



**World Health
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REGIONAL OFFICE FOR

Europe

Tools for the monitoring of Parma Conference commitments

Report of a meeting

Bonn, Germany

25-26 November 2010



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The meeting will contribute to the development of the Environment and Health Information System (ENHIS), which is coordinated by the European Centre for Environment and Health, Bonn office

ABSTRACT

The WHO European Centre for Environment and Health (ECEH), Bonn Office, is maintaining the Environment and Health Information System (ENHIS) to support policy actions to reduce the burden of environmentally mediated diseases. At this meeting, experts from 35 countries of WHO European Region and three international institutions defined the minimum set of indicators for monitoring the commitments to reduce health effects of environmental hazards in children which were adopted at the Fifth Ministerial Conference on Environment and Health in Parma, Italy. Using a set of pre-defined criteria, such as public health impact, feasibility, interpretability, data comparability and sustainability of data collection efforts, the meeting selected 18 environmental health indicators addressing five time-bound Parma conference commitments. The meeting also set schedules for the development of indicator methodologies, data collection protocols and implementation of these indicators in ENHIS, and specified communication mechanisms with the European Environment and Health Process.

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Background and preparation of the meeting

The Fifth Ministerial Conference on Environment and Health (Parma, Italy, 2010) adopted the Declaration and the Commitment to Act containing the set of targets for the environment and health process. For the first time, deadlines were set to reduce the harm to children's health from specific environmental factors under four Regional Priority Goals (RPGs): (1) ensuring public health by improving access to safe water and sanitation; (2) addressing obesity and injuries through safe environments, physical activity and healthy diets; (3) preventing disease through improved indoor and outdoor air quality; and (4) preventing disease arising from chemical, biological and physical environments.

This WHO consultation aimed to laying the grounds for future development and upgrade of the European Environment and Health Information System (ENHIS) to enable targeted evaluation of the effects of the implementation of policies in the follow-up of the Parma conference on reducing adverse health outcomes associated with the priority environmental health factors.

Invited experts and country representatives reviewed the current ENHIS indicators and specified a set of new indicators to enable the efficient monitoring of time-bound Parma conference commitments. They also discussed necessary measures to facilitate new data collection in Member States and ensure synergies with ongoing and forthcoming international data collection and reporting mechanisms.

The meeting had the following objectives:

- Define the minimum set of information needed for Parma Commitments monitoring
- Review the current status of ENHIS
- Define steps to ensure data collection in Member States and commitments to EH monitoring
- Agree on the process to communicate the monitoring results to the European EH process
- Decide on follow-up actions

In preparation to this meeting, WHO invited a group of experts to develop four background papers (one paper per RPG) specifying preliminary definitions and methodologies of new EH indicators. In combination with the existing ENHIS indicators, these new indicators would enable the efficient monitoring of the implementation of time-bound Parma conference commitments. The authors of background papers were drawn from among experts who had actively contributed to the development of ENHIS or had a history of participation in other WHO activities related to the EH process. The authors of background papers were asked to focus on the Parma Commitments with specific deadlines for implementation (one commitment in RPG 1, 2 and 3 each and two commitments in RPG 4) and develop indicator methodologies using the existing ENHIS methodologies as a template. The background papers were prepared with scientific input from WHO staff.

For each background paper, WHO also identified two reviewers who were asked to prepare structured comments on each indicators and the entire set of proposed indicators according to the following criteria:

- Importance: Is the health problem that an indicator addresses important and relevant to the Parma Commitments?
- Justification: Does the proposed indicator reflect exposure or health effect in question?

- Interpretability: Are the data collected in different countries and sub-regions going to be comparable? Can this indicator be used to monitor temporal trends? Are there important confounding factors in time and space?
- Feasibility: Are the required data available or are there concrete plans to collect such data? If a special survey is required, is the proposed approach realistic?
- Timeliness: Is it possible to obtain recent data or organize new data collection quickly enough to provide timely information support to policy-makers?
- Sustainability: Will it be possible to update this indicator regularly in order to monitor temporal trends?
- Recommendations: Should this indicator be recommended as is, revised (please specify necessary revisions) or dropped?

In addition, each reviewer was asked to review the entire set of RPG-specific indicators (including the existing ENHIS indicators and newly proposed ones) and assess whether it would provide adequate information for the monitoring of the relevant Parma commitment and, if necessary, suggest additional indicators.

All authors and reviewers were invited to attend this meeting.

The meeting was supported by the Bonn Office funds generously provided by the German Government through its Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.

Summary of meeting discussions

The meeting included plenary sessions as well as sessions in four working groups. The meeting was attended by 57 experts from 35 Member States as well as the European Environment Agency, European Commission and WHO (see the List of Participants in Annex 1).

The meeting started with round table introductions of the participants and the election of plenary session co-chairs and rapporteurs, and working group chairs and rapporteurs (see the list of assignments in Annex 2).

Parma conference declaration

The Parma Ministerial Declaration formulated Member States' commitments to reduce specific EH risks. For the first time in history, it set deadlines for the implementation of five specific commitments to act to protect children's health. The Declaration also affirmed the need to maintain ENHIS as a tool for information support of this process. The 60th Session of WHO Regional Committee for Europe, Moscow, September 2010, reaffirmed the Parma Declaration decisions. Thus, it directed WHO Europe to support Member States in their efforts to implement Parma commitments.

The resolution EUR/RC60/R7 of the Regional Committee urged Member States to pay particular attention to achieving the five measurable targets set out in the Parma Declaration on Environment and Health. Taking in account limited resources that can be devoted to additional data collection efforts in the Member States and the priority status that the Regional Committee assigned to the commitments with deadlines, WHO proposed that a set of information tools to be selected at this meeting should focus on the five Parma commitments with specific deadlines for implementation, namely:

- RPG 1 Commitment (ii): “We will strive to provide each child with access to safe water and sanitation in homes, child care centres, kindergartens, schools, health care institutions and public recreational settings by 2020, and to revitalize hygiene practices.”
- RPG 2 Commitment (iv): “We aim to provide each child by 2020 with access to healthy and safe environments and settings of daily life in which they can walk and cycle to kindergartens and schools, and to green spaces in which to play and undertake physical activity. In doing so, we intend to prevent injuries by implementing effective measures and promoting product safety.”
- RPG 3 Commitment (iii): “We aim to provide each child by 2020 with healthy indoor environment in child care facilities, kindergartens, schools and public recreational settings, implementing WHO’s indoor air quality guidelines and, as guided by the Framework Convention on Tobacco Control, ensuring that these environments are smoke-free by 2015.”
- RPG 4 Commitment (ii): “We aim to protect each child from the risks posed by exposure to harmful substances and preparations, focusing on pregnant and breast-feeding women and places where children live, learn and play. We will identify those risks and eliminate them as far as possible, by 2015.”
- RPG 4 Commitment (iv): “We will act on identified risks of exposure to carcinogens, mutagens and reproductive toxicants, including radon, ultraviolet radiation, asbestos and endocrine disruptors, and urge other stakeholders to do the same. In particular, unless we have already done so, we will develop by 2015 national programmes for elimination of asbestos-related diseases in collaboration with WHO and ILO.”

The focus on the time bound commitments was supported by the meeting.

The Parma Conference also adopted a decision to strengthen the institutional framework for the EH process. Specifically, two international groups have been established to oversee and govern this process, European Environment and Health Ministerial Board (EHMB) and European Environment and Health Task Force (EHTF). EHMB will consist of the WHO/Euro Regional Director, senior representatives from the European Commission (EC), the United Nations Environment Programme (UNEP) and the United Nations Economic Commission for Europe (UNECE), four health ministers and four environment ministers. The 60th Session of the WHO Regional Committee for Europe elected the health ministers from France, Malta, Serbia and Slovenia and the 17th session of the UNECE Committee on Environmental Policies elected the environment ministers from Azerbaijan, Belarus, Romania and Turkey to serve as members of EHMB. EHTF, which will report to EHMB, will be formed in 2011. It will include senior representatives of the health and environment ministries from all Member States, representatives of NGOs and international organizations. The development of a set of indicators to monitor Parma commitments will be overseen by these international bodies.

Evaluation of the status of WHO Europe's Environment and Health Information System (ENHIS)

ENHIS is designed to inform public health decision-makers and support their efforts to address priority EH issues. It includes a set of health-relevant indicators that were developed using the DPSEEA framework (Driving Force, Pressure, State, Exposure, Effects and Actions). These indicators address the last three elements: Exposures, health Effects or policy Actions. The existing ENHIS indicators were selected to address important EH factors where the link between the environment and health effect is well established. An important criterion for selecting indicators was the availability of data from a sufficient number of countries of the Region. The indicator data are collected and processed using consistent standardized methodologies to enable monitoring of temporal trends and international comparisons. Background information, data summaries and interpretation are presented in indicator fact sheets to aid public health policy-makers.

Comparing 2007 and 2009 releases of ENHIS indicators demonstrates that geographic coverage (the number of countries that provided data) had improved for most indicators but these improvements were modest. Further increasing geographic coverage for the 2011 release is a challenging task that necessitates stronger support from the Member States.

ENHIS served as a primary source of information for the WHO report "Health and Environment in Europe: Progress Assessment" prepared for the Parma conference. This report also contained the results of special policy surveys that were organized with active participation of the WHO ENHIS team.

ENHIS currently includes 22 indicators (www.euro.who.int/enhis). An overview of these indicators is presented in Annex 3. ENHIS indicators will be updated in 2011. The system will also be expanded to include one new indicator characterizing population exposure to ozone.

ENHIS is currently in transition. The original ENHIS web site www.enhis.org (copies at www.enhis.net and www.enhis.info), which was maintained by the Dutch Institute of Public Health and the Environment (RIVM), is no longer updated. Access to these sites will be discontinued at the beginning of 2011 and traffic re-directed to the ENHIS pages at the WHO Europe web site at www.euro.who.int/enhis. In 2011, a new IT platform for ENHIS will be developed to provide a more interactive interface, graphical data presentation and improved data update capabilities.

In addition to the core set of indicators which are currently implemented in ENHIS, a so-called extended set of indicators has been developed for potential future implementation in ENHIS. One of the indicators from the extended set, "Urban population exposure to ozone", will be implemented in 2011 using the ozone monitoring data gathered at the AIRBASE system of EEA. Other indicator methodologies from the extended have been re-examined for their applicability to the monitoring of the Parma follow-up, can be revised if necessary and incorporated into the information system.

A new set of indicator proposals was recently developed under the Climate, Environment and Health Action Plan and Information System (CEHAPIS) project, jointly funded by WHO and DG SANCO. A total of 17 indicators (Annex 4) were recommended for further evaluation at the "Defining Health-Relevant Climate Change Indicators" meeting of international experts in Bonn, Germany on 14-15 May 2009. The analysis of data requirements for these indicators demonstrated the need to modify and improve data collection systems and capabilities in order to support the monitoring of health effects of global climate change. When the data availability problems are addressed, these indicators will be implemented in ENHIS to provide information

support to climate change adaptation and mitigation actions. Protecting health and the environment from climate change is one of priorities identified at the Parma conference.

With respect to environmental data and assessments, the European Environment Agency (EEA) is an important collaborator of ENHIS. Specifically, EEA contributes data to two existing ENHIS indicators: “Bathing water quality” and “Exposures of children to air pollution (particulate matter) in outdoor air”. A new ENHIS indicator, “Urban population exposures to ozone” will also be based on EEA data.

Selection of indicators – results of discussions in working groups and at plenary sessions

Outline of indicator evaluation and selection process

For a subset of proposed indicators that rely on the existing data sources, collaborations with other agencies owning the data as well as the quality and reliability of data sources need to be discussed. If the existing data collection mechanisms need to be modified, feasibility of such modifications needs to be evaluated. For a subset of indicators requiring special surveys, this meeting involved only brief preliminary discussions of survey methodology. At this meeting, the focus was on selecting indicators. Feasibility of surveys in Member States and synergies with the existing efforts was briefly discussed at the meeting; survey methodologies and protocols will be developed at next stages of this process.

To evaluate each indicator, the reviewers and working group members used the list of criteria outlined in the Background section as well as other considerations. The following criteria were suggested for evaluation of each set of RPG-specific indicators:

- Assess the completeness of the entire set of the existing and newly proposed indicators: are there important health issues that are not addressed?
- Is there a right balance of exposure, health effect and policy/action indicators?
- Assess the need to modify or expand the definitions of proposed indicators
- Define and evaluate additional indicators if necessary
- Discuss the feasibility of these indicators in Member States

Working group sessions also included perspective from each country represented in the working group on feasibility and relevance of each indicator. Initiatives for pilot testing and implementation would be highly valuable.

The summary of indicators that were selected at the meeting for further development and implementation is presented in Annex 5.

RPG 1 indicators

Two indicators were proposed in the RPG 1 background paper to monitor the implementation of Commitment (ii) “We will strive to provide each child with access to safe water and sanitation in homes, child care centres, kindergartens, schools, health care institutions and public recreational settings by 2020, and to revitalize hygiene practices.” Several additional indicators were proposed and discussed at the meeting.

Indicators proposed in the background paper

Incidence of viral hepatitis A

This is an important public health issue because hepatitis A is a common disease under poor sanitary and hygienic conditions, especially in young children. There are large disparities in hepatitis A incidence across the Region with much higher rates in poorer countries in the East compared to western Europe. While it would be ideal to present data on the incidence of this illness in children and adults, obtaining age-stratified data is a challenge. Two existing international databases that include hepatitis A data, WHO CISID and HFA, do not include age-specific data. Thus, at least initially, this indicator would present the total (all ages) incidence data.

A potential limitation of this indicator is the use of vaccination against hepatitis A, which weakens the link between hygienic conditions and incidence of this infection. However, improving hygiene and providing safe drinking-water would reduce the need to vaccinate children against infections that are associated with polluted water and poor hygienic conditions. Collecting information on the prevalence of hepatitis A immunization in Member States may aid interpretation of hepatitis A incidence data. Another limitation is that not all cases are associated with poor hygiene in the country as this infection can be acquired abroad by international travellers. This may affect interpretability of data in western European countries. This indicator, however, will be informative in the Eastern part of the Region. The final recommendation of the meeting was to approve this indicator as is.

Access to improved and adequately operated and maintained sanitation facilities in schools and kindergartens

Hygienic and microbiologically safe school toilet facilities are essential for children's health. Even advanced sanitation facilities are sometimes not maintained adequately. Hygienic behaviours and appropriate school hygiene practices are equally important. Improved school sanitation facilities are designed in accordance with the UNESCO Guidelines. Adequate operation and maintenance can be defined based on the existing national programs and published toolkits.

There are no existing ready-to-use data sources. A specially designed survey may be needed. Potential collaborations with the WHO global school-based student health survey (GSHS), Health Behaviour of Schoolchildren (HBSC) survey and WHO/ UNICEF Joint Monitoring Programme (JMP) should be explored. JMP is interested in learning through this exercise how to measure hygienic conditions in schools.

The recommendation of the meeting was that this indicator is important and feasible. A revision of this indicator was recommended to include hygiene practices in schools. The indicator should be calculated taking in account the availability of improved sanitation facilities and, separately, availability of improved sanitation facilities with proper operation and maintenance practices (specific definitions and scoring scheme to be developed). A separate indicator should address hygienic practices in schools and kindergartens.

Additional indicators discussed at the meeting

Hygienic practices in school and kindergarten children

While the presence of hygienic facilities is a necessary pre-condition for good hygienic practices, the actual proportion of children who follow such practices needs to be monitored. The meeting decided to approve this proposed indicator.

Policy to improve hygiene at schools and kindergartens

The meeting decided that a policy indicator which could examine the scope and existence of appropriate legislation, policy actions, and promotional and educational hygiene practices campaigns to ensure hygiene is warranted.

Exposures to or health effects linked with chemical pollutants of drinking-water

For some countries in the Eastern part of the Region, chemical pollution of drinking-water sources remain a problem. For example, contamination of drinking-water with nitrates and its health effect, methemoglobinemia or blue baby syndrome, remains a public health concern in some agricultural areas. An appropriate mechanism to monitor this problem would be WHO/UNECE Protocol on Water and Health, which includes a provision for the organization of surveillance programs for chemical pollutants.

Broad cross-cutting indicator of EH policies

The general consensus was that a policy indicator is required which would cut across all four RPGs. Capacity building should be considered in connection with the development of such an indicator. There is recognition that there may be inherent difficulties, such as varying awareness on relevant issues between the countries. Therefore, an informative indicator would need to be very simple. Further discussions would be necessary to shape this idea.

RPG 2 indicators

The background paper for RPG2 contained six new indicators addressing Commitment (iv) “We aim to provide each child by 2020 with access to healthy and safe environments and settings of daily life in which they can walk and cycle to kindergartens and schools, and to green spaces in which to play and undertake physical activity. In doing so, we intend to prevent injuries by implementing effective measures and promoting product safety.” Several additional indicators were proposed by meeting participants.

Indicators proposed in the background paper

Population-weighted availability of green urban areas

Although this indicator addresses an important aspect of urban environment, the mere availability of green areas in a city was not thought to be a sufficiently relevant proxy of physical activity. Therefore, this indicator was not recommended for the implementation.

Population-weighted availability of sport and leisure facilities

The recommendation is that this indicator should not be used to monitor Parma commitments for the same reasons as above.

Access to public/green open spaces and sports/recreational facilities

This indicator is considered to be both important and relevant. However; further work is needed to develop a final definition of access. The consensus is that “access” should mean a specific short distance and it should be free of charge for everyone. The indicator is a proxy to measure physical activity among children. Collation of the relevant information may be difficult in some countries. A final methodology should address harmonization of data collection. The meeting also decided that access to safe swimming places should be incorporated in the definition of this indicator. The new definition is “Access to public/green open spaces, sport/recreational facilities and swimming places”.

Proportion of children going to and from school by different transportation modes

This indicator was recommended for the implementation. It addresses an important determinant of physical activity in school age children. The consensus opinion was that it is feasible to implement this indicator.

Injuries due to traffic accidents in children and young people

The existing ENHIS indicator “Mortality from road traffic injuries in children and young people” includes information (charts and text) on road traffic injuries in people aged 0-24 years. It was pointed that the data are not very accurate due to a large amount of underreporting especially for injuries in bicyclists. The rate of underreporting may also differ between countries. The meeting confirmed that this ENHIS indicator is useful for the monitoring Parma commitments but recommended to develop realistic measures to harmonize data collection in Member States.

Hospital admission due to unintentional injuries: drowning and falls

Very few countries report external causes of injuries. Therefore, the meeting recommended that this indicator should not be implemented.

Additional indicators proposed at the meeting

Injuries due to sports and leisure among adolescents

The meeting agreed that this is an important measure of safety of physical activity among children. However, the prevailing opinion was that the data from different countries would not be comparable due to the lack of harmonization and different reporting procedures. Therefore, the meeting decided that this indicator should not be pursued.

Poisoning and burns with household chemicals in children

This could be an important indicator if the data were readily available. However, obtaining data from a sufficient number of countries would be problematic as there are no readily available databases. The meeting decided that this indicator should not be pursued due to the feasibility problem.

Toy-related injuries in children

This indicator idea reflects an important product safety issue. However, collecting such data from a sufficient number of countries would be problematic. The meeting recommended that this indicator idea should be further explored and discussed in view of developing an indicator in the future if Member States start collecting such data.

Hospital admissions due to injuries in children and adolescents

Data on hospital admissions due to all types of injuries in children and adolescents are collected in many countries of the Region. However, there was an agreement among experts that the threshold for hospital admission varies among countries as well as in time. At this point, the data are not comparable in time and space and, therefore, the indicator would not be an informative tool for the monitoring of Parma. This idea should not be abandoned, however. Further exploration is recommended before this indicator idea can be put forward for implementation.

Fractures of long bones in children

This idea was proposed in order to ensure comparability of data. There are publications showing that data on hospital admissions due to fractures of long bones are more comparable than data on other types of injuries. However, the final recommendation of the meeting was to conduct further research prior to making a decision on the development of this indicator.

Policy to prevent injuries in children

A composite indicator for the existence and implementation of policies on injury prevention in children would enable monitoring of development and implementation of national action plans for injury prevention. The meeting supported this indicator idea for further development.

RPG 3 indicators

Five indicators were proposed by the authors of the background paper to monitor Commitment (iii) “We aim to provide each child by 2020 with healthy indoor environment in child care facilities, kindergartens, schools and public recreational settings, implementing WHO’s indoor air quality guidelines and, as guided by the Framework Convention on Tobacco Control, ensuring that these environments are smoke-free by 2015.” One additional indicator was proposed by working group members at the meeting.

Indicators proposed in the background paper

Smoking and exposure to second-hand tobacco smoke in schools

This indicator is an important measure of exposure to tobacco smoke in children. Questions in the International Survey of Asthma and Allergy in Children (ISAAC) and the HBSC survey could be amended to gather data relating to specified age groups. Although some relevant data are also collected in ongoing projects, such as Schools INdoor Pollution and Health: Observatory Network In Europe (SINPHONIE) and School Environment And Respiratory health of CHildren (SEARCH), continuous surveillance systems do not exist. Thus, a special survey may need to be developed to collect this information on a regular basis. The recommendation of the meeting was to support this indicator proposal as is.

Policy to ban smoking in schools and on school grounds

The recommendation is to keep this indicator in this monitoring programme with one modification. The meeting recommended adding the sixth parameter to the proposed policy index to address the existence of educational programmes on tobacco smoking prevention targeting children in primary schools and parents. Further discussions are required to address the weighting of all six parameters.

Dampness and mould in school facilities

This exposure indicator is considered important. Health effects of exposures to moulds are well established. Some relevant data can be obtained from research projects but there is no routine surveillance. Further work will be needed to develop survey methodologies and protocols. The meeting approved this indicator for further development and testing.

Insufficient ventilation in schools

The indicator is defined as the proportion (and estimated number) of children exposed to insufficient ventilation in classrooms. This exposure indicator was deemed to be important from public health point of view. Although surveys of ventilation in schools have been conducted in several Member States, there is no routine surveillance system in the Region. The data for this indicator will need to be collected using a special survey that will employ CO₂ measurements in classrooms to estimate air exchange rates using steady state CO₂ concentration data. The meeting supported this indicator for further development and implementation. A substantial amount of further work will be required to develop this indicator methodology and survey protocol.

Exposures to selected indoor air pollutants in schools

Data on indoor air concentrations of these pollutants will need to be collected using passive samplers in classrooms. The meeting noted that a single survey can be designed to collect data on the pollutants, air exchange rates and exposures to moulds. (Smoking in schools and the mode of transportation to school can also be addressed in such a survey). Several experts believed that data collection for Parma follow-up should be based on questionnaires rather than monitoring of chemical pollutants. The meeting eventually supported the proposal of an indoor air quality survey with modifications. Specifically, it was recommended that the core pollutants monitored should be NO₂ (proxy for the effect of traffic pollution) and formaldehyde. Monitoring of benzene should be optional. It can also include monitoring of xylenes and toluene as these pollutants can be measured together. In addition, the meeting discussed monitoring of indoor air concentrations of PM₁₀. The consensus was that PM₁₀ monitoring, which requires active samplers with a pump, would be too expensive and complicated. Outdoor data on PM₁₀ concentrations are currently used in an existing ENHIS indicator to characterize population exposures. Another suggestion was to include monitoring of indoor air pollutants in kindergartens.

The working group recommends the use of standardized and established methods, such as those from the SINPHONIE study. Surveys undertaken in specific countries, for example, in France where sampling was conducted in 300 day care centres and schools can be used as a basis for the development of a harmonized survey methodology and protocol. Further questions to be addressed at later stages pertain to clustered random sampling of schools, selection of samplers, and specific details of sampling methodology. Analytical laboratory capabilities of some countries will also need to be evaluated and potentially strengthened. To summarize, the meeting approved this indicator with modifications.

Additional indicator proposed at the meeting

Policy to improve air quality in schools

This policy indicator was proposed by the working group. The general consensus of the meeting was that integrating appropriate measures to ensure proper indoor air quality into school regulations, like specifications for building and furnishing materials and ventilation systems, and operation and maintenance procedures is essential for preventing exposures to indoor air pollution. The meeting decided that a composite index of the existence and scope of regulations to improve indoor air quality in schools needs to be developed and included in the toolbox for the monitoring of Parma commitments. Policy components may include (1) the existence of indoor air quality (IAQ) regulations covering schools; (2) enforcement of such regulations; and (3) existence of IAQ provisions in energy saving regulations.

RPG 4 indicators

Four indicators were proposed in the background paper to monitor the implementation of Commitments (ii) “We aim to protect each child from the risks posed by exposure to harmful substances and preparations, focusing on pregnant and breast-feeding women and places where children live, learn and play. We will identify those risks and eliminate them as far as possible, by 2015.” and (iii) “We will act on identified risks of exposure to carcinogens, mutagens and reproductive toxicants, including radon, ultraviolet radiation, asbestos and endocrine disruptors, and urge other stakeholders to do the same. In particular, unless we have already done so, we will develop by 2015 national programmes for elimination of asbestos-related diseases in collaboration with WHO and ILO.” Several additional indicators were proposed by meeting participants and discussed at the meeting.

Indicators proposed in the background paper

Early life exposure to mercury

This indicator will be based on biomonitoring of mercury in hair samples from women who recently gave birth to assess foetal exposures during the late pregnancy when neurotoxic effects of mercury are most pronounced. Since the main route of exposure to mercury is consumption of fish, exposures are wide-spread. The problem is of sufficient public health importance. The survey should be incorporated into existing surveillance programs to ensure feasibility. Sustainability would also need to be evaluated. The use of standardized sampling and analytic technique should ensure comparable data from different countries. The working group recommends that this indicator should be adopted. However, the feasibility in all countries needs to be assessed and support should be provided where and if needed. Laboratory and analytical capabilities need to be evaluated and QA/QC issues addressed especially in the eastern part of the Region, to ensure data comparability.

The working group session on day 1 also included presentation of human biomonitoring projects COPHES (Consortium to Perform Human biomonitoring on a European Scale) funded by the EU 7th Framework Programme and DEMOCOPHES (DEMONstration study to COordinate and Perform Human biomonitoring on a European Scale) funded by the EU LIFE+ Programme and Member States. Under these projects, the human biomonitoring approach will be harmonized in 27 European countries. DEMOCOPHES is a demonstration pilot project that will report the results to COPHES which will prepare recommendation for future sustained human

biomonitoring efforts in the EU. This project involves monitoring of mercury in hair samples. There are other ongoing projects in Europe that also include monitoring of mercury in hair. It is important to identify synergies with the proposed indicators, specifically, monitoring of early life exposures to mercury and use the existing mechanisms to organize data collection for this indicator.

Brominated flame retardants in human milk

PolyBrominated DiphenylEthers (PBDEs) are used widely in many different products. Unlike exposures to many other persistent organic pollutants, which have been declining since 1970s, exposures and breast milk concentrations of PBDEs have been increasing until recently. Monitoring of PBDEs is optional under the WHO program of monitoring POPs in breast milk. Data on PBDEs in milk samples from Sweden are incorporated into the existing ENHIS indicator “Persistent organic pollutant in human milk”. Concentrations of PBDEs peaked in Sweden in the late 1990s and then declined rapidly due to phasing out of the use of PBDEs. The problem is of moderate importance in western Europe where concentrations are much lower than in the USA. The meeting recommended accepting this indicator for further development.

Policies to eliminate asbestos-related diseases

This is a composite index reflecting the presence of policies to prevent exposures to asbestos and their implementation. The initial proposal in the background paper includes the following questions:

- Is using asbestos in new construction and other materials and industries banned in the country?
- Is there a Legislation/National Programme/Plan/Strategy for preventing exposures to carcinogenic asbestos when dismantling asbestos-containing structures in existing buildings and structures when they are repaired or demolished?
- Are there measures to eliminate exposures to asbestos in existing facilities for children, such as schools, kindergartens, etc.:
 - (1) cataloguing asbestos-containing sites,
 - (2) containing the sites to prevent friability leading to exposure, and
 - (3) professional removal of asbestos, when the building is repaired or demolished?

The meeting agreed that this indicator is important. Inhalation of asbestos fibres causes lung cancer, mesothelioma, asbestosis and other diseases. One of the time-bound Parma commitments is devoted to elimination of asbestos-related diseases and this indicator is a necessary tool for the monitoring of its implementation. However, the meeting could not reach an agreement on the definition of this indicator. Specifically, the Russian Federation has been producing and using chrysotile asbestos, a less hazardous variety of asbestos. Due to different physical and chemical properties of its fibres, chrysotile asbestos has substantially weaker cancer potency than amphibole asbestos. Mining of chrysotile asbestos and its use in a variety of products continues in the Russian Federation. Both varieties of asbestos, however, are classified as carcinogens by International Agency for Research on Cancer (IARC). The scientific dispute is about the magnitude of the difference between their cancer potencies, not their carcinogenicity.

Two experts from the Russian Federation who participated in working group 4 presented a separate proposal for the definition of the asbestos policy indicator. Specifically, the Russian delegation disagreed with two components of the above index: cataloguing asbestos-containing sites and professional removal of asbestos when the building is repaired or demolished. It suggested replacing the entire proposed index with a different composite index consisting of 12 components. The position of the Russian delegation was acknowledged by the meeting.

The meeting decided to support this indicator in principle. A modified indicator definition will need to be developed to satisfy all Member States.

Mortality due to mesothelioma

Most cases of mesothelioma are linked to occupational exposures to asbestos. Time lag between exposure and the development of disease is at least 15 years and can be more than 30 years. The current incidence of this disease reflects exposures many years ago. The recommendation from the working group was to drop this indicator. The prevailing opinion was that it is not suitable for monitoring the implementation of Parma commitments because reducing exposures now will reduce the disease many years later. At the final plenary session, however, several experts spoke in favour of implementing this indicator. While most cases are linked with occupational exposures, the number of non-occupational cases is increasing in some countries. This indicator could be important for informing decision-makers about health effects of asbestos. The final recommendation of the meeting was to further explore this indicator in connection with the asbestos policy indicator.

Additional indicators proposed at the meeting

Population exposure to noise from different sources

This indicator can be based on the indicator methodology from the extended set of ENHIS indicators with modification. It will be based on noise monitoring data that are available from EEA. The meeting recommended this indicator for further development and implementation.

Policy to minimize children's exposures to harmful chemicals and other harmful environmental factors

This indicator will be a composite index reflecting the existence and scope of relevant regulations, their enforcement and evaluation mechanisms. The meeting recommended this indicator for further development and implementation.

EH awareness, education, training and information activities

This cross-cutting policy indicator would contribute not only to RPG IV but also RPGs I and III. It would reflect an overall level of activities aiming at EH education and information, such as the existence of awareness raising campaigns, educational and training activities for parents and teachers, publications and web sites with practical guidance to avoid exposures to chemicals, school lessons and university level training courses and degree programs in EH. Since this indicator does not reflect a specific environmental hazard or policy actions to reduce health impacts of a specific priority EH factor, further discussions are necessary to determine an appropriate framework for its implementation.

Exposures to harmful chemicals in toys

This indicator requires data which are not currently available in most countries. While chemical safety of toys is important, the implementation of this indicator needs to be postponed. Further discussions are needed to determine the type of indicator (policy index or a measure of exposure).

Exposures to non-ionizing radiation from the use of mobile phones

This indicator was not supported for further development because the link between exposures to cell phone and detrimental health effects is not yet well established. ENHIS is designed to inform decision-makers about exposures to and health effects of well established environmental hazards.

Concluding comments on the indicator development and implementation, and communication of the results

It is imperative to keep in mind that one of the primary goals is to use the indicators for the development and monitoring of policies to improve public health. Therefore, the new indicators have to be designed for the target audience of policy-makers. The reporting obligations must not be overly burdensome for the Member States. The existing ENHIS indicators and other existing information tools have to be fully utilized for the monitoring of Parma commitments. When there is a need to develop additional information tools for efficient monitoring of Parma commitments, minimizing the burden on the Member States is an important consideration.

Therefore, the existing surveillance and data collection mechanisms should be utilized whenever possible. Other international agencies and national institutions should be brought into the process in order to harmonize efforts and minimize the number of surveillance projects. An example of partnership development is a memorandum of understanding between the EC and WHO which addresses, among other issues, joint development of EH information. All Member States of the EU and WHO European Region, as well as international NGOs, need to play a role in this process.

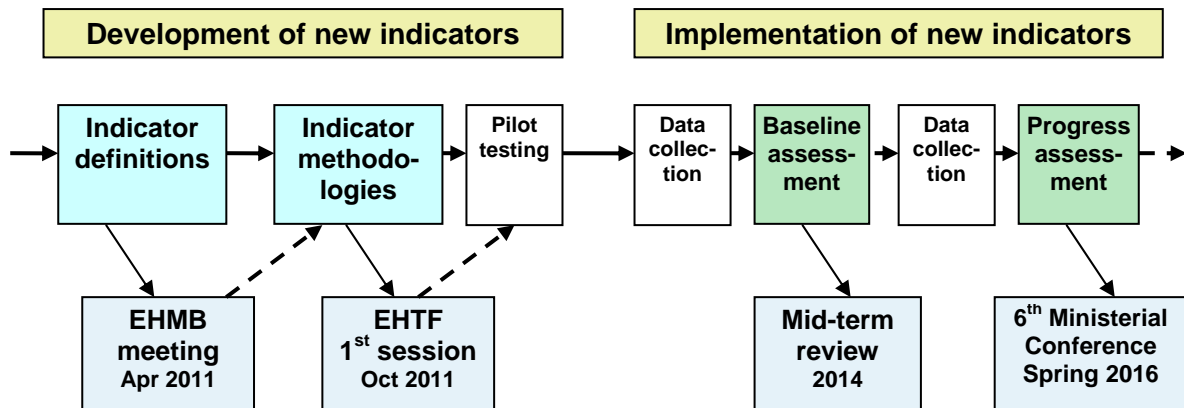
While data collection for the indicators needs to be as straightforward as possible, the indicators should provide necessary data at the appropriate level of sophistication to satisfy the needs of decision-makers. For example, while an indoor air quality survey appears to be complex, a number of European countries have already conducted such surveys on their own initiative. This demonstrates that a survey of indoor air pollution in schools is a realistic and feasible proposition. In order to reduce the costs, this survey will be integrated as much as possible with data collection for other indicators, such as exposure to moulds in classrooms, ventilation in classrooms, smoking in schools, availability of improved hygienic facilities, hygiene practices and mode of transportation to school.

Further development of ENHIS should enhance the presentation of the EH information to the target audiences across the Region. Russian remains the main language of international communication in the eastern part of the Region. The meeting affirmed that translating ENHIS materials into Russian is essential for improving access to important EH information and ensuring more active involvement in the Parma follow-up in that part of the Region.

Follow-up actions and the way forward

The development and implementation of new indicators will take place in stages. The process is outlined in Fig. 1.

Fig. 1. Indicator development and implementation process



Joint efforts involving WHO staff and experts from Member States will be necessary in order to develop final definitions of indicators. WHO will form groups of volunteers from among meeting participants as well as other experts in Member States to plan and coordinate further development of indicators. WHO staff will communicate with the meeting participants to identify volunteers who are willing to contribute their time, define responsibilities and develop action plans. Since WHO funds are limited, attracting in-kind contributions and financial resources from ministries of health and public or environmental health institutions in Member States is essential for ensuring timely development, testing and implementation of the proposed indicators.

The final definitions of indicators will be developed in spring 2011. A summary of this work will be prepared for the 1st EHMB meeting in April 2011. It is envisioned that feasibility studies of proposed indicators will be conducted in the spring and early summer 2011. Pilot surveys for indicators which rely on the existing data sources should also be completed in summer 2011. Developing survey methodologies for another subset of indicators will also be conducted in spring and summer 2011. Following a consultation with RPG groups on proposed survey methodologies (tentatively in June 2011), a report on survey methodologies and pilot testing of a subset of indicators will be prepared (tentatively July-August 2011).

An important milestone in the development and implementation of the proposed indicators will be another WHO consultation in autumn 2011 (tentatively at the end of September, prior to the 1st session of EHTF). It is expected that the meeting will be attended by a similar number of representatives and experts from Member States and international institutions. The following agenda is envisioned for the meeting:

- Evaluation of the results of feasibility studies;
- Plan for pilot testing of indicators requiring special surveys;
- Review of the 2011 release of ENHIS indicators;
- Measures to facilitate involvement in the ENHIS network across the Region; and
- Finalization of information on the development of indicators for the monitoring of Parma commitments for the first EHTF meeting in the fall of 2011.

After addressing potential EHTF comments on indicator methodologies (October – November 2011), pilot testing of data collection methods for indicators that require special surveys will be organized in selected countries (December 2011 – March 2012).

The initial data collection for new indicators, to be used for the preparation of a baseline assessment report for a mid-term review in 2014, will need to take place no later than late 2012 to early 2013. This will be followed by one or two more rounds of data collection in 2014-2015. The objective is to produce data for comparing countries and assessing trends for the next progress assessment report to be prepared for the 6th Ministerial Conference on Environment and Health in the spring 2016.

To ensure the way forward, it is important to identify partner institutions that will take a lead in feasibility studies and pilot testing of new indicators in different Member States across the Region. While the meeting agreed on the minimum set of indicators, further progress will depend on the willingness of Member States and their institutions to make in-kind and financial contributions, and take the initiative in organizing pilot testing and implementation of new indicators.

Conclusions and recommendations

- The meeting re-affirmed the need to maintain and develop ENHIS including its expansion to address new EH priorities.
- The meeting recommended a set of 18 EH indicators to be incorporated into ENHIS to enable the monitoring of the implementation of five time-bound commitments adopted at the Parma conference
- The meeting agreed on the follow-up actions and milestones to finalize the definitions and methodologies of the proposed indicators and to conduct feasibility studies and pilot testing.

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Annex 2. Meeting Assignments

	Chairs	Rapporteurs	Authors of background papers*	Reviewers of background papers	Working group members***	
Plenary sessions	Salma Elreedy Gazmend Bejtja	Lorraine Stewart Ethel Brits	—	—		
RPG1	Dragan Gjorgjev	Christine Baluci	Susanne Herbst**	Andrea Rechenburg** Rifat Hossain	Mirza Kazimov Omor Kasimov Valeriu Pantea Sviatoslav Protas	Gazmend Bejtja Michal Jajkaj Dafina Dalbokova
RPG2	Georges Salines	Johan Lund	Adriana Galan Ingrida Zurlyte	Jana Feldmane Veska Kamburova	Samardin Aliev Azat Ovezov Komil Mukhamedov Albert Askarov	Lorraine Stewart Margareta Palmquist Natacha Grenier Steffen Schillinger Ivo Rakovac
RPG3	Marianne Rappolder	Goranka Petrovic	Patrick Goodman Otto Hanninen** Ulla Haverinen**	Eva Csobod An Van Nieuwenhuysse	Matti Jantunen Ruzena Kubinova Rifat Pamuk Anna Paldy	Mario Cardaba Arranz Ethel Brits Salma Elreedy
RPG4	Wojciech Hanke	Pia Vracko	Irina Zastenskaya Jouko Tuomisto	Andrey Guskov Rokho Kim	Itamar Grotto Stella Canna Michaelidou Geraldine McWeeney	Anahit Aleksandryan Dagmar Kallweit Evgeny Kovalevskiy Pierre Biot Ludwine Casteleyn

* Dafina Dalbokova, Andrey Egorov, Christian Gapp and Michal Krzyzanowski provided coordination and scientific input to the preparation of background papers.

** Was not able to attend the meeting.

*** Srdan Matic, Michal Krzyzanowski, Matthias Braubach, Christian Gapp and Andrey Egorov moved from one working group to another during the meeting.

Annex 3. Overview of the existing set of ENHIS Indicators

Environmental Health issue/ RPG [DPSEEA position]	Indicator definition	Data source	Remarks
Regional Priority Goal I: Prevent and significantly reduce morbidity and mortality arising from gastrointestinal disorders and other health effects, by ensuring that adequate measure are taken to improve access to safe and affordable water and sanitation for all children			
1.1 Outbreaks of water-borne diseases [DPSExEA]	Number of outbreaks of water-related illness and total number of cases per year reported separately for drinking-water and recreational waters	National only from volunteering countries	Indicator is based on reporting by volunteering countries; information about surveillance practice and legislation is provided as well. Outbreak: an occurrence of two or more linked cases of the same illness, or an increase in the number of observed cases over the respected number. Outbreaks usually occur in a very short time e.g. les than one month
1.2 Access to improved water sources and public water supply [DPSExEA]	Proportion of population with continuous access to adequate amount of safe drinking-water in the home.	(a) WHO/ UNICEF JMP for access to improved water sources (b) Eurostat environmental statistics – water	(a) Improved water sources include piped water into dwellings, plot or yards, public taps/standpipes, protected dug well, which are likely to provide safe drinking-waters than those characterized as unimproved. Only population with household connection in urban and rural areas is considered (b) Public water supply is water supplied by economic units engaged in collection, purification and distribution of water; usually it is in urban areas only and for the EU countries
1.3 Access to waste water treatment and improved sanitation [DPSExEA]	Percentage of population served by a sewerage system connected to a wastewater treatment facility or a safe local wastewater disposal system	(a) Eurostat environmental statistics – water (b) WHO/ UNICEF JMP for access to improved sanitation	(a) Urban waste water treatment (at least secondary) under the Directive 91/271/EEC, only for the EU/ EEA countries (b) Improved sanitation includes connection to a public sewer, connection to a septic system, pour-flush latrine, simple pit latrine or ventilated improved pit latrine. Only population with house connection in urban and rural areas is considered
1.4 Bathing water quality [DPSExEA]	Proportion of identified bathing waters (coastal and fresh water zones) falling under the Bathing Water Directive definition complying with the EC mandatory values and meeting guide values	WISE bathing water quality database	Only for EU countries, Croatia and Switzerland; EEA core indicator CSI22; EC published annual report on bathing water quality in the EU; Reporting under the new Directive as of 2012

Environmental Health issue/ RPG [DPSEEA position]	Indicator definition	Data source	Remarks
Regional Priority Goal II: Prevent and substantially reduce health consequences from accidents and injuries and pursue a decrease in morbidity from lack of adequate physical activity by promoting safe, secure and supportive human settlements for all children			
2.1 Mortality from road traffic injuries in children and young people [DPSEEA]	Standardized death rate per 100,000 population for road traffic injuries in children and young people aged 0-24 years	WHO/ Europe Mortality Data Base UNECE statistics – transport	ICD-10 codes: V01–V99 UNECE statistical database section on road traffic accidents provides additional useful information e.g. injury rates; by category of user, etc
2.2 Mortality in children and adolescents from unintentional injuries (falls, drowning, fires and poisoning) [DPSEEA]	Cause-specific standardised death rates per 100 000 population for unintentional injuries not related to traffic accidents for the age group 0-19 years	WHO/ Europe Mortality Data Base	The following causes of death: (a) drowning and submersion; (b) poisoning; (c) accidental falls; and (d) exposure to smoke, fire and flames The following ICD codes: Drowning: W65-74; Falls: W00-19; Burns: X00-19; Poisoning: X40-49; Choking/suffocation: W75-84
2.3 Prevalence of excess body weight and obesity in children and adolescents [DPSEEA]	Prevalence of overweight and obesity in, 13- and 15-year of age	HBSC (Health Behaviour in Schoolchildren) survey	The HBSC is WHO/ Europe collaborative cross-national survey conducted in 2001-02 and 2005-06. Overweight and obesity are defined based on the Body Mass Index (BMI) values with cut-off points appropriate for international comparisons of the categories “pre-obese” and “obese” in two age groups
2.4 Proportion of physically active children and adolescents [DPSEEA]	Percentage of children who meet the moderate-to-vigorous physical activity guidelines, defined as 60 minutes or more of at least moderate intensity activity on 5 or more days a week	HBSC (Health Behaviour in Schoolchildren) survey	The HBSC is WHO/ Europe collaborative cross-national survey conducted in 2001-02 and 2005-06. Physical Activity is defined as “... any activity that increases your heart rate and makes you get out of breath some of the time...” The survey provides a reliable estimate or adolescents’ physical activity behaviour and correlated significantly with an objective measure of physical activity.

Environmental Health issue/ RPG [DPSEEA position]	Indicator definition	Data source	Remarks
Regional Priority Goal III: Prevent and reduce respiratory diseases due to outdoor and indoor air pollution, thereby contributing to a reduction in the frequency of asthmatic attacks, in order to ensure that all children can live in a environment with clean air			
3.1	Prevalence of asthma and allergies in children [DPSEEA]	Prevalence rates of symptoms of asthma and allergic rhinoconjunctivitis per year in children aged 0-4, 5-9, 10-14, 15-19 years	ISAAC (International Survey of Asthma and Allergy in Children) ISAAC has two age groups: 6-7 years and 13-14 years; only certain centres are involved in the survey For adults ECRH (European Community Respiratory Health) survey can be the data source
3.2	Infant mortality due to respiratory diseases [DPSEEA]	Annual number of deaths of children aged 28–364 days due to respiratory diseases per 1000 live births in a year	WHO/ Europe MDB WHO/ Europe HFA DB ICD-10 codes J00-J98 For many countries data are not up-to-date Main cause of mortality acute respiratory infections
3.3	Population exposure to outdoor air particulate matter (PM) [DPSEEA]	Population-weighted annual mean particulate matter (PM10) concentration in urban areas	EEA AirBase WHO/ Europe HFA DB and Eurostat Urban Audit – for population AirBase contains data on PM levels only for the EEA member countries; WHO/Europe has data for Belarus and Russian Federation
3.4	Population exposure to outdoor air ozone (O ₃) [DPSEEA]	Population-weighted annual average of daily maximum 8-hour mean ozone concentration in urban areas	EEA AirBase WHO/ Europe HFA DB and Eurostat Urban Audit – for population Implementation starts with the indicator release in 2011
3.5	Children's exposure to second-hand tobacco smoke [DPSEEA]	Proportion of children aged 0-4, 5-9, 10-14 years exposed to environmental tobacco smoke in their homes and outside their homes	WHO/ US CDC GYTS (Global Youth Tobacco Survey) GYTS – only 13-15 years for selected countries non-regular GATS (Global Adult Tobacco Survey) in several settings – 4 countries as of 2010 EUROBAROMETER – EU countries for 2009
3.6	Population living in homes with problems of damp [DPSEEA]	Proportion of population living in homes with self-reported problems of damp	Eurostat Statistics of Income and Living Conditions (SILC) EU countries regular Also proportion of population living in poverty with self-reported problems of damp
3.7	Proportion of children living in homes using solid fuels [DPSEEA]	Proportion of children aged 0-14 years living in households using coal, wood or dung as the main source of heating and cooking fuel	WHO World Health Statistics WHO/ Europe HFA DB and Eurostat – for population WHO World Health Statistics contains country estimates (total, urban, rural) for the entire population Demographic and Health, Multiple Indicator Cluster surveys are used for the statistics
3.8	Policies to reduce children's exposure to second-hand tobacco smoke [DPSEEA]	Composite index of capacity to implement policies to reduce second-hand tobacco exposure and promote smoke-free areas	WHO/ Europe Tobacco Control Database Policy components: bans or restrictions on smoking in selected public areas & public transport, advertisement of tobacco products and sale of tobacco to minors

Environmental Health issue/ RPG [DPSEEA position]	Indicator definition	Data source	Remarks
Regional Priority Goal IV: Reduce the risk of disease and disability to hazardous chemicals (such as heavy metals), physical agents (e.g. excessive noise), and biological agents and to hazardous working environments during pregnancy, childhood and adolescence			
4.1	Incidence of childhood leukaemia [DPSE x EA]	Standardized incidence rate of leukaemia (ICD-10 C90-95) in age 0 to 14 years	IARC DB CI5-IX and ACCIS Based on national population-based cancer registries different time periods Not enough recent data
4.2	Incidence of melanoma under 55 years of age [DPSE x EA]	Standardised incidence rate of melanoma (ICD-10 C43, D03) under 55 years	IARC DB GLOBOCAN Not enough recent data
4.3	Persistent organic pollutants (POPS) in human milk [DPSE x EA]	Levels of selected dioxins and PCBs in human milk fat from pooled samples expressed as toxic equivalent quantities (TEQ)	WHO/ UNEP POP survey POPs are chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of living organisms, and are toxic to humans and wildlife. WHO/ UNEP survey uses standardized protocol (Stockholm convention; so far 4 rounds) Only selected countries covered
4.4	Exposure of children to chemical hazards in food [DPSE x EA]	Dietary exposure to potentially hazardous chemicals in children's food	Survey Hazardous chemicals: Arsenic, Cadmium, Lead and Mercury Currently no internationally coordinated repeat survey available The indicator is based on country case studies
4.5	Levels of lead in children's blood [DPSE x EA]	This indicator has two components. (a) Geometric mean in children under 6 years of age (b) Percentage of children under 6 years of age with increased blood lead level (greater than 10 ug/dl)	Survey Currently no internationally coordinated repeat human biomonitoring is available in Europe Currently the indicator is expressed as a mean of the individual blood lead levels in a community, country and is based on case studies from volunteering countries In some countries only hot-spots investigations
4.6	Radon levels in dwellings [DPSE x EA]	Estimated annual mean of radon levels in dwellings and proportion of dwellings with levels above 200 Bq/m ³ and 400 Bq/m ³	Radon mapping collected by EC DG JRC Based on nationally available information for 35 European countries compiled by EC DG JRC
4.7	Work injuries in children and young people [DPSE x EA]	Standardized incidence rate of work injuries among employees per 100 000 persons in employment	Eurostat work accidents by age and severity and economic sector Work injuries: nonfatal work injuries resulting in more than 3 days absence from work under 18 and between 18 and 24 years of age; EU countries and Norway only

Annex 4. Overview of the health-related indicators of global climate change proposed for the implementation in ENHIS under the CEHAPIS project

Topic Area	INDICATORS BY DPSEEA ELEMENT			
	State	Exposure	Effect	Action
Extreme weather events				
Heat waves		Population exposure to heat waves	Excess mortality due to heat waves	Actions to prevent heat-related health effects
Floods and draughts		Population exposure to actual floods Population vulnerability to floods		Actions to secure water supplies
Air quality				
Ambient air pollution		Urban population exposure to ozone*	Cardio-respiratory mortality	
Airborne pollen allergens	Flowering of allergenic plants	Exposures to birch, alder and grass pollen Exposure to ragweed pollen	Anti-allergy medication sales	
Infectious diseases				
Food-borne diseases			Salmonellosis incidence and seasonality	Actions to prevent infectious diseases (cross-cutting)
Water-borne diseases			Cryptosporidiosis incidence and seasonality	
Vector-borne diseases		Lyme borreliosis occurrence of vector	Lyme borreliosis incidence	

* The ozone indicator will be included in the 2011 release of ENHIS indicators

Annex 5. Overview of the Environmental Health (EH) indicators for monitoring of Parma Conference commitments selected by the meeting

Environmental Health issue/ RPG [DPSEEA position]	Indicator definition	Data source or data collection method	Remarks
Regional Priority Goal I: Ensuring public health by improving access to safe water and sanitation Parma Declaration Commitment (ii): We will strive to provide each child with access to safe water and sanitation in homes, child care centres, kindergartens, schools, health care institutions and public recreational water settings by 2020, and to revitalize hygiene practices.			
1 Incidence of viral hepatitis A [DPSExEA]	Annual incidence of viral hepatitis A in the general population	WHO/ Europe CISID and HFA databases, ECDC surveillance	Ideally the incidence should be stratified by age (children vs. adults) if the data can be obtained
2 Access to improved and adequately operated and maintained sanitation facilities in schools and kindergartens [DPSExEA]	(a) Proportion of school and kindergarten children having access to improved school & kindergarten sanitation facilities (breakdown urban/rural) (b) Proportion of school and kindergarten children having access to school & kindergarten sanitation facilities with adequate operation and maintenance in place (breakdown urban/ rural).	Survey of schools and kindergartens	Clustered random sampling of the schools and kindergartens The questionnaire will be consistent with that of the WHO/ UNICEF JMP Data on sanitation facility operation & maintenance can include how often toilet rooms are cleaned; kind of detergents used, etc.
3 Hygienic practices in school and kindergarten children [DPSExEA]	Proportion of school and kindergarten children who follow adequate hygienic practices while in school or kindergarten	Survey of schools and kindergartens	Clustered random sampling of the schools and kindergartens The survey of schoolchildren can be included in the HBSC
4 Policy to improve hygiene at schools and kindergartens [DPSExEA]	Composite index of the scope and existence of regulations to improve hygiene in schools and kindergartens, its enforcement, and of promotional and educational campaigns to improve hygiene practices	Survey	Four potential policy components: (1) Regulations for sanitation facilities in schools and kindergartens; (2) Regulations for operation and maintenance of sanitation facilities; (3) Enforcement of regulations for sanitation facilities operation and maintenance; (4) Promotional and educational programmes on hygienic practices in school and kindergarten children

Environmental Health issue/ RPG [DPSEEA position]	Indicator definition	Data source or data collection method	Remarks
Regional Priority Goal II: Addressing obesity and injuries through safe environments, physical activity and health diet			
Parma Declaration Commitment (iv): We aim to provide each child by 2020 with access to healthy and safe environments and settings of daily life in which they can walk and cycle to kindergartens and schools, and to green spaces in which to play and undertake physical activity. In so doing, we intend to prevent injuries by implementing effective measures and promoting product safety.			
5 Access to public green/open spaces, sport/recreation facilities and swimming places [DPSE x EA]	Proportion of individuals (of all ages) living within a specified distance from a public park, green space, recreational area or athletic or swimming facility	Eurostat Urban Audit	“Access” means a short distance (to be determined) and free of charge unimpeded admission of all residents. Eurostat Urban Audit contains only some of the necessary data but requires sophisticated data processing
6 Proportion of children going to & from school by different transportation modes [DPSE x EA]	Percentage of children going to and from school by: walking; riding a bike; public transport (including school transport); private car	Survey of schools	Clustered random sampling of the schools Stratified by level of education (primary school, lower and upper secondary school)
7 Policy to prevent injuries in children [DPSE x EA]	Composite index of injury prevention and product safety policies, their scope and degree of implementation	Survey	Policy components can include existence of national action programmes on injury prevention; their scope; population groups are considered; mechanisms of enforcement and evaluation, etc
Regional Priority Goal III: Preventing disease through improved outdoor and indoor air quality			
Parma Declaration Commitment (iii): We aim to provide each child with a healthy indoor environment in child care facilities, kindergartens, schools and public recreational settings, implementing WHO’s indoor air quality guidelines and, as guided by the Framework Convention on Tobacco Control, ensuring that these environments are tobacco smoke-free by 2015.			
8 Smoking and exposure to second-hand tobacco smoke in the schools [DPSE x EA]	Percentage of secondary school students smoking on the school territory, by age (13-15 and 15-17 years) and gender; Percentage of secondary school students exposed to second-hand tobacco smoke inside schools.	Survey of schools	Clustered random sampling of the schools
9 Policy to ban smoking in schools and on school grounds [DPSE x EA]	Composite index of capacity to enforce smoking bans inside schools and on their territory and to implement smoke-free behaviour in educational curricula and promotional campaigns	WHO/Europe Tobacco Control Database for (1), (2) and (4); Survey for (3) and (5)	Policy components: (1) Regulations for selling tobacco products: minimum age and enforcement; (2) Regulations for smoke-free educational facilities; (3) Enforcement of smoking ban on the school territory; (4) Cost of tobacco products in PPP equivalents; (5) Promotional and educational programmes in relation to smoking cessation in teenagers.

	Environmental Health issue/ RPG [DPSEEA position]	Indicator definition	Data source or data collection method	Remarks
10	Dampness and mould in school facilities [DPSEEA]	Population weighted prevalence of exposure to dampness and/or mould in schools and kindergartens	Survey of schools	Emphasis on wide spread problems in the building that affect classrooms and kindergarten rooms Clustered random sampling of the schools including inspection of rooms by trained technicians SYMPHONIE programme (under EC FP7) collects school data.
11	Insufficient ventilation in schools [DPSEEA]	Proportion (and number) of school students who are exposed to insufficient ventilation (e.g., below 7 l/s per pupil) in classrooms	Survey of schools	Ventilation rate is estimated using data on generation of CO ₂ per person, steady-state classroom CO ₂ concentration, and outdoor CO ₂ concentration. Clustered random sampling of the schools & kindergartens including CO ₂ measurements in classrooms.
12	Exposures to selected indoor air pollutants in schools [DPSEEA]	Pupil-weighted pollutant concentration during the school hours in the classrooms (per pollutant); Pupil-weighted distribution of concentrations in the country (per pollutant); Fraction of pupils exposed to selected threshold levels (per pollutant)	Survey of schools	Core pollutants: NO ₂ and formaldehyde. Optional pollutants: benzene (possibly also xylene & toluene, which can be measured with benzene), and PM ₁₀ . Clustered random sampling of the schools using passive samplers for the chemical pollutants or active – for PM ₁₀ .
13	Policy to improve air quality in schools [DPSEEA]	Composite index of existence and scope of regulations to improve indoor air quality in schools	Survey	Policy components: (1) existence of indoor air quality (IAQ) regulations covering schools; (2) enforcement of the IAQ regulations; (3) existence of IAQ provisions in energy saving regulations The survey should be combined with the indicators for RPG I (Nr 4) and RPG III (Nr 9)

Environmental Health issue/ RPG [DPSEEA position]	Indicator definition	Data source or data collection method	Remarks
<p>Regional Priority Goal IV: Preventing disease arising from chemical, biological and physical environments.</p> <p>Commitment (ii). We aim to protect each child from the risks posed by exposure to harmful substances and preparations, focusing on pregnant and breast-feeding women and places where children live, learn and play. We will identify those risks and eliminate them as far as possible, by 2015.</p> <p>Commitment (iii): We will act on the identified risks of exposure to carcinogens, mutagens and reproductive toxicants, including radon, ultraviolet radiation, asbestos and endocrine disruptors, and urge other stakeholders to do the same. In particular, unless we have already done so, we will develop by 2015 national programmes for elimination of asbestos-related diseases in collaboration with WHO and ILO.</p>			
14 Early life exposure to mercury [DPSExEA]	Level of mercury in maternal scalp hair as an indicator of pre-natal exposure or level of mercury in children's hair	Human bio-monitoring survey	Human biomonitoring in Europe projects – ESBIO or COPHES. Target group to be determined based on sample availability.
15 Brominated flame retardants in human milk [DPSExEA]	Levels polybrominated diphenylethers (PBDEs) in human milk fat (in ng/g lipids) from pooled samples	WHO/ UNEP POP survey	PBDE are optional pollutants in the WHO/ UNEP POP survey; additionally ESBIO project can serve data source WHO/ UNEP survey uses standardized protocol (so far 4 rounds) Only selected countries covered
16 Population exposure to noise from different sources [DPSExEA]	Proportion of population living in dwellings that are exposed to the noise ranges of values from different sources of environmental noise in urban areas and along major transport infrastructures	EEA NOISE	Noise Observation and Information Service for Europe (NOISE) under the Environmental Noise Directive 2002/49/EC. EEA countries only
17 Policy to eliminate asbestos-related diseases [DPSExEA]	Composite index of policies to protect population and workers from asbestos exposure	Survey	Policy components to be defined
18 Policy to minimize children's exposures to harmful chemicals and other harmful environmental factors [DPSExEA]	Composite index of existence and scope of regulations, their enforcement and evaluation mechanisms	Survey	Policy components to be defined

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