

HUMAN BIOMONITORING FOR EUROPE

a harmonised approach

COPHES

DEMOCOPHES



NEWSLETTER SUMMER 2012

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INDEX

The exciting time of **field work** lies behind us and we learned great lessons for future HBM surveys! The German team shares these lessons with all of us. And in **Luxembourg**, despite the country's small size, field workers drove nearly 3.500 km to complete their work! Read about the general lessons learned and the main challenges encountered by the Luxembourgese field workers and how they solved them on **Page 2**.



In this newsletter issue, we are Reporting On the **policy-makers meeting** that took place on 02 February in Brussels. If you were not there, you can get a quick idea of what was discussed and the main conclusions reached by experts and participants at the end of this one day meeting. All on **Page 3**.

On **Page 4** we continue reporting back .. this time on the **Communications and Data Interpretation Workshop** that took place in the Danish capital city, Copenhagen, in March 2012. The workshop was attended by experts from the 17 countries involved in DEMOCOPHES.



For the first time in **France**, biological concentrations of environmental pollutants have been measured across a representative sample of the population. Full story on **Page 5**.

In **Spain**, recruitment and sampling were a real team story! Read about how the Spanish team, with the help of local authorities and very motivated volunteers, managed to complete rural sampling in Añover de Tajo (Toledo) in just 3 days! A full page story on **Page 6**.

ICI/EQUAS was an important task of WP3 to guarantee comparable and reliable data during the measuring campaign of DEMOCOPHES. Read more about these exercises and about the criteria for a successful participation of the DEMOCOPHES labs in ICI/EQUAS on **Pages 7 and 8**.



How to make sure our message is properly understood and reported on is one of the crucial issues of news communications. Learn some "**golden communication rules**" on **Pages 8 and 9**.

Save the dates! Crucial meetings in September (Paris) and October (Cyprus) you should write down in your diary. **Page 10**.

Agenda of relevant upcoming meetings and quick overview of the next months and upcoming challenges in the back cover. **Page 11**



LESSONS LEARNED FROM FIELD WORK

The exciting time of field work lies behind us and we learned great lessons for future HBM surveys. Thanks to our own experiences in Germany and impressions we got from our colleagues we can already conclude that:

- Selecting participants through inhabitant registries has proved fairly impossible in nearly all European countries. Selection via schools is the easiest way.
- Finding enough participants for a survey is always a hard job, and it was no different for DEMO-COPHES.

To over-come this difficulty, recruitment for studies should be planned long in advance and supported by a well defined communications strategy and communication materials to facilitate recruitment.

- Replacing face-to-face interviews by web-based questionnaires is an option that should be discussed in future HBM surveys.

Harmonising all steps necessary for the field work is, undoubtedly, a great challenge. But distinguishing which steps require full harmonization and which require only some general guidelines is an even greater one!



Marike Kolossa and UBA-Team, Germany

FIELD STORIES FROM LUXEMBOURG

Recruiting participants, informing them about the survey and taking samples has been a great experience and a big challenge for us! Despite the small size of Luxembourg, our field workers drove nearly 3.500 km! At a speed limit of 90 kph on the main roads, and 50 kph in cities (when there is no traffic jam..), that means a lot of hours in the driving seat!! But it was worthwhile.

In total, 1253 invitations were sent out via different means. Three municipalities helped in the recruitment by inviting mothers and children in the selected age categories to reply. The response rate was between 1,8-20,9 %, depending on the origin of the address lists.



In the end, 60 mother-child pairs completed the questionnaires and the sampling procedures. Thanks to their good preparation and the trainings received, our fieldworkers dealt perfectly well with the challenges of sampling. Extracting the very short hair of some boys or the long hair of some female participants was

done without any problems. Because of the amount of information requested, filling in the questionnaire was a time consuming operation, but thanks to the motivation of the participants, it was a very enriching experience for all of us!
Maryse Arendt, Initiativ Liewensufank, Luxembourg

REPORTING ON...

Policy makers meeting in Brussels: COPHES – The way forward!

It was a very cold day, this 02 February 2012, when 39 experts and scientists met in a Commission's building in Brussels for the EU Authorities Scientific Expert meeting on the use of Human Biomonitoring as a policy tool on mid & long-term perspective.

Meeting objectives

The meeting aimed at intensifying the dialogue between the COPHES consortium members, Commission Services involved in chemicals, food and product management, and scientific advisory committees. It was an opportunity to discuss how Human Biomonitoring can contribute to policy making, how EU policy makers and other relevant stakeholders could make use of the work carried out by COPHES and DEMOCOPHES, and how a sustainable HBM framework could be further integrated into institutions and policies.

The potential of HBM for risk assessment acknowledged

There are several important options and scenarios for the use of HBM as a policy tool. It can contribute to risk assessment/evaluation, to control policy efficiency or detection of upcoming risks. HBM data can be used for determination of baseline data, trends and limit values, for the selection of substances and assessment of real risks. Therefore it is a very useful tool to raise the information/alert level of politicians and the public and may be used to trigger regulation, policy revision and to

promote voluntary agreements with industry in order to reduce public exposure to certain chemicals.

During the meeting, participants constructively discussed issues such as:

- appropriate systems for identification and selection mechanisms for substances (prioritization, decision infrastructure, method development)
- options for data interpretation and means for integration with environmental and health information
- challenges for data availability and data storage due to ethics and data protection issues.

All involved parties welcomed the initiatives to collaborate closely with WHO and EHES in order to profit from synergies and use established infrastructures and project design.

The options for a sustainable HBM framework in Europe and integration of HBM in policy making were considered valid and DG Environment, DG Enterprise, and DG Sanco were confirmed as the key parties at European level. The EEA (European Environment Agency) offered support in terms of tools for data mapping, analytical guidance and data specifications.

In conclusion, the potential and added value of HBM was widely acknowledged during the meeting and the COPHES team was encouraged to further develop a concrete proposal based on priority fields of use identified, and including information on necessary sample sizes and related costs.



The meeting stressed the need and for support from Member States and for clear communication on the importance (priority uses and purpose) of HBM to the European Commission. This was considered as important factors to start the establishment of a long-term European infrastructure and for the prioritisation in linking to policies. The combination of HBM data with environmental monitoring, health outcomes and modelling, as well as further research on Omics technologies were confirmed as the way ahead. Presentations from the meeting are available at <http://www.eu-hbm.info/cophes/workshops-hbm-policy>

Promising future

The outputs of this meeting significantly contributed to our ideas about future strategies and a future concept for HBM. We are looking forward to more discussions and contributions during the next policy makers' event, which will take place in Paris on 17 September 2012). For further information about this and all future events, please check our website regularly.
Anke Joas, BiPRO GmbH, Germany

REPORTING ON...

Communication and Data interpretation workshop, Copenhagen, March 2012

Addressing training needs is an important part of COPHES/DEMOCOPHES. Following the training organised on field work and laboratory analysis, a workshop to address communication, data analysis and interpretation issues took place in Copenhagen from 13-15th March. The workshop was attended by experts from the 17 countries involved in DEMOCOPHES.

Workshop on Communication

The objective of this training was to develop and understand the theory behind participatory research and risk governance and to provide practical support to each partner in DEMOCOPHES. Through presentations, discussions and interactive sessions participants could express their views and learn from each other. The workshop addressed issues such as how to communicate from beginning to end and how to develop a communication plan for the dissemination of final results.

The introduction by Ovnair Sepai, from the UK's Health Protection Agency highlighted the problems derived from having to communicate in many different languages, as it happens with DEMOCOPHES. The state-of-the-art science behind communication was presented by professor Ilse Loots from the University of Antwerp. Sometimes, it is very difficult for scientists to communicate with the general public and to understand their attitudes. According to Karen Exley (HPA UK) participatory research - where members of

the public are involved- can greatly benefit from the input of focus groups. Elly den Hond, from VITO, and Kerstin Becker from the German EPA (UBA) presented the experience on communication of biomonitoring results in the German and Flemish programs. Ethical and practical considerations must be taken into account when planning timescales for communicating the results of a HBM program to the different stakeholders. Dominique Aerts presented the planned timescale for DEMOCOPHES communication.

Training on data analysis and interpretation

Once all data has been collected (through harmonized questionnaires) and the labs have produced their results, it is time to aggregate these data into databases, ensuring the same lay-out and quality amongst the different participant countries. Only then, the final interpretation of results on an individual and group or country level can take place. There exist often several reference values for HBM results that can be applied.

Each country is free to internally use any of these, but an overview of these for the 4 chemicals analysed in the program together with the health based arguments for each of these can be an important aid for the DEMOCOPHES participants.

After an introduction on the general concepts by Greet Schoeters and Elly den Hond, from VITO Belgium, a quality control program for each country was presented by Hanny Willems.

Practical decisions were taken on issues such as how to enter non-responders and a step by step analysis plan was presented. The workshop also addressed the different aspects of data interpretation: comparison with health based guidance values and with published data, and relation of HBM results with ecological data.



After three intense training days, participants agreed they were better prepared to face the communication challenges that lie ahead. Now, it is time to get our hands on the data and start thinking on how we will communicate them to the outside world!

Louis Bloemen, EHSI.

A CLOSER LOOK AT ... FRANCE

Biological concentrations of environmental substances from the French HBM Programme

For the first time in France, biological concentrations of environmental pollutants have been measured across a representative sample of the population (n~2000). The results will support public health experts, regulators, policy makers and scientists in their efforts to increase knowledge on exposure to environmental chemicals and to protect the health of the French population.

The French National Nutrition and Health Survey – ENNS

In 2006-2007, the French National Nutrition and Health Survey (ENNS) measured 42 biomarkers of exposure in the French population. These correspond to chemical contaminants in food and the environment. They were selected according to their public health relevance: 11 metals (antimony, arsenic, cadmium, chromium, cobalt, tin, mercury, nickel, lead, uranium and vanadium), 6 non-dioxin-like-PCBs (NDL-PCBs) and 3 families of pesticides (organochlorines, organophosphorus and pyrethroid compounds). These chemicals or their metabolites were measured in samples of blood, urine or hair.

Information on chemical substances in the environment

Data is available in a detailed [French report](#) for metals (Volume 1) and in an [English summary](#). A second volume on NDL-PCBs and pesticides will be published in 2012. The French report gives information on each chemical substance including uses, potential sources of human exposure,

distribution and metabolism in the body, and health effects, especially in relation to chronic exposures at relatively low levels. This information should facilitate the interpretation of the levels found for each biomarker.



For each chemical substance tables with descriptive statistics of the distributions of the levels in blood, urine or hair are provided. Distributions of biomarkers measured in urine are presented in µg/g creatinine and µg/L. The distributions of the biomarkers are presented for the overall population, and also by sex and by age group. In some cases, the results for sub-groups of the population are presented according to the presence or the absence of known risk factors. Comparisons are made with studies carried out in other French populations and foreign countries. The report also presents geometric means adjusted for various factors such as age, sex, urinary creatinine and risk factors.

Exposure results

Results of the ENNS study indicate that, for the French population, exposure levels to heavy metals and organochlorine pesticides are, overall, low and consistent with those observed in other countries. For polychlorinated biphenyls (PCBs) and other pesticides (para-dichlorobenzene and pyrethroids) the levels recorded in France are notably higher than those observed in the US and in Germany. However, for PCBs, only a small proportion of the population has levels that exceed health thresholds.

By combining HBM with nutrition and health studies on a representative population sample, the ENNS study is a new approach in France. The future French HBM study will be an extension of this; about 100 chemicals will be measured in 5000 adults and children and will include measurements of emergent pollutants and endocrine disrupters. *Nadine Fréry, French Institute for Public Health Surveillance*



RECRUITMENT AND SAMPLING IN SPAIN: A TEAM STORY!

Fieldwork in Spain was coordinated and managed by the survey office located at the Environmental Toxicology Unit of the National Centre for Environmental Health (Instituto de Salud Carlos III in Majadahonda, Madrid).

The sampling campaign started in the rural area of Añover de Tajo (Toledo). In just 3 days (17-19 October), working from 8 am in to 10 pm, 5 interviewers and 2 technicians managed to complete rural sampling in Spain.

This was possible thanks to the great support from local authorities (especially, the Mayor, the City Council, the school management team in Añover de Tajo and many volunteers), who got actively involved in the selection of participants from the population census (following our strict guidelines) and made sure we got the necessary number of participants required by the study protocol.

In addition to the information gathered through the questionnaires, 134 hair and urine samples (a total of 268) were collected; this was 28 more samples than required, to be on the safe side. Samples were transported in specially designed boxes to the Toxicology laboratory at the National Centre for Environmental Health, where quality controls were performed and samples were aliquoted and stored until the start of the chemical analysis.



Rural sampling

The involvement of the population of Añover de Tajo could not have been greater. In the 3 days that fieldworkers spent in Añover, they were interviewed for the newspaper and radio of the local school, which continue to report on COPHES/DEMOCOPHES news.

"Sampling campaign in Añover de Tajo has been a really good experience for all of us", says a Spanish fieldworker.

Urban sampling

Madrid was the location for the second stage of sampling. Participants were selected from three primary schools in the city centre.

Sampling in Madrid started in November 2011 and finished in January 2012.

In general, urban sampling was more complex and also lengthier than rural sampling, partly due to the specificities and constraints of life in a big city such as Madrid. The fact that most mothers were working mothers and therefore had less time for our study, the longer distances between schools and homes or, simply, the traffic in the streets, made the work of the fieldworkers more difficult and time consuming. Despite the difficulties, in the end, 120 hair and urine samples (a total of 240) were collected and transported to the lab, following the same controls and checks as with the rural samples. At the moment, analyses of mercury in hair and cadmium, creatinine, cotinine and bisphenol A in urine have been completed and the rest of the biomarkers are being analysed.

Marta Esteban, Instituto de Salud Carlos III, Spain



SELECTED LABORATORIES

Harmonization of procedures and criteria for quality assurance (QA) and quality control (QC) in relation to pre-analytical and analytical phases is key to establish a coherent approach for HBM in Europe. This is why the COPHES team in charge of sample processing established a Quality Assurance Unit (COPHES QAU) formed by ISCIII and IPA scientists which have developed an Interlaboratory Comparison Investigation (ICI) and an External Quality Assessment Scheme (EQUAS) program 2011-2012.



ICIs and EQUAS

ICI exercises allow the harmonization of the analytical methods and their application within the participating labs, improving the comparability of analytical results. For EQUAS exercises a minimum of 5 Reference Labs (RLs) per biomarker were invited to participate (based on their experience in analyzing the selected biomarkers). A total of 16 RLs from USA, Canada, Europe and Japan kindly accepted the invitation. An assigned value and tolerance ranges for the samples are defined from the results reported by RLs and the results from the participating labs are compared with those assigned values.

EQUAS provides an opportunity to improve the accuracy of analytical results and test the proficiency of the labs.

All participating labs in ICI/EQUAS have analyzed homogeneous, stable and identical samples by their own methods.

The QAU prepared the ICI/EQUAS samples of the selected biological matrices and target biomarkers within DEMOCOPHES, following a strict control for homogeneity and stability. The material was carefully prepared to cover the range of concentrations expected in DEMOCOPHES samples. The urine and hair samples were prepared from native material. The urine control material was prepared from spot samples where all parameters were determined. After that, spot urines were selected based on analytical results and the samples were pooled and homogenized. After testing for stability and homogeneity, aliquots with the necessary volume for the chemical analysis were sent to the participating labs. Hair control material was prepared from samples of one single donor except one of the samples that was a pool from 34 donors with similar mercury concentrations.

Once the samples were carefully homogenized by being cut in tiny pieces, homogeneity tests were performed and subsamples with the required amount for the analysis were packed.

Data analysis

The control material was sent to all participating labs, 38 DEMOCOPHES labs and 16 RLs, in more than 25 countries. The labs received the control material together with a form to report the results as well as the information regarding the analytical method employed in the sample analysis. Once the samples were sent, the DEMOCOPHES labs had approximately five weeks to perform the analysis. Once results were reported to the Quality Assurance Unit, data were evaluated and a letter with anonymous individual results was sent back to the labs together with an invitation to the web conference to discuss the results.

SELECTED LABORATORIES

Lab selection criteria

The criteria for a successful participation of the DEMOCOPHES labs in ICI/EQUAS were as follows:

- ICI: the binding value of a successful DEMOCOPHES lab must be within the mean \pm two-fold standard deviation ($2 \times \text{SD}$) calculated from the results of the DEMOCOPHES labs (after exclusion of outliers) for both concentrations.
- EQUAS: the binding value of a successful DEMOCOPHES lab must be within the mean \pm three-fold standard deviation ($3 \times \text{SD}$) calculated from the results of the RLs for both concentrations.

The whole ICI/EQUAS exercise finished in February 2012. After the evaluation of the results in all ICI/EQUAS rounds, the list of successful labs for the DEMOCOPHES parameters was communicated to the coordination team. 16 labs fulfilled the criteria for the analysis of Mercury in hair, 14 for Cadmium in urine, 14 for Creatinine in urine, 9 for Cotinine in urine, 7 for Phthalates metabolites in urine and 5 for Bisphenol A in urine.

The ICI/EQUAS was an important task of WP3 to guarantee comparable and reliable data during the measuring campaign of DEMOCOPHES.



During the training activities in the web conferences DEMOCOPHES labs had the opportunity to improve their methodologies by discussing technical details with colleagues and the QAU. Capacity building and the selection of qualified laboratories were essential for a successful COPHES/DEMOCOPHES project and on big step towards the harmonization of HBM in Europe.

Argelia Castano, Instituto de Salud Carlos III, Spain

HOW DO WE SAY WHAT WE WANT TO SAY?

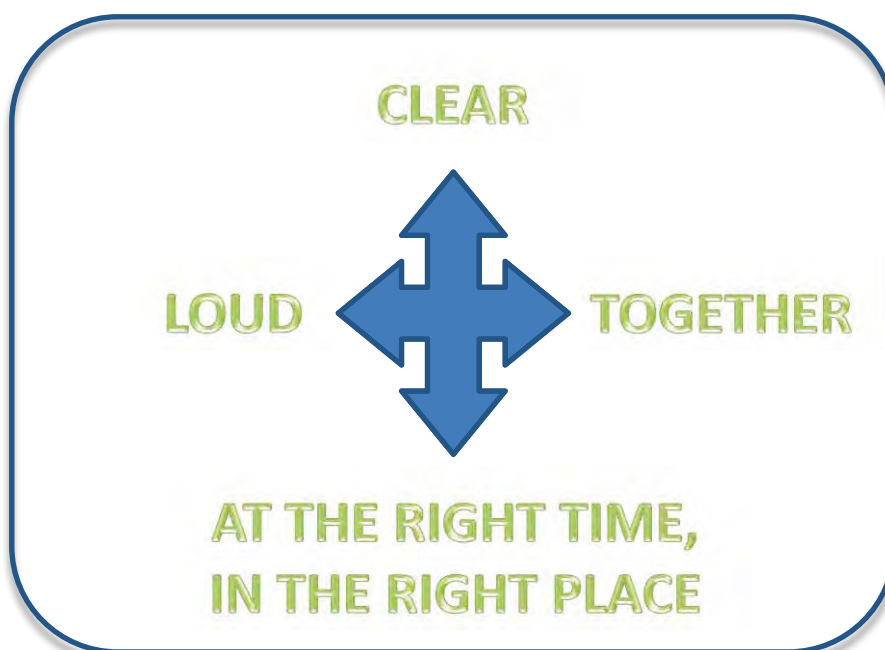
Some communication rules

Yes, we all tend to believe that everyone understands what we want to say... but miscommunication happens more frequently than we think! And in the case of a big news release, it can have disastrous consequences... This is why preparing and coordinating the news release is extremely important, and the more players involved, the more necessary it is!

There are 5 basic questions we need to answer for every news release: WHAT do we want to say? HOW do we want to say it? WHERE and WHEN? And WHO do we want to say it to? The answers to these questions will help us define the best communications strategy for a

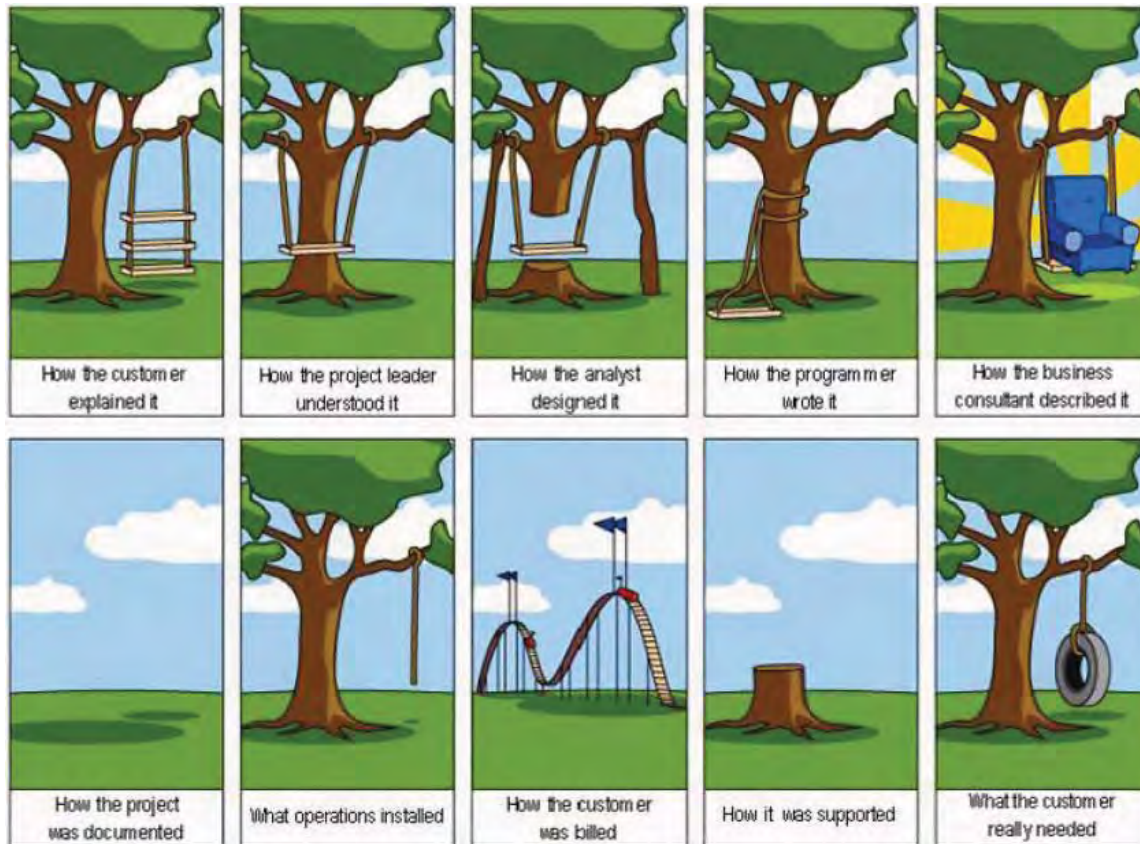
given message. And as the time: For the COPHES / DEMOCOPHES

results release approaches, we need to define a few golden rules:



HOW DO WE SAY WHAT WE WANT TO SAY?

Some communication rules



Say it clear

Make sure we have ONE core message to communicate and say it in a way that everyone understands. Each target audience needs a tailored message and an appropriate platform to deliver the message. We can be more technical when we talk to experts but we have to use normal street language when we talk to the general public. Deliver the message with as few «but», «however», etc.. as possible. Don't get lost in the message!

Say it loud

Three years of intensive work in so many EU capitals well deserves some headlines in the press, so let's not be shy! Final results and conclusions must be announced by all possible means of communication, from conventional media communication tools (press releases, press conferences, media briefings, news exclusives, etc..) to more modern forms of social communication (blogs, facebook, twitter accounts, etc..).

Say it together

One challenge for COPHES/DEMOCOPHES is to be able to give one clear message in all different countries and to all different audiences. The number of organisations involved, speakers, and also the national specificities makes it more difficult to control the final message. But this is extremely important if we want to make sure there are no misunderstandings or conflicting messages.

Say it at the right time, in the right place

In news, good timing is of the essence. When planning our final news conferences we need to carefully consider the news agenda for the media (What else is happening?), to make sure our story will not be overshadowed by other news events. It is also important to decide where we want to launch the main results from and how will we coordinate the national with the international press conferences.

Noemi Cano, communications consultant, Brussels

SAVE THE DATES

"Human Biomonitoring (HBM) – Linking Environment to Health and Supporting Policy" Cyprus, 22-25 October 2012

At the end of October, the Cyprus State General Laboratory of the Ministry of Health together with the (DEMO)COPHES Consortia will host an international conference at the Golden Bay Hotel in Larnaca, Cyprus. The objective is to in-form for the first time on exposure of Europeans to cadmium, mercury, phthalates, cotinine and bisphenol-A and to talk about the Europe-wide efforts to harmonize human biomonitoring.

This conference aims to bring together the HBM teams involved, international experts, policy makers and

representatives from industry and from civil society, to discuss challenges and opportunities with respect to capacity building for analytical labs, appropriate data interpretation and transparent communication, conclusions regarding the feasibility of a harmonized approach to HBM surveys in Europe and on the potential to support and evaluate environmental health policy. The conference will be held in English. Updated information will be found on the webpage <http://www.eu-hbm.info/> and <http://www.moh.gov.cy> as it becomes available.

Since the event is limited to 150 participants, we would kindly ask you to express your interest in participating by completing a pre-registration form online at <http://www.eu-hbm.info/cyprus-conference-pre-registration>. Depending on capacity, applicants will be invited formally by the Cyprus Presidency of the Council of the European Union to register online through the official Cyprus Presidency website.

Policy makers meeting: Discussion of the COPHES draft concept for a sustainable HBM Paris, 17 Sep 2012

The preparation of a concept for a sustainable framework for Human Biomonitoring in Europe including requirements of organisational structures (coordination of stakeholders and Member State requirements) is one of the COPHES project deliverables, which we would like to prepare in cooperation with Member States and Commission Services.

In order to take into account Member State needs as much as possible and to communicate the advantages of an integrated HBM framework,

a one-day meeting hosted by the French Ministry of Health will take place in Paris on 17th September 2012. This meeting will be an opportunity to discuss the draft concept for a European HBM framework between Member States and Commission Services. Based on examples of successful national HBM programmes in Europe and other countries around the world and the point of view of Commission Services and agencies, we envisage workshops to discuss operational aspects linked to the draft concept in the afternoon.

The final program is currently being prepared by the (DEMO)COPHES coordination team. Invitations together with further information will be uploaded to the website in the coming months.



COMING UP

Conference	Date
ISEE Conference 2012, Columbia, August 2012	26 – 30 Aug 2012
42nd EEMS Annual Conference, Warsaw, September 2012	16 – 20 Sep 2012
ICHMET 2012, Rome, September 2012	23 – 27 Sep 2012
ISES 2012, Seattle, October 2012	28 Oct – 01 Nov 2012

APPROACHING THE END!

Just when most Europeans are thinking about the long-awaited holidays. COPHES/DEMOCOPHES teams are entering the busiest and most exciting period since the start of the project! After nine months collecting and analysing hair and urine samples in 17 countries, the time has come to put all data together and analyse results. And this is exactly what is happening now in all countries involved in this exercise. As results come from the selected laboratories, individual participants are being informed and trends at national level identified. In this process, ensuring the confidentiality of individual results is an essential principle for us. When all national results are published, they will be taken one level up, onto the European dimension, and we will be able to start drafting the main messages we want to communicate. What did we learn with this study? What did we prove? What do we want for the future? These are the questions we need to answer in the next two months. Our goal since the beginning of the project has been to demonstrate that a more coordinated European approach to human biomonitoring is feasible and it can create numerous advantages for policy makers, health authorities, research communities and European citizens at large.

The presentation of the results in Cyprus on the 23.-24. October 2012 will be the culmination of COPHES/DEMOCOPHES work and that of thousands of volunteers and participants in 17 countries in Europe, who have given their time and energy to bring biomonitoring in Europe one step further. To all of them, our most sincere gratitude and encouragement for the final challenge!

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If you would like to contribute an article or signal an event in the next newsletter, contact us at

EU-HBM.Newsletterg@hpa.org.uk

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