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HBM4EU science and policy for a healthy future

HORIZON2020 Programme
Contract No. 733032 HBM4EU

Revised set of key indicators

Deliverable Report

D6.2

WP6 - Sustainability and capacity building

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2 Glossary

AB	Advisory Board
AUTH	Aristotelio Panepistimio Thessalonikis, Greece
AWP	Annual Work Plan
DG RTD	Directorate-General for Research Technology and Development
DoA	Description of Action
EC	European Commission
ECHA	European Chemicals Agency
EEA	European Environment Agency
EFSA	European Food Safety Authority
GA	Grant Agreement
HBM	Human Biomonitoring
HBM4EU	European Human Biomonitoring Initiative
ISCIII	Instituto de Salud Carlos III, Spain
INSA	Instituto Nacional de Saúde Dr. Ricardo, Jorge, Portugal
INSERM	Institut National de la Santé et de la Recherche Médicale, France
IPCHEM	Information Platform for Chemical Monitoring
KSF	Key Strategic Focus
MB	Management Board
MU	Masaryk University
DOMG	Departement Omgeving, Belgium
NGO	Non-Governmental Organisations
NH	National Hub
NHCP	National Hub Contact Point
OO	Overarching Objectives
PTR	Periodic Technical Report
RIVM	Rijksinsituut voor Volksgezondheid en Milieu, National Institute for Public Health and the Environment, the Netherlands
SF	Stakeholder Forum
SG	Specific Goals
UAntwerpen	University of Antwerp; Belgium
UBA	Umweltbundesamt, German Environmental Agency, Germany
VITO	Flemish Institute on Technological Research, Vlaamse Instelling voor Technologisch Onderzoek, Belgium
WP	Work Package

3 Abstract

The current deliverable describes the process of revision of the first list of indicators (published in June 2017 as D6.1.) and presents the indicator leaflets ((see attachment 1) that link key results of HBM4EU to the objectives of the project as laid down in the description of action. These indicator leaflets already contain a lot of results on the revised list of indicators, and give very valuable information on the progress of HBM4EU in relation to the specific goals of the project. Combining the information from these leaflets in the frame of expected impacts will allow us to put forward conclusions towards impact and sustainability of HBM4EU.

As such, this restructured list answers to the main comments on the first list of indicators from the task 6.5 partners, the Management Board, the Governing Board and the EU Policy Board, *in concretu* to:

- Drastically reduce the number of indicators from 48 indicators (including 9 internal indicators) on the first list to 28 indicators on the revised list without losing essential information. Moreover by bundling related indicators we now have **22 indicator leaflets** (and 1 overview leaflet);
- Make the relationship between the indicators and the goals of HBM4EU more clear by structuring the list of indicators according to the overarching objectives and specific goals;
- Use the indicators to say something about the impact of the HBM4EU project: the indicator leaflets were used to give input for the impact section of the periodic technical reporting 2018 to describe the progress made for the 5 expected impacts of HBM4EU. This exercise will be continued and ameliorated in the 2019 periodic technical reporting as more indicator leaflets will be available compared to 2018;
- Link the indicators with the work on sustainability of HBM in Europe: the indicators were presented at the sustainability workshop in Paris. Participants indicated that they think the leaflets will be useful for institutional discussions, national hub meetings, meetings with policy makers and other meetings and that they would like to use them as soon as they are available.

The added value of having indicators of success, is to monitor the implementation and achieved impact of HBM4EU. This will allow for a more efficient tracking of achieved goals. This deliverable will help to further optimize and revise the first set of indicators to monitor the implementation of the HBM4EU and the achieved impact.

The indicators of success are written in a clear language, they are concise and capture the main achievements in the list of indicators that has been agreed amongst the partners. Therefore, they can be easily used by all partners across the consortium, the EU Policy Board and our HBM4EU ambassador Thomas Jackl.

4 Introduction: the need to develop indicators to measure the performance and impact of HBM4EU

Within the HBM4EU project, the consortium will establish a European HBM platform and will collect, provide and analyse existing and new HBM data at EU level. The impact of the knowledge generated will be amplified if the coupling of HBM activities to research activities can be sustained, allowing us to assess time trends in future years. To establish a sustainable network, WP6 is dedicated to exploring options for a sustainable HBM4EU beyond 2021.

The sustainability of the HBM initiative in Europe will depend on the successful achievement of the main objectives of the programme, *i.e.* the establishment of an EU HBM platform, the development of appropriate environment and health research studies that support the interpretation of internal exposure data, and the transfer of the scientific knowledge to policy makers. Therefore, WP6 activities will depend on the successful implementation of all Pillars and WPs.

To measure the performance and impacts of the HBM4EU a specific task within WP6 has been defined. In collaboration with the EU policy board, key institutional actors and stakeholders and leaders of large EU or national projects, DOMG and partners have developed a set of indicators capturing societal, scientific, policy and stakeholder perspectives, to measure the performance and impacts of HBM4EU.

These indicators should capture, amongst others, performance of the research activities, impact on science, policy, and society, increased national coordination of HBM related activities, increased engagement of less experienced countries and progress towards an EU-wide HBM platform.

DOMG and partners have developed such indicators and used them in indicator leaflets that will allow to measure the performance and impact of HBM4EU in relation to the objectives as well as the expected impacts, as laid down in the description of action of the Grant Agreement.

To further optimize and revise the first set of indicators and criteria, a collaboration with the EU Policy Board and key stakeholders was set aimed at providing a robust justification for a long-term HBM project in Europe.

5 Setting the scene: Questions and goals to be addressed by HBM4EU

5.1 Questions to be addressed by HBM4EU indicators[1]

European citizens of all ages are exposed to a wide range of chemical pollutants through their diet, their environment, the use of consumer products and at their work place. Exposure to these chemicals (including mixtures of chemicals) takes place through a variety of pathways and exposure routes, notably via dermal and oral uptake and by inhalation, with the combined exposure via all routes being the aggregate exposure.

Despite the existence of human biomonitoring (HBM) programs at national level and the large number of research and development projects ongoing both at national and European Union (EU) level, there is a clear lack of data on aggregate exposure to single substances and to mixtures of chemical substances, as well as insufficient evidence-based knowledge on the link between external exposure via different routes, internal levels and human health. This knowledge is essential to inform effective policy-making to protect the EU population from the impacts of chemical exposure on health. In particular, exposure to mixtures of substances is not adequately addressed, since current risk assessment procedures assess the risks from substances acting in isolation.

Furthermore, there is a lack of robust data on internal exposure. HBM data that represent national populations, as well as certain vulnerable groups and highly exposed subgroups, do exist in several European countries and these data could be used to further develop and improve chemical regulations aiming to protect human health. However, a number of factors prevent the use of these data at EU level to gain a pan-European perspective. Firstly, the data were not collected according to harmonised protocols and might therefore not be comparable. Secondly, differences in the metadata characterising the datasets impede cross-dataset analyses, and finally available data are not representative for the European population.

5.2 Overarching objectives and specific goals of HBM4EU[2]

In order to address the abovementioned issues, there is a clear need to:

- OO 1. Harmonise procedures and tools for HBM at EU level;
- OO 2. Provide and, where missing, generate internal exposure data and link this data to aggregate external exposure and the relevant exposure pathways;
- OO 3. Develop novel methods to identify human internal exposure to environmental and occupational substances and establish the causal links with human health effects;
- OO 4. Provide policy-makers and the general public with science-based knowledge on the health risks associated with chemicals exposure; and
- OO 5. Improve chemical risk assessment in the EU through the effective use of HBM data.

[1] See page 223 Grant Agreement (GA)
[2] See page 223-224 GA

The overarching objectives will be achieved via the following specific goals (SG)[3], to be accomplished during the 5-year programme:

- SG 1: Laying the foundations for a pan-European HBM platform that includes National Hubs and builds on existing expertise;
- SG 2: Developing a common methodology for the interpretation and use of HBM data in policymaking;
- SG 3: Harmonising and optimising the practices of national HBM programmes, including sample collection, quality assurance and data management;
- SG 4: Identifying gaps where further data are needed to inform current policy questions and designing new, targeted studies to address these knowledge gaps;
- SG 5: Including new HBM data and, where possible, existing HBM data in the European Commission´s Information Platform for Chemical Monitoring (IPCHEM);
- SG 6: Linking external to internal exposure in order to improve exposure models for risk assessment;
- SG 7: Developing, validating, and applying exposure and effect biomarkers to improve understanding of the health risks associated with aggregate exposures;
- SG 8: Identifying chemicals of concern through novel methods for the holistic analysis of HBM samples and improving the use of HBM data in assessing exposure to and the risks of chemical mixtures;
- SG 9: Enhancing our understanding of the causal association between chemical exposure and adverse health outcomes by combining mechanistic studies with existing cohort data;
- SG 10: Promoting capacity building at national level through training and exchange programmes;
- SG 11: Engaging with stakeholders, including the general public, throughout the programme to ensure the credibility, accountability and legitimacy of activities and results.

5.3 Expected impacts of HBM4EU[4]

Five expected impacts have been described in the DOA:

- **Coordinated HBM initiatives in Europe at national and EU level**: By joining forces in a coordinated initiative, the HBM4EU programme will foster a common approach to the development of new HBM programmes and research activities. The National Hubs (NH) are major actors in spreading best practice and capacity building. By generating harmonised data, the comparability of data will be improved. The statistically derived reference values generated under harmonized conditions will improve future risk assessments and ultimately protect environment and health.
- **Understanding the nature and level of chemical exposure of EU citizens**
  The HBM4EU will take into account external exposure routes and sources, as well as impacts on health of citizens of all age groups, including workers. These efforts will improve the evidence basis for risk assessment, which will in turn simplify workflows for industry and agencies assessing risks, so reducing costs while at the same time enhancing chemical safety for the EU population.

[3] See page 224 GA
[4] See page 248-250 GA

- **Establishment of an EU-wide base of human exposure data for policy**
  Following the framework set by the IPCHEM Policy Document, new HBM data will be made available to user groups including EU and national policy makers, as well as to scientists of the consortium. This will ensure that results can be analysed at the EU level as well as at the national level. By using IPCHEM, we will automatically connect to other chemical monitoring data available via IPCHEM, including data on chemicals in food and feed, indoor air, consumer products and the environment. As such, HBM4EU will add value to IPCHEM and will stimulate the use of HBM data across policy domains.
- **Possibilities to ensure HBM sustainability in Europe**
  By creating a strong partnership with the involvement of NHs from each participating country, HBM4EU will pave the road towards a sustained programme. Several options for the sustainability of HBM4EU are currently foreseen. These options are described in detail in deliverable D6.5- *Sustainability of HBM4EU in the future and related operational architecture concept: first report*, which is due at the end of June 2019.
- **Increased awareness**
  To increase awareness of the utility of HBM, we will implement a communication and dissemination strategy for the exploitation of results. The dialogue with stakeholders and policy makers will run from the start and enables the Consortium to respond to current and future policy demands and the needs of the EU population in a timely way. We also aim to increase the awareness of the general public created by a section on the HBM4EU website that addresses the general public. In addition, we will develop targeted material in different languages to provide tailored information to survey participants of different ages and different educational status. Focus groups will be organised to capture the perspective of lay people in the prioritisation exercise.

6 Revised list of indicators: participatory approach towards indicator leaflets

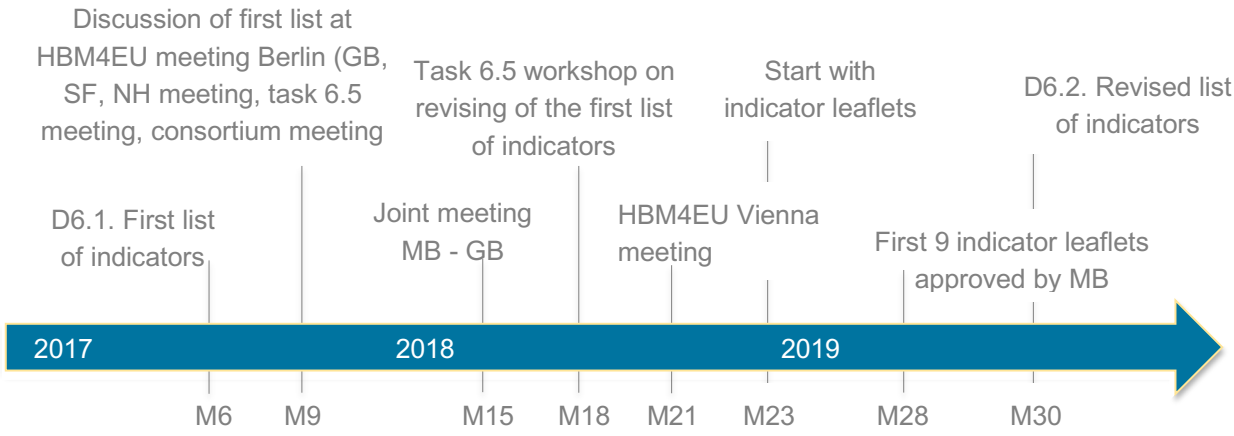


Figure 1: Timeline with main steps towards the revision of the first list of indicators

6.1 First list of indicators

The first list of key indicators was published as **Deliverable D 6.1** (June 2017; available at https://www.hbm4eu.eu/deliverables/). These indicators intended to capture, amongst others, performance of the research activities, impact on science, policy, and society, increased national coordination of HBM related activities, increased engagement of less experienced countries and progress towards an EU-wide HBM platform. The first list contained 39 indicators. In addition 9 internal indicators were defined for internal project monitoring.

6.2 Discussion and revision of the list of indicators

This list of indicators was presented at the Governing Board meeting, the stakeholder forum meeting, the national hub meeting and the consortium meeting (**Berlin, 09/2017**). The list of indicators was welcomed and discussed. Some suggestions for improvement of the list were raised:

- reduce the number of indicators (e.g. by working with subindicators and deleting 'nice to have' indicators) and focus on necessary indicators
- make the relationship between the indicators and the goals of HBM4EU more clear

On a **specific meeting for task 6.5** in Berlin (09/2017), it was agreed to take these comments into account and to further develop the methodology of specific indicators and the appointment of responsible institutions per indicator.

In the next months, partners within task 6.5 and partners that were supposed to be responsible to deliver the data for one or more indicators were contacted to:

1. confirm whether they were responsible for one or more indicators (as indicated in D6.1),
2. to discuss the methodology of the indicator(s) they're responsible for and
3. to ask their opinion concerning the pragmatism to fill in the indicator and the necessity ('need to have' or nice to have').

This last point was used as input for the **revision of the first list** which started in 2018.

Based on input above, DOMG, INSA and partners worked out a methodology for a baseline, yearly target and 5-year target (where possible and/or useful). Specific partners (identified as responsible institutions) were contacted to fill in the baseline, yearly target, 5-year target and yearly value (this included e.g. contact with the national hub coordinator for national hub consultation on specific indicators and with EAA for indicators on stakeholder involvement).

In a next step, in March 2018 the state of play of the first list of indicators was presented at the **joint meeting of the management committee and the EU Policy Board** where DOMG was asked to present the list of indicators, including examples of year 1 results and ideas for revision of the list. It was agreed to further reduce the number of indicators by working with subindicators. Additional points were to:

- use the indicators to evaluate the impact of the HBM4EU project
- link the indicators with the work on sustainability of HBM in Europe

To consolidate the work, a **workshop on indicators for performance and impact of HBM4EU** (task 6.5) was held in Brussels on 19th June 2018. The goal of the meeting was to discuss the results of the first year and to get input for the revision of the first list, in preparation of Deliverable D6.2 (due in June 2019). Based on the abovementioned comments received on the joint meeting of the management committee and the EU Policy Board and to improve the added value and the actual use of the indicators it was agreed to align the list of indicators with the 11 specific goals laid down in the Description of Action (GA). Accordingly the number of indicators was reduced and reformulation of specific indicators was discussed at the meeting. The restructuration will facilitate the use of the indicators in evaluating the progress and impact of the HBM4EU programme.

At the **2018 HBM4EU Vienna meeting** (WP6 meeting, consortium meeting, national hub meeting) the revision of the first list (as concluded from the task 6.5 workshop in Brussels) was presented and discussed. It was agreed to prepare **indicator leaflets** (figure 2) that form the linkage between HBM4EU objectives, key results and (expected) impacts. These leaflets are important to track the progress of HBM4EU and feed into the discussion on the sustainability of HBM in Europe. Therefore the leaflets must be easily interpretable and presented in a more vulgarized way.

6.3 Indicator leaflets

In order to meet the requirements on indicator leaflets, described above, it was suggested by the Commission and approved by the management board to work together with EEA and its communication agency Formato Verde for the layout of the leaflets.

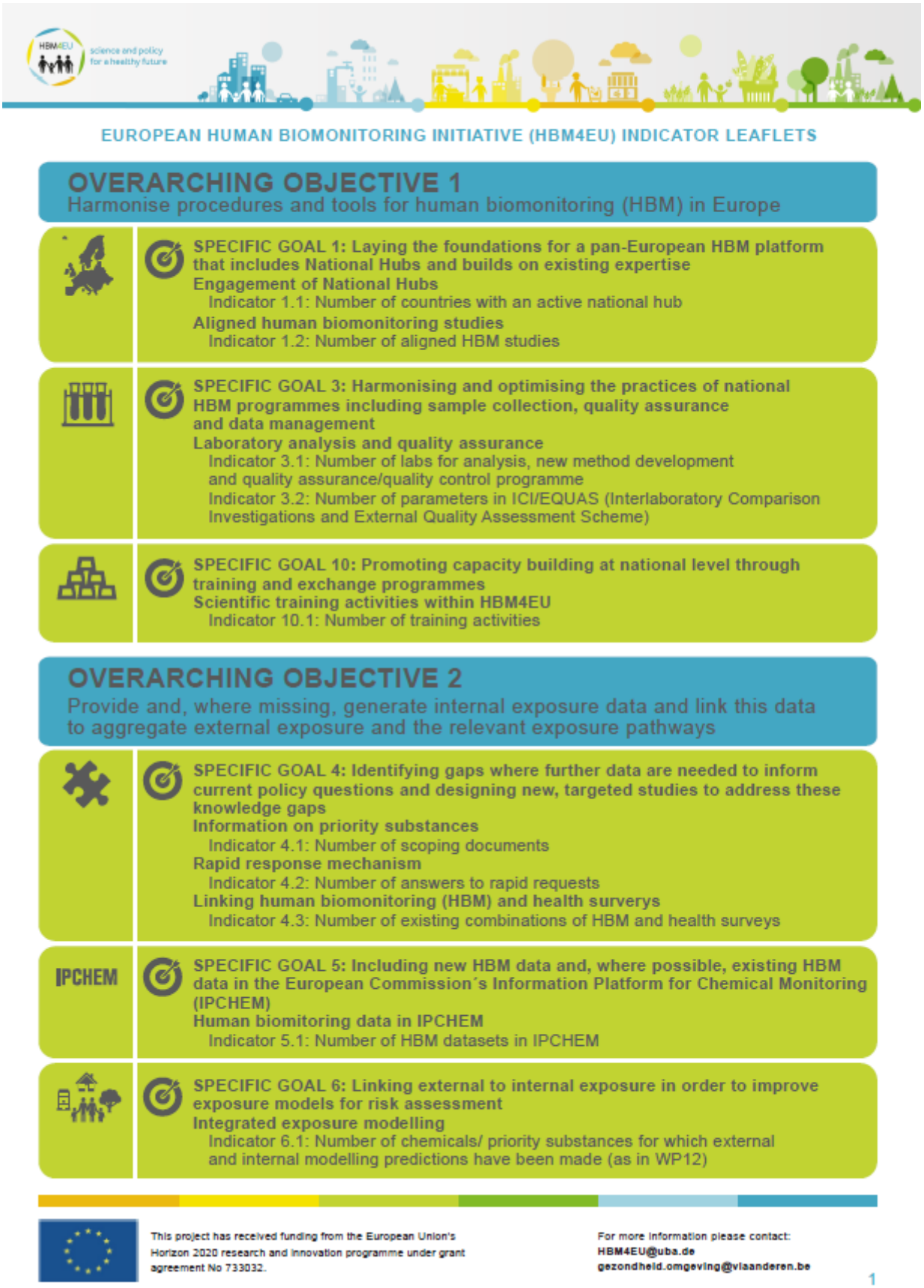
Therefore from end 2018 on, DOMG, VITO, EEA and their communication agency Formato Verde have started producing these indicator leaflets, with input from the responsible institutions for the respective indicators.

The link between the overarching objectives, specific goals[5], indicator leaflets (title in black text) and indicators can be found in the overview leaflet (figure 2). For each goal at least one indicator leaflet was made.

In total we will have 23 indicator leaflets (presented in Annex), including 1 overview leaflet and 22 leaflets linking to the specific goals of HBM4EU. They give information for in total 28 indicators (some of them grouped on one leaflet).

[5] See page 223-224 GA https://www.hbm4eu.eu/wp-content/uploads/2017/03/HBM4EU-Grant-Agreement.pdf

Figure 2: Overview leaflet linking objectives, indicator leaflets and indicators



OVERARCHING OBJECTIVE 3

Develop novel methods to identify human internal exposure to environmental and occupational chemicals and establish the causal links with human health effects

SPECIFIC GOAL 7: Developing, validating and applying exposure and effect biomarkers to improve understanding of the health risks associated with aggregate exposures

Develop, validate and apply effect biomarkers

Indicator 7.1: Number of effect biomarkers applied in joint HBM surveys

SPECIFIC GOAL 8: Identifying chemicals of concern through novel methods for the holistic analysis of HBM samples and improving the use of HBM data in assessing exposure to and the risks of chemical mixtures

Emerging chemicals screened in human samples

Indicator 8.1: Number of emerging (mixtures of) chemicals screened in human samples

SPECIFIC GOAL 9: Enhancing our understanding of the causal association between chemical exposure and adverse health outcomes by combining mechanistic studies with existing cohort data

Linking exposure to health outcomes

Indicator 9.1: Number of priority groups and number of individual chemicals for which links between exposures and human health outcomes have been described

OVERARCHING OBJECTIVE 4

Provide policy makers and the general public with science based knowledge on the health risks associated with chemical exposure

SPECIFIC GOAL 11: Engaging with stakeholders, including the general public, throughout the programme to ensure the credibility, accountability and legitimacy of activities and results

Stakeholder consultations

Indicator 11.1:Number of stakeholder consultations at European level for input in key HBM4EU processes

Science-policy interactions

Indicator 11.2: Number of science-policy interactions

Impact of HBM4EU website and social media

Indicator 11.3: Number of users and page views on the HBM4EU website

Indicator 11.4: Number of followers on social media

Scientific communication

Indicator 11.5: Number of scientific publications and bibliometric analysis

Indicator 11.6: Number of oral/poster presentations

Indicator 11.7: Number of HBM4EU events

Online library

Indicator 11.8: Number of items and downloads in the online library (per category)

Non-scientific communication

Indicator 11.9: Number of reports in non-scientific media

Indicator 11.10: Number of published policy briefs

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 733032.

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OVERARCHING OBJECTIVE 5

Improve chemical risk assessment in the EU through the effective use of HBM data

POLICY

SPECIFIC GOAL 2: Developing a common methodology for the interpretation and use of HBM data in policymaking

Exposure distributions and European reference values
Indicator 2.1:Number of biomarkers for which exposure distributions and/or reference values are calculated

Human biomonitoring guidance values
Indicator 2.2: Number of Human Biomonitoring Guidance Values (HBM-GVs)

Use of HBM for risk assessment
Indicator 2.3: Number of references to HBM4EU related HBM data in risk assessment and policy documents

INTERNAL INDICATORS ON PROJECT MANAGEMENT

HBM4EU DELIVERABLES AND MILESTONES
Indicator I.1: % of deliverables per year submitted on due date and accepted by the Commission
Indicator I.2: % of milestones reached at due date

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6.3.1 Process of revision and approval of the indicator leaflets

Table 1: Indicator leaflets, responsible institutions and related indicator numbers: state of approval

Title Indicator leaflet	Responsible institution	Indicator nr.
Indicator leaflets approved by the Management Board		
Project Output Indicators	Departement Omgeving (DOMG)	Overview
Human Biomonitoring Guidance Values (HBM-GV)	German Environment Agency (UBA)	2.2
Number of answers on rapid requests from policy makers	French Agency for Food, Environmental and Occupational Health & Safety (ANSES)	4.2
Information on priority substances	Flemish Institute for Technological Research (VITO)	4.1
Aligned Human Biomonitoring studies	Department of Health (DH)	1.2
Impact of HBM4EU Website and Social Media	European Environment Agency (EEA)	11.3/11.4
Scientific communication	European Environment Agency (EEA)	11.5/11.6/11.7
The online library	Institute of Health Carlos III (ISCIII)	11.8
Non-scientific communication	European Environment Agency (EEA)	11.9/11.10
Indicator leaflets reviewed by task 6.5. partners and the Management Board		
Linking human biomonitoring (HBM) and health surveys	Terveyden Ja Hyvinvoinnin Laitos (THL)	4.3
Human biomonitoring datasets in IPCHEM	Flemish Institute for Technological Research (VITO)	5.1
Exposure distributions and European reference values	Flemish Institute for Technological Research (VITO)	2.1
Develop, validate and apply effect biomarkers	University of Granada (UGR)	7.1
HBM4EU deliverables and milestones	German Environment Agency (UBA)	I.1/I.2
Indicator leaflets reviewed by task 6.5. partners		
Engagement of national hubs	Department of Health (DH)	1.1.
Emerging chemicals screened in human samples	University of Antwerp (UAntwerpen), Belgium / Institut National de la Recherche Agronomique (INRA), France	8.1.
Linking exposure to health outcomes	Masaryk University (MU)	9.1.
Scientific training activities within HBM4EU	Radboud University Medical Center (RUMC)	10.1
Stakeholder consultations	Austrian Environment Agency (EAA) for the stakeholder forum, European Environment Agency (EEA) for stakeholder engagement at European Level	11.1
Science-policy interactions	Flemish Institute for Technological Research (VITO)	11.2

Title Indicator leaflet	Responsible institution	Indicator nr.
Indicator leaflets in preparation (in collaboration with respective WP/task leaders)		
Use of HBM for risk assessment	Finnish Institute of Occupational Health (FIOH)	2.3.
Laboratory analysis and quality assurance	Institute of Health Carlos III (ISCIII)	3.1/ 3.2
Integrated exposure modelling	Aristotle University of Thessaloniki (AUTH)	6.1.

All leaflets have been prepared in collaboration with the respective task/WP leaders that were identified as the responsible institution for the leaflets. The review process included feedback from the task 6.5. partners and from the MB.

A first pack of 9 indicator leaflets (table 1) was reviewed by the partners in task 6.5, the Commission (Sofie Nørager), the Management Board and the EU Policy Board. In April 2019 the first 9 indicator leaflets have been accepted unanimously by the Management Board. It was suggested by a MB member to monitor how often these leaflets are used and whether the content is interpreted in a correct way. These 9 leaflets were also printed and handed over to the mid-term reviewers at the meeting of the mid-term review of the project on the 7th of May 2019.

The other 13 leaflets are in different stages of review and approval (see table 1). All leaflets will be sent to the Management Board for approval before the HBM4EU Meeting Week in Berlin (10/2019). Leaflets approved by the Management Board will be published on the HBM4EU website so the documents can be freely accessed.

6.3.2 Feedback on the concept and use of the leaflets: results of the consultation during the sustainability workshop in Paris (April 2019)

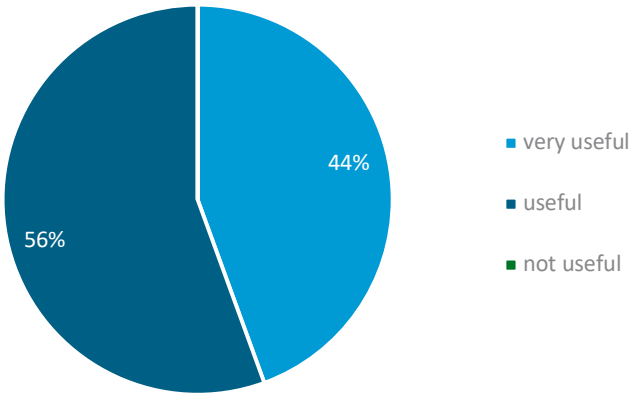
A HBM4EU WP6 workshop on sustainability of HBM4EU was held in Paris on 3 and 4 April 2019, bringing together WP6 partners, National Hub Contact Points (NHCP), the HBM4EU ambassador, representatives of the European Institutions EFSA, ECHA, EC and the French national ministry of research and education.

As part of the workshop a presentation and discussion on HBM4EU indicator leaflets was organised.

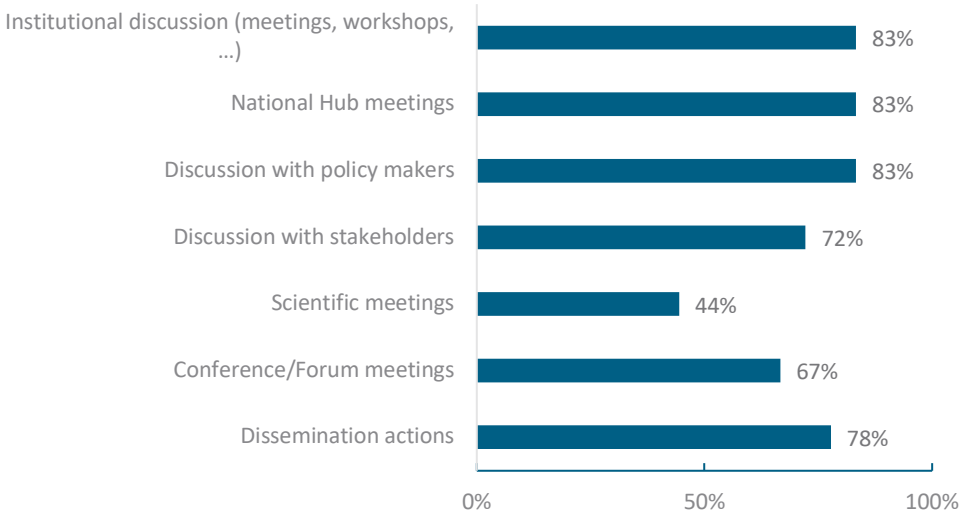
The first 9 leaflets were presented as an important tool to track the progress of HBM4EU and to feed into the discussions on the sustainability of HBM in Europe. They were found to be an appealing tool to increase awareness of HBM4EU key results.

A consultation concerning the use of indicator leaflets was sent via mail (google form) during the sustainability workshop in Paris (3-4 April 2019). 18 participants responded to the questionnaire (including 13 national hub contact points). The answers to the questions are represented below.

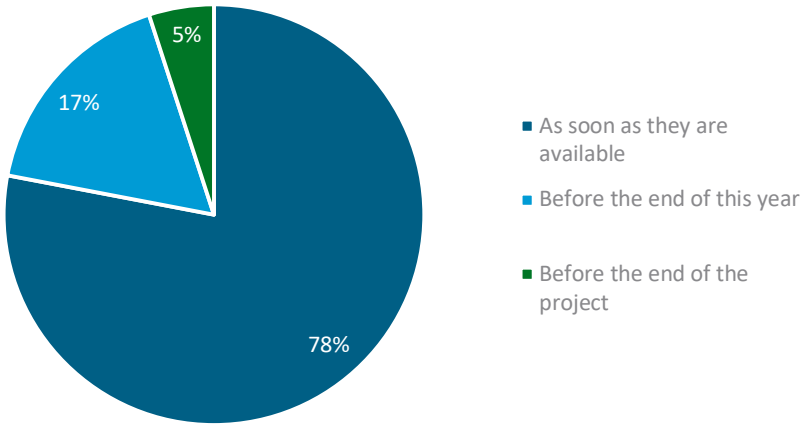
1. **In general, what is your opinion regarding the leaflets?**



2. **Would you use the leaflets for (choose all that apply)**



3. **If you intend to use or apply the leaflets in the near future, what timeframe would make the most sense for your plans?**



4. **Do you know other ways in which the leaflets can be used?**

   International co-operations, on the website, in newsletters, national hub meetings, communication with policy makers, in a scientific journal, talk to citizens.

7 General conclusions

The indicator leaflets already contain a lot of results that give very valuable information on the progress of HBM4EU in relation to the specific goals of the project. Combining the information from these leaflets in the frame of expected impacts will allow us to put forward conclusions towards impact and sustainability of HBM4EU.

In addition, the restructured list of indicators answers to the main comments on the first list of indicators (D6.1) from the task 6.5 partners, the Management Board, the Governing Board and the EU Policy Board, *in concretu* to:

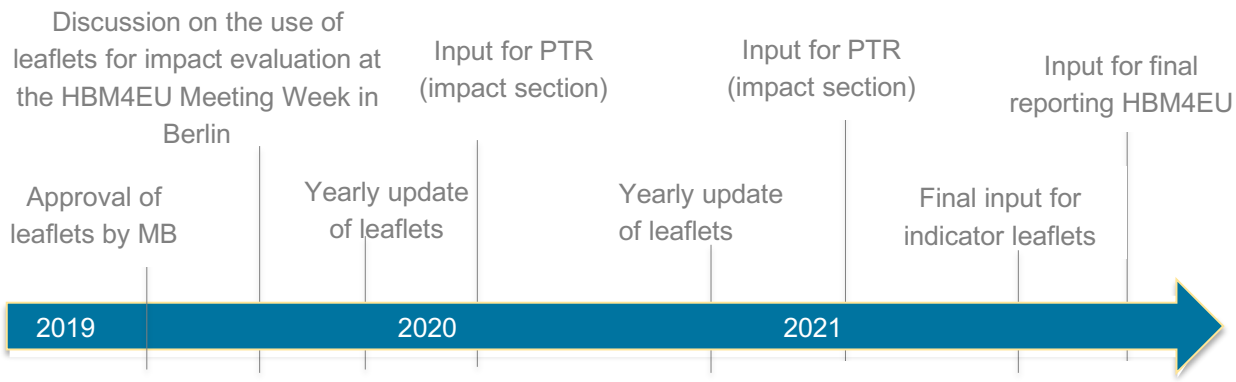
- Drastically reduce the number of indicators from 48 indicators (including 9 internal indicators) on the first list to 28 indicators on the revised list without losing essential information. Moreover by bundling related indicators we now have **22 indicator leaflets** (and 1 overview leaflet);
- Make the relationship between the indicators and the goals of HBM4EU more clear by structuring the list of indicators according to the overarching objectives and specific goals;
- Use the indicators to say something about the impact of the HBM4EU project: the indicator leaflets were used to give input for the impact section of the periodic technical reporting 2018 to describe the progress made for the 5 expected impacts of HBM4EU[6]. This exercise will be continued and ameliorated in the 2019 periodic technical reporting as more indicator leaflets will be available compared to 2018;
- Link the indicators with the work on sustainability of HBM in Europe: the indicators were presented at the sustainability workshop in Paris. Participants indicated that they think the leaflets will be useful for institutional discussions, national hub meetings, meetings with policy makers and other meetings and that they would like to use them as soon as they are available.

[6] See page 248-250 GA https://www.hbm4eu.eu/wp-content/uploads/2017/03/HBM4EU-Grant-Agreement.pdf

8 Future plans and final remarks

This set of indicators/indicator leaflets is planned to be revised yearly, based on the acquired experience with the implementation of the initiative. The data for the leaflets will be updated on a yearly basis. The input for this yearly revision will be asked to the responsible partners.

In the next WP6 meeting on the HBM4EU Meeting Week in Berlin (07.-11. October 2019), ideas for impact leaflets will be discussed based on the specific indicator leaflets presented in this deliverable. These can include leaflets for expected impacts, as defined in the GA: these leaflets would summarize relevant info from other leaflets per specific impact and contain conclusions towards the expected impact. As such they can feed directly into the periodic technical reporting section on impact of the HBM4EU initiative (related to the expected impacts).



PTR = periodic technical reporting

Figure 3: Planned steps for indicators and indicator leaflets

9 Annex 1: Indicator leaflets