability of social support among adults aged 50 years and over	HFA_621	HFA	Social Support	Availability of social support	NO
	Percentage of population with improved sanitation facilities		WHO/UNICEF		Estimates on the use of water sources and sanitation facilities (1980-2015)	NO

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Target 5: Ensure universal coverage and the right to the highest attainable level of health						
	Private household out-of-pocket expenditure as proportion of total health expenditure	HFA_584	HFA	E340402.T	Private households' out-of-pocket payments on health as % of total health expenditure	NO
	Percentage of children vaccinated against measles (1dose)	HFA_609	HFA	E280104.T	% of children vaccinated against measles	NO
	Percentage of children vaccinated against poliomyelitis (3 doses)	HFA_610	HFA	E280105.T	% of infants vaccinated against poliomyelitis	NO
	Percentage of children vaccinated against rubella (1 dose by second birthday)	HFA_614	HFA	E280110.T	% of infants vaccinated against rubella	NO
	Total health expenditure as percentage of GDP	HFA_565	HFA	E340103.T	Total health expenditure as % of GDP, WHO estimates	NO
Target 6: Set national goals and targets related to health						
	Establishment of process for target setting documented					
	Evidence documenting:					
	(a) National health strategy aligned with Health 2020					
	(b) Implementation plan					
	(c) Accountability mechanism					
Conclusion						
References						
Annex 1 - ICD-10 codes for causes of death						
Annex 2 - Selected mortality data						