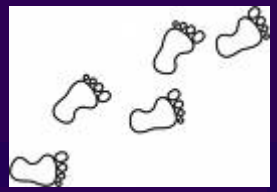
Human Biomonitoring Activities and the Vision for Europe

A Step by Step Approach



Ovnair Sepai

Senior Scientist – Lead for Biomonitoring

Health Protection Agency

UK

Ovnair.sepai@hpa.org.uk








Overview

- European Environment and Health Strategy
- EU E&H Action Plan – Action 3
- Human Biomonitoring Initiatives
  - Vision
  - Hurdles
  - Perspectives
- So What???

European Environment and Health Strategy
'The Future of our Children'

2003 Objectives for E&H:

- to assess the impact of E on H
- to reduce the 'burden of disease'
- to identify and to prevent new health threats
- to strenghten EU capability for policymaking

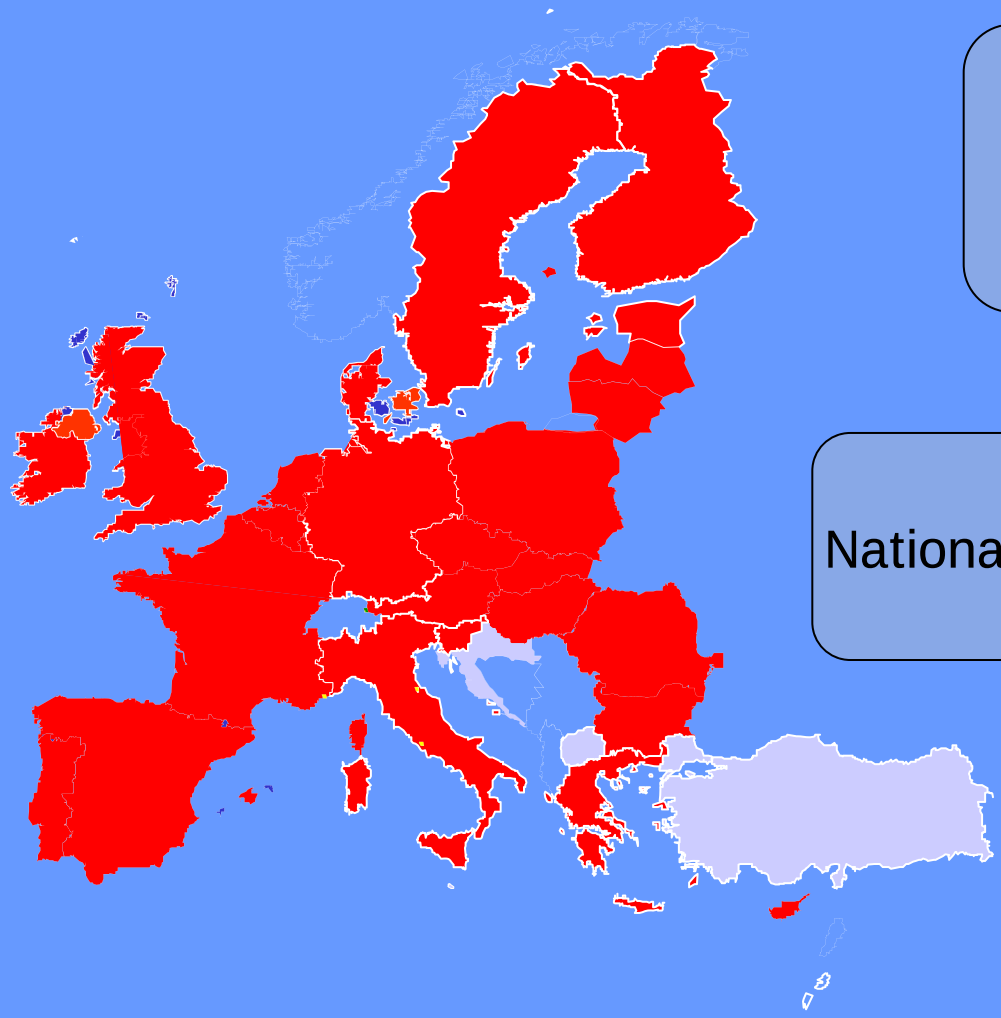
2004 **Environment and Health Action Plan 2004– 10**

European Commission expressed its commitment to develop a coherent approach to Human Biomonitoring in Europe.

European Environment and Health Action Plan 2004-2010

1. Improve the information chain
    1. Health indicators
    2. Integrated E&H monitoring
    3. Coherent Approach to Human Biomonitoring
    4. Enhanced Coordination
2. Fill the knowledge gap -research
3. Response: review policies and improve communication-
    - risk communication and management and reduction.

One step BACK: Why is a coordinated approach needed?



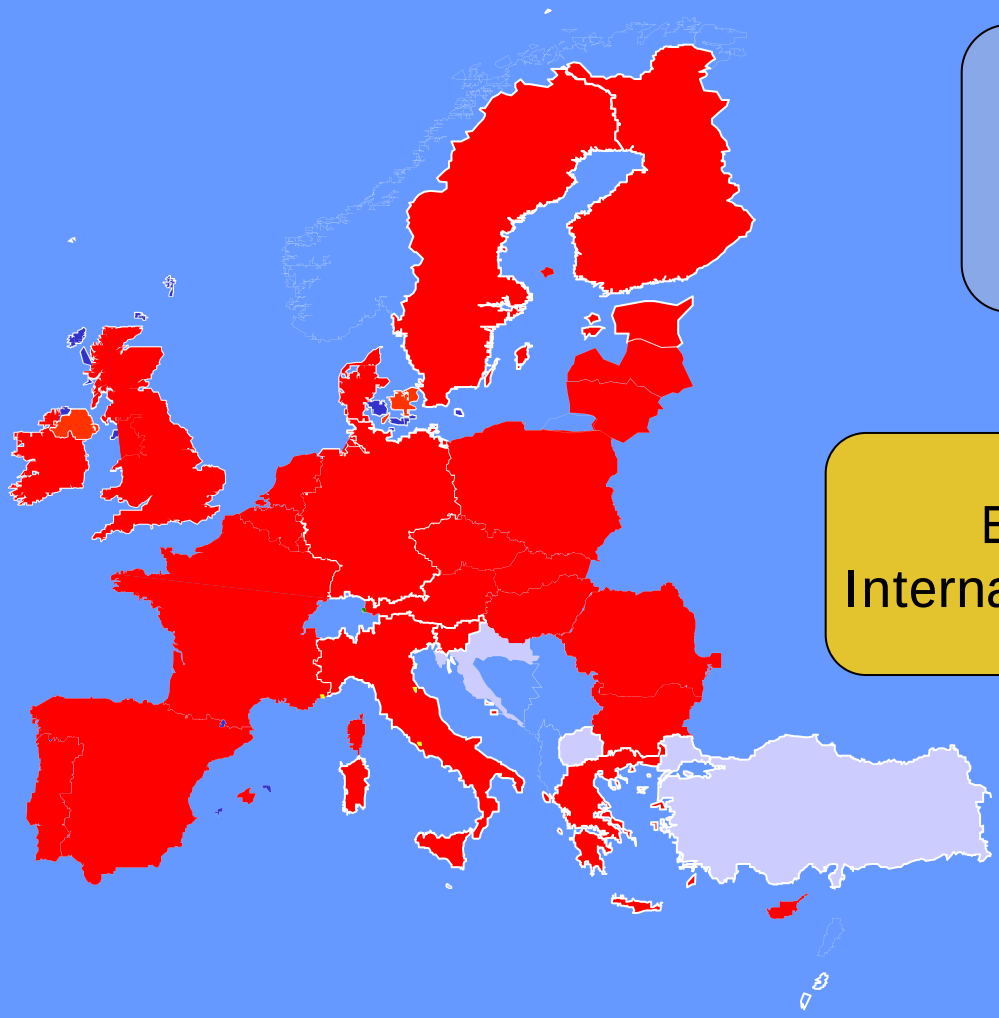
EU =
Community of 27
different Member States

Current
National & International
Projects

Leads to

National Level Capability
Capacity
Policy and Interventions

One step BACK: Why is a coordinated approach needed?



EU =
Community of 27
different Member States

EU – Networks
International Collaboration

Leads to

International Level Capability
Capacity
Policy and Interventions








Step-by-Step

Expert team to Support BIOmonitoring in Europe

2005

2007

1.Step: **ESBIO Project**

GOAL: Develop Protocols and Guidelines

For the EU Pilot Study

European Human Biomonitoring








ESBIO
Expert team to Support BIOmonitoring in Europe

Vision - Pilot Study

ESBIO

EU Commission

The first Step

Consultative Forum

Policy makers, Commission Services, stakeholders

Recommendations

Implementation Group on HBM in Europe

"IG"

HBM experts in close contact with national policy makers

Scientific input

ESBIO

consortium of 22 institutes coming from 17 MS and Croatia

2005-07

1









Objectives of ESBIO

- **Coordinated framework** for Human Biomonitoring (HBM) in Europe based on existing experience and capability
- Approaches for the **interpretation** HBM data for public health
- Possibilities to **integrate** HBM with environmental monitoring data and registered health data
- Strategies for **communication** of HBM results
- Scenarios for the use of Biomonitoring results for **policy** making

ESBIO

- WP 1: Inventory – Fátima Reis, Portugal
- WP 2: Guidelines and best practice– Marike Kolossa, Germany
- WP 3: Integration with E&H data – Greet Schoeters, Belgium
- WP 4: Ethics – Lisbeth E. Knudsen, Denmark
- WP 5: Socio-economic issues – Reinhard Joas, Germany
- WP 6: Utility of biomarkers – Marek Jakubowski, Poland

Activities

Inventory Conference

Consultation with Member States

Guidelines:
Sampling
Analysis
Questionnaires
Data processing
Etc, etc

Integration with E&H data

Lit reviews
Utility of HBM

Cost calculation

Communication – pre and post study

Ethics and Communication of results

Step-by-Step

May
2007

2. Step: **EU Network on HBM**

The Pilot Project

A consortium ("COPHES") with partners

24 EU Member States

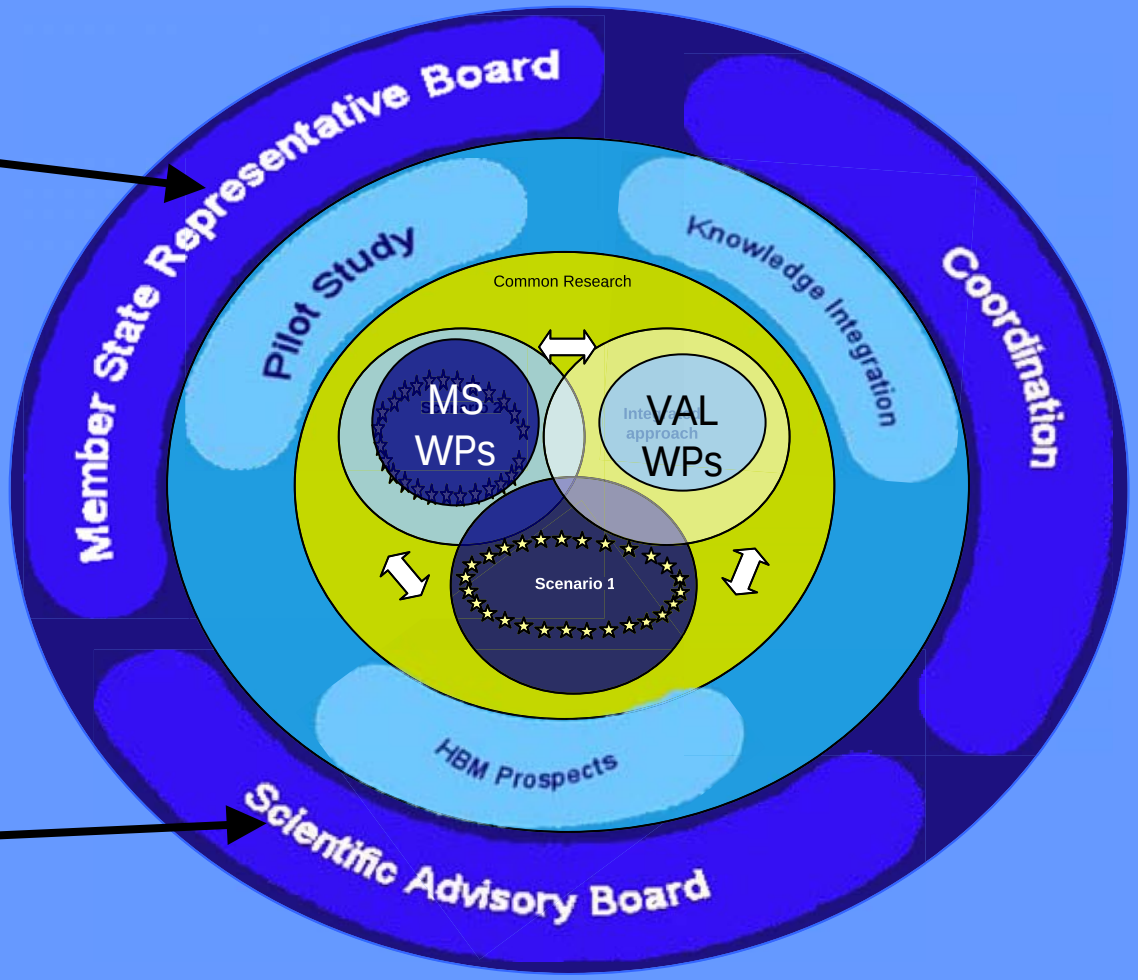
The COPHES proposal

2 Second step in the preparation of an EU wide HBM

- → 55 Institutions from 24 EU MS formed a consortium and applied for the EC call for an EU network on HBM to test out an harmonised approach
- → MS committed themselves to contribute more than 50% of the calculated budget in terms of cash, manpower and existing infrastructures
- → The evaluation phase is still ongoing!

The COPHES Concept

Policy Leads



Links to other EU Networks

COPHES – basis

recommendations of the Implementation Group on HBM in Europe:

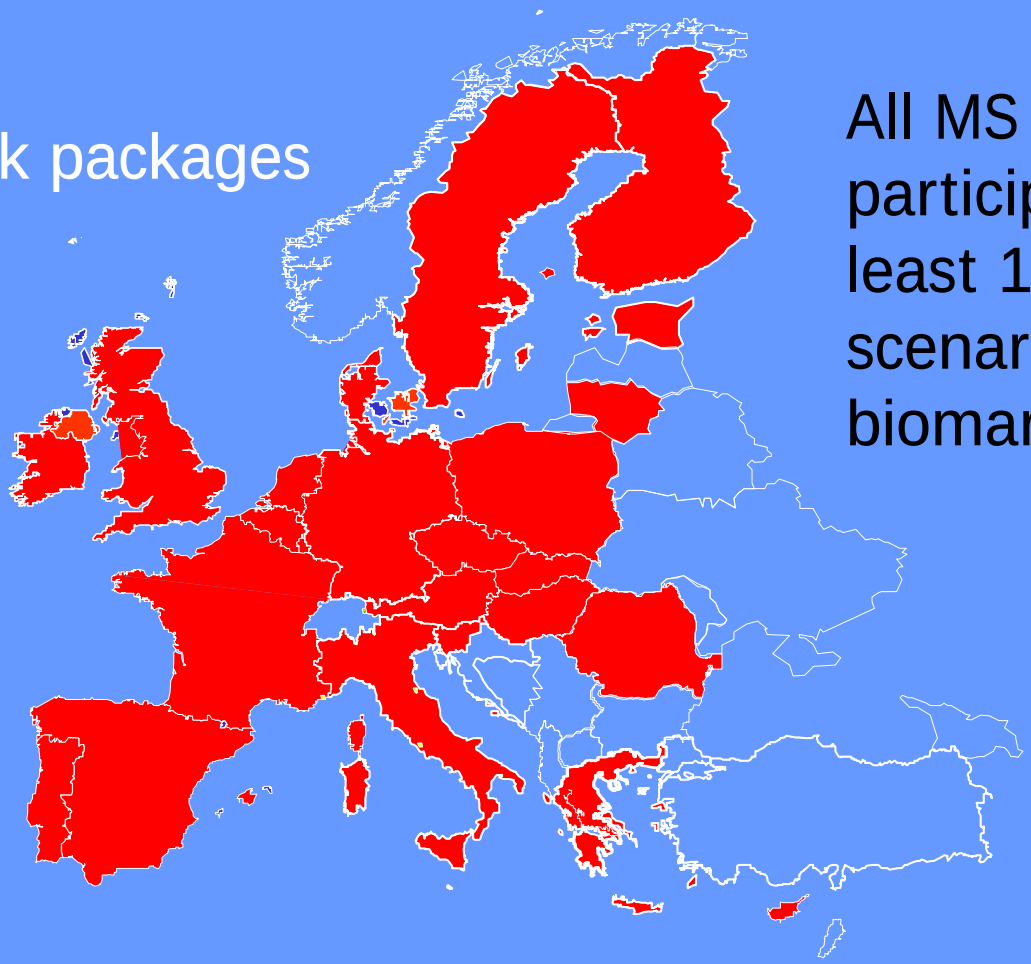
Mother and Child Pairs:
Children 6 -11 years of age

Basic Member State Work Package

Analyses carried out within the MS as far as possible

COPHES – work packages

24 MS work packages



All MS to participate in at least 1 of the 4 scenario 1 biomarkers








Real Commitment

Each Member State has to contribute to the initiative.

Health and Environment leads

Letters of Intent

Basic work package

Basic








Basic

- Selection of participants - geographical allocation, use of current cohorts etc….
- Recruitment – ethics, consent etc….
- Optimal/ minimum number of samples
- Sampling protocol
- Sample pre-preparation, transport, storage etc..
- Analysis, QC, external and internal
- Presentation of data
- Interpretation
- Dissemination

Basic

Validation

Obligatory for all participating MS

Recommended substances:

Lead, Methylmercury, Cadmium and Cotinine

Optional but at least 5 MS intending to participate

From MS requested substances:

Phthalate, PAHs, tinorganic sub., arsenic, BFR, PFOS

Validation work packages

COPHES – work packages

6 VALidation work packages

		Lead
VAL 37	Phthalate PAHs	Germany
VAL 38	Tin organics	Netherlands
VAL 39	Arsenic	United Kingdom
VAL 40	BFR	Denmark
VAL 41	PFOS	Austria
VAL 42	Saliva as matrix for HBM	Spain

COPHES – interpretation & communication

Information IN

- Harmonised Protocols
- Data bases Data Integration and Interpretation
- Scan horizon Results and trends related to new research
- Inventory Current and Planned HBM

Coordination of overall communication

Information OUT

- Results of Pilot study Results to Public
- Comm. with and to user groups
- Comm. To science
- Comm. to EU and MS; Synergies and Harmonisation; future HBM activities

Current deficits

- Inward – country specific
- Inefficient
- Incomparable data
- Inequalities across EU

Added Value

- Comparable European data
- Integration with E&H data
- Building block - framework
- QA/QC
- Training/Capability
- Science to EU Policy

Have I convinced You?

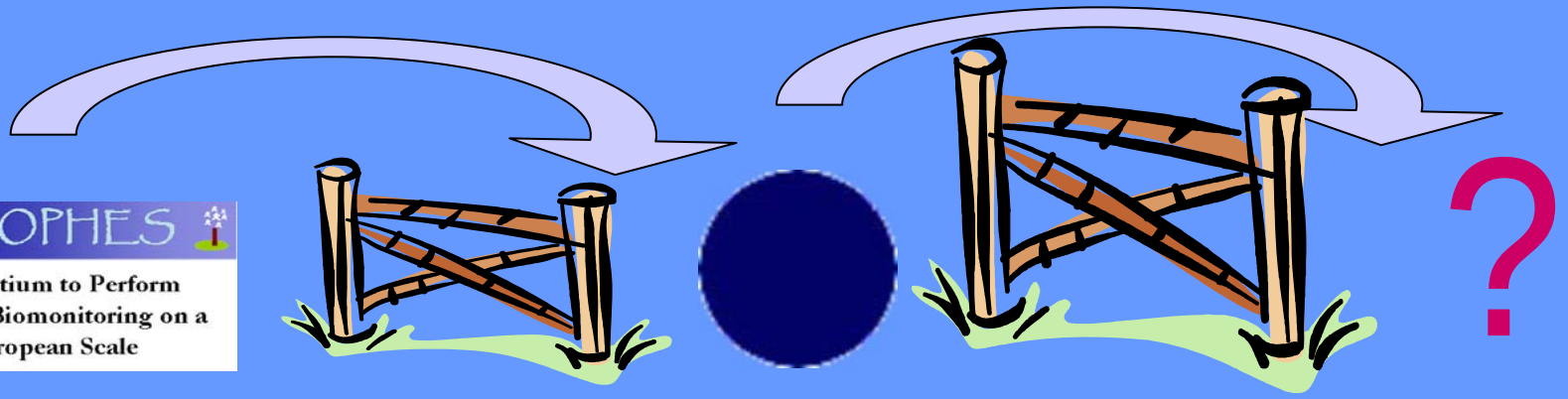
Hurdles

- The interpretation of HBM data with insufficient health data
  - Trend monitoring
  - Distribution of exposure
  - Vulnerable groups – highly exposed
- Communication – data protection
  - Individual level
  - Population level
  - Country/Regional
- Application
  - Intervention
  - Tracking disease/ exposure

So what…..

Status quo of the evaluation

COPHES
Consortium to Perform Human Biomonitoring on a European Scale



√ 1st hurdle already past: administrative completeness and minimum requirements fulfilled in the external scientific evaluation

! BUT

the call covered also other topics → in total 329 proposals passed the 1st hurdle

2nd hurdle (final ranking of all proposals): depends on all involved Directorates General at Commission internally as well as MS

? → Decision is expected within the next weeks!

Acknowledgments:
All WP leads and workers-

Reinhard Joas, and Alexandra Polcher,
BiPro Dgmb

Ludwine Catelyne
Flemish Ministry of Health
www.eu-biomonitoring.org
www.hbm-inventory.org

European Human Biomonitoring








ESBIO
Expert team to Support BIOmonitoring in Europe

HPA Contribution to a Pan-European Human Biomonitoring Programme - Focus on Children's Health

O Sepai

HPA Chemical Hazards and Poisons Division
Centre for Radiation, Chemical and Environmental Hazards
Chilton Didcot Oxon OX11 0RQ UK

Health Protection Agency

Introduction

In Action 3 of the European Environment and Health Action Plan 2004 - 2010 the Commission announced their intension to develop a coherent approach to Human Biomonitoring (HBM) in Europe based on existing expertise and experiences in the Member States. The rationale for this is that European environment and health policies will benefit from better data comparability and accessibility within and between countries. A coherent approach to HBM in Europe is needed to build a database with representative data from European countries which can be compared and used as a reference for other investigations. This database will provide information on the presence and levels of pollutants in the human body and may lead to insight into potential health-related effects. Within this European initiative is an opportunity for the UK to build a biomonitoring framework.

Aims

To develop and test a biomonitoring framework for the UK as part of a larger EU network

Assess general background levels of key environmental pollutants in the UK population

Build capacity and capability within the UK exploiting expertise across the EU

Methods

The framework will develop protocols and procedures for:
National communication; ethical consent; recruitment; sampling; and analysis of the biomarkers in the basic scenario (lead in blood, cadmium and cotinine in urine, and methyl mercury in hair).

Samples will be collected from mother and child (age 6 - 11 years) pairs. The second scenario, the validation work packages (WP) will address specific questions in relation to exposure to brominated flame retardants (BFR), perflourinated compounds (PFOs), PAHs, phthalates, inorganic arsenic and organotin compounds and investigate the utility of saliva as a biomonitoring matrix.

The proposed project will take three years to complete and the outcome will be a UK framework nested in an EU Network which can then be utilised to address further environment and health issues.

Investigate exposure in mother child pairs

Blood - lead, BFR, PFOS, PAH- adducts

Urine - cotinine, cadmium, phthalates, PFOS, iAs, Organo-tins

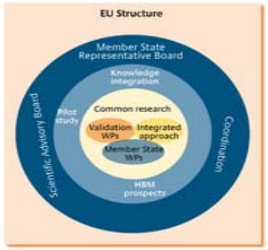
Hair - methyl mercury

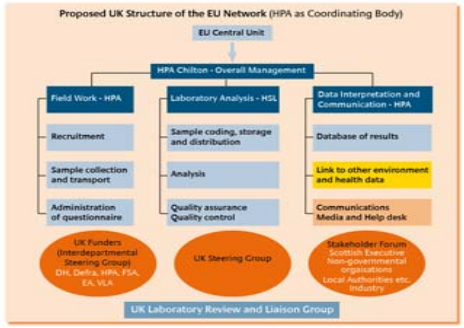
UK Structure

The HPA would act as overall coordinators developing the protocols and procedures in close collaboration with national agencies.

The laboratory analysis would be carried out primarily at the Health and Safety Laboratories (HSL) in Buxton. There is a need to link with other laboratories and the existing Laboratory Review and Liaison Group will be developed in this area.

A management group would be chaired by the HPA and a steering group with prominent UK experts will be convened and ensure strategic and scientific focus.





ovnair.sepai@hpa.org.uk